Planning. Traffic. Development.

Integrated Transport Assessment

Prepared for

NTP DEVELOPMENT HOLDINGS LIMITED

111 – 173 Pound Road, 570 Waterloo Road, 38 - 94 Barters Road, 4 & 22 – 48 Hasketts Road Templeton, Christchurch

July 2025

Integrated Transport Assessment
Prepared for

NTP Development Holdings limited

111 – 173 Pound Road, 570 Waterloo Road, 38 - 94 Barters Road, 4 & 22 – 48 Hasketts Road
Templeton, Christchurch

Novo Group Ltd
Level 1, 279 Montreal Street
PO Box 365, Christchurch 8140
P: (03) 365 5570
E: info@novogroup.co.nz
W: www.novogroup.co.nz

Document Date:	**10/07/2025**
Document Version/Status:	Revision B | FINAL
Project Reference:	0383-012
Project Manager:	Georgia Brown, Senior Planner
Prepared by:	Nick Fuller, Principal Transport Engineer
Reviewed by	Rhys Chesterman, Director and Traffic Engineer/Planner

Executive Summary

This Integrated Transport Assessment (ITA) has been prepared by Novo Group for NTP Development Holdings Limited. The proposal includes a subdivision of 60.4ha of *Rural Urban Fringe* land and seeking land use consent for *Industrial General* purposes at 111 – 173 Pound Road, 570 Waterloo Road, 38 - 94 Barters Road, 4 & 22 – 48 Hasketts Road in Templeton, Christchurch. The proposed development is predicted to generate 856 vehicle movements per hour in the AM Peak, 780 vehicles per hour in the PM peak, and 9,736 vehicles per day

Site Access Arrangements, Off-Site Upgrades, and Timing:

Primary site access will be via a roundabout on Pound Road. Two priority intersections are proposed for site access on Barters Road, and one on Hasketts Road. These will include right turn bays on the major roads. It is assumed that the speed limits on Pound Road, Barters Road and Hasketts Road will be reduced to 60km/h as development occurs at the Site

It is proposed to widen the existing carriageway of Barters Road and Hasketts Road along the Site boundary to add sealed shoulders, resulting in a 9m sealed width with a 7m carriageway. This widening is to occur when Site access intersections are constructed to those roads.

An upgrade to the Barters Road / Hasketts Road / Maddisons Road Intersection is proposed, including a right turn bay from Hasketts Road/Barters Road into Maddisons Road. This upgrade is proposed when the Hasketts Road Site access is constructed. These developer-funded upgrades are triggered when access is constructed to Barters Road or Hasketts Road.

All individual Lot access will be from the internal subdivision road network, without direct access from Pound, Waterloo, Barters, or Hasketts Roads.

Off-Site Transport Effects & Mitigation

A key traffic effect in the immediate vicinity is the operation of the SH1 / Pound Road and adjacent Pound Road / Waterloo Road intersections. Existing queueing on the Pound Road approach to SH1 across the rail corridor affects the capacity of the Pound Road / Waterloo Road signals, as well as being a safety concern. Background traffic growth and the proposed development will exacerbate this.

Upgrades are recommended for the SH1 / Pound Road and Pound Road / Waterloo Road intersections, specifically an additional right turn lane from Pound Road to SH1 and an additional southbound lane on Pound Road to Waterloo Road. This will address existing and future capacity and safety concerns. These upgrades are outside the Applicant's control.

To allow the NZ Transport Agency and Council time to plan and fund the necessary upgrades at the SH1 / Pound Road / Waterloo Road intersections, it is proposed to include a consent condition that delays issuing of titles for Lots until 31 December 2027. This acknowledges that the full transport effects of the development and background growth will occur incrementally over time as traffic increases, although not providing the recommended upgrades could lead to notable adverse capacity and safety effects.

Modelling of the SH1 / Pound Road / Waterloo Road intersections suggests that the upgrade would need to be in place by 2030 / 2031 to mitigate the potential effects of the incremental impact of background traffic growth and this development. This provides approximately five to six years for the planning and funding of the upgrade.

Conclusion

We consider that the proposed activity is expected to have acceptable and no more than minor transport effects, based on the suggested upgrades to the Pound Road / Waterloo Road / SH1 intersections being undertaken prior to 2030 / 2031. Without the suggested mitigation being constructed with the full development in 2038, the effects at those intersections are likely to be significant.

Table of Contents

List of Figures and Tables

Appendices

Introduction

1. NTP Development Holdings Ltd has commissioned Novo Group to prepare an Integrated Transport Assessment (ITA) for subdivision of 60.4ha of *Rural Urban Fringe* land and land use consent for *Industrial General* purposes. The Site comprises 111 – 173 Pound Road, 570 Waterloo Road, 38 - 94 Barters Road, 4 & 22 – 48 Hasketts Road in Templeton, Christchurch (the Site). **Appendix 1** sets out the skills and experience of the authors of this report.

2. This report provides an assessment of the transport aspects of the proposed development. It also describes the transport environment in the vicinity of the site, describes the transport related components of the proposal and associated mitigation measures. It has been prepared broadly in accordance with the Integrated Transportation Assessment Guidelines specified in New Zealand Transport Agency Research report 422, November 2010.

3. It is proposed to subdivide the Site and seek land use for *Industrial General* activities. The Site location is illustrated in **Figure 1** (highlighted in red) and the proposed subdivision layout is in **Figure 2** (also **Appendix 2**).

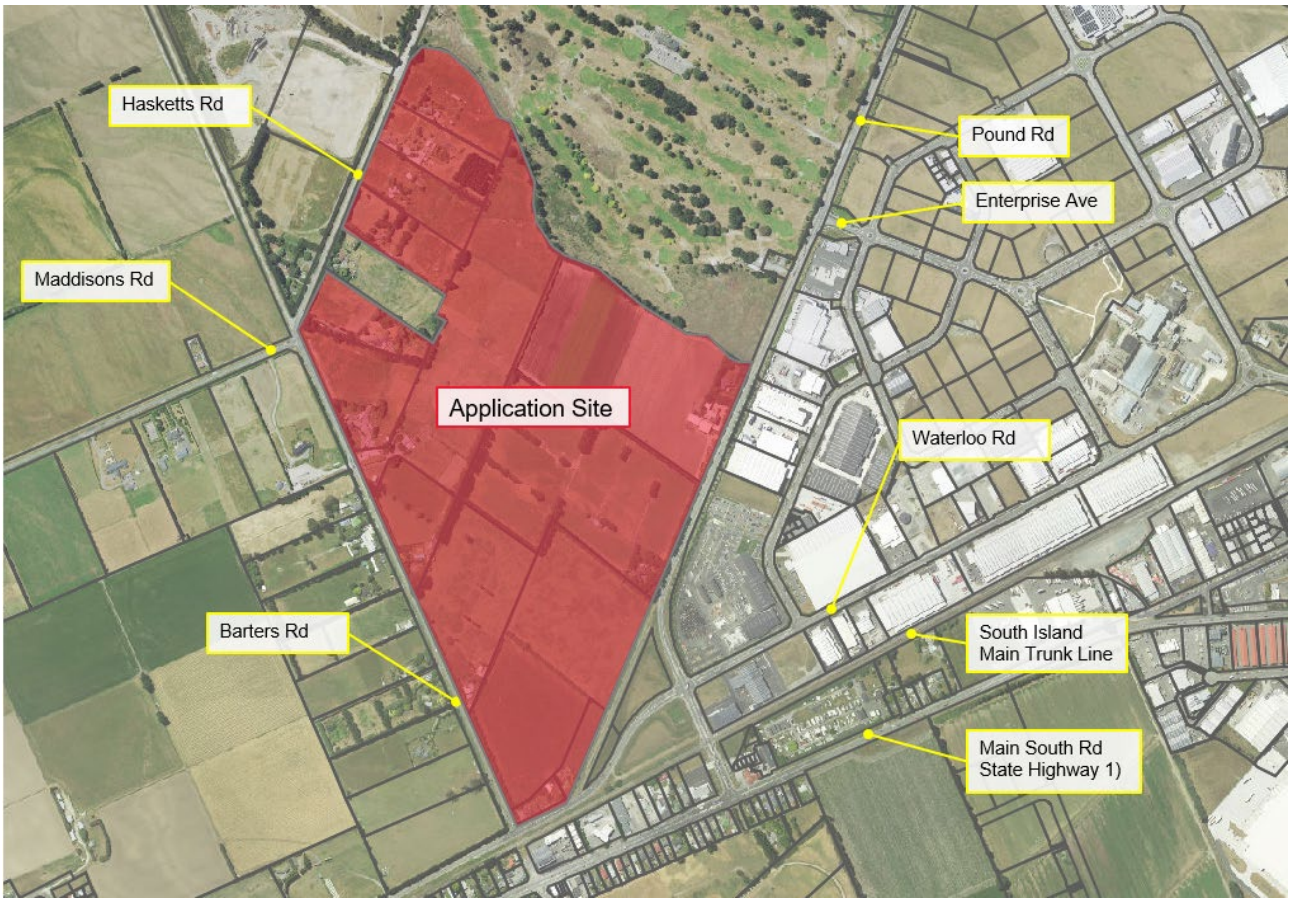


Figure 1: Site Location
[Background aerial image sourced from canterburymaps.govt.nz]

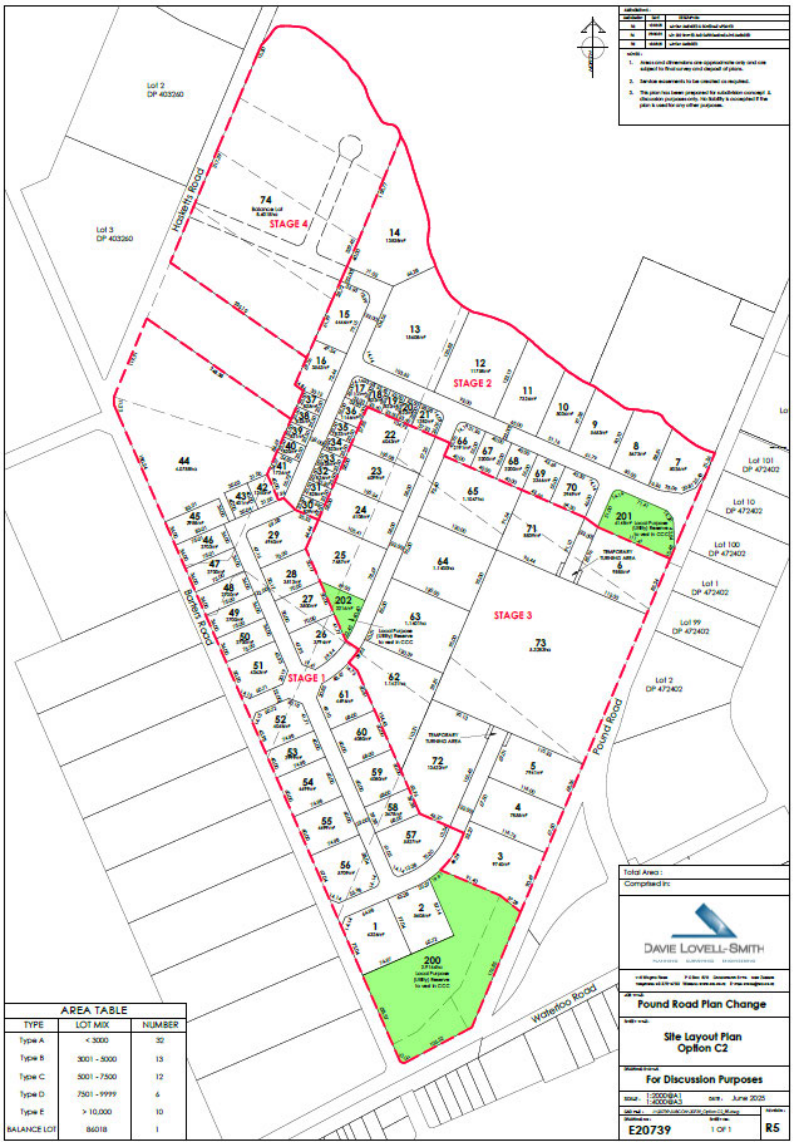


Figure 2: Proposed Subdivision Layout

[Image from Davie Lovell Smith Subdivision Plans]

4. The proposed development is predicted to generate 856 vehicle movements per hour in the AM Peak, 780 vehicles per hour in the PM peak and 9,736 vehicles per day.

5. The remainder of this report is structured as follows:

- **Existing Transport Network:** This sets out the context of the current transport network surrounding the Site and on the key corridors to get to / from the Strategic Transport Network;
- **Future Transport Network:** This section discusses the known / planned transport improvements in the vicinity of the Site;
- **Proposed Development:** Sets out the transport aspects of the proposed subdivision and land use consents;
- **Assessment of Transport Effects:** Discusses the transport effects of the proposed activity; and
- **Summary & Conclusions:** Drawing together the key findings of this Assessment.

Transport Environment

6. The following discusses the existing transport network in the vicinity of the Site. This considers the key transport corridors to get to / from the Strategic Transport networks and the review area is illustrated in **Figure 3**.

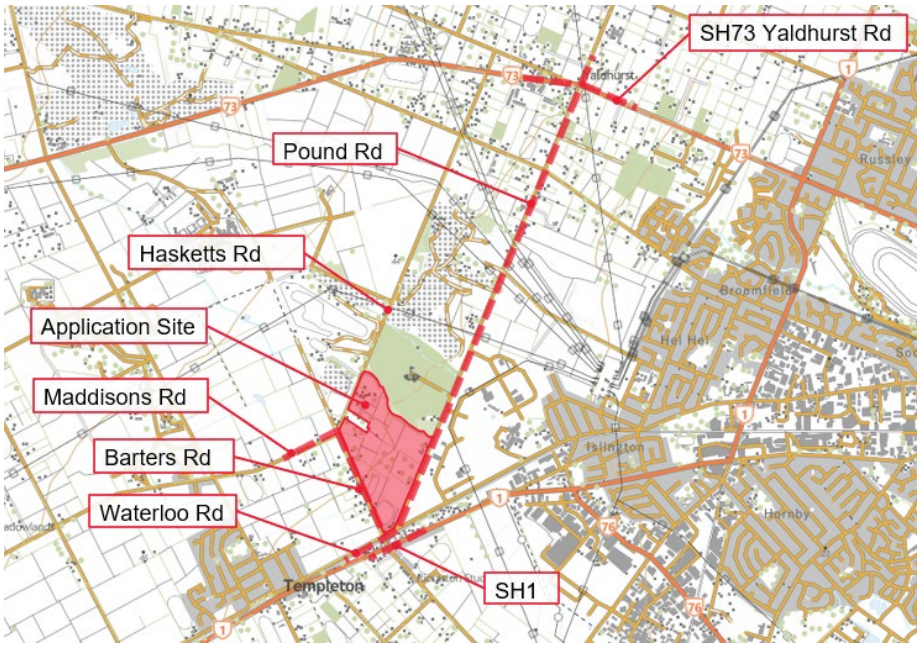


Figure 3: Study Area

Road Network

Road Corridors

7. The key characteristics of Pound Road and Waterloo Road are summarised in **Table 1** below.

Table 1: Pound Road & Waterloo Road Characteristics

Key Feature	Pound Rd	Waterloo Rd
Road Classification	Minor Arterial	Collector Road (although illustrated as Minor Arterial between Pound Road and Barters Road)
Cross-Section Description	***SH1 to Site*** Variable lanes to accommodate intersection turning movements. Minimum width of 7.0m carriageway, plus shoulders / cycle lanes. ***Site Frontage*** Two traffic lanes in a 7.0m carriageway. Sealed shoulders of variable width. ***North of Site to SH73*** Two traffic lanes in a 7.0m carriageway. Sealed shoulders of variable width. Occasional widening / additional lanes at intersections.	***West of Pound Rd*** Two traffic lanes in a 7.0m carriageway. Sealed shoulders of variable width ***East of Pound Rd*** Two traffic lanes in a 7.0m carriageway. On-road cycle lanes plus a parking lane on the southern side of the road.
Traffic Volumes	***South of Halswell Junction Rd*** Peak volumes of 760 to 830 vehicles per hour. Daily volumes of 10,000 vehicles[1]. ***North of Buchanans Rd*** Peak volumes of 900 to 1,100 vehicles per hour. Daily volumes of 12,550 vehicles[2].	***West of Pound Rd*** Peak volumes of 290 to 460 vehicles per hour. Daily volumes of 4,300 vehicles[3]. ***East of Pound Rd*** Peak volumes of 280 vehicles per hour. Daily volumes of 3,600 vehicles[4].
Speed	SH1 to 111 Pound Rd = 50km/h speed limit & mean operating speed of 46km/h. 111 Pound Rd to 300m south of SH73 = 80km/h & mean operating speeds of 70km/h to 77km/h. Approach to SH73 = 60km/h & mean operating speed of 60km/h.	Templeton is 50km/h, increasing to 60km/h (east of Bicknor St to West of Pound Rd) then 50km/h through the existing urban area east of Pound Rd. Mean operating speeds of between 47km/h and 54km/h in the urban areas, with 67km/h between Bicknor St and Pound Rd.
Cycling Infrastructure	On-road cycle lanes between SH1 and 111 Pound Rd. No facilities north of this.	On road cycle lanes from Barters Road to Pound Road and continuing east from Pound Road.
Pedestrian Infrastructure	Shared path between SH1 and Waterloo Rd. No facilities north of this.	Shared path on the southern side of the road from Barters Road to Islington Avenue. Shared path on the northern side of the road from Pound Rd to Islington Ave. Footpath only to the east of this.
Public Transport	None	Accommodates Route 5.
Environment	Peri-urban from SH1 to Halswell Junction Road, with development predominantly on the eastern side of the road only. Rural to the north of this.	Urban in Templeton. Rural from Bicknor St to Pound Rd and urban east of this.

[1]CCC Traffic count in 2019.
[2]CCC Traffic count in 2019.
[3]CCC Traffic count in 2021.
[4]CCC Traffic count in 2017.

8. The key characteristics of Barters Road, Hasketts Road and Maddisons Road are summarised in **Table 2** below.

Table 2: Barters, Hasketts & Maddisons Roads Characteristics

Key Feature	Barters Rd	Hasketts Rd	Maddisons Rd
Road Classification	Local Road	Local Road	Local Road
Cross-Section Description	7.0m carriageway with wide grass shoulders.	Approximate 6.2m carriageway with wide grass shoulders.	7.0m carriageway with wide grass shoulders.
Traffic Volumes	Peak volumes of 100 to 130 vehicles per hour. Daily volumes of 1,285 vehicles[5].	Peak volumes of 260 to 310 vehicles per hour. Daily volumes of 3,250 vehicles[6].	Peak volumes of 325 to 345 vehicles per hour. Daily volumes of 3,750 vehicles[7].
Speed	80km/h speed limit. Mean operating speeds of 34km/h.	80km/h speed limit (68km/h mean operating speed) from Barters Rd to Buchanans Rd. 60km/h speed limit from Buchanans Rd to SH73 (59km/h mean operating speed).	80km/hr speed limit until approximately 200m east of Kirk Rd, then 60km/h to Kirk Rd. Mean operating speed of 68km/h across the whole segment.
Pedestrian & Cycling Infrastructure	None.	None.	None.
Public Transport	None.	None.	None.
Environment	Rural.	Rural.	Rural.

9. The key characteristics of State Highway 1 and State Highway 73 are summarised in Table 3 below.

[5]CCC Traffic count in 2018.
[6]CCC Traffic count in 2018.
[7]CCC Traffic count in 2018.

Table 3: SH1 & SH73 Characteristics

Key Feature	SH1 (Main South Rd)	SH73 (West Coast Rd & Yaldhurst Rd)
Road Classification	Major Arterial	Major Arterial
Cross-Section Description	Indicatively 7.5m wide carriageway with wide shoulders. Widening occurs at intersections to accommodate turning lanes.	Indicatively 7.2m wide carriageway with 1m wide sealed shoulders.
Traffic Volumes	21,200 vehicles per day[8].	12,400 vehicles per day[9]
Speed	70km/h from 200m west of Kirk Road heading east through the study area. Mean operating speed of 61 to 69km/h.	100km/h from west to Old West Coast Rd (90km/h mean operating speed). 80km/hr from Old West Coast Rd to 700m west of Pound Rd (77km/h mean operating speed). 60km/h to the Pound Rd intersection (64km/h mean operating speed).
Pedestrian & Cycling Infrastructure	Limited footpaths in Templeton. Shared path in the immediate vicinity of the Pound Rd intersection.	None.
Public Transport	None.	Route 86.
Environment	Peri-urban.	Predominantly rural.

Intersection Layouts

10. Details of the key intersections in the study area are included in **Appendix 3**. The key points to note regarding the intersections in the immediate vicinity of the site are:

    i. The Waterloo Road / Barters Road intersection provides a right turn bay on Waterloo Road to safely accommodate traffic turning into Barters Road; and

    ii. The Pound Road / Waterloo Road and Pound Road / SH1 intersections are linked traffic signals, encompassing the rail crossing.

Crash History

11. The NZ Transport Agency Crash Analysis System (CAS) has been reviewed to identify crashes that have been reported between 27/02/2020 and 27/02/2025. The output from the CAS database is included in **Figure 4** and in greater detail in **Appendix 4**.

[8]NZTA count in 2022.
[9]NZTA count in 2022.

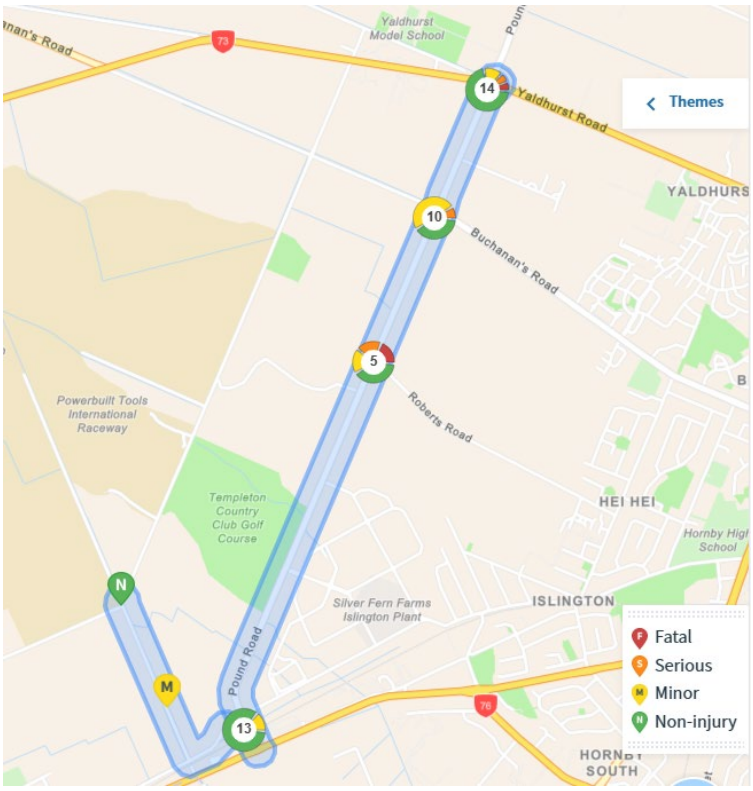


Figure 4: CAS Diagram

12. The review identified 44 crashes, including two Fatalities, three Serious injury crashes and eleven Minor injury crashes. The key trends in the reported crashes were:

    i. 27 of the crashes (61%) occurred at intersections;

    ii. 18 crashes (41%) were rear-end collision / hitting obstructions; and

    iii. 14 crashes (32%) were crossing / turning crashes.

13. No particular crash trends have been identified in this review.

Alternative Transport Modes

Passenger Transport

14. The existing passenger transport in the vicinity of the site is Route 5, which operates on Waterloo Road as illustrated in **Figure 5**. That service travels between New Brighton and Rolleston, via Central Christchurch. The services stop in Templeton on typically a half hourly frequency on weekdays and Saturdays, with an hourly frequency on Sundays. The services are more frequent than this on the route, but it is an express service (i.e. with buses not stopping at all stops) to the west of the Hornby Hub.

Figure 5: Existing Passenger Transport

Cycling

15. The cycle facilities surrounding the site have been set out above, when describing the surrounding transport network. We are aware there is a desire to extend the *South Express* Major Cycle Route along Waterloo Road, as illustrated in **Figure 6**.

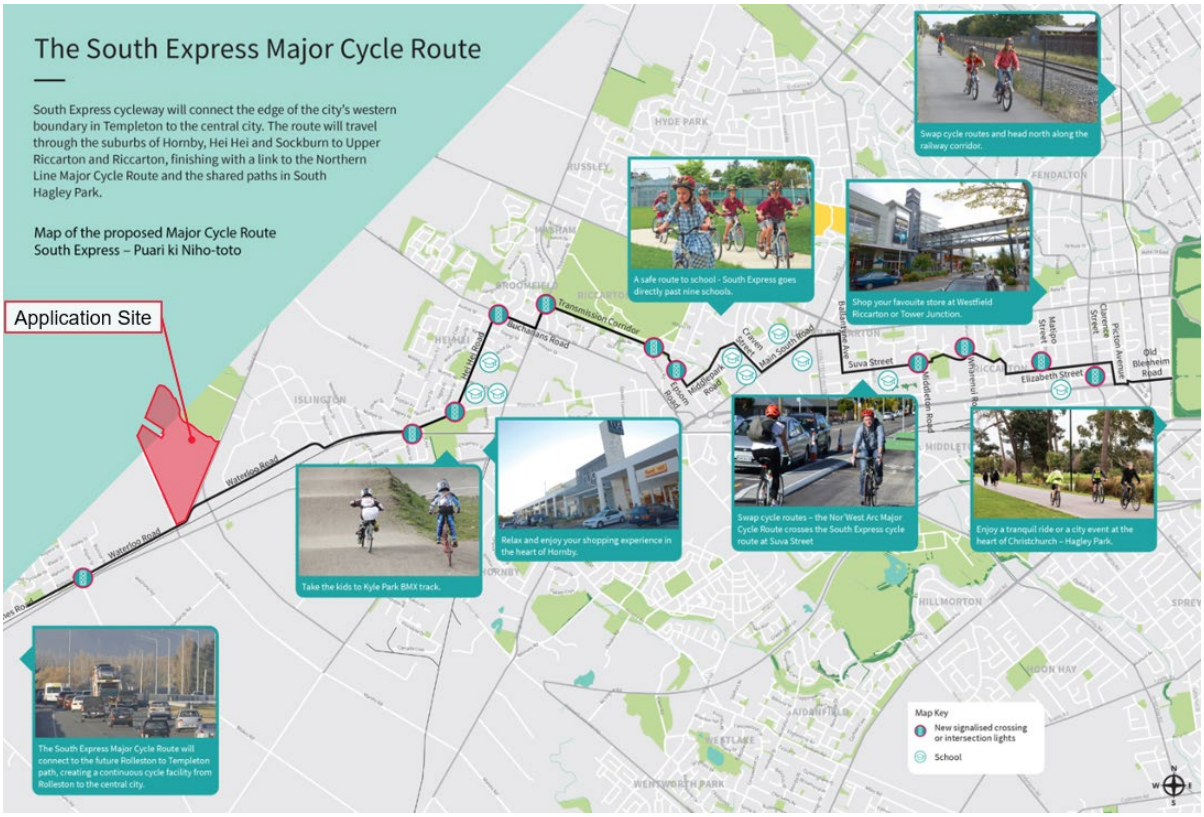


Figure 6: South Express

Future Transport Network

Christchurch Long-Term Plan

16. The following projects are included in the Christchurch City Council Long Term Plan:

    i. Pound Road & Ryans Road corridor improvements – $7.8m between 2024/25 and 2030/31 described as being improvements to the Pound Road and Ryans Road corridors acknowledging their role as key heavy vehicle routes and addressing crash locations, road widths and pavement resilience;

    ii. Pound Road & Ryans Road intersection improvement – $18k in 2024/25 described as improvements to the intersection in response to the increase in heavy traffic on this rural road. We understand this was limited seal widening, which has been completed;

    iii. Halswell Junction Road extension - $10.7m between 2024/25 and 2026/27. This is an extension of Halswell Junction Road from Foremans Road to Waterloo Business Park, including a new level crossing. The existing Haslwell Junction Road / Waterloo Road intersection will be closed, along with the existing level crossing; and

    iv. South Express Major Cycleway (from Hei Hei Road to Jones Road) – $8.9m between 2024/25 and 2026/27 (as per **Figure 6**).

State Highway Investment Proposal 2024 - 34

17. We have reviewed the latest State Highway Investment Proposal and there are no current plans for significant infrastructure projects in the immediate vicinity of this site. That said, improvement activities are proposed for the State Highway 1 / State Highway 73 intersection, with $100m to $249m allocated over the ten-year period. This is identified as being related to *economic growth and productivity* with the funding going to design and consenting, property acquisition and construction (assumed completed by 2034).

18. The State Highway Investment Proposal also identifies funding for SH1 Hornby Hub and corridor safety and optimisation. Whilst the projects this includes are not specified, the Pound Road corridor links SH1 south of Christchurch (at Templeton) to SH1 north of Christchurch (north of the Airport) forming a bypass of Hornby. As such, improvement to the Pound Road corridor may be incorporated into that package to alleviate congestion in Hornby.

Road Network Operation

Existing Operation

19. Traffic modelling of the road network has been undertaken by QTP, as set out in the report contained in **Appendix 5**. The discussion of the existing operation of the SH1 / Pound Road / Waterloo Road intersections[10] indicates that queuing currently occurs on the Pound Road approach to SH1 that intermittently extends across the rail corridor. This queueing is also identified as slightly impeding the exit capacity of the Pound Road / Waterloo Road traffic signals. In our opinion, the queuing across the rail corridor is an existing concern that currently warrants consideration of an upgrade.

20. We note that the rail crossing includes barrier arms and warning lights. The crossing itself also includes yellow box hatching, advising drivers not to stop on the crossing. As such, our concern relates primarily to the capacity effects of the queueing at the Pound Road / Waterloo Road intersection.

[10] Paragraph 3.5.1 of the QTP report.

21. Generally, the delays illustrated in Figures 3.8 and 3.9 of the QTP report indicate the road network in the vicinity of the site is operating satisfactorily, although the following Levels of Service[11] are noted:

    i. Pound Road approach to SH1: Level of Service (LoS) E in the AM peak hour and D in the PM peak hour; and

    ii. Marshs Road approach to SH1: LoS E in the AM and PM peak hours.

2038 Baseline Modelling

22. The traffic modelling includes a 2038 'without development' scenario, which allows for 'generic' traffic growth already provided for in the model assumptions plus an additional allowance for further development in the Waterloo Business Park area and further south (between Main South Road and Shands Road, north of Marshs Road). This 2038 model also includes the Halswell Junction Road extension.

23. Figures 3.15 and 3.16 of the QTP report indicate the following operation in 2038:

    i. The Pound Road approach to SH1 is predicted to be at LoS E in the AM peak and D in the PM peak;

    ii. The Marshs Road approach to SH1 is predicted to be at LoS E in the AM peak and F in the PM peak;

    iii. The Foremans Road approach to Halswell Junction Road is predicted to be at LoS D in the AM and E in the PM peak;

    iv. The Halswell Junction Road approach to Pound Road is predicted to be at LoS D in the AM and E in the PM peak.

24. We would expect the background traffic growth on Pound Road to exacerbate the queuing identified in paragraph 19.

25. The report also indicates the following traffic increases on Hasketts Road and Maddisons Road in the 2038 base model:

    i. Hasketts Road: 170 to 200 vehicles per hour; and

    ii. Maddisons Road: 220 to 230 vehicles per hour.

The Proposal

26. It is proposed to subdivide the 60.4ha Site and seek land use for *Industrial General* activities. A copy of the proposed subdivision layout is included in **Appendix 2**.

27. **Table 4** sets out the provision of transport infrastructure associated with the proposed subdivision, along with the anticipated timing and mechanism to provide those upgrades. Further details regarding these upgrades will be provided later in this report.

[11] Where Level of Service 'A' is typically considered excellent operation, 'E' is at or approaching capacity and 'F' is over-capacity.

Table 4: Infrastructure Provision & Timing

Upgrade	Timing	Mechanism
Barters Road widening to 7m carriageway plus 1m shoulders (Hasketts Road to Waterloo Road).	When access is constructed to Barters Road.	By the Developer or Developer funded
Hasketts Road widening to 7m carriageway plus 1m shoulders (Site Frontage to Maddisons Road).	When access is constructed to Hasketts Road.	By the Developer or Developer funded
Barters Road / Hasketts Road / Maddisons Road Intersection Upgrade	When access is constructed to Hasketts Road.	By the Developer or Developer funded

Traffic Generation & Distribution

28. The traffic generation of the Industrial General use of the Site has been based on data from the TRICS database. The traffic generation data is contained in **Appendix 6**, with the resultant traffic generation set out in **Table 5**. This includes traffic generation in half hourly intervals, plus an hourly total. Note that this traffic generation assumed a 61.4ha site (that included 14 Hasketts Road) making the following traffic volumes a slight over-estimate and therefore robust.

Table 5: Site Traffic Generation

Peak	½ Hour Starting	Arrivals	Departures	Total	Hourly Total	% Heavies
AM Peak	07:00	224	85	309		
	07:30	308	146	454	763	9%
	08:00	255	146	402	856	9%
	08:30	219	127	345	747	8%
Interpeak	13:00	155	192	347		
	13:30	155	125	279	626	10%
PM Peak	15:00	143	214	357		
	15:30	155	184	339	696	10%
	16:00	158	262	420	760	10%
	16:30	127	233	360	780	7%
	17:00	105	236	341	701	6%
	17:30	96	178	273	614	6%
	18:00	78	136	213	486	8%
	18:30	64	109	173	386	9%
Daily		4,993	4,743	9,736		9%

29. The distribution of site generated traffic has been undertaken by QTP using the CAST model, as described in **Appendix 5**. **Table 6** sets out the key changes in 2038 traffic volumes because of the development proposal (note this includes infrastructure provision as discussed at paragraph 79). The change in daily volumes has also been estimated (based on averaging the peak hour distributions).

Table 6: Key Changes in Traffic Volumes

Link	AM Peak Change (vehicles per hour)	PM Peak Change (vehicles per hour)	Daily
Pound Rd (North)	70	70	957
Hasketts Rd	40	10	661
Maddisons Rd	110	60	947
Waterloo Rd (West)	40	100	1,384
SH1 (West)	20	-80	767
Marshs Rd	70	80	970
SH1 (East)	140	160	2,041
Halswell Junction Rd	150	120	2,010

Site Layout – Site Access Intersections

Pound Road Site Access

30. Primary site access is proposed to be via a roundabout on Pound Road. An indicative layout for this roundabout is included in **Appendix 7** and **Figure 7**, which adopts a 12m radius centre island and 7.6m circulating carriageway. These are consistent with the Austroads requirements for a roundabout on an Arterial with a speed limit of 60km/h. The potential to reduce the speed limit on Pound Road from the existing 80km/h to 60km/h[12] was discussed with Christchurch City Council at the pre-application meeting and we understand that they are amenable to this change.

31. The Criterion 1 and Criterion 2 sight distances are achieved at this intersection.

[12] From north of Halswell Junction Road to the existing change at Waterloo Road.

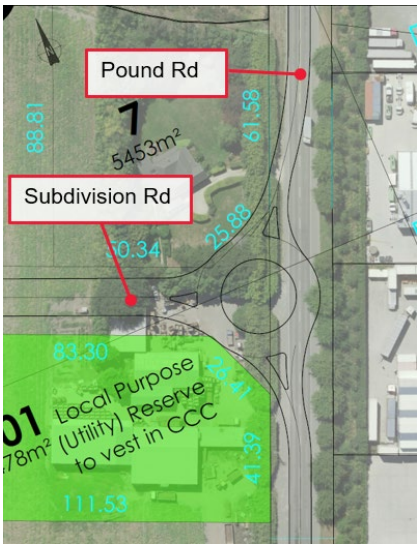


Figure 7: Pound Road Access Roundabout – Concept Design

Barters Road Site Accesses

32. Two site accesses are proposed to Barters Road and these will be priority intersections, with Barters Road retaining the priority. Right turn bays will be provided on Barters Road to safely accommodate vehicles turning into the Site. These accesses have been designed on the assumption that the speed limit on Barters Road will be reduced to 60km/h, which we understand the Council is amenable to. Concept arrangements for these intersections are illustrated in **Appendix 8**, plus **Figure 8** and **Figure 9**. These accesses will have greater than 151m Safe Intersection Sight Distance, which is the minimum requirement in Austroads for a 60km/h speed limit road.

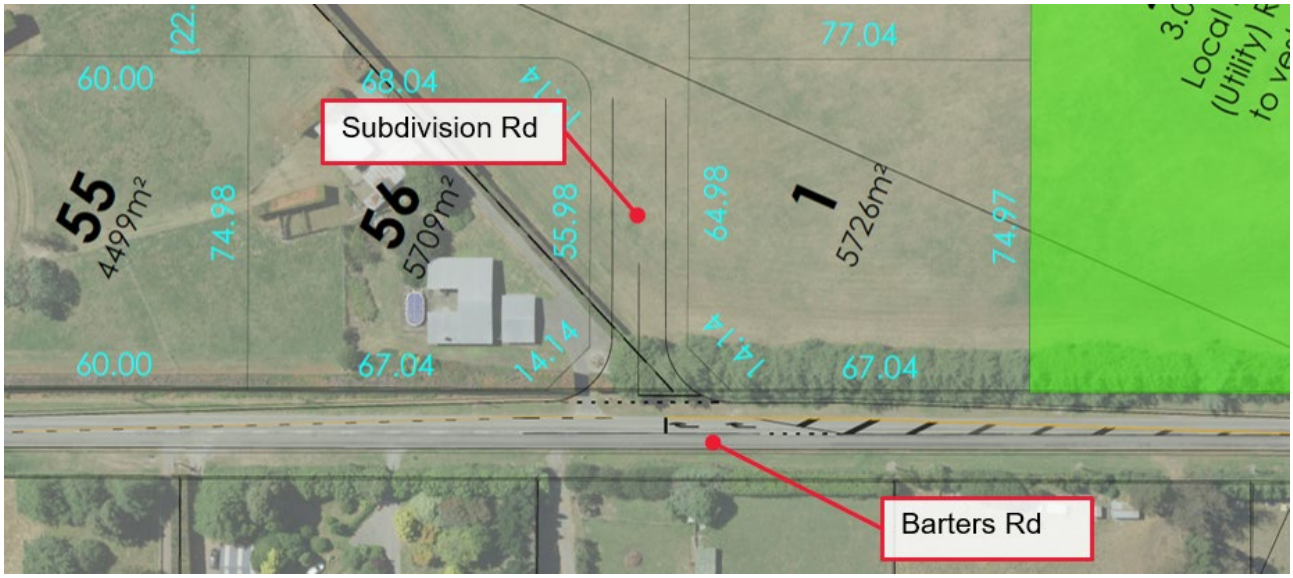


Figure 8: Southern Barters Road Site Access – Concept Design

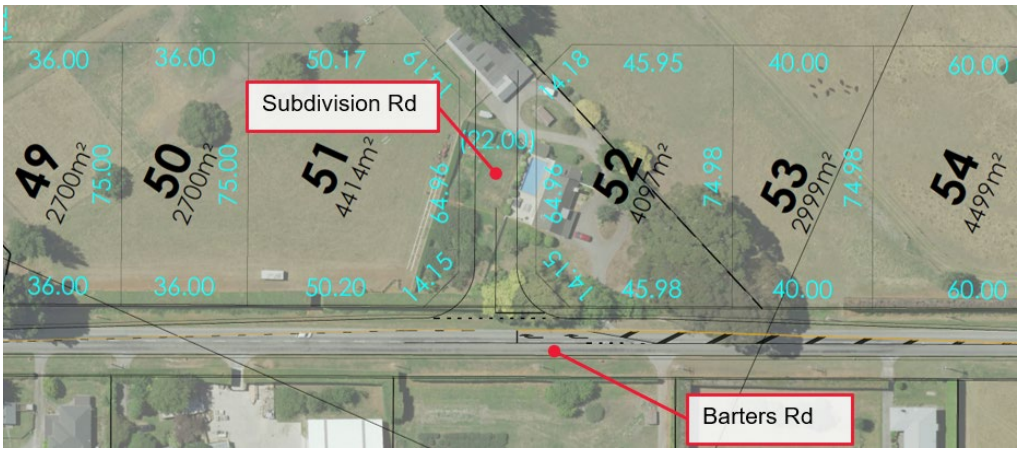


Figure 9: Northern Barters Road Site Access – Concept Design

Hasketts Road Site Access

33. It is also proposed that the Hasketts Road site access will be a priority controlled intersection with a right turn bay. Again, this has been designed for a 60km/h speed limit on the assumption that construction of the Site access would trigger a change in speed environment. A concept arrangement for this access is included in **Appendix 9** (and **Figure 11**) and the access would be constructed when the connection through to Hasketts Road is established.

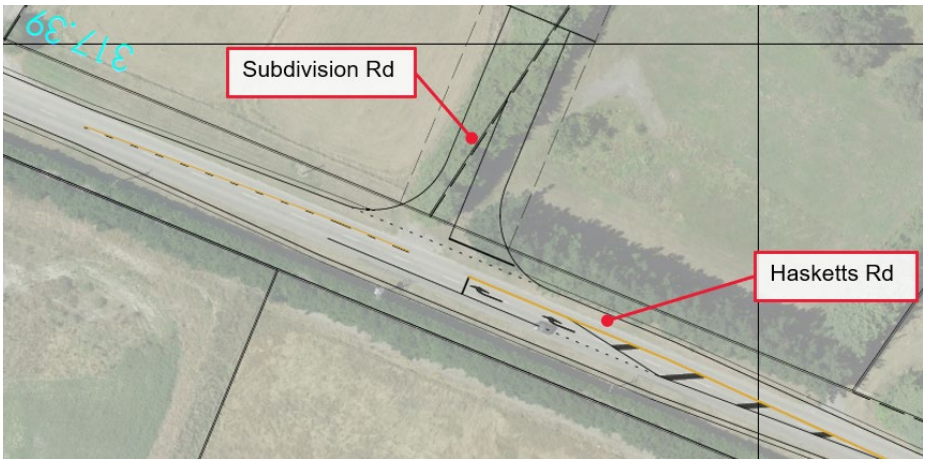


Figure 10: Hasketts Road Site Access – Concept Design

34. All access to individual Lots is proposed to be from the internal subdivision road network. No direct property access is proposed to Pound Road, Waterloo Road, Barters Road or Hasketts Road.

Site Layout – Internal Arrangements

Roads & Cross-Sections

35. The proposed internal road cross-section comprises a 12m carriageway in a 22m road corridor (as illustrated in **Appendix 2**). Footpaths (1.5m wide) and berms will be provided on both sides of the road. This road cross-section complies with the District Plan requirements for Local Roads in industrial areas.

36. The proposed internal roading layout generally provides a continuous and linked network. Provision has been made to accommodate a future link through to Hasketts Road through Lot 73. There will be

a Consent Condition regarding the need to establish this road link at the time of developing / subdividing that Lot. A temporary turning head will be provided in the interim.

37. Similarly, road connections are provided to Lot 72 along with provision for temporary turning heads. Again, a Consent Condition is proposed that requires the road to be continued / connected with a vested road at the time of developing / subdividing that Lot.

Intersection Arrangements

38. The internal intersections will be priority controlled, with further details to be provide at Engineering Approval stage. These intersections will incorporate 15m radii.

39. The exception to this the intersection in the vicinity of Lots 26, 51, 52 and 61 as this will be a roundabout. Indicatively, this roundabout will have an inscribed circle diameter of 38m and a centre island with 19m diameter and a 2.5m apron.

40. The intersection separations range from approximately 95m to 158m and therefore generally comply with the 40m required by the Christchurch City Council Infrastructure Design Standards (IDS) for Local Road intersections. The exception to this is the 119m separation between the Pound Road site access roundabout and the closest internal intersection, as the IDS requires a separation of 150m. This matter will be discussed further in paragraph 54.

Accessways

41. One accessway is proposed, which is to serve Lot 44. That accessway is 10m wide, which is more than sufficient to accommodate a future two-way vehicle access with associated pedestrian facilities in accordance with Table 7.5.7.1 of the District Plan. The largest access required by that table would be a 5.5m minimum trafficable width plus separate 1.5m pedestrian / cycle route and this can be readily accommodated in the proposed 10m width.

Accesses

42. Individual vehicle accesses have not been proposed within the Site. The urban Transport Standards of the District Plan are proposed to address these access locations.

Shared Path Connection

43. A shared path is proposed to extend through Reserve Lot 200, as indicatively illustrated in **Figure 11**. This is to link the subdivision to the passenger transport services on Waterloo Road as well as the South Express Major Cycle Route. The details of this path will be confirmed at Engineering Approval stage, although it is anticipated that it will be at least 2.5m wide (consistent with the 'regular use' requirements of the IDS).

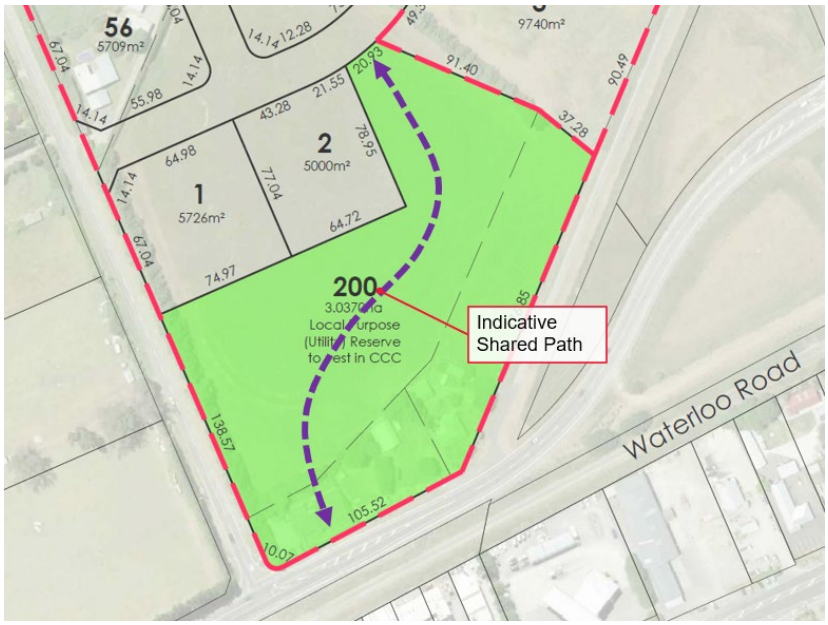


Figure 11: Lot 200 Shared Path

Off-Site Infrastructure Provision

Road Upgrades

44. It is proposed to widen the existing carriageway of Barters Road and Hasketts Road when Site access intersections are constructed to those roads. The widening is to add sealed shoulders to the existing 7m carriageway, to provide a 9m sealed width with a 7m carriageway. This carriageway width is consistent with the District Plan carriageway width for a *Rural Local Road*[13] (albeit the proposal includes shoulders that are not required by the District Plan).

Barters Road / Hasketts Road / Maddisons Road Intersection

45. The distribution of site generated traffic (set out in **Table 6**) indicates there will be an increase in traffic using Maddisons Road heading to / from the west of the site. Traffic associated with the Barters Road accesses will turn left into and right out of Maddisons Road, which can occur safely with no changes required to the intersection layout.

46. However, construction of the Haksetts Road site access will lead to additional vehicles turning right into Maddisons Road, which occurs at the bend and therefore has potential for adverse safety effects for traffic travelling south from Hasketts Road to Barters Road. As such, it is proposed to upgrade the intersection to include a right turn bay (from Hasketts Road / Barters Road into Maddison Road) when the Hasketts Road Site access is constructed. A concept arrangement for this intersection is included in **Appendix 10** and **Figure 12**.

[13] Appendix 8.10.3 New road standards of the Christchurch District Plan.

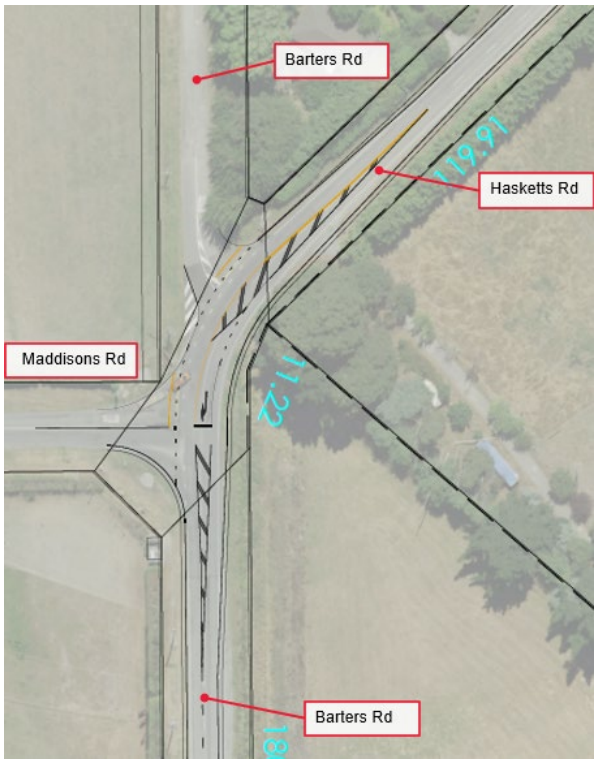


Figure 12: Barters Road / Hasketts Road / Maddisons Road Intersection – Concept Design

District Plan Transport Compliance

47. The proposed subdivision and use of this land for industrial purposes has been assessed against the transport rules of the Christchurch District Plan. A full assessment of the transport related rules is included in **Appendix 11**, with the non-compliances for which consent is being sought set out in **Table 7**.

Table 7: District Plan Transport Non-Compliances

Rule / Standard	Comment
7.4.3.8 Vehicle crossings	The sight distance requirements (of 113m) for a 50km/h road may not be achieved for Lot 29.
17.5.2.7 Vehicle trips	The industrial (non-rural) use of the sites are likely to generate greater than 100 vehicle movements per day.

48. Furthermore, the following Matters of Control for subdivision are relevant to the assessment[14]:

i. Whether the provision, location, design, safety and efficiency of any road, frontage road, access (including access for fire-fighting), pedestrian access way, service lane, cycle way/route/lane, corner rounding, intersections, landscaping or parking area including the formation and construction, is suited to the development it serves and is acceptable to the Council;

ii. Whether service lanes, cycle ways and pedestrian access ways are required or appropriate and are located and constructed in a safe and efficient manner;

[14] Associated with the District Plan section 8.7.4.4.

iii. Whether the subdivision layout and road network supports walking, cycling and public transport, including access to reserves, facilities, commercial areas, public transport facilities;

iv. Whether provision of a cycle way or pedestrian access way encourages active modes of transport, including to community facilities; and

v. Any works or upgrades to the Council's road network required, including in relation to any network utility, state highway or rail line.

Assessment of Effects

49. The following provides an assessment of the transport effects of the proposed subdivision and use for industrial purposes. This adopts the headings of the Full ITA assessment matters set out in the District Plan as a framework for this assessment.

Access & Manoeuvring

> ***Access and manoeuvring (safety and efficiency):*** *Whether the provision of access and on-site manoeuvring area associated with the activity, including vehicle loading and servicing deliveries, affects the safety, efficiency, accessibility (including for people whose mobility is restricted) of the site, and the transport network (including considering the road classification of the frontage road).*

50. Future development of the Lots will either comply with the transport access and layout Standards of the District Plan (based on the Urban standards of the District Plan) or will need to address non-compliances through future Resource Consent processes. The following provides an assessment of these matters primarily in relation to the proposed subdivision.

Roads & Cross-Sections

51. The proposed cross-sections of the internal roads as well as the upgrades to Barters Road and Hasketts Road comply with the District Plan New Road Standards[15]. Providing 'rural' cross-sections on Barters Road and Hasketts Road is considered acceptable given there will be no Lot access to the proposed subdivision from those roads. The land use on the opposite side of these roads will remain Rural Urban Fringe, indicating those activities would not warrant pedestrian facilities.

52. Overall, the proposed cross-sections are considered acceptable.

Intersection Spacing

53. The spacing of intersections within the site has been identified as generally complying with the 40m separation requirement of the IDS. As such, no discussion is considered necessary for these intersections.

54. There will be an internal intersection approximately 119m from the Pound Road access. Austroads (*Guide to Road Design Part 4A: Unsignalised and Signalised Intersections*) recommends a spacing of at least five seconds of travel time at the design speed to provide time for drivers to process information relating to traffic, the road layout and traffic signs. In this instance, the anticipated internal design speeds

[15] Appendix 8.10.3 of the District Plan.

will be in the order of 40km/h to 50km/h, leading to a suggested separation of 56m to 69m. This indicates that the proposed intersection separation will be acceptable.

55. We have also considered the potential queuing predicted at the Pound Road site access. The outputs included in the Traffic Modelling Report (in **Appendix 5**) predict queue lengths of up to 20m on the site access approach. This is notably less than the distance to the adjacent internal intersection and confirms there will be no adverse effects from this non-compliance.

Accessway

56. The proposed accessway to Lot 44 has a width of 10m. This is more than sufficient to accommodate a compliant 5.5m carriageway (or wider) plus separate pedestrian access. This is sufficient to confirm that satisfactory access can be accommodated at the time of developing that Lot.

Lot 29 Sight Distance

57. A potential non-compliance has been identified regarding sight distance out of Lot 29, which occurs because of the bend in the frontage road. The required sight distance requirement is 113m and this applies to Rural roads. The land will remain zoned *Rural Urban Fringe* and the sight distance requirement in the District Plan only relates to *Rural Roads*[16].

58. The centreline radius of the bends is approximately 20m, which requires a Sight Stopping Distance of 20m (based on Austroads *Guide to Road Design Part 3: Geometric Design*). An access can be readily accommodated that complies with this requirement and the location of the access can be confirmed at the time of developing the Site.

59. We also note that the urbanising of the Site means that the District Plan Transport Standard relating to sight distance would not typically be required and it is proposed to have a Condition that requires the Transport Rules and Standards apply as if the Site has an Urban zoning. This further reinforces that the effects of sight distances will acceptable.

Site Access Operation – Pound Road Roundabout

60. Traffic modelling of the proposed Pound Road site access intersection is included in Table 5.1 of the Traffic Modelling report. The roundabout scenario is set out under the 'enhanced access' scenario and it confirms that the intersection will operate satisfactorily, with no movement operating worse than Level of Service B.

61. The concept design of the intersection has been confirmed as complying with the design requirements for a 60km/h speed environment. Given this, the access is predicted to operate safely and efficiently.

Site Access Operation – Barters Road & Hasketts Road Accesses

62. The existing traffic volumes on Barters Road and Hasketts Road are set out in **Table 8**. In addition, the Traffic Modell predicted background traffic growth and the additional traffic as a result of this proposal are also set out. The traffic volumes passing the accesses to these roads are considered to be sufficiently low that traffic modelling of the accesses is not required to confirm the operation of these intersections will be acceptable.

[16] means all roads outside the existing urban area as shown on Map A of Chapter 6 of the Canterbury Regional Policy Statement, except for roads adjoining any residential and/or commercial zone in Christchurch District.

Table 8: Barters Road & Hasketts Road Peak Hour Traffic Volumes

	Existing Traffic Volumes	Background Growth[17]	Development Traffic[18]	
Barters Road	100 to 130 vehicles per hour	0 to 30 vehicles per hour	60 to 70 vehicles per hour	160 to 230 vehicles per hour
Hasketts Road	260 to 310 vehicles per hour	170 to 200 vehicles per hour	10 to 40 vehicles per hour	440 to 550 vehicles per hour

63. The proposed access intersections include right turn bays on the major roads to safely accommodate turning traffic. Compliant sight distances will be provided.

64. Overall, the operation of these access is anticipated to be acceptable.

Subdivision Assessment Matters

65. The layout is considered to be acceptable for the intended industrial activities. The block lengths are considered acceptable given there will likely be low pedestrian demand in area. As such, no service lanes or pedestrian accessways are considered necessary within the Site.

66. A shared path is proposed to connect the Site to the existing passenger transport, walking and cycling facilities on Waterloo Road. The internal road layout would also be able to accommodate bus services should ECan choose to provide these in the future.

Design & Layout

Design and Layout: *Whether the design and layout of the proposed activity maximises opportunities, to the extent practicable, for travel other than by private car, including providing safe and convenient access for travel by such modes.*

67. Footpaths are proposed on both sides of the road throughout the site and this is considered to be sufficient given the likely low pedestrian demand. No cycle lanes are provided within the Site or on the adjacent road network, although the traffic lanes are wide enough to enable cars and trucks to safely pass cyclists. Cycle volumes are also anticipated to be low in the subdivision given the distance to cycling origins / destinations.

68. As identified above, a shared path connection is proposed to the existing passenger transport, walking and cycling facilities on Waterloo Road.

Heavy Vehicles

Heavy vehicles: *For activities that will generate more than 250 heavy vehicle trips per day, whether there are any effects from these trips on the roading infrastructure.*

69. The proposed activity is anticipated to generate approximately 922 heavy vehicle movements per day. The majority of this traffic will use Pound Road, although Barters Road and Hasketts Road are proposed

[17] Figures 3.13 and 3.14 of the QTP report.
[18] Figures 5.6 and 5.7 of the QTP report.

to be upgraded along the Site boundary with shoulder widening to better accommodate heavy vehicle traffic and avoid pavement damage, such as edge-break. This is considered to be sufficient to address the effects of heavy vehicle traffic on these roads.

70. Pound Road and SH1 are both Arterial Roads and have a function of accommodating heavy vehicles. It is considered that these roads can satisfactorily accommodate the increase in heavy traffic.

Accessibility of the Location

Accessibility of the location: *Whether the proposed activity has demonstrated the accessibility of the site by a range of transport modes and whether the activity's location will minimise or reduce travel to and from the activity by private vehicles and encourage public and active transport use.*

71. The Site location has good access to the road network, including the Strategic Network of Arterial Roads and state highways. It is therefore well located to accommodate the types of traffic anticipated by the proposed industrial activities.

72. The Site will have walking and cycling links to Waterloo Road, which has passenger transport services and forms part of the Council's Major Cycle Routes. That said, travel to / from the Site will predominantly rely on private vehicle travel in the short to medium term.

Network Effects

Network effects: *Having particular regard to the level of additional traffic generated by the activity and whether the activity is permitted by the zone in which it is located, whether measures are proposed to adequately mitigate the actual or potential effects on the transport network arising from the anticipated trip generation (for all transport modes) from the proposed activity, including consideration of cumulative effects with other activities in the vicinity, proposed infrastructure, and construction work associated with the activity.*

73. The traffic effects of the proposed development on the traffic network have been set out in the QTP modelling report in **Appendix 5**. This provides an assessment of the traffic effects on the forecast 2038 road network. That report indicates the following key capacity effects:

    i. The SH1 / SH73 intersection is a key 'pinch-point' in the road network;

    ii. Capacity for right turning traffic at the SH1 / Pound Road intersection (both from SH1 to Pound Road and from Pound Road to SH1);

    iii. Capacity of the southbound Pound Road approach to the Pound Road / Waterloo Road intersection; and

    iv. Capacity at the SH1 / Marshs Road intersection.

74. The above locations are discussed in the following sections.

SH1 / SH73 Intersection

75. The operation of the SH1 / SH73 intersection is identified as being an existing issue that would be exacerbated by the proposed development. That said, this intersection is somewhat remote from the application site (approximately 5.75km drive away) and would be affected to some degree by any large-scale development in the west of Christchurch or even further west (such as West Melton or Darfield).

76. The increase in travel time for the SH1 routes provided in the QTP report are[19]:

    i. +10 to +13 seconds in the AM peak;

    ii. +1 to +5 seconds in the inter-peak; and

    iii. +3 to +25 seconds in the PM peak.

77. These increases will be spread along the whole of the 8.8km route reported on and (in this context) these are not considered significant. These are identified in the QTP report as being in the range of 0% to +3% in the overall travel time on this corridor and we consider this acceptable.

78. The NZ Transport Agency is also planning on upgrades to this intersection, as outlined in paragraph 17. The effects of the proposed development traffic at the SH1 / SH73 intersection are considered acceptable given the scale of effect, that this level of effect would not occur until 2038 with the full development and that the NZ Transport Agency already have funding in place for an intersection improvement by 2034.

SH1 / Pound Road & Pound Road / Waterloo Road Intersections

79. The key traffic effect in the immediate vicinity of the site is the operation of the SH1 / Pound Road intersection and the adjacent Pound Road / Waterloo Road intersection. The existing operation of these intersections was discussed in paragraph 18 and the operation in 2038 in paragraphs 20 to 22. In brief, the existing intersection arrangement is predicted to operate with the Pound Road approach at LoS D and E and in the peak hours. Although this is generally acceptable, it will lead to increased queueing through the rail corridor, which affects the capacity of the Pound Road / Waterloo Road intersection. This leads to potential capacity and safety concerns. Those safety concerns are mitigated to some degree by the existing infrastructure at the rail crossing (barrier arms, warning lights and yellow box hatching), so the primary concern remains on the capacity of the Pound Road / Waterloo Road intersection.

80. The QTP report recommends an additional right turn lane from Pound Road to SH1 and an additional southbound lane on Pound Road to Waterloo Road to accommodate the traffic generated by the proposed development. A concept plan of this arrangement is included in **Appendix 12** and **Figure 13**. The above upgrades will need to go through further design processes and consultation / liaison with other parties, such as KiwiRail and the NZ Transport Agency. However, there is ample road corridor available to provide the additional lanes required to provide the additional capacity.

81. Undertaking the above upgrades is outside the Applicant's control. As such, it is proposed to include a condition that delays issuing of titles for the Lots until 31 December 2027. The intention of this is to enable construction of primary infrastructure and issuing of Lot titles whilst providing the NZ Transport Agency and the Council time to plan and fund upgrades.

[19] Comparing the 2038 No Development reporting to the 2038 with Development & Enhanced Access.

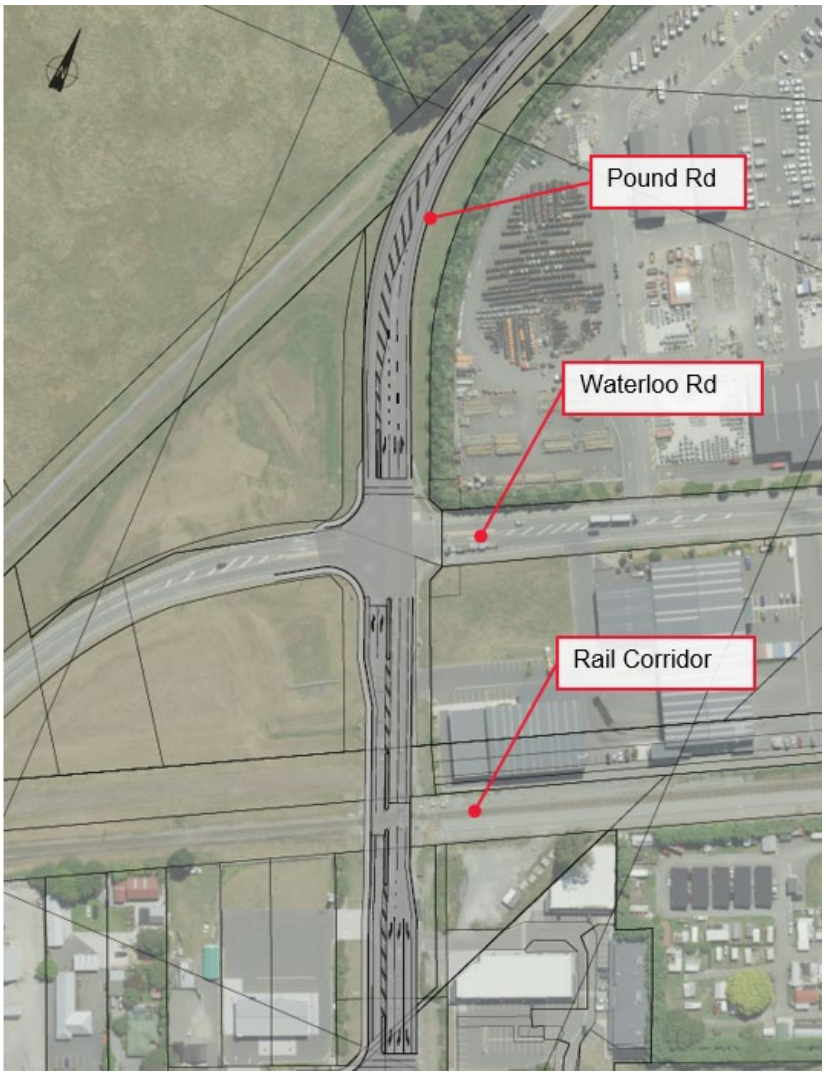


Figure 13: SH1 / Pound Rd & Pound Rd / Waterloo Rd Intersection Improvements

82. We note that the pace of development at the Site and surrounding traffic growth will be incremental, so the full effects of the proposed development on the road network would not occur immediately. Further assessment of the capacity of these intersections has been undertaken assuming:

    i. Even incremental growth in background traffic over the modelled years; plus

    ii. An even uptake of development from 2028 to full development in 2038.

83. This modelling (contained in **Appendix 13**) identifies that the SH1 / Pound Road intersection would require upgrading in 2030 / 2031 and the Pound Road / Waterloo Road intersection in 2033 / 2034. We would expect the upgrades to be completed at the same time. This givens five to six years for the NZ Transport Agency and the Council to plan and fund these upgrades.

SH1 / Marshs Road Intersection

84. Two concerns are raised in the QTP report regarding the capacity of the SH1 / Marshs Road intersection and these both occur during the weekday PM Peak.

85. The first concern is regarding the capacity of the single lane segment between the merge of the two departure lanes from the SH1 / Pound Road intersection and Marshs Road. This is identified as being

at around 97% of its capacity in the 2038 with development model. The report suggests that this is an emerging issue regardless of development at the site and we note that the 'with development' traffic volumes[20] indicates that the proposal only adds 70 vehicles per hour to this segment of road. Ultimately, it is concluded that this is a matter accelerated by the proposal, although it should be under investigation regardless of this proposal.

86. The second capacity concern identified is the increase in delay for traffic exiting the Marshs Road approach to SH1. The reasons for this are uncertain, as the change in traffic flows indicates a reduction in SH1 traffic (east and westbound) to the west of Marshs Road, with the key change in traffic being an increase in volumes turning left from SH1 to Marshs Road. This is not anticipated to noticeable adversely affect the delay turning out of Marshs Road, particularly with the reduced SH1 passing traffic. Given this, we anticipate the effects at this location will be acceptable.

Hasketts Road & Maddisions Road

87. Although the traffic effects on Hasketts Road and Maddisons Road are not highlighted as issues in the traffic model, we have considered the effects on these roads because of the scale of increase in traffic on these roads and their classification. These roads are both *Local Roads* and carry the following traffic volumes:

    i. Hasketts Road: 260 to 310 vehicles per hour and 3,250 vehicles per day; and

    ii. Maddisons Road: 325 to 345 vehicles per hour and 3,750 vehicles per day.

88. The 2038 base traffic model indicated the following peak hour changes in traffic on these roads[21]:

    i. Hasketts Road: 170 to 200 vehicles per hour; and

    ii. Maddisons Road: 210 to 230 vehicles per hour.

89. The 2038 'with Plan Change' traffic model indicated the following peak hour changes in traffic on these roads[22], away from the Site frontage:

    i. Hasketts Road: 10 to 40 vehicles per hour; and

    ii. Maddisons Road: 60 to 110 vehicles per hour.

90. The above indicates that the development will increase traffic on these roads, although this is to a lesser degree than that anticipated through the background traffic increases already anticipated in the area. It may be appropriate for these roads to be reclassified as *Collector Roads* and to be managed as such by Council to reflect their changing use.

91. It is proposed to upgrade the Barters Road / Hasketts Road / Maddisons Road intersection to better accommodate traffic turning right from Hasketts Road to Maddisons Road. A concept arrangement for the upgrade is included in **Appendix 10** and in **Figure 12**. This arrangement provides a right turn bay from Hasketts Road into Maddisons Road to provide a safe waiting area for that movement to occur.

92. We acknowledge that the intersection is unconventional because of the curve and the proximity of Barters Road (north) to Maddisons Road. That said, Barters Road (north) only appears to serve as rear access to the Ruapuna Raceway and has minimal traffic volumes[23]. Whilst the proposed arrangement

[20] Figure 5.6 of the QTP report.
[21] Figures 3.13 and 3.14 of the QTP report.
[22] Figures 5.5 and 5.6 of the QTP report.
[23] Mobile Road indicates 50 vehicles per day.

will need to go through further design and audit processes, it is considered to be suitably indicative of the proposed upgrade at this location for this stage of reporting.

93. The above arrangement is proposed to be provided when access is taken to Hasketts Road, as there is otherwise little traffic demand heading around the bend.

Pound Road Travel Times

94. The modelling report sets out the changes in travel time along the Pound Road corridor[24]. These indicate:

    i. Pound Road Northbound: Increases of between 18 and 33 seconds; and

    ii. Pound Road Southbound: Changes of between -9 and +29 seconds.

95. The reductions in southbound travel times are a result of the proposed upgrades at the SH1 / Pound Road and Pound Road / Waterloo Road intersections. The most notable increases occur during the PM peak hour, which is predicted to have an additional 29 to 33 seconds, which is in the range of a 4% to 5% increase along the whole 9.7km route. We consider these increases to be acceptable in that context.

Traffic Effects Conclusion

96. The above indicates that the traffic effects of the proposed development on the wider network will be acceptable subject to the proposed upgrade to the SH1 / Pound Road and Pound Road / Waterloo Road intersection. The Applicant cannot undertake these upgrades, so it is proposed to defer issuing of Lot titles until 31 December 2027 to allow for planning and construction of the upgrades by the NZ Transport Agency and Council. Potential adverse traffic effects at this location will develop overtime, as background traffic and development generated traffic increase. As such, the full effects of the proposal would take time to be realised.

97. The proposal will increase traffic on Hasketts Road and Maddisons Road, although to a lesser extent than predicted as background growth. It is anticipated that the Council would look to reclassify these as *Collector Roads* regardless of the proposal because of the increase in through traffic function. It is proposed to upgrade the Barters Road / Maddisons Road / Hasketts Road intersection as a result of the development (unless otherwise completed by the Council) to better accommodate traffic turning right to Maddisons Road. This would only be required when access is established to Hasketts Road.

98. Increases in travel times along the SH1 and Pound Road corridors are anticipated as a result of the development. That said, the increases are modest and are considered acceptable in the context of the wider travel routes.

Strategic Framework

Strategic framework: *Whether the proposal is consistent with the local and regional transport policy framework.*

99. The proposed Site location sits well with the Freight Network in Figure 5.4 of the Christchurch Transport Strategic Plan 2012 – 2042 (the *Plan*), which is reproduced below. This illustrates the Site as being

[24] Refer to Table 5.2 of the QTP report.

adjacent to a Strategic Freight Route along the SH1 and the Potential Strategic Freight Route along Pound Road (now completed with the Broughs Road and Pound Road / Barters Road realignments).

Figure 14: Extract from Christchurch Transport Strategic Plan

100. The strategic road network (state highways and Arterial roads) prioritise the movement of freight to and from key locations, such as the Christchurch International Airport and Lyttelton Port. The Plan indicates that increasing Government investment in the Roads of National Significance (such as SH1) will further improve freight reliability.

101. The development's location adjacent to a state highway and opposite a proposed future freight hub affirms its placement within an area critical for efficient vehicle and freight movement, thereby directly supporting the regional economy, a key goal of the Plan.

102. The site location adjacent to a bus route and Major Cycle Route assist in providing a choice of transport modes (Goal 1), although the site is somewhat remote from employee walking and cycling origins. However, this will ultimately need to be balanced with the locational benefits related to the Freight Network.

Summary & Conclusion

Summary

103. This report assesses the transport effects of the subdividing 60.4ha of *Rural Urban Fringe* land and land use consent for *Industrial General* purposes. The Site is located in the north-western corner of the Pound Road / Waterloo Road intersection and to the west of the Waterloo Business Park in Templeton.

The proposed development is predicted to generate 856 vehicle movements per hour in the AM Peak, 708 vehicles per hour in the PM peak and 9,736 vehicles per day.

Site Layout

104. The proposed Site layout is considered acceptable for the intended industrial activities. The intersection spacings generally comply with the minimum requirements of the Christchurch IDS and the intersections themselves are anticipated to operate safely and efficiently. The exception to this is the spacing of the first internal intersection to the Pound Road access roundabout. That intersection has a separation of 119m and this complies with Austroads requirements. Furthermore, the predicted queue lengths on this access will not extend to that internal intersection.

105. The internal road cross-sections will comply with the District Plan requirements for Local Industrial Roads. The upgrades to Barters Road and Hasketts Road will comply with the Local Road requirements for Rural Local Roads. This standard is considered appropriate on the basis the Lots will not have access to these roads.

106. All Lot access will be from within the subdivision and a Consent Condition will be provided that confirms this. The design of these accesses will be controlled by the District Plan and it is considered that suitable accesses can be provided at the time of developing the Lots.

107. A sight distance non-compliance may occur with Lot 29, as this is on the inside of a bend. This non-compliance arises because the Site will remain Rural zoned, noting this standard does not apply to urban roads. Nonetheless, a Condition is proposed to require at least 20m sight distance from potential accesses to this Lot to ensure that sufficient visibility is achieved to provide safe access.

108. A shared path is proposed through Lot 200 that will link the Site to the bus services, walking and cycling facilities on Waterloo Road. This includes access to the South Express Major Cycle Route.

109. The site accesses to Barters Road, Pound Road and Hasketts Road have been reviewed and these are anticipated to operate safely and efficiently.

Off-Site Effects

110. The effects of heavy vehicles using Barters Road and Hasketts Road will be mitigated by requiring shoulder widening when accesses are established to these roads.

111. Traffic modelling indicates that the effects of the proposed development on the wider network will be acceptable subject to the proposed upgrade to the SH1 / Pound Road and Pound Road / Waterloo Road intersection. The Applicant cannot undertake these upgrades, so it is proposed to defer issuing of Lot titles until 31 December 2027 to allow for planning and construction of the upgrades by the NZ Transport Agency and Council. Potential adverse traffic effects at this location will be develop overtime, as background traffic and development generated traffic increase, with the upgrades assessed as being required in 2030 / 2031. As such, the full effects of the proposal would take time to be realised. That said, not providing the recommended upgrades (or suitable alternatives) could lead to notable adverse capacity and safety effects.

112. The proposal will increase traffic on Hasketts Road and Maddisons Road, although to a lesser extent than predicted as background growth. It is proposed to upgrade the Barters Road / Maddisons Road / Hasketts Road intersection as a result of the development (unless otherwise completed by the Council) to better accommodate traffic turning right to Maddisons Road. This would only be required when access is established to Hasketts Road.

113. Increases in travel times along the SH1 and Pound Road corridors are anticipated as a result of the development. That said, the increases are modest and are considered acceptable in the context of the wider travel routes.

Conclusion

114. Overall, it is considered that the proposed activity will have acceptable and no more than minor transport effects on the basis the suggested upgrades to the Pound Road / Waterloo Road / SH1 intersections are undertaken prior to 2030 / 2031. The effects at those intersections are likely to be significant if the suggested mitigation is not constructed with the full development in 2038.

Appendix 1

Summary of Expertise

Nick Fuller

Nick Fuller is a Principal Transport Engineer with over two decades of experience in traffic and transportation engineering across New Zealand, the United Kingdom, Australia, and the Pacific Islands. He specialises in land development projects and has a strong background in providing transport advice to developers, as well as the New Zealand Transport Agency and local authorities in Christchurch and Auckland. Nick's expertise includes Integrated Transport Assessments, concept intersection layouts, and Road Safety Audits.

Throughout his career, Nick has worked on numerous significant Plan Change applications, providing expert transport advice and assessments. Some of the notable recent projects include:

i. West of Rolleston Residential Plan Changes: Rural to Residential rezoning to permit 3,770 dwellings plus associated local commercial centres to the west of Rolleston;

ii. Two Chain Road Industrial Plan Change: Rezoning of 98Ha of Rural land to permit Industrial purposes to the north-west of Rolleston;

iii. Lincoln South Plan Change: 1,710 dwellings plus associated commercial centres to the south of Lincoln, Selwyn; and

iv. iPort Extension Plan Change: Rezoning of 27Ha of Rural land to permit Industrial purposes to the north of Rolleston

Nick has provided Transport Assessments for a range of subdivisions, including industrial and residential developments. He has also completed training in Safe Systems Assessments and is a Road Safety Auditor and regularly undertakes Road Safety Audits for subdivisions.

Nick also has experience of providing Integrated Transport Assessments through the Fast Track process. Notably, he led the transport advice and prepared the Integrated Transport Assessments for the New Dunedin Hospital.

Rhys Chesterman

Rhys Chesterman is an experienced Director and Transport Engineer with over 20 years in the planning and traffic engineering field. His expertise is centred on land use development and subdivisions, where he provides design and technical advice, prepares traffic impact assessments, and offers expert evidence for Council and Environment Court.

His project experience is diverse, covering supermarkets, shopping malls, hotels, motels, retirement villages, hospitals, pre-schools, holiday parks, educational institutions, residential and business plan changes, residential show homes, quarry developments, wind farms, and various retail, commercial, and industrial developments.

Appendix 2

Proposed Subdivision Plans

AMENDMENTS :

AMENDMENT	DATE	DESCRIPTION
R3	12/05/25	LAYOUT AMENDED & SCHEDULE UPDATED
R4	26/05/25	LOT 202 SHIFTED AND SURROUNDING LOTS AMENDED
R5	18/06/25	LAYOUT AMENDED

NOTES :

1. Areas and dimensions are approximate only and are subject to final survey and deposit of plans.
2. Service easements to be created as required.
3. This plan has been prepared for subdivision concept & discussion purposes only. No liability is accepted if the plan is used for any other purposes.

NORTH

Lot 2 DP 403260

Lot 3 DP 403260

Haskett Road

Barters Road

Pound Road

Waterloo Road

Lot 101 DP 472402

Lot 10 DP 472402

Lot 100 DP 472402

Lot 1 DP 472402

Lot 99 DP 472402

Lot 2 DP 472402

74 Balance Lot 8.6018ha

STAGE 4

STAGE 3

STAGE 2

STAGE 1

1 6326m²
2 5605m²
3 9740m²
4 7855m²
5 7941m²
6 9585m²
7 5026m²
8 5673m²
9 5653m²
10 5036m²
11 7326m²
12 11758m²
13 15608m²
14 13838m²
15 4446m²
16 3562m²
17 2103m²
18 822m²
19 822m²
20 822m²
21 1282m²
22 6043m²
23 6099m²
24 6108m²
25 7687m²
26 3794m²
27 3500m²
28 3512m²
29 4940m²
30 829m²
31 828m²
32 826m²
33 825m²
34 823m²
35 822m²
36 1146m²
37 825m²
38 823m²
39 821m²
40 820m²
41 1726m²
42 1240m²
43 1401m²
44 4.0758ha
45 2988m²
46 2703m²
47 2700m²
48 2700m²
49 2700m²
50 2700m²
51 4363m²
52 4046m²
53 2999m²
54 4499m²
55 4499m²
56 5709m²
57 5527m²
58 2678m²
59 4080m²
60 4080m²
61 4496m²
62 1.1421ha
63 1.1401ha
64 1.1400ha
65 1.1047ha
66 2191m²
67 2200m²
68 2200m²
69 2346m²
70 2969m²
71 8839m²
72 13622m²
73 5.3283ha

200 2.9166ha Local Purpose (Utility) Reserve to vest in CCC

201 6148m² Local Purpose (Utility) Reserve to vest in CCC

202 2216m² Local Purpose (Utility) Reserve to vest in CCC

TEMPORARY TURNING AREA

TEMPORARY TURNING AREA

AREA TABLE

TYPE	LOT MIX	NUMBER
Type A	< 3000	32
Type B	3001 - 5000	13
Type C	5001 - 7500	12
Type D	7501 - 9999	6
Type E	> 10,000	10
BALANCE LOT	86018	1

Total Area :

Comprised in:

DAVIE LOVELL-SMITH
PLANNING SURVEYING ENGINEERING

116 Wrights Road P O Box 679 Christchurch 8140. New Zealand
Telephone: 03 379-0793 Website: www.dls.co.nz E-mail: office@dls.co.nz

JOB TITLE:

Pound Road Plan Change

SHEET TITLE:

Site Layout Plan Option C2

DRAWING STATUS

For Discussion Purposes

SCALE : 1:2000@A1 1:4000@A3

DATE : June 2025

CAD FILE : J:\20739\SUBCON\20739_Option C2_R5.dwg

REVISION : **R5**

DRAWING No : **E20739**

SHEET No: 1 OF 1

AMENDMENTS :		
AMENDMENT	DATE	DESCRIPTION
R3	12/05/25	LAYOUT AMENDED & SCHEDULE UPDATED
R4	26/05/25	LOT 202 SHIFTED AND SURROUNDING LOTS AMENDED
R5	18/06/25	LAYOUT AMENDED

NOTES :

1. Areas and dimensions are approximate only and are subject to final survey and deposit of plans.
2. Service easements to be created as required.
3. This plan has been prepared for subdivision concept & discussion purposes only. No liability is accepted if the plan is used for any other purposes.

NORTH

Lot 2 DP 403260

Lot 3 DP 403260

Haskett's Road

Barters Road

Pound Road

Waterloo Road

Lot 101 DP 472402

Lot 10 DP 472402

Lot 100 DP 472402

Lot 1 DP 472402

Lot 99 DP 472402

Lot 2 DP 472402

74 Balance Lot 8.6018ha

STAGE 4

STAGE 2

STAGE 3

STAGE 1

1 6326m²
2 5605m²
3 9740m²
4 7855m²
5 7941m²
6 9585m²
7 5026m²
8 5673m²
9 5653m²
10 5036m²
11 7326m²
12 11758m²
13 15608m²
14 13838m²
15 4446m²
16 3562m²
17 103m²
18 822m²
19 822m²
20 822m²
21 1282m²
22 6043m²
23 6099m²
24 6108m²
25 7687m²
26 3794m²
27 3500m²
28 3512m²
29 4940m²
30 829m²
31 828m²
32 826m²
33 825m²
34 823m²
35 822m²
36 146m²
37 825m²
38 823m²
39 821m²
40 820m²
41 1726m²
42 1240m²
43 1401m²
44 4.0758ha
45 2988m²
46 2703m²
47 2700m²
48 2700m²
49 2700m²
50 2700m²
51 4363m²
52 4046m²
53 2999m²
54 4499m²
55 4499m²
56 5709m²
57 5527m²
58 2678m²
59 4080m²
60 4080m²
61 4496m²
62 1.1421ha
63 1.1401ha
64 1.1400ha
65 1.1047ha
66 2191m²
67 2200m²
68 2200m²
69 2346m²
70 2969m²
71 8839m²
72 13622m²
73 5.3283ha

200 2.9166ha Local Purpose (Utility) Reserve to vest in CCC

201 6148m² Local Purpose (Utility) Reserve to vest in CCC

202 2216m² Local Purpose (Utility) Reserve to vest in CCC

TEMPORARY TURNING AREA

TEMPORARY TURNING AREA

AREA TABLE		
TYPE	LOT MIX	NUMBER
Type A	< 3000	32
Type B	3001 - 5000	13
Type C	5001 - 7500	12
Type D	7501 - 9999	6
Type E	> 10,000	10
BALANCE LOT	86018	1

Total Area :

Comprised in:

DAVIE LOVELL-SMITH
PLANNING SURVEYING ENGINEERING

116 Wrights Road P O Box 679 Christchurch 8140. New Zealand
Telephone: 03 379-0793 Website: www.dls.co.nz E-mail: office@dls.co.nz

JOB TITLE:

Pound Road Plan Change

SHEET TITLE:

Site Layout Plan Option C2

DRAWING STATUS

For Discussion Purposes

SCALE : 1:2000@A1 1:4000@A3

DATE : June 2025

CAD FILE : J:\20739\SUBCON\20739_Option C2_R5.dwg

REVISION : **R5**

DRAWING No : **E20739**

SHEET No: 1 OF 1

SHEET LAYOUT ENG CONCEPT 02, EW DESIGN
CONCEPT 02 & EW CUTFILL CONCEPT 02

SHEET LAYOUT ENG CONCEPT 03, EW DESIGN
CONCEPT 03 & EW CUTFILL CONCEPT 03

SHEET LAYOUT ENG CONCEPT 01, EW DESIGN
CONCEPT 01 & EW CUTFILL CONCEPT 01

NORTH

Hoskyns Road
Robertson Road
Pound Road
Waterloo Road
ROAD 1
ROAD 2
ROAD 3
ROAD 4

STAGE 1
STAGE 2
STAGE 3
STAGE 4

Lot 2 DP 403260
Lot 3 DP 403260
Lot 1 DP 23834
Lot 2 DP 23834
Lot 1 DP 24156
Lot 2 DP 24156
Lot 5 DP 23834
Lot 6 DP 23834
Lot 7 DP 23834
Lot 2 DP 38418
Lot 2 DP 33334
RES 5094
Lot 20 DP
Lot 12 DP 494206
Lot 11 DP 494206
Lot 101 DP 472402
Lot 10 DP 472402
Lot 100 DP 472402
Lot 1 DP 472402
Lot 99 DP 472402
Lot 2 DP 472402

STORAGE BASIN
FOREBAY
INFILTRATION BASIN

AMENDMENTS :

AMENDMENT	DATE	DESCRIPTION

NOTES :

1) Areas and dimensions are approximate only and are subject to final survey and deposit of plans.
2) Service easements to be created as required.
3) This plan has been prepared for subdivision consent purposes only. No liability is accepted if the plan is used for any other purposes.
4) As-built data provided by others.
5) CONTOUR INTERVAL: 0.5m MINOR. 2.0m MAJOR.
6) ORIGIN OF LEVELS
LEVELS ARE IN TERMS OF NZVD 2016

ORIGIN MARK EJ8Y Pound Road
RL 36.528m

LEGEND :

EXISTING SERVICES — PROPOSED SERVICES

KERB — KERB

	NAME	SIGNED	DATE
DESIGNED BY	TODD INNESS		
CHECKED BY			

DAVIE LOVELL-SMITH
PLANNING SURVEYING ENGINEERING

116 Wrights Road P O Box 679 Christchurch 8140. New Zealand
Telephone: 03 379-0793 Website: www.dls.co.nz E-mail: office@dls.co.nz

JOB TITLE:

Pound Road Industrial Subdivision

SHEET TITLE:

Engineering Concept Overall

DRAWING STATUS

For Information

SCALE : 1:2000@A1 1:4000@A3 DATE : June 2025

CAD FILE : J:\20739\Eng\Concept\E20739_Eng Concept_R0.dwg DRAWN : JS

DRAWING No : **E.20739** SHEET No: 1 OF 11 REVISION : **R0**

AMENDMENTS :

AMENDMENT	DATE	DESCRIPTION

NOTES :

1) Areas and dimensions are approximate only and are subject to final survey and deposit of plans.
2) Service easements to be created as required.
3) This plan has been prepared for subdivision consent purposes only. No liability is accepted if the plan is used for any other purposes.
4) As-built data provided by others.
5) ORIGIN OF LEVELS
LEVELS ARE IN TERMS OF NZVD 2016

ORIGIN MARK EJ8Y Pound Road
RL 36.528m

LEGEND :

EXISTING SERVICES	PROPOSED SERVICES
SANITARY SEWER STD. MH	SANITARY SEWER STD. MH
SANITARY SEWER VENTED MH	SANITARY SEWER VENTED MH
STORMWATER MH	STORMWATER MH
WATER FH VALVE	WATER FH VALVE
KERB	KERB

	NAME	SIGNED	DATE
DESIGNED BY	TODD INNESS		
CHECKED BY			

DAVIE LOVELL-SMITH
PLANNING SURVEYING ENGINEERING

116 Wrights Road P O Box 679 Christchurch 8140. New Zealand
Telephone: 03 379-0793 Website: www.dls.co.nz E-mail: office@dls.co.nz

JOB TITLE:

Pound Road Industrial Subdivision

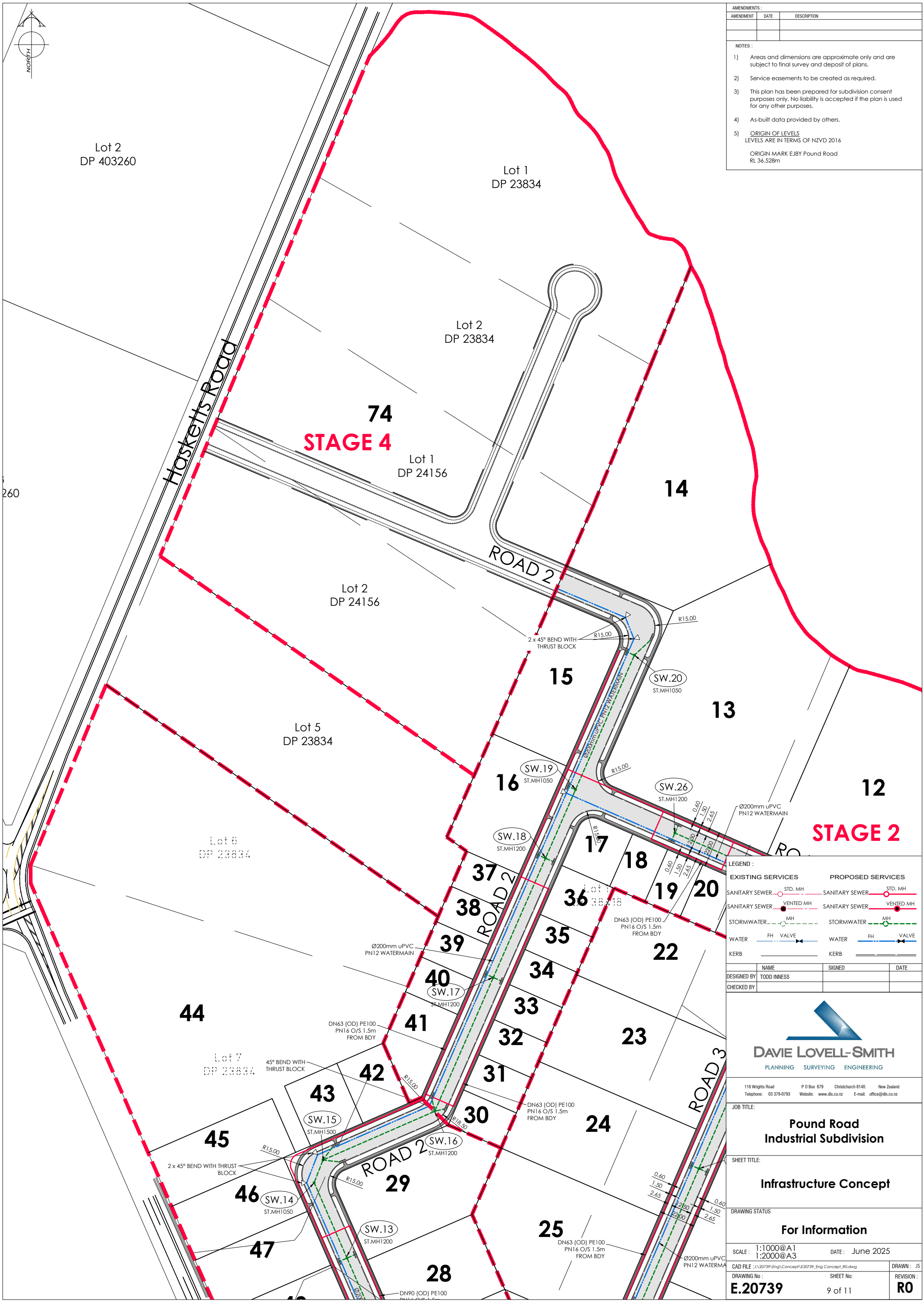
SHEET TITLE:

Infrastructure Concept

DRAWING STATUS

For Information

SCALE : 1:1000@A1 1:2000@A3
DATE : June 2025
CAD FILE : J:\20739\Eng\Concept\E20739_Eng Concept_R0.dwg
DRAWN : JS
DRAWING No : E.20739
SHEET No: 8 OF 11
REVISION : R0



AMENDMENTS :

AMENDMENT	DATE	DESCRIPTION

NOTES :

1) Areas and dimensions are approximate only and are subject to final survey and deposit of plans.

2) Service easements to be created as required.

3) This plan has been prepared for subdivision consent purposes only. No liability is accepted if the plan is used for any other purposes.

4) As-built data provided by others.

5) ORIGIN OF LEVELS
LEVELS ARE IN TERMS OF NZVD 2016

ORIGIN MARK EJ8Y Pound Road
RL 36.528m

LEGEND :

EXISTING SERVICES		PROPOSED SERVICES	
SANITARY SEWER	STD. MH	SANITARY SEWER	STD. MH
SANITARY SEWER	VENTED MH	SANITARY SEWER	VENTED MH
STORMWATER	MH	STORMWATER	MH
WATER	FH VALVE	WATER	FH VALVE
KERB		KERB	

	NAME	SIGNED	DATE
DESIGNED BY	TODD INNESS		
CHECKED BY			

DAVIE LOVELL-SMITH
PLANNING SURVEYING ENGINEERING

116 Wrights Road P O Box 679 Christchurch 8140. New Zealand
Telephone: 03 379-0793 Website: www.dls.co.nz E-mail: office@dls.co.nz

JOB TITLE:

Pound Road Industrial Subdivision

SHEET TITLE:

Infrastructure Concept

DRAWING STATUS

For Information

SCALE : 1:1000@A1 1:2000@A3

DATE : June 2025

CAD FILE : J:\20739\Eng\Concept\E20739_Eng Concept_R0.dwg

DRAWN : JS

DRAWING No : **E.20739**

SHEET No: 9 of 11

REVISION : **R0**

AMENDMENTS :

AMENDMENT	DATE	DESCRIPTION

NOTES :

1) Areas and dimensions are approximate only and are subject to final survey and deposit of plans.
2) Service easements to be created as required.
3) This plan has been prepared for subdivision consent purposes only. No liability is accepted if the plan is used for any other purposes.
4) As-built data provided by others.
5) ORIGIN OF LEVELS
LEVELS ARE IN TERMS OF NZVD 2016

ORIGIN MARK EJ8Y Pound Road
RL 36.528m

NORTH

STAGE 2

STAGE 3
Lot 2
DP 33334

ROAD 1
ROAD 3
ROAD 4
Pound Road

SW.20 ST.MH1050
SW.26 ST.MH1200
SW.27 ST.MH1200
SW.28 ST.MH1200
SW.29 ST.MH1050
SW.30 ST.MH1500
SW.32 ST.MH1050
SW.25 ST.MH1050
SW.24 ST.MH1200
SW.23 ST.MH1200
SW.22 ST.MH1200
SW.31 ST.MH1050
SW.33 HEADWALL
SW.6 ST.MH1050
SW.5 ST.MH1050
SW.4 ST.MH1050
SW.8 ST.MH1500
SW.3 ST.MH1800

Ø200mm uPVC PN12 WATERMAIN
DN63 (OD) PE100 PN16 O/S 1.5m FROM BDY
DN90 (OD) PE100 PN16
0.60 1.50 2.65 2.50 2200
0.40 1.50 2.65 2.50 2200
R15.00
R104.75
R117.2

STORAGE BASIN
RAPID SOAKPIT UNDER BASIN
INFILTRATION BASIN
HIGH LEVEL OVERTOPPING FROM INFILTRATION TO STORAGE BASIN

13 12 11 10 9 8 7 6 5 4 3
18 19 20 21 22 23 66 67 68 69 70 71 72 73 201
65 64 63 62 59 58 57

Lot 10 DP 472402
Lot 100 DP 472402
Lot 1 DP 472402
Lot 99 DP 472402
Lot 2 DP 472402

LEGEND :

EXISTING SERVICES	PROPOSED SERVICES
SANITARY SEWER STD. MH	SANITARY SEWER STD. MH
SANITARY SEWER VENTED MH	SANITARY SEWER VENTED MH
STORMWATER MH	STORMWATER MH
WATER FH VALVE	WATER FH VALVE
KERB	KERB

	NAME	SIGNED	DATE
DESIGNED BY	TODD INNESS		
CHECKED BY			

DAVIE LOVELL-SMITH
PLANNING SURVEYING ENGINEERING

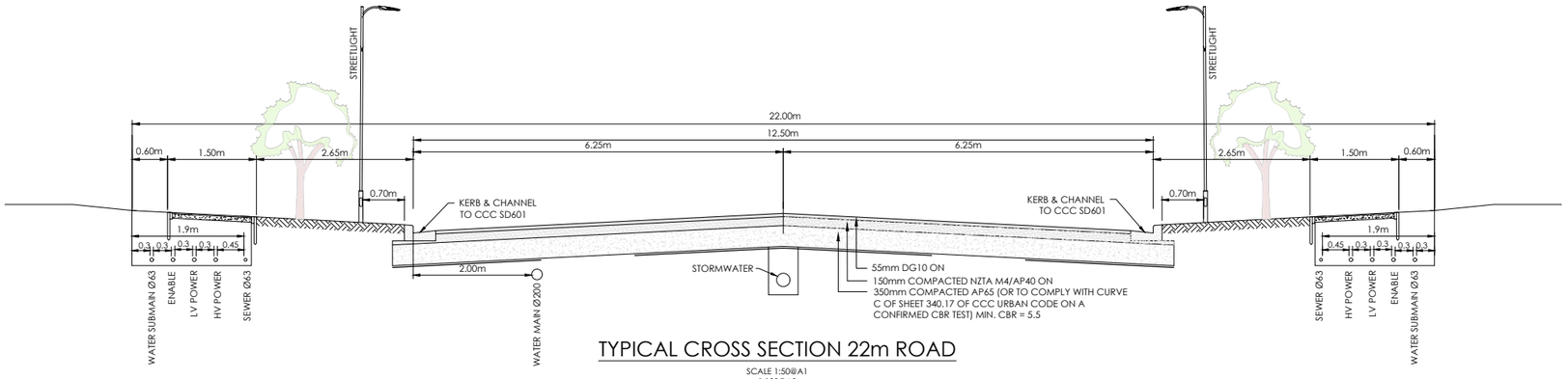
116 Wrights Road P O Box 679 Christchurch 8140. New Zealand
Telephone: 03 379-0793 Website: www.dls.co.nz E-mail: office@dls.co.nz

JOB TITLE:
Pound Road Industrial Subdivision

SHEET TITLE:
Infrastructure Concept

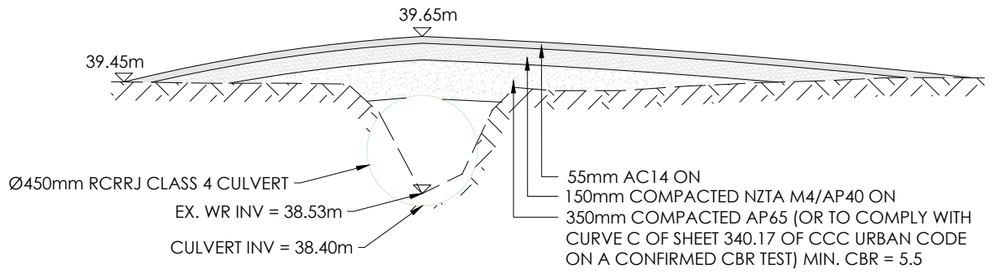
DRAWING STATUS
For Information

SCALE : 1:1000@A1 1:2000@A3
DATE : June 2025
CAD FILE : J:\20739\Eng\Concept\E20739_Eng Concept_R0.dwg
DRAWN : JS
DRAWING No : **E.20739**
SHEET No: 10 of 11
REVISION : **R0**



TYPICAL CROSS SECTION 22m ROAD

SCALE 1:50@A1
1:100@A3



TYPICAL CROSS SECTION A-A

SCALE 1:50@A1
1:100@A3

AMENDMENTS :

AMENDMENT	DATE	DESCRIPTION

NOTES :

1) Areas and dimensions are approximate only and are subject to final survey and deposit of plans.
2) Service easements to be created as required.
3) This plan has been prepared for subdivision consent purposes only. No liability is accepted if the plan is used for any other purposes.
4) As-built data provided by others.

DAVIE LOVELL-SMITH
PLANNING SURVEYING ENGINEERING

116 Wrights Road P O Box 679 Christchurch 8140. New Zealand
Telephone: 03 379-0793 Website: www.dls.co.nz E-mail: office@dls.co.nz

JOB TITLE:
Pound Road Industrial Subdivision

SHEET TITLE:
Roading Cross Sections

DRAWING STATUS
For Information

SCALE : As Shown DATE : June 2025

CAD FILE : J:\20739\Eng\Concept\E20739_Eng Concept_R0.dwg DRAWN : JS

DRAWING No : **E.20739** SHEET No: 11 of 11 REVISION : **R0**

Appendix 3

Intersection Overview

Barters Rd / Hasketts Rd / Maddisons Rd Intersection

Speeds: 80km/h speed limit

Pedestrian / Cycle Infrastructure: None

Safety: One non-injury crash

Environment: Rural

Other: Barters Road north is property access only and not heavily used. This approach is 'stop' controlled.

Barters Rd / Waterloo Rd Intersection

Speeds: 80km/h speed limit on Barters Rd, 60km/h speed limit at the Waterloo Rd intersection.

Pedestrian / Cycle Infrastructure: Shared path on the southern side of Waterloo Road. On-road cycle lane on the northern side of Waterloo Rd.

Safety: One non-injury crash

Environment: Peri-urban / rural.

Other: Barters Road has no crossing of the rail corridor at this location.

Pound Rd / Waterloo Rd / SH1 Intersection

Speeds: 50km/h speed limit on Pound Road, 70km/h speed limit at the SH1 / Pound Rd intersection.

Pedestrian / Cycle Infrastructure: Shared paths and on-road cycle lanes on both sides of Pound Rd from Waterloo Rd to SH1. Signalised crossing facilities at both intersections.

Safety: Two Minor injury crashes and ten non-injury crashes

Environment: Peri-urban

Other: Pound Rd crosses the South Island Main Trunk Rail Line between the intersections. This is co-ordinated with the traffic signal intersections, which includes warning lights, barriers and pedestrian / cycle chicanes.

Pound Rd / Buchanans Rd Intersection

Speeds: 80km/h speed limit.

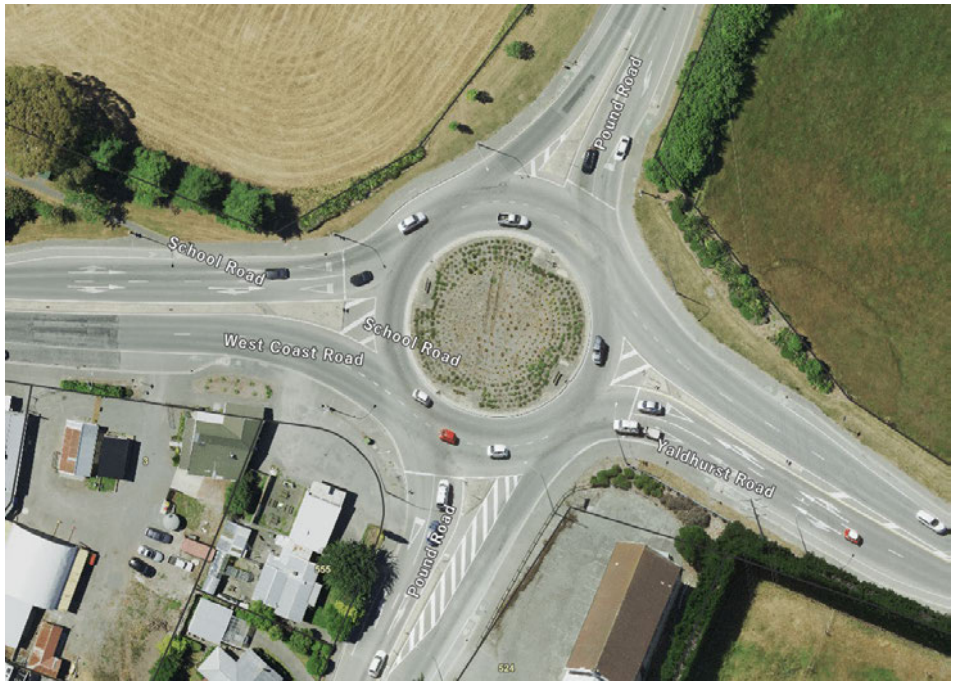
Pedestrian / Cycle Infrastructure: None

Safety: One Serious, four minor and three non-injury crashes.

Environment: Rural

Other:

SH73 / Pound Rd Intersection



Speeds: 60km/h speed limit.	Level of Service:
Pedestrian / Cycle Infrastructure: Off-road shared paths provided around the intersection. Crossing points are provided in the islands on Pound Rd (north and south) and SH73 (east)	**Safety:** One serious, two Minor injury crashes and eight non-injury crashes.
Environment: Peri-urban	**Other:**

Appendix 4

Crash Summary

Overview

115. The review identified 44 crashes, including two Fatalities, three Serious injury crashes and eleven Minor injury crashes. The key trends in the reported crashes were:
    i. 27 of the crashes (61%) occurred at intersections;
    ii. 18 crashes (41%) were rear-end collision / hitting obstructions; and
    iii. 14 crashes (32%) were crossing / turning crashes.

The following provides a more detailed review of the reported crashes.

SH1 / Pound Road & Pound Road / Waterloo Road Intersections

Approach	Crash Cause	Severity
SH1 West	Failure to notice traffic ahead had stopped	1 x Minor
	Failure to stop at red signal at the intersection.	1 x Non-injury
	Turning left from incorrect lane	1 x Non-injury
SH1 East	Failure to notice traffic ahead had stopped	1 x Minor
Pound Rd Approach to SH1	Failure to stop at red signal at the rail crossing, damaging a barrier arm.	1 x Non-injury
Waterloo Rd West	Failure to notice traffic ahead had stopped	1 x Non-injury
Pound Rd South Approach to Waterloo Rd	Failure to stop and red signal	1 x Non-injury
	Trailer became detached and hit a traffic signal pole.	1 x Non-injury
Waterloo Rd East	Collision when changing lane on the approach to the intersection.	1 x Non-injury
	Failure to give-way on filter turn	1 x Non-injury
Pound Rd North Approach to Waterloo Rd	Collision when changing lane on the approach to the intersection.	1 x Non-injury
	Failure to notice traffic ahead had stopped	1 x Non-injury
Totals	**2 x Minor & 10 x Non-injury (12 Total)**	

Pound Rd (Waterloo Rd to Buchanans Rd)

Approach	Crash Cause	Severity
Southbound	Failure to give-way turning to an access	1 x Non-injury
	Medical event	1 x Non-injury
	Motorcyclist lost control u-turning	1 x Minor
	Failure to see traffic ahead has slowed.	1 x Serious
Northbound	Failure to give-way when u-turning	1 x Fatal
	Failure to see traffic ahead has slowed.	1 x Minor
	A driver hit loose horses	1 x Non-injury
Totals	**1 x Fatal, 1 x Serious, 2 x Minor & 3 Non-injury (7 Total)**	

Pound Rd / Buchanans Rd Intersection

Approach	Crash Cause	Severity
Pound Rd South	Failure to give-way to a cyclist	1 x Serious
	Failure to take the roundabout	1 x Minor
Buchanans Rd West	Failure to give-way	1 x Minor & 2 x Non-injury
Pound Rd North	Failure to give-way	2 x Minor
	Failure to slow for a queue	1 x Non-injury
Totals	**1 x Serious, 4 x Minor & 3 x Non-injury (8 Total)**	

Pound Rd (Buchanans Rd to SH73)

Approach	Crash Cause	Severity
Southbound	Failure to give-way when u-turning	1 x Fatal
Northbound	Failure to give-way turning to a property (coded twice)	1 x Non-injury
Totals	**1 x Fatal & 1 Non-injury (2 Total)**	

Pound Rd / SH73 Intersection

Approach	Crash Cause	Severity
Pound Rd South	Failure to give-way to a motorcyclist	1 x Minor
	Road rage incident	1 x Serious
	Failure to slow for queued traffic ahead	1 x Non-injury
	Driver u-turned after the roundabout and failed to check	1 x Non-injury
	Failure to take the roundabout when evading Police	1 x Non-injury
SH73 West	Loss of control (alcohol suspected)	1 x Non-injury
	Failure to give-way to motorcycle	1 x Minor
	Sideswipe buy a stolen vehicle through the roundabout	1 x Non-injury
Pound Rd North	Head-on collision as a driver travelled in the wrong direction around the roundabout.	1 x Non-injury
	Loss of control departing the roundabout	1 x Non-injury
SH73 East	Loss of control (alcohol suspected)	1 x Non-injury
Totals	**1 x Serious, 2 x Minor & 8 x Non-injury (11 Total)**	

Barters Rd (Waterloo Rd to Maddisons Rd)

Approach	Crash Cause	Severity
Southbound	Side-swipe turning into a property	1 x Minor
Totals	**1 x Minor (1 Total)**	

Barters Rd / Maddisons Rd / Hasketts Rd Intersection

Approach	Crash Cause	Severity
Maddisons Rd Eastbound	Failure to stop for queued traffic	1 x Non-injury
Totals	**1 x Non-injury (1 Total)**	

Barters Rd / Maddisons Rd / Hasketts Rd Intersection

Approach	Crash Cause	Severity
Waterloo Rd Westbound	Loss of control, alcohol suspected	1 x Non-injury
Totals	**1 x Non-injury (1 Total)**	

Appendix 5

Traffic Modelling Report

Quality Transport Planning

Barters Rd Fast-track Land Use and Subdivision Application

Traffic Network Effects Modelling Technical Report

October 2024

This page is deliberately blank for printing

Document Issue Record

Version No	Prepared By	Description	Date
01a	Paul Roberts	First issue: Draft for Client Comment	24 October 2024
02a	Paul Roberts	Minor edits (reflecting now for Fast-track land use and subdivision application)	26 May 2025

Document Verification

Role	Name	Signature	Date
Preparation	Paul Roberts	[redacted]	24 October 2024
Reviewer	Tim Wright		24 October 2024
Approval	Paul Roberts	[redacted]	24 October 2024

Contents

Appendices

1 Executive Summary

1.1 QTP Ltd have been appointed to undertake traffic modelling to assist in the identification of the traffic effects of a Fast-track land use and subdivision application for industrial purposes in southwest Christchurch. The area of land comprises approximately 61ha, and lies between Barters, Pound and Hasketts Roads and the Templeton Golf Club.

1.2 Novo Group provided a schematic plan for the purpose of informing the traffic impact modelling, with the site to be accessed via four principal points of access from the surrounding road network.

1.3 Modelling has been undertaken based upon the latest version of the Christchurch Assignment and Simulation Traffic model (**CAST**). The model is owned and managed by the Model Management Group comprising members of the Christchurch, Selwyn and Waimakariri District Councils, Waka Kotaki and Ecan. The model covers Greater Christchurch, including all roads with a significant through-traffic function, whilst having strong simulation capabilities at an intersection turning level.

1.4 The generic v23 CAST model has been refined in the vicinity of the proposed development site to provide a project-specific model able to simulate the impacts of the proposed rezoning on the operation of the local and wider road network, in addition to the operation of the key intersections in the immediate area of the proposed rezoning.

1.5 A current year (2024) project model (still covering the full modelled area of greater Christchurch) has been created to form the basis of this study. This takes the v23 2024 vehicle model network and uses an interpolated demand estimate (between existing 2021 and 2028 forecast years) as a starting point for estimated 2024 demands. These vehicle demands have been adjusted locally to better match (where required) recent (2022-2024) traffic counts in the south-western and western sectors of the City.

1.6 Model vs count comparisons of the resulting 2024 project base models have been undertaken for the local network with reference to Waka Kotahi's Transport Model Development Guidelines (**TMDG**). The calibrated 2024 base models largely meet the criteria. Overall, we consider that the model is reflecting count data with appropriate accuracy and provides a suitable basis for (future) assessment of the Fast-track application proposal.

1.7 Traffic conditions were observed in the vicinity of the proposed rezoning during the AM and PM peak periods on Tuesday 17th September 2024. Observations were by way of 'sweeps' of the road network to note operational issues. Further comparisons have been made to GoogleMaps traffic speed data for the AM and PM peak hours. Overall, the 2024 base model appears to reasonably reflect the capacity constraints observed on the road network in the vicinity of the site. An exception is where, in practice, queuing back from the Pound Road/Main South Road signalised intersection (over the Main South Railway) can, at times, be observed to (slightly) impede the exit capacity at the Pound/Waterloo Road signals, in both AM and PM peak periods.

1.8 Assessment of the impacts of the proposed rezoning has been undertaken for the 'medium-

term' CAST model horizon year of 2038. The base (without development) demands for this scenario have been adjusted from the generic ('v23') model forecasts by:

- Carrying forward (in an additive fashion) the adjustments found to be required for 2024 to better match current observed demands on the western-sector road network; and
- Making additional allowance for further development (zoned IG) in the Waterloo Park area to the east of the proposed site and within the (currently largely-vacant) IH-zoned land to the south (formerly referred to as CB2/7)[1].

1.9 It is important to note that the generic future (2038) assumptions used as the basis for the above adjustments only consider existing land use zoning. They currently make no allowance for other recently-announced 'Fast-Track' residential or industrial developments within the greater Christchurch area, nor indeed for other as-yet-unapproved potential Private Plan Changes, such changes being anticipated to be subject to further statutory planning processes prior to approval.

1.10 The level of trip making associated with the proposed rezoning has been advised by Novo Group, being a two-way peak hour trip rate of 12.7-13.9 vph and heavy vehicle proportions of between 7-10%. The expected directionality (arrivals and departures) of the trip making has also been informed by estimates provided by Novo Group. The distribution of the trips across Christchurch has been based on analysis of modelled trips to other (neighbouring) industrial zones.

1.11 It is fair to observe that, irrespective of this Fast-track application proposal, significant pressure is likely to be expected on the wider road network, given the currently-anticipated growth in the south-western and western sector. A key 'pinch-point' is the intersection of SH1 (Russley/Masham Road) with SH73 Yaldhurst Road. A lack of capacity to service the projected demands at this location prompts drivers to seek alternatives – including the use of the (broadly parallel) Pound Road. The effects of this can already be evidenced by recent observed growth rates on Pound Road. This, together with on-going development of already-zoned industrial land in the area (e.g. Waterloo Park) in turn however are anticipated to combine to place increasing pressure on the key intersection local to the Fast-track application site itself, this being Pound Road/Main South Road. Here, heavy southbound demand (particularly for the RT from Pound Road towards Rolleston) can already be observed as leading to tailbacks (up to and. on occasion, beyond the intersection of Pound Road with Waterloo Road).

1.12 Given a combination of high projected (non-development) demand on Pound Road, together with the anticipated Site demands, our modelling confirms that a provision of a 'basic' (give-way) intersection to serve as the main site access (off Pound Rd would only afford a very poor level of service (LOS F) for site traffic attempting to turn *right* (from the site onto Pound Road

[1] Note that additional allowance for these areas external to the Site was considered warranted given both their now-existing zoning and the fact that the 'generic' 2038 models (still essentially based on a 2017-origin CCC business growth model) do not yet appear to adequately account for their potential traffic generation. However, notably, this additional allowance has been applied at only around half of the rate(s) advised for the proposed Site. This assumption better reflects 'average' model expectations on 'full' development of similar industrial-area zones. We note that the Site generation estimates provided by Novo do however appear consistent with '85%ile' rates at (large-format) industrial sites (e.g. in 2022 surveys conducted by Transport for NSW to support their recent Guide for Transport Impact Assessment), and as such we consider these to be an appropriate basis on which to estimate the potential Site impact at this early stage of assessment.

towards the south). As such, providing a simple priority intersection as the principal site access is unlikely to be a suitable solution, particularly for the convenience and safety of development traffic.

1.13 A roundabout intersection at this location would however offer a reasonable level of service for both Site and non-development traffic at all times - albeit at the 'cost' of some minor additional delay to the non-site traffic using Pound Rd.

1.14 To the South of the Site, the modelling confirms other road network constraints to be:

- the capacity of the right turn from Pound Rd to SH1 Main South Rd (west).
- the capacity of the northbound RT into Pound Rd from SH1 Main South Rd (east); and
- (with Site traffic), the southbound Pound Rd approach to the Pound/Waterloo intersection.

1.15 The capacity of the Pound Rd/SH1 intersection could be improved via the addition of a further RT lane (from Pound Rd to Main Sth Rd). This could however only be fully utilised if Pound Rd also has a southbound lane added over the railway and logically this additional lane would be extended to include the southbound (Pound Rd N) approach to Waterloo Rd.

1.16 Our modelling confirms that the Site traffic would add to the need for such Pound Rd capacity improvements. However, we anticipate that, given anticipated growth, traffic generated by the Fast-track application proposal may only advance a 'need' for such capacity improvements to Pound Rd by 3-5 years[2], such improvement being likely desirable at some point irrespective of the proposed development, potentially as part of a broader network management strategy (e.g. to mitigate existing and predicted-worsening congestion issues at SH1/SH73). As far as we are aware however, neither CCC nor NZTA have currently programmed or allocated funding for such improvements.

1.17 With such improvements in place however (together with a roundabout-controlled intersection on Pound Rd providing the principal Site access) our modelling confirms that the potential impacts of traffic generated by the Fast-track application proposal and it's site access on non-development traffic using the local and wider strategic road networks can be essentially be mitigated either entirely or, at worst, limited to fairly minimal impacts (depending upon the location and scope of measurement).

1.17.1 A caution to this is that the analysis does also indicate a potentially-looming issue may exist (whether or not this Fast-track application proposal proceeds, although traffic generated by the proposal could exacerbate it), with the single-lane (westbound) capacity of the section of SH1 Main South Rd between W of Pound Rd and SH76 - at least as far as potential traffic volumes in the 2038 PM peak scenarios examined suggest.

[2] Further investigation and modelling scenarios, beyond the current scope of our brief, would be required to ascertain this timing with more precision.

2 Introduction

2.1 QTP Ltd have been appointed to undertake traffic modelling to assist in the identification of the traffic effects of a Fast-track land use and subdivision application for industrial purposes in southwest Christchurch.

2.2 The area of land comprises approximately 61ha, and lies between Barters, Pound and Hasketts Roads and the Templeton Golf Club. Novo Group have provided the schematic plan shown below for the purpose of informing the traffic impact modelling.

Figure 2.1: Site Location and Outline Plan Road Network

2.3 In essence, QTP's brief is as follows:

- Briefly consider the level of modelled flows vs counts correlation in the generic 2018 CAST base year model in the vicinity of the site
- Refine the zonal and network resolution in the immediate study area of versions of Council's CAST models for 2024 and 2038
- Field-check and compare the current network performance to that modelled for 2024
- Calibrate 2024 (and 2038) models to the count data as required
- Manipulate the CAST model demands to reflect 'base' and 'with development' scenarios for 2038
- Modify the CAST model networks to reflect 'base' and 'with development' road networks

- Test the network operation and development impacts with and without the proposed rezoning
- Produce outputs from the CAST models to indicate network operation and the effects of the proposed development
- Cross-check modelling of critical intersections using SIDRA Intersection modelling software
- Provide summary reporting (this document) describing the methodology employed and the network operation and effects.

3 Base Models Review

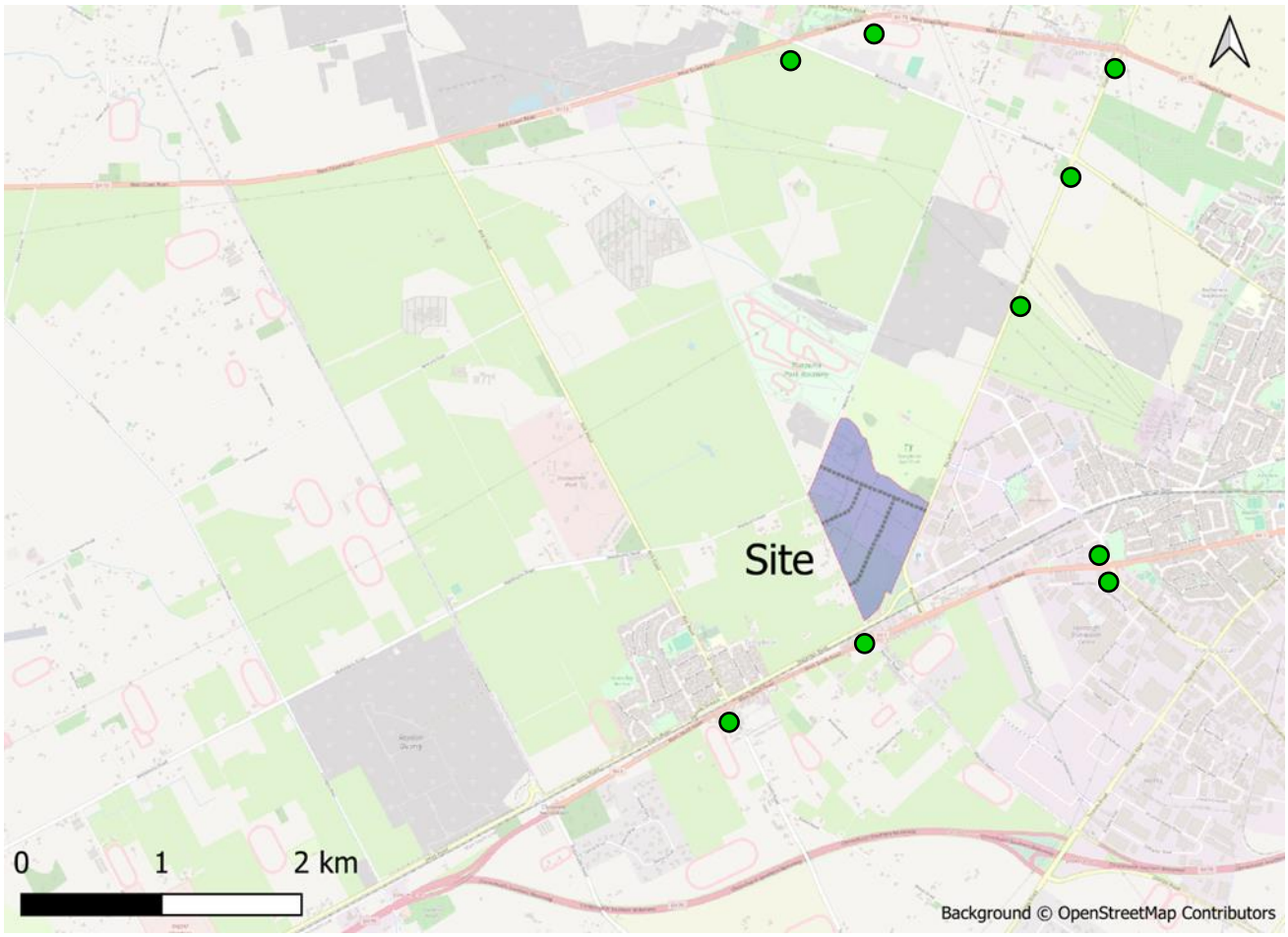
3.1 CAST Model Version

3.1.1 The latest CAST model version (v23) has been used as the basis to develop project models for analysis of the Fast-track application proposal. V23 is a minor update to the v21 model, undertaken in 2023 to address relatively minor issues noted in the application of the model between 2021 and 2023. The previous model update, v21, was completed in 2021, with the model base year being 2018. 2018 was the last census year for which full demographic data required by the Christchurch transport models is presently available. The initial estimates of travel demands for the CAST model come from the parent Christchurch Transportation Model (**CTM**) which uses demographic inputs as the basis of estimating travel demands in Greater Christchurch. The CAST model uses a refined zone system, network representation and simulation to better reflect the operation of the road network. The v23 2018 CAST model is calibrated to over 4,000 individual turning counts in each model period, separately for light and heavy vehicles.

3.2 2018 Model vs Count Comparison

3.2.1 The following diagram illustrates the location of the nine intersection counts closest to the Fast-track application site used in the calibration of the wider CAST model, these being used to consider of the performance of the v23 2018 base model around the proposed rezoning.

Figure 3.1: Location of v23 2018 Calibration Counts Local to Site



3.2.2 The following Table summarises the performance of this model against Waka Kotahi's Transport Model Development Guidance (**TMDG**) key criteria for turning counts for the Type E: Small Area / Corridor model category. Further detail, including individual count comparisons may be found in **Appendix A**.

Table 3.1: 2018 Model Local Performance Against TMDG Criteria

Criteria	Target Type E	AM	IP	PM
R^2	>0.95	0.944	0.960	0.955
y = **M**x	0.95-1.05	0.928	1.008	0.941
GEH<5	>85%	79%	82%	79%
GEH<7.5	>90%	90%	88%	92%
GEH<10	>95%	97%	99%	95%
GEH<12	100%	99%	99%	97%
RMSE	<15%	31%	27%	26%
AAE	-	18%	17%	16%
Total Δ	-	-5%	-2%	-2%
No.Counts	-	78	76	77

3.2.3 As noted within the v21 CAST Model Update Report, it is rarely the case that a large model meets the GEH <5 criteria unless subject to matrix estimation. The reason for this is that there is too much variability in count data itself for a model to be expected to closely match a given

count. By way of example, a count may be recorded as 250 on one occasion and 340 on another (different days of the week, different months, different years) and would have a GEH value >5 based on varying count volumes, irrespective of model inaccuracies.

3.2.4 The TMDG categorises models by purpose and has different count comparison by criteria for these model types. The (wider) generic CAST model is categorised as a Type C model, described as an Urban Area model. Type E models are described as Small Area or Corridor models. The GEH<5 criteria are 80% for Type C Urban Area model, this being met in the Interpeak and only very narrowly missed in the AM and PM peak hours. For the Type E Small Area model, the criteria of 85% is, however, not met in any of the periods.

3.2.5 The GEH <7.5 measure is considered more informative given fluctuations in count data. The >85% of turns for Urban Area models is met for all periods and the >90% of turns is narrowly missed in the interpeak hour only (88%).

3.2.6 The RMSE value is not a particularly intuitive measure of error in the model. TMDG notes that for Type E models values between 15 and 25% (as is the case for this project model) 'require clarification', whilst for Type C Urban Area models the acceptable value is 20%.

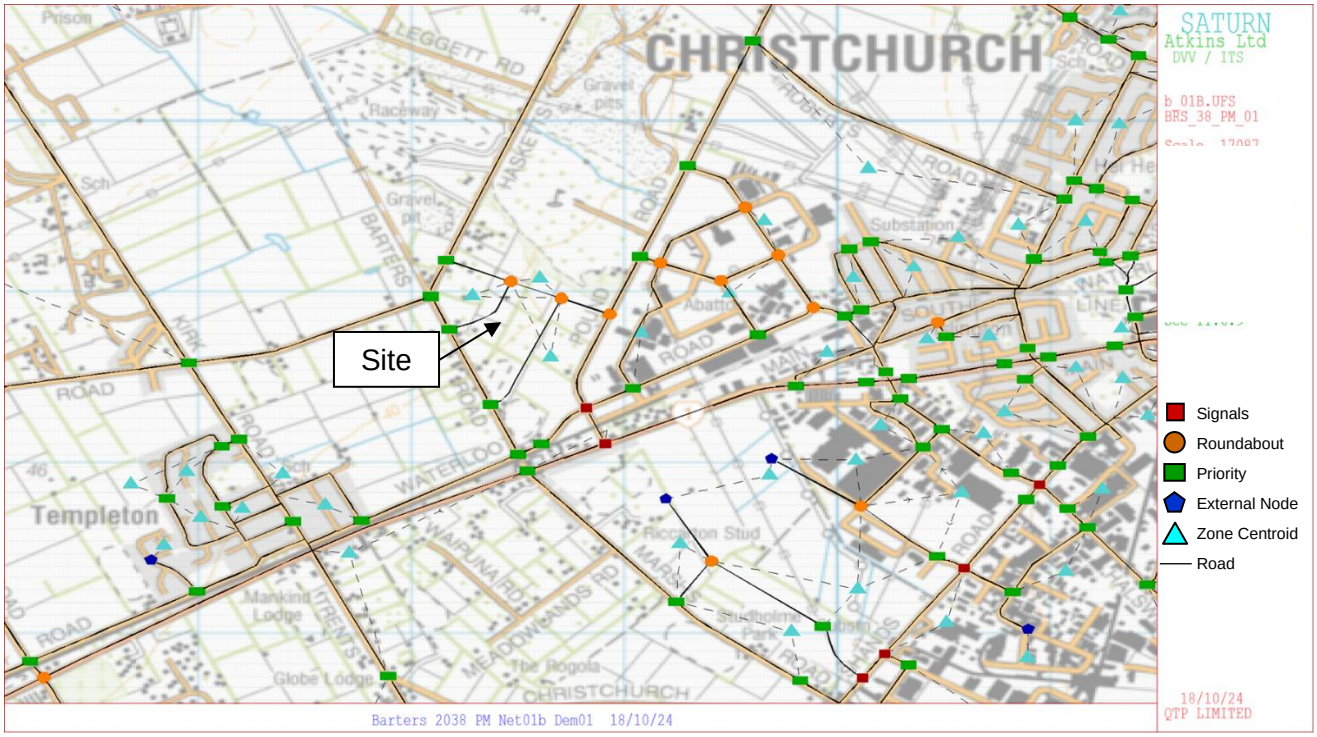
3.2.7 A more intuitive value of error is also presented, being the average (absolute) error (**AAE**), or difference between counts and flows, being the sum of the absolute differences compared to the sum of the counts, this statistic indicating an 'average' error of 16 to 18%.

3.3 Network and Zonal Refinement

3.3.1 For assessment of the Fast-track application proposal, 2024 and 2038 models have been prepared to reflect both traffic demands and potential future networks within and around the Site. Specification of three separate zones representing the Fast-track application site allows the operation and potential effects of the draft internal road network to be modelled.

3.3.2 The resulting refined network and zone loading implemented within (one of) the with-development traffic models is illustrated within the following figure.

Figure 3.2: Project Model (Future) Network and Zone Loading



3.3.3 Development of the future year demands is described within the following Chapter.

3.4 2024 Base Model Calibration

3.4.1 Having reviewed available count data for the local area within CCC's intersection traffic counts website, the NZTA's TMS portal and available recent local counts provided by Novo Group, it is apparent that fairly significant traffic growth has occurred on the road network local to the site (even since 2021, when demand was somewhat affected by Covid restrictions). This has occured not only as a result of on-going development within the adjacent Waterloo Park area but also wider growth apparent in the South-West and Western sectors of Christchurch.

3.4.2 We therefore considered it wise to base the assessment of the Fast-track application proposal using an updated project model, representing 'present-day' (2024) traffic demands and networks (rather than adopt, say, the generic v23 2021 model as a project assessment base).

3.4.3 A preliminary 2024 vehicle model network (v24a) has recently been prepared by QTP to support a recent update of the CAST-based Christchurch Cycle Model on behalf of NZTA and CCC. This network represents only very modest changes to the v23 road network described above, to make it consistent with the now-integral Christchurch Cycle Model. Whilst it does not represent a fully-updated and calibrated or validated vehicle model for this year, it is considered to be the most-suitable network basis for modelling 'current' traffic demands, given suitable adjustment (described below).

3.4.4 Some changes were made to this CAST v24a 2024 vehicle network, to form the 2024 project model Base Network:

- Adoption of a new and comprehensive GIS base to represent all modelled links. This is now fully consistent with LINZ centreline data and recent Network Management Plan spatial data produced on behalf of NZTA. Effectively it provides 'curved' (and accurate) links for every model link in the network - rather than the selection of 'curved' links represented (in a more crude fashion) in preceding CAST (including v24a) networks.
- Intermediate nodes were added at the location of the potential future Site connections. Such nodes incur no delay in 'Without-development' scenarios, their purpose in these scenarios being only to provide consistency with future 'With-development' scenario networks to assist illustration of differences e.g. in traffic volumes.
- Link Types (Capacity Indices) on Pound and Waterloo Roads were adjusted to reflect the now-posted speed limits adjacent to the Site.

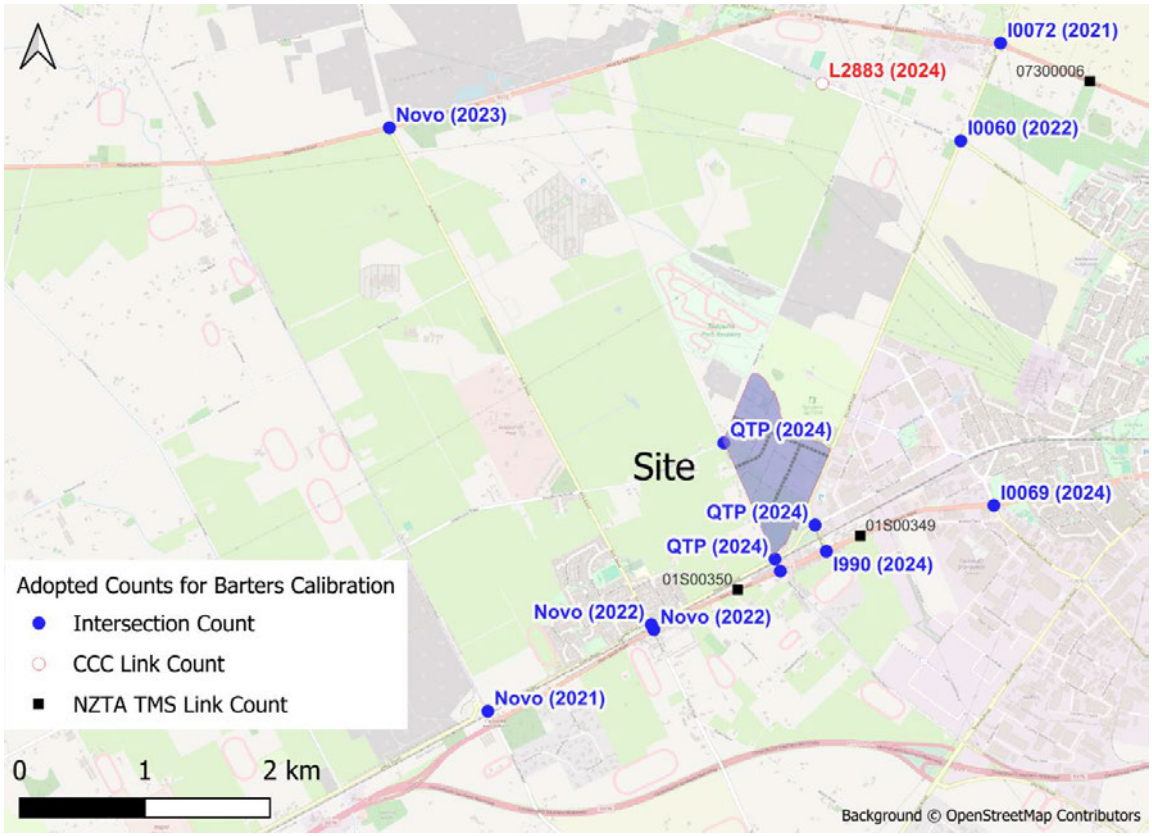
3.4.5 An initial estimate of (2024) demands used as the starting point for this project Base Model simply interpolates between demands available from the latest available 2021 and 2028 generic (v23a) CAST models (which reflect runs of the relevant parent CTM model scenarios).

3.4.6 These initial 2024 demands have then been adjusted, where necessary, using a process called matrix estimation (**ME**), to better reflect recent traffic counts available within the likely area of influence of the site (and indeed around the wider Western SH1 sector of the City).

3.4.7 The diagram below illustrates the available (classified) counts from the past 3 years, in the study area only. They include 3 recent intersection surveys in the immediate area of the Site, conducted specifically to support this assessment[3]. Ideally, all counts would be for 2024, but there are limited turning counts available for this year.

[3] Conducted on Tuesday 17 September 2024 on behalf of QTP by Lowdown Ltd, using Miovision video technology.

Figure 3.3: Counts Used in 2024 Project Model Calibration



3.4.8 It should be noted that, given inspection of the local counts revealed an earlier morning peak than adopted within the generic CAST models, the AM peak hour adopted for assessment of the Fast-track application proposal represents **0730-0830** (rather than the generic CAST model morning peak hour of 0800-0900). The initial 0730-0830 demands thus takes half of the generic model hourly demand rate (for the 0730-0800 period) and adds this to the observed local proportion of demand of the 0800-0900 occurring within the 0800-0830 period (51%).

3.4.9 The following Table summarises the performance of the initial ('Pre-ME') 2024 project model against the TMDG criteria for the turning counts illustrated above. Again, further detail, including individual count comparisons, may be found in **Appendix A**.

Table 3.2: Initial 2024 Model (Pre-ME) Performance Against TMDG Criteria

Criteria	Target Type E	AM	IP	PM
R^2	>0.95	0.957	0.972	0.973
y = **M**x	0.95-1.05	0.859	0.853	0.917
GEH<5	>85%	71%	73%	68%
GEH<7.5	>90%	85%	88%	88%
GEH<10	>95%	96%	97%	95%
GEH<12	100%	98%	98%	98%
RMSE	<15%	38%	35%	29%
AAE	-	25%	20%	21%
Total Δ	-	-12%	-16%	-6%
No.Counts	-	122	104	122

3.4.10 The apparent relatively-poor comparison of this initial 2024 model against Type E criteria is by no means unexpected, not least given the initial demands they reflect are a very simple interpolation between two now fairly-dated forecast scenarios (2021 and 2028). Perhaps the most-pertinent comparison is that revealed by the overall ('Total Δ') comparison, which indicates that (generally) these initial modelled demands are 12-16% too low (for AM and IP hours respectively), compared to the counts. Whilst closer in the PM peak (-6%), there is still an apparent under-estimation of the true observed demand (over all locations shown in **Figure 3.3**). This overall trend for apparent under-estimation is however an indicator that traffic growth within the area surrounding the Site over the period 2021-2024 has likely been higher than anticipated by the generic model forecast assumptions (made in 2021).

3.4.11 To address this, as noted above the modelling technique called 'Matrix Estimation' or 'ME' has been adopted, whereby the above initial 2024 demands have been mathematically adjusted to better match the available counts – i.e. local calibration of the model. The results following this process are summarised in **Table 3.3** below, with further detail of model vs count comparisons and XY scatter plots being provided within **Appendix A**.

Table 3.3: 2024 Calibrated (Post-ME) Model Performance Against TMDG Criteria

Criteria	Target Type E	AM	IP	PM
R^2	>0.95	0.991	0.976	0.984
y = **M**x	0.95-1.05	0.973	0.954	0.992
GEH<5	>85%	93%	84%	88%
GEH<7.5	>90%	98%	90%	92%
GEH<10	>95%	100%	98%	98%
GEH<12	100%	100%	100%	99%
RMSE	<15%	16%	26%	19%
AAE	-	8%	16%	12%
Total Δ	-	-2%	-7%	-1%
No.Counts	-	122	104	122

3.4.12 As noted above, the TMDG categorises models by purpose and has different count comparison criteria for these model types. With the exception of the GEH <5 criteria in the representative IP hour, where the >85% criteria for Type E models is only very-narrowly not met (due to a single turning movement count having a GEH marginally >5) , the TMDG criteria are generally met. The exception is for the RMSE statistics.

3.4.13 A review of the modelled turning flows vs counts (Appendix A, Post-ME comparison) indicates no apparent under or over-estimation estimation of flows around the Site, with the exception of one or two very minor turning movements, where the modelled demand is zero vs counts of 5-25 vph. This occurs because the ME process cannot adjust model demands to fit a count, if no routes (under the initial Pre-ME demands) use that turn.

3.4.14 Overall, however, these statistics indicate that the '2024' study base model reflects count data with (what we consider to be) reasonable accuracy for the intended application (within the western sector of the City). Further improvements could be made if, for example, we relaxed adopted criteria regarding how much the initial (pre-ME) demands could be modified, added more-refined zone representations etc. However, we do not consider these to be necessary,

not least as this 2024 base ('post-ME') model is intended to serve *only* as the basis for adjustment of future base scenario (2038) demands.

3.5 Model Performance Field-Check

3.5.1 Traffic conditions were observed in the vicinity of the proposed rezoning on Tuesday 17th September 2024. Observations were by way of 'sweeps' of the road network including along Main South, Pound, Waterloo, Barters and Hasketts Roads:

- The morning (only) was particularly wet and during such times the capacity of the network, particularly at traffic signals can be a little lower than during dryer conditions.
- Between 07:25-7:35 and 16:05-16:30, southbound queues for the movement from Pound Rd into Main South Rd (West), were observed to (sporadically) extend back across the railway, on occasions as far north as Waterloo Rd, a distance of around 225m. This slightly restricted the potential southbound throughput at the Pound Rd/Waterloo Rd intersection during these times, extending the southbound Pound Rd queue north of the intersection. However, in-practice the queue of vehicles did appear to proceed at a reasonable pace. The current very limited number of railway movements observed did not appear to cause significant issues, with traffic queues clearing quickly.
- In the evening peak, extended queues (up to 12-15 vehicles) were observed on the Wbnd Waterloo Rd approach to Pound Rd, although these appeared to clear in each cycle.

3.5.2 The effects of queuing did appear to be exacerbated by the high numbers of heavy vehicles, e.g. in the morning peak around 75 vph were observed to be articulated trucks (including B-trains) South of Waterloo Rd. The recent count data also revealed that while all heavy vehicles (including single-unit trucks) comprised around 10-15% of all traffic using the intersection in the morning peak hour, by mid-morning this rose to nearly 25% of all vehicle movements.

3.5.3 Our observations are (generally) reflected by the 'typical' traffic speeds displayed by Google Maps Traffic layer, shown in diagrams below. Also shown for comparison is sample data available from TomTom, illustrated by colour based on the average travel time of sampled vehicles (with the width of lines proportional to the sample size). Although the latter data is now somewhat dated (being based upon data gathered over 20 non-holiday weekdays in October 2022), it represents data gathered from around 10% of all vehicles using the local network and offers more precision over the display of the location and scale of congestion 'hot-spots', compared to Google Maps (not least as Google do not make clear the basis of their colour-coding nor calculation methods).

3.5.4 We also observe that these Google Maps diagrams may potentially slightly overstate speeds (understate congestion) as our understanding is that they are (currently) based on the past 4 weeks average - which at the time of writing will include school holidays. Furthermore:

- The apparent congestion displayed for the southbound Barters Rd approach to Waterloo Rd is inconsistent with both our own observations, the video survey evidence (where minimal demand, queuing (max 2 vehs) or delay (max 6 secs) was apparent on this approach, in either AM or PM peaks) and the TomTom sample data.
- However, the Google diagrams do not fully reflect (queuing and) delay we observed at some locations more remote from the Fast-track application site (e.g. on the Southbound Pound Rd approach to Yaldhurst Rd in both AM and PM peaks).

Figure 3.4: Google Maps Typical Current Traffic Speeds 07:50

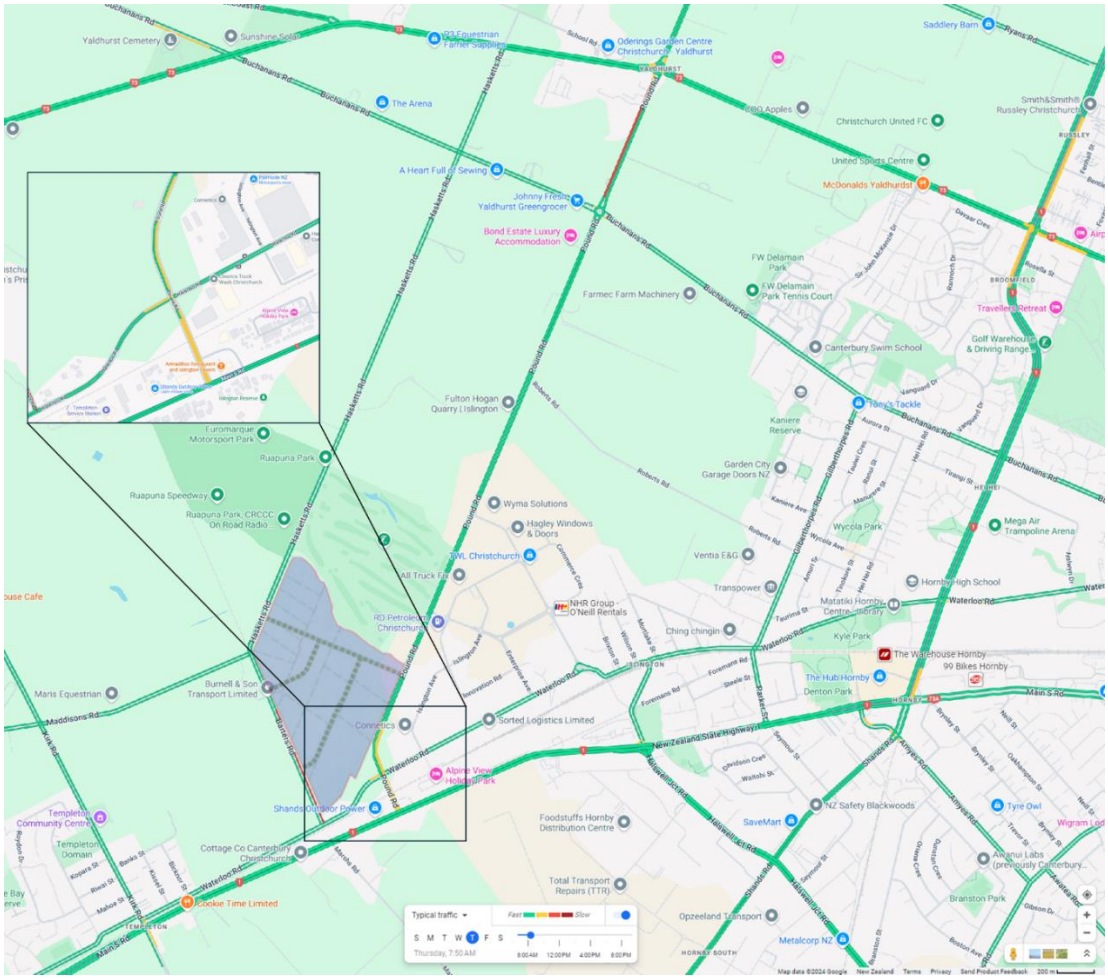


Figure 3.5: TomTom Sample Typical Traffic Speeds 07:30-08:00 (Non-holiday Weekdays, October 2022)

Figure 3.6: Google Maps Typical Traffic Speeds 16:30

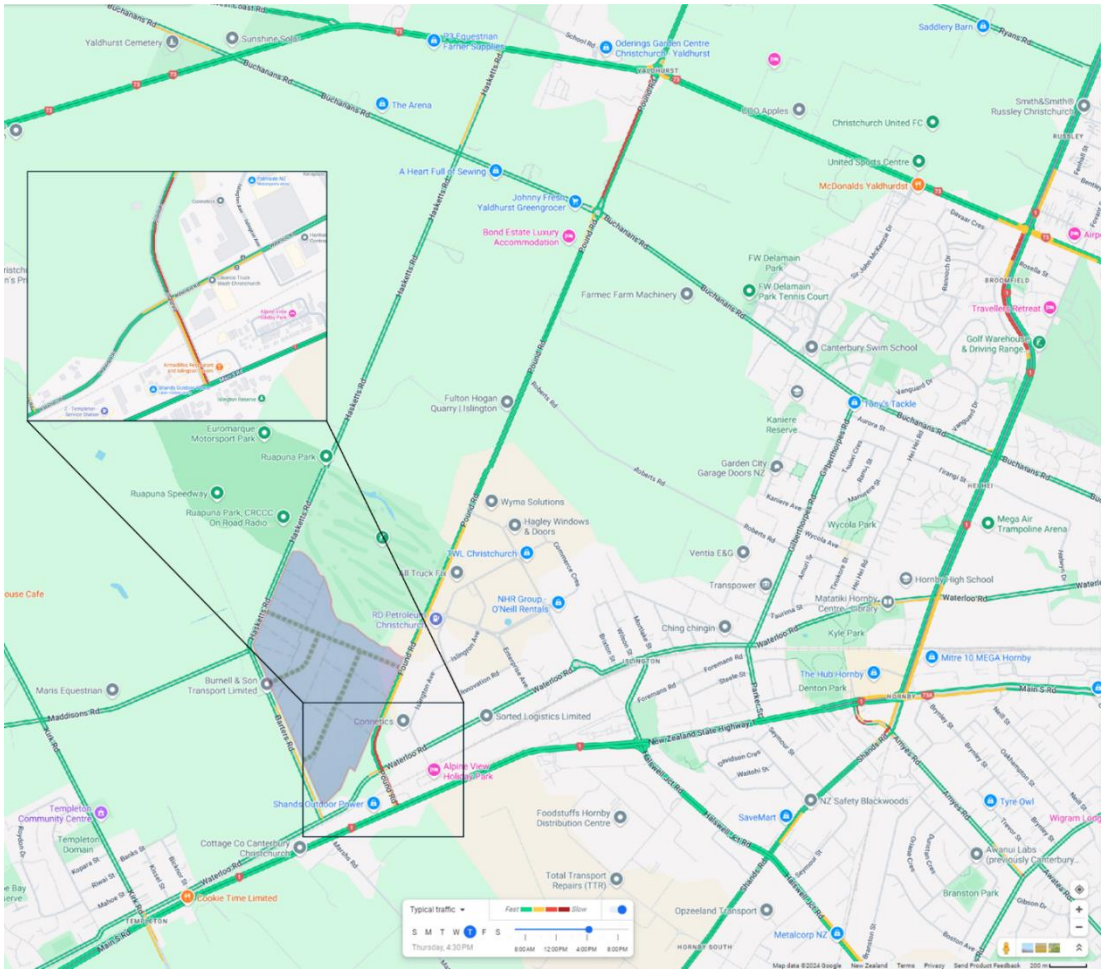


Figure 3.7: TomTom Sample Typical Traffic Speeds 16:30-17:00 (Non-holiday Weekdays, October 2022)

3.5.5 Overall, the key local capacity constraint observed was the southbound movement from Pound Rd into Main South Rd (West), in both AM and PM peaks - but a high level of demand for northbound movements on Pound Rd at Waterloo Rd (including the RT towards Waterloo Park), particularly during the morning peak, was also apparent.

3.6 2024 Calibrated Base Model Performance

3.6.1 The CAST models have been run as hourly assignments. For the purposes of providing SIDRA comparisons (and SIDRA demand inputs), default 'peak profile' factors have also been invoked for delay modelling. This reflects the same default factoring of input (hourly) flows that occurs within the Australasian industry-standard isolated intersection modelling software SIDRA to account for 'peaking within the peak'. In simple terms, the input peak hour volumes are increased by around 5.3%.

3.6.2 The following plots, output from the model, indicate the level of current (2024) delays forecast on the sections of road network in the vicinity of the proposed development. The link delays include average delays encountered on approach to intersections and are colour-coded to a simplified Level of Service (LoS) as follows:

- LoS A-C (<30s) – Green
- LoS D (30-50s) – Orange
- LoS E (50-70s) – Red
- LoS F (>70s) – Black

3.6.3 Note that for the sake of clarity, **only** modelled delays greater than 25 seconds have been illustrated. Note also that modelled delays are average approach delays, weighted by the demand and delays for individual turns.

Figure 3.8: Modelled Average Link Delays, 2024 AM Peak Hour

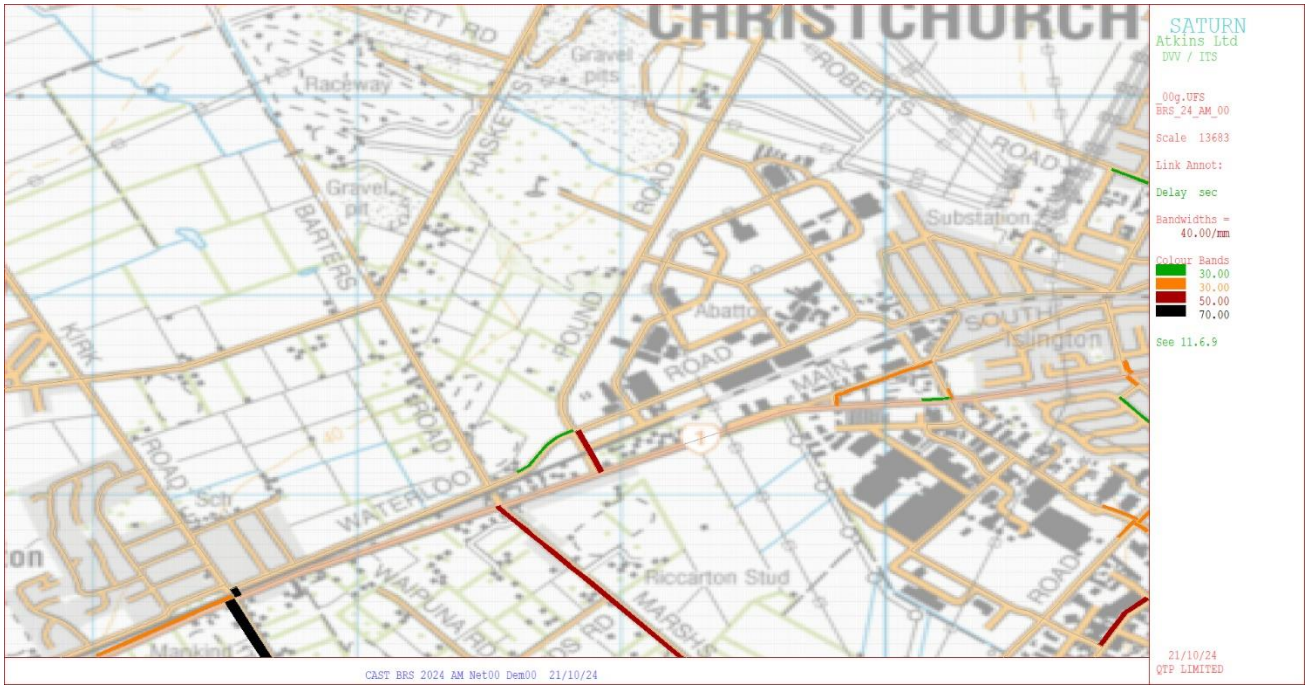
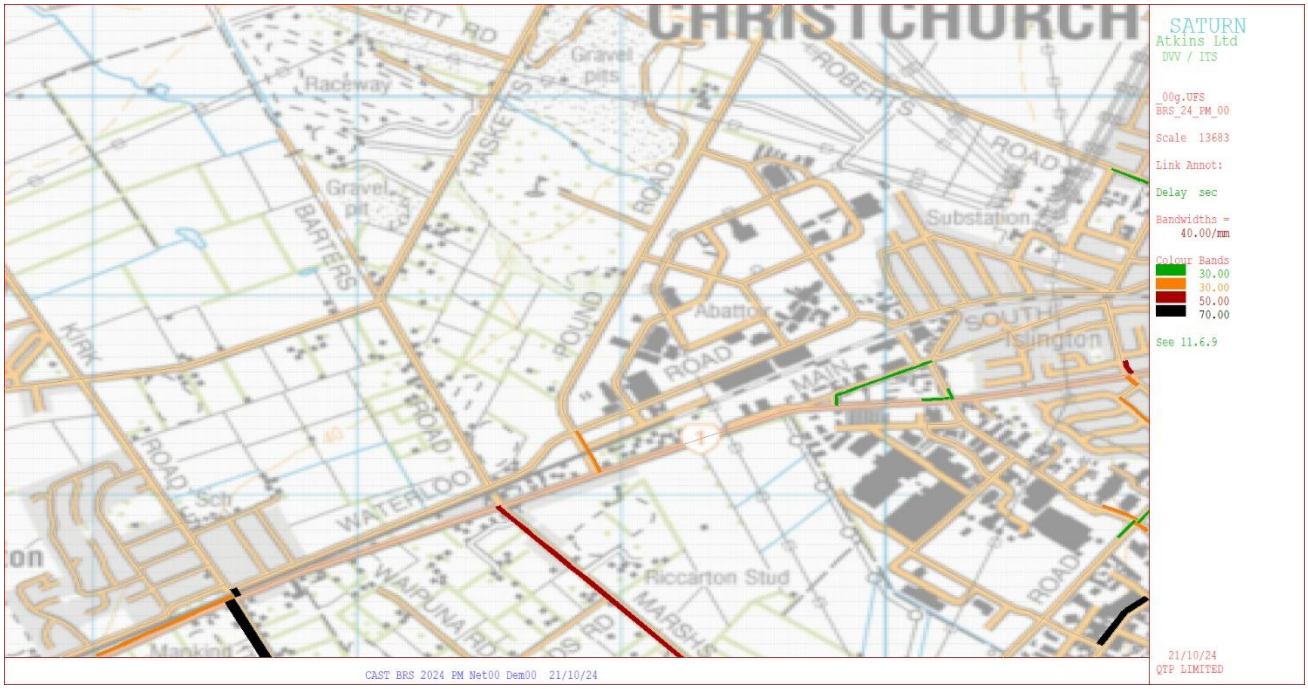


Figure 3.9: Modelled Average Link Delays, 2024 PM Peak Hour

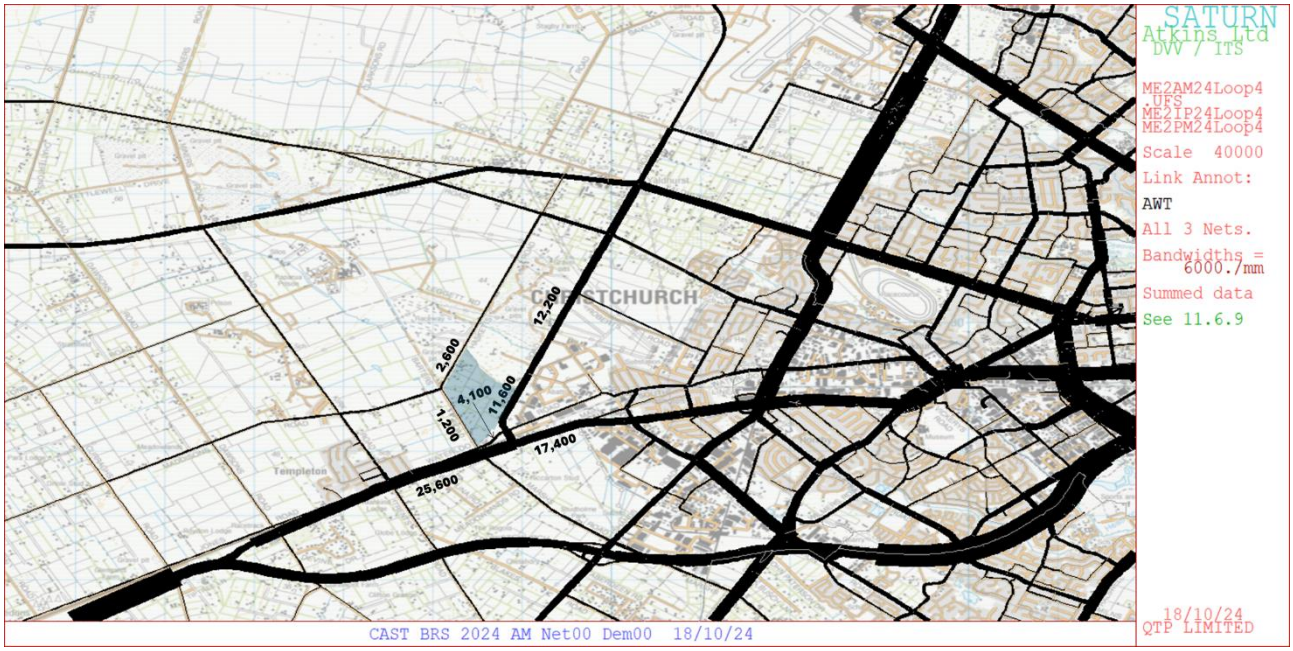


3.6.4 From the above plots, in both peak hours, the location and magnitude of delays viewed on site and shown within Google Maps speed data appear reasonably well reflected within the model. An exception is where the model suggests greater delays in both peak hours occur on the northbound Trents Rd approach to Main Sth Rd, than indicated by either Google Maps or TomTom sample data. However, this is a route with relatively little demand and, we suggest, should not be considered to be a significant concern.

3.6.5 Overall, we consider that the 2024 Project Base model is reasonably reflecting both demands and the capacity constraints observed on the road network, in the vicinity of the site and at key locations further afield on the strategic road network (e.g. the Pound/SH73 Yaldhurst and the SH1 Russley/SH73 Yaldhurst intersections)

3.6.6 Combination of the 3 modelled periods allows an estimate of (weekday) daily traffic volumes to be provided, the 2024 weekday traffic volumes surrounding the site so derived being shown in **Figure 3.8**. This is for the purposes of information & illustration only, given that the principal focus of the models is to reflect changes in traffic volumes and network performance within the specific modelled periods. These daily estimates are based upon application of different expansion factors applied to light, heavy and bus traffic in the peak hour and representative interpeak model hours. However, it should be noted that the same global factors are applied to all trips throughout the model area , when, in practice, this can vary in different areas. In other words, the daily vehicle estimates shown should be viewed as approximate only. That said, comparison of these 2024 weekday estimates across the 3 NZTA sites shown in Figure 3.3 (where there is continuous classified 24hr weekday data available) indicate that these model 24hr estimates may, on average, fall within about 2% of the actual counts (averaged across all non-holiday weekdays).

Figure 3.10: Current Average Two-Way Weekday Traffic Volume (VPD Estimates)



3.7 2038 Base Model

3.7.1 Assessment of the impacts of the proposed rezoning has been undertaken for the 'medium-term' CAST model horizon year of 2038.

3.7.2 The base (without development) demands for this scenario have been adjusted from the 2024 base project model demand forecasts by:

- Carrying forward (in an additive fashion) the 'ME' adjustments found to be required for 2024 to better match current observed demands on the western-sector road network; and
- Making additional allowance for further development (zoned IG) in the Waterloo Park area to the east of the proposed site and within the (currently largely-vacant) IH-zoned land to the south (formerly referred to as CB2/7).

3.7.3 Additional allowance for these areas external to the Site was considered warranted given both their now-existing zoning and the fact that the 'generic' 2038 models (still essentially based on a 2017-origin CCC business growth model) do not yet appear to adequately account for their potential traffic generation.

3.7.4 It should be noted that this additional allowance has been applied at only around half of the vehicle trip generation rates advised by Novo Group for the proposed Site. This assumption better reflects 'average' model expectations on 'full' development of similar industrial-area zones.

3.7.5 A further important note is that the generic future (2038) assumptions only consider existing land use zoning. They make no allowance for other recently-announced 'Fast-Track' residential or industrial developments within the greater Christchurch area, nor indeed for other as-yet-unapproved potential Private Plan Changes, such changes being subject to further statutory planning processes prior to approval.

3.7.6 The following diagrams illustrate the modelled peak hour traffic flows (in vehicles per hour) on the local road network at 2038, without the Fast-track application proposal development[4]. Traffic volumes are indicated as directional bands, with the widths of the bands proportional to the directional flows illustrated.

[4] Illustrated link volumes do not include localised traffic loading to/from model zones loading to a link. The volumes are however included at the intersection 'nodes' for the purpose of simulation of intersection performance and are included in the turning volumes in the model vs count analysis.

Figure 3.11: Modelled Flows, No Development, 2038 AM Peak Hour

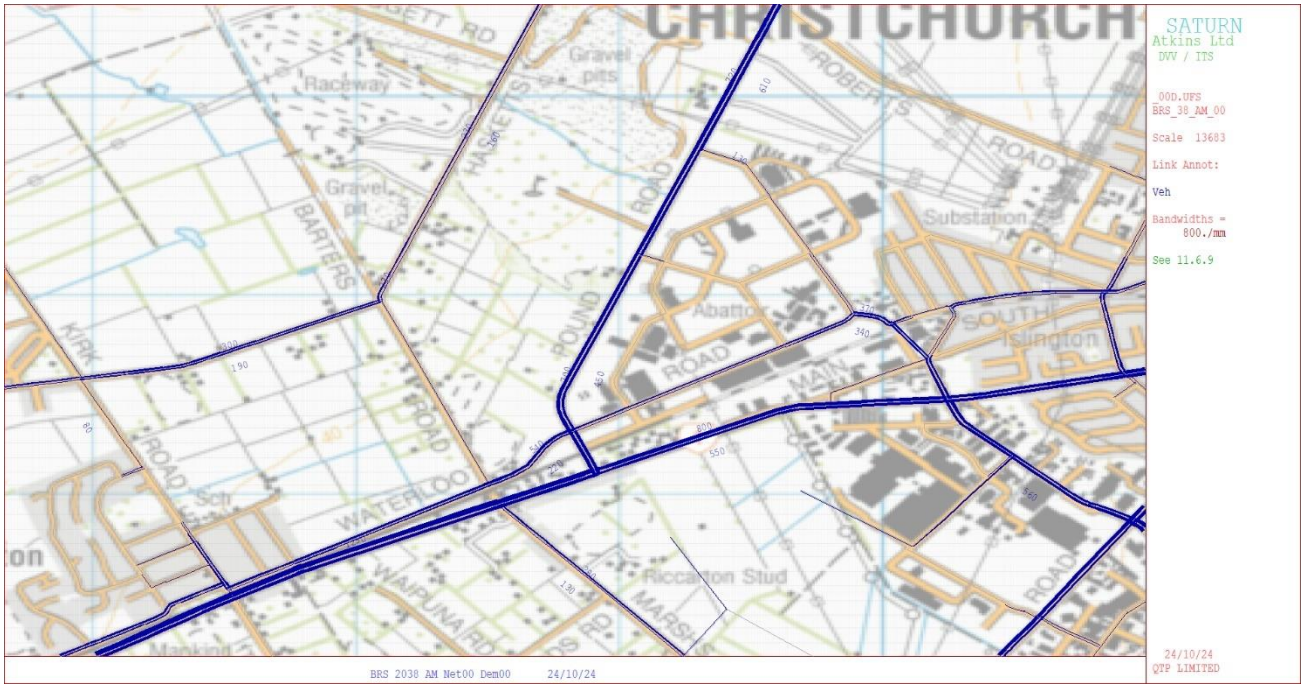
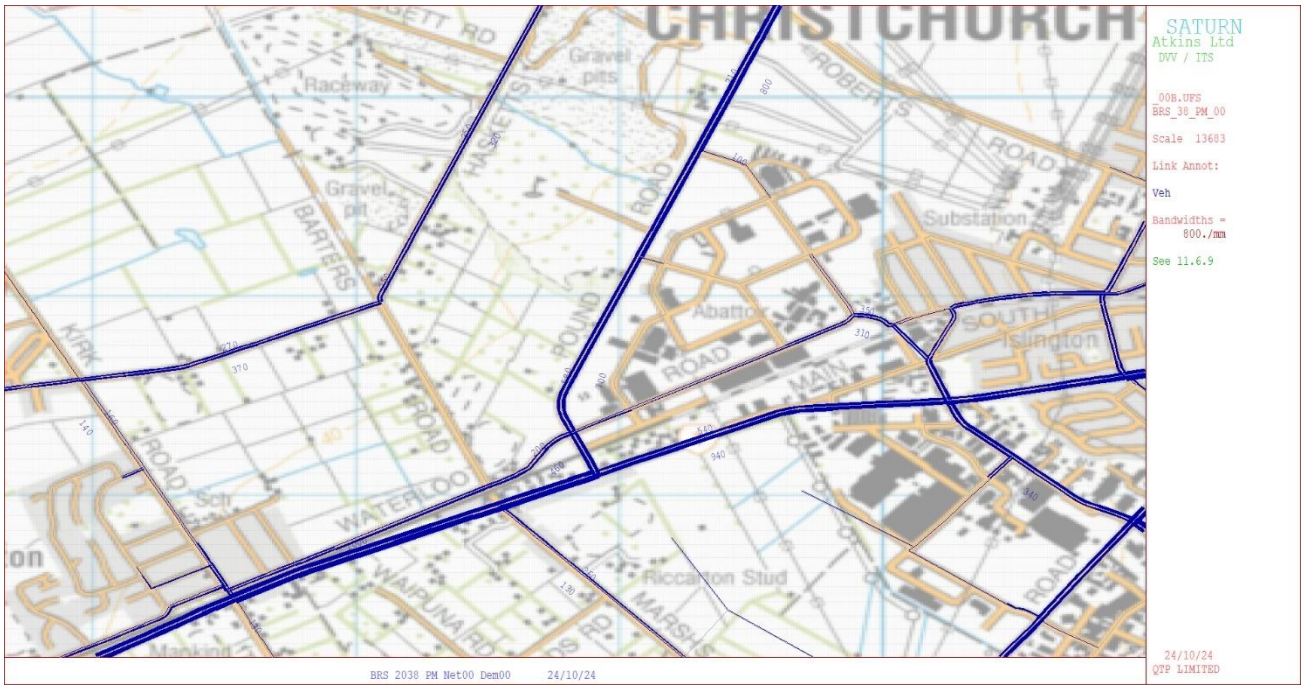


Figure 3.12: Modelled Flows, No Development, 2038 PM Peak Hour



3.7.7 By way of context, the following diagrams illustrate the **changes** in modelled peak hour traffic flows between the 2024 base models and the 2038 assessment year. Red bands illustrate increases in traffic flow and green reductions, with the width of the bands being proportional to the changes in directional traffic flows. Please note the different scale adopted from the diagrams above, adopted to emphasise the changes.

Figure 3.13: Modelled Changes in Base Model Traffic Flows 2024 to 2038, AM Peak Hour

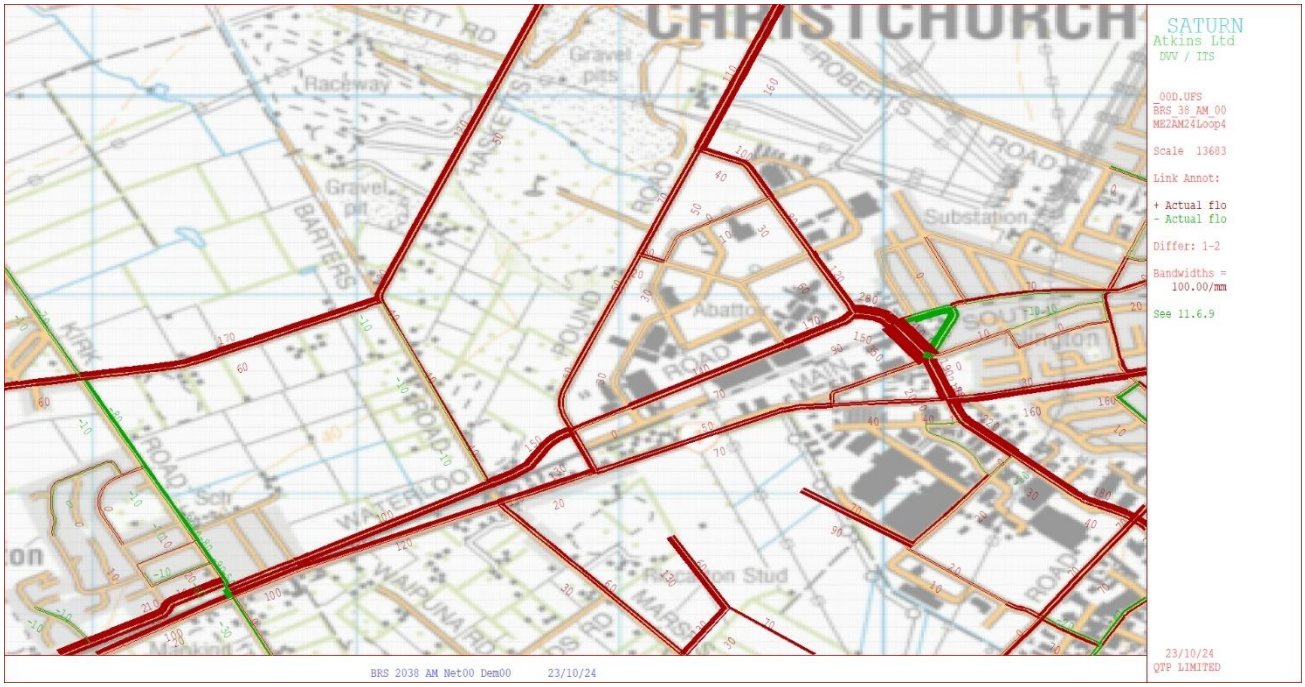
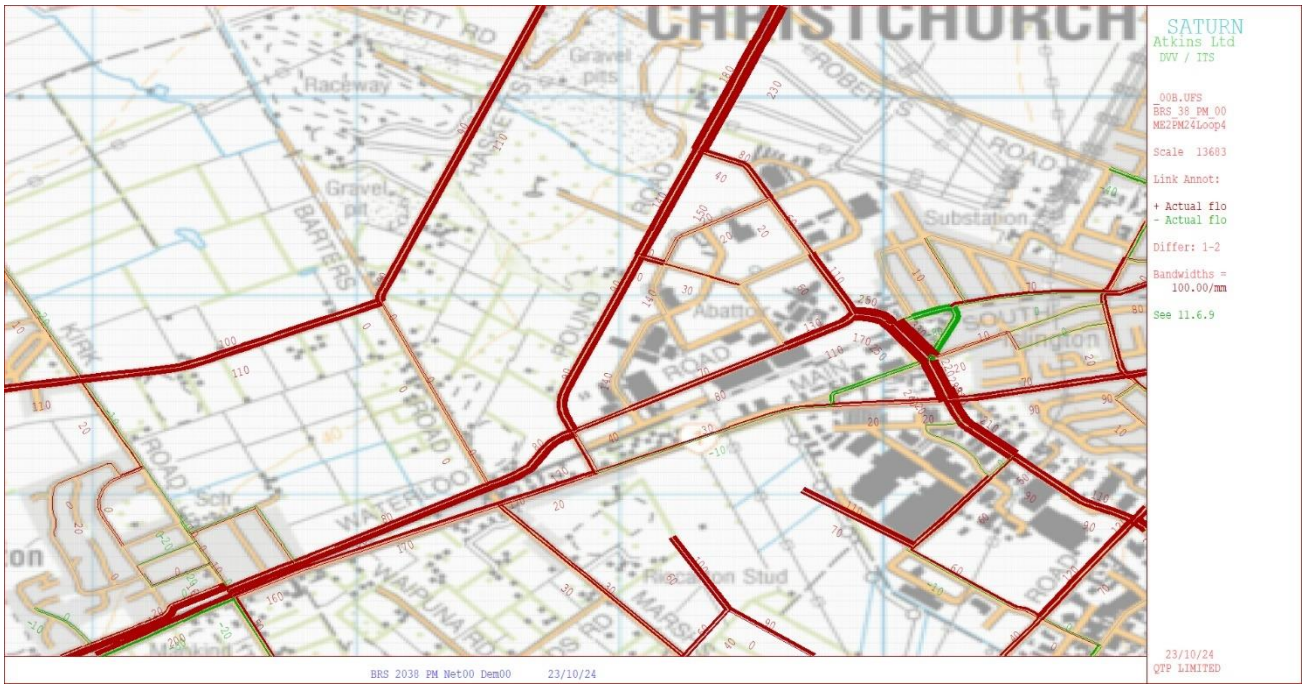


Figure 3.14: Modelled Changes in Base Model Traffic Flows 2024 to 2038, PM Peak Hour



3.7.8 As would be anticipated, under anticipated population and employment growth to 2038, traffic volumes on Pound Road are generally forecast to increase, as indicated by the annotated red bands. In the vicinity of the development site, modelled growth in two-way flows on Pound Rd between 2024 and 2038 is between 10%-20% in the peak hours (with the higher levels of growth predicted North of Halswell Jn Rd, as a result of the proposed HJR Extension, combined with the assumed land use growth.

3.7.9 The following diagrams illustrate the modelled delays for the base model (without the Fast-track application development) in 2038. Delays (compared to 2024) are expected to increase (moderately) at the Pound Rd intersections to the South of the Fast-track application site.

Figure 3.15: Modelled Average Link Delays, No Development, 2038 AM Peak Hour

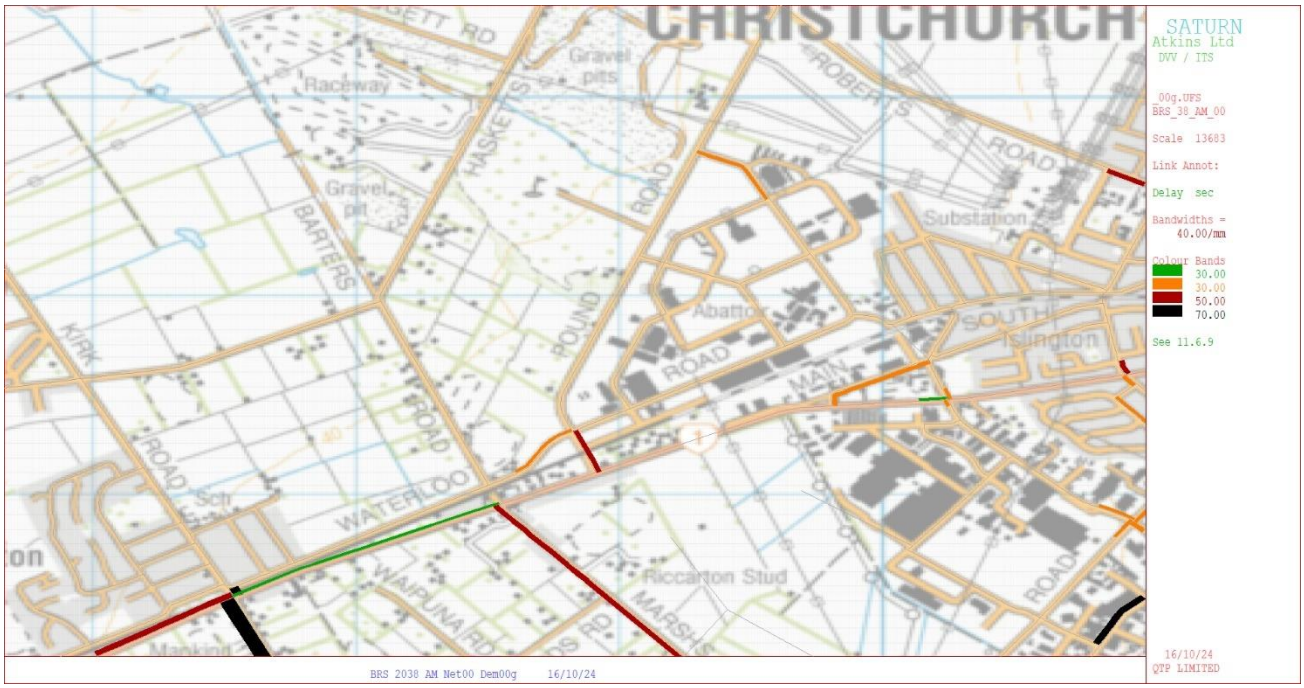
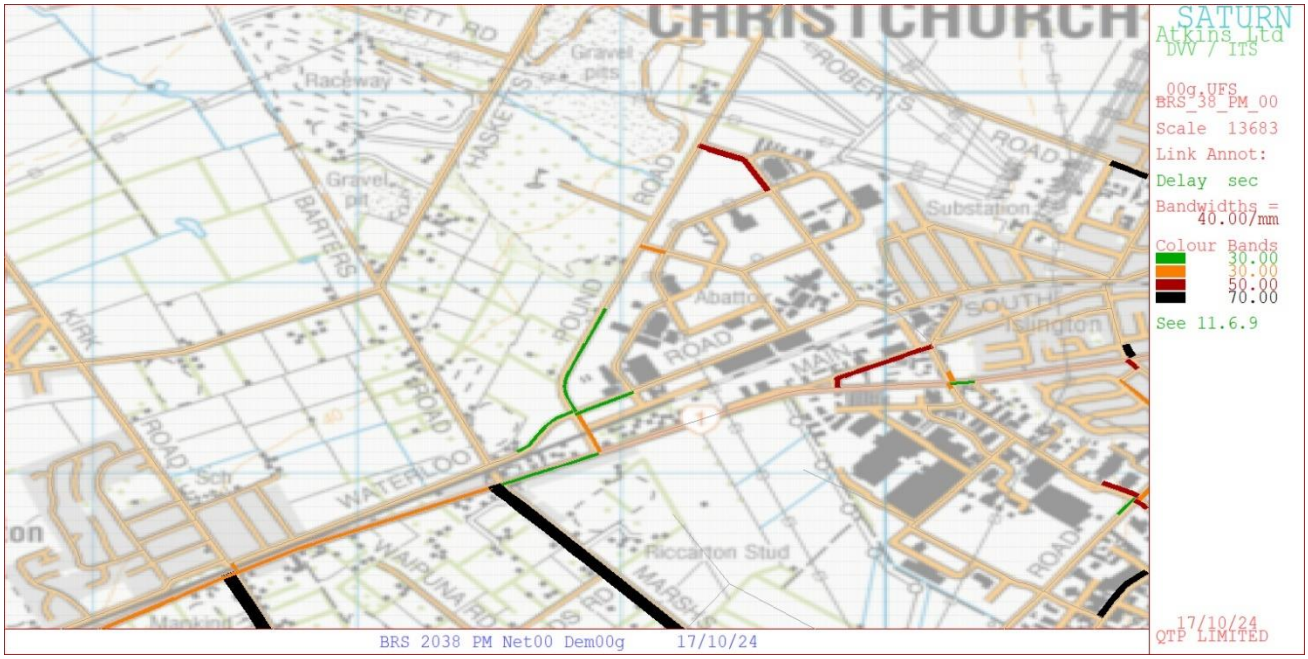


Figure 3.16: Modelled Average Link Delays, No Development, 2038 PM Peak Hour



4 'With Development' Demand Adjustments

4.1 Approach

4.1.1 The approach adopted to developing the 'with development' demand scenarios is summarised as follows:

- Local industrial zones (4691,4701 & 4711 comprising Waterloo Park (all zoned IG) plus 2301-2304 (comprising mixed IG and IH-zoned areas, including distribution warehousing, around Quadrant Drive and North of Shands Road) in the generic CAST model have been copied and aggregated to a 'template' zone (with any intra-zonal trips removed). This 'template' zone provides the trip distribution pattern considered appropriate for application to the Fast-track proposed development.
- The template zone demands are factored to provide estimated trips to and from each of the three zones representing the proposed development.

4.2 Trip Generation Rates

4.2.1 Trip generation assumptions have been provided by Novo Group and may be summarised as follows

- A total developable site area of 61.4ha.
- Total two-way vehicle trip generation is anticipated to be at a rate of 158.6 vpd/ha over an average weekday. Whilst Novo suggested this may reflect daily directional trip rate of 81.3vpd/ha IN and 77.3 vpd/ha OUT, for modelling purposes we have assumed that in practice this would be 50/50 over a typical weekday.
- Hourly peak two-way trip rates varying between 13.9 vph/ha (AM peak) and 12.7vph (PM peak) per ha have been applied to yield total peak hour site trip generation of up to 856 vph two-way (in the AM peak hour).
- Heavy vehicles are assumed to comprise 8.7% of the two-way trips in the AM peak hour, 10.1% in the representative interpeak hour and 7.1% in the PM peak hour.
- The total site trip generation has been split between the three zones representing the Fast-track application development (5041, 5042 & 5043), at this stage based simply on their respective gross areas (15.5ha, 30.9ha & 15.0ha).

4.2.2 The total two-way trips for light and heavy vehicles have been apportioned to inbound and outbound trips to/from the site based on the split of in and out traffic of modelled 'template' zone that represents trips to/from combined local industrial areas as described above. The resulting trips are summarised in **Table 4.1**.

Table 4.1: Modelled Fast-track Development Vehicle Trips

Period	Light Vehicles			Heavy Vehicles			Total Vehicles		
	To	From	2-Way	To	From	2-Way	To	From	2-Way
AM Peak Hour (0730-0830)	536	246	**782**	28	46	**74**	564	292	**856**
Interpeak Hour (1300-1400)[5]	281	281	**563**	28	36	**63**	309	317	**626**
PM Peak Hour (1630-1730)	254	470	**724**	31	25	**56**	285	495	**780**
Average Weekday (24 hr)	4,407	4,407	**8,814**	461	461	**922**	4,868	4,868	**9,736**

[5] The trip generation provided by Novo for this hour has been assumed to equate to an average interpeak hour (0900-1600) for the purposes of our modelling. Whilst the relativity between 1300-1400 demands and the average interpeak does vary across the network, the 3 closest NZTA TMS count sites to the Fast-track application site (i.e. counts providing full day data that can be averaged across all non-holiday weekdays in a year), suggests a difference around this location of only around 2% between the two measures.

5 Modelled Development Traffic Effects

5.1 With Development Network Assumptions

5.1.1 Two sets of Network assumptions have been modelled to support 2038 'With-Development' assessment.

- A 'Basic Access' scenario, which assumes provision of simple (priority-controlled) accesses at each of the site connections to the existing local road network - including that of the principal access (onto Pound Rd). Beyond this, no further adjustments to the base (planned) network for 2038 have been assumed within this scenario.
- An 'Enhanced Access' scenario, which replaces the simple priority-controlled access point (onto Pound Rd only) assumed above, with a roundabout, of similar configuration to that currently at Buchanans Rd/Pound Rd intersection to the North. In addition this network assumes the addition of an additional Sbnd (only) Pound Rd lane, from N of the intersection with Waterloo Rd, across the railway to Main Sth Rd.

5.2 Development Traffic Trip Distribution

5.2.1 The following model plots illustrate the modelled trips to and from the Fast-track application land use (separately) in the AM and PM peak hours, under the 'Enhanced Access' network scenario described above.

Figure 5.1: Modelled Routing of Inbound Trips To Site, 2038 AM Peak Hour

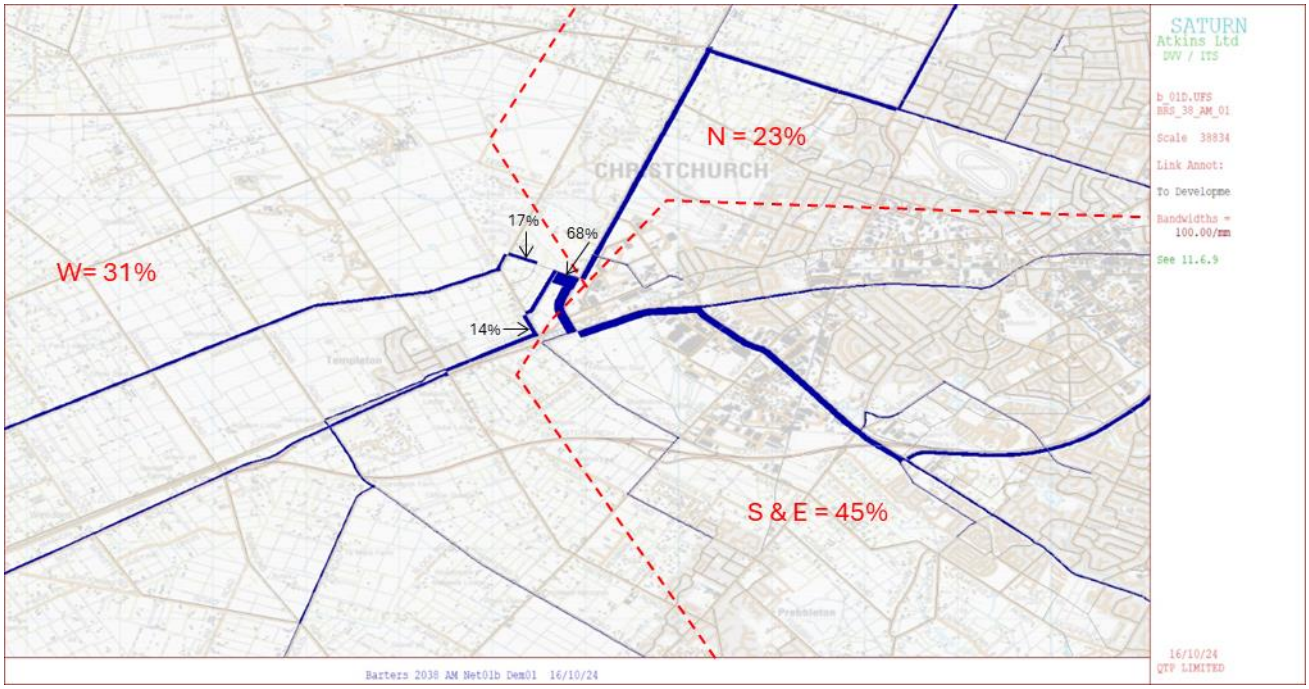


Figure 5.2: Modelled Routing of Outbound Trips From Site, 2038 AM Peak Hour

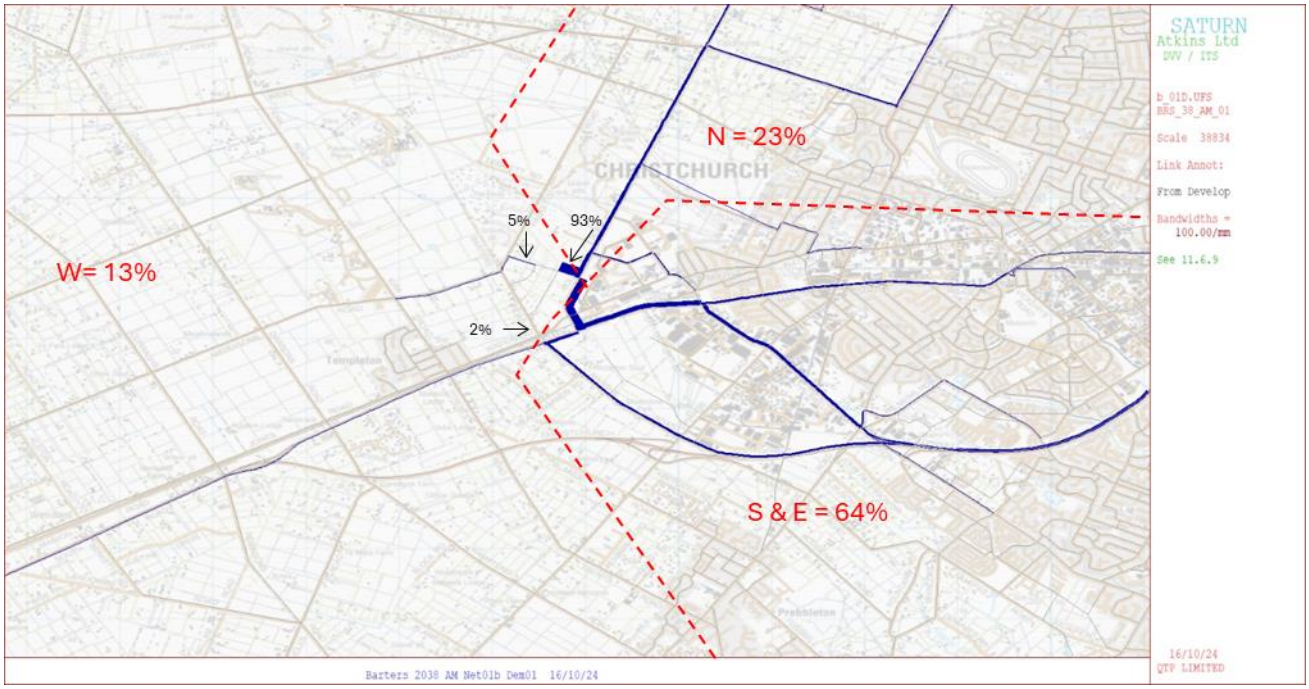


Figure 5.3: Modelled Routing of Inbound Trips To Site, 2038 PM Peak Hour

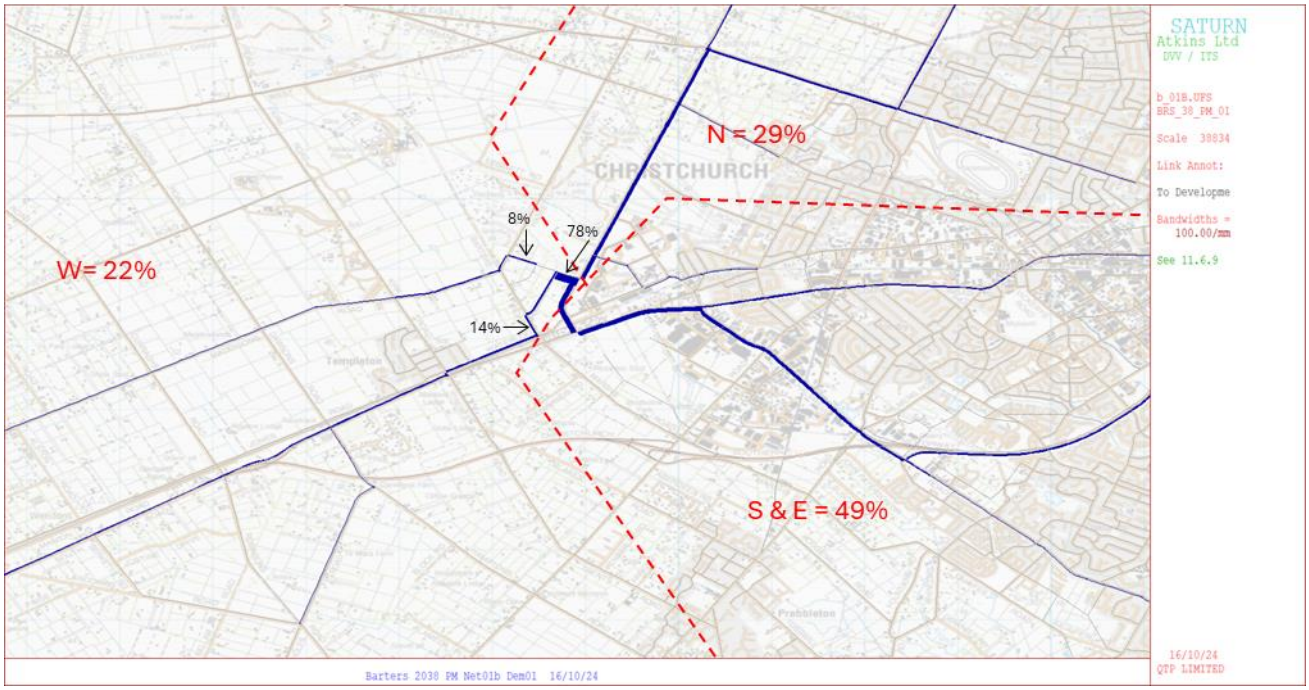
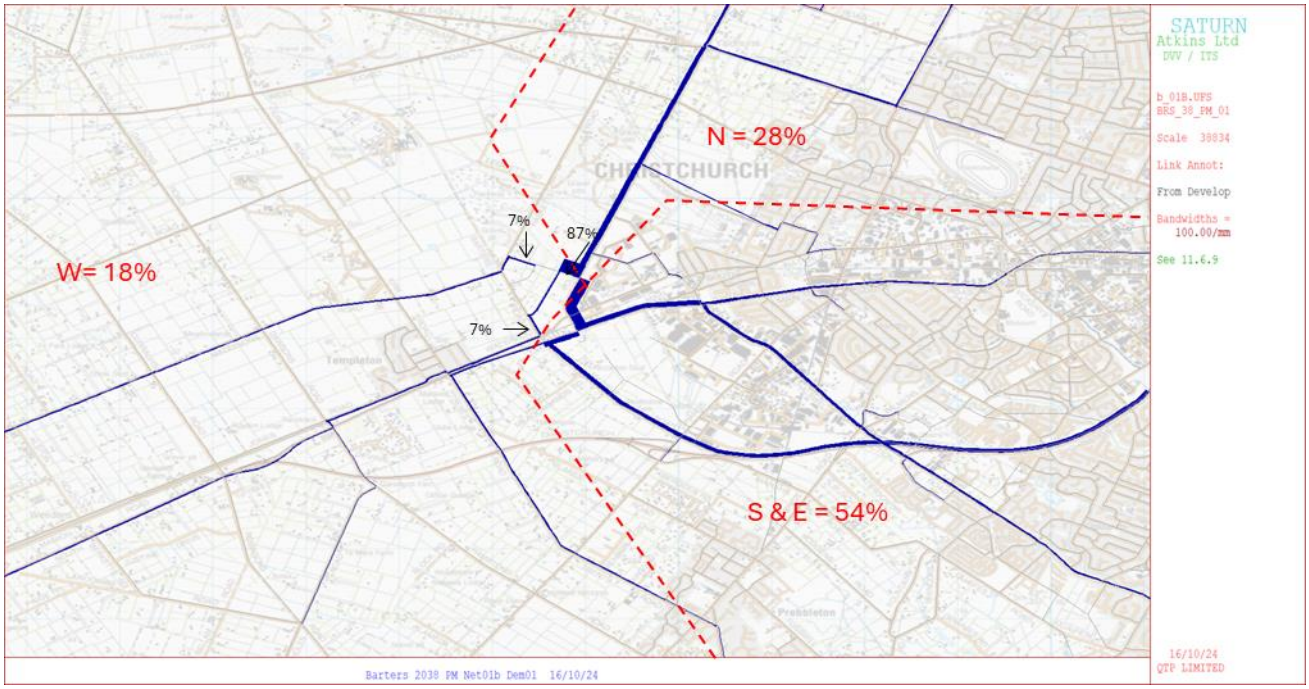


Figure 5.4: Modelled Routing of Outbound Trips <u>From</u> Site, 2038 PM Peak Hour



5.2.2 These distributions (locations where trips are coming from and going to) are based on those associated with existing industrial areas near the site. Routing through the transport network is however undertaken based on the optimal routes between origins and destinations (considering predicted travel times of alternative routes considering all traffic on the network).

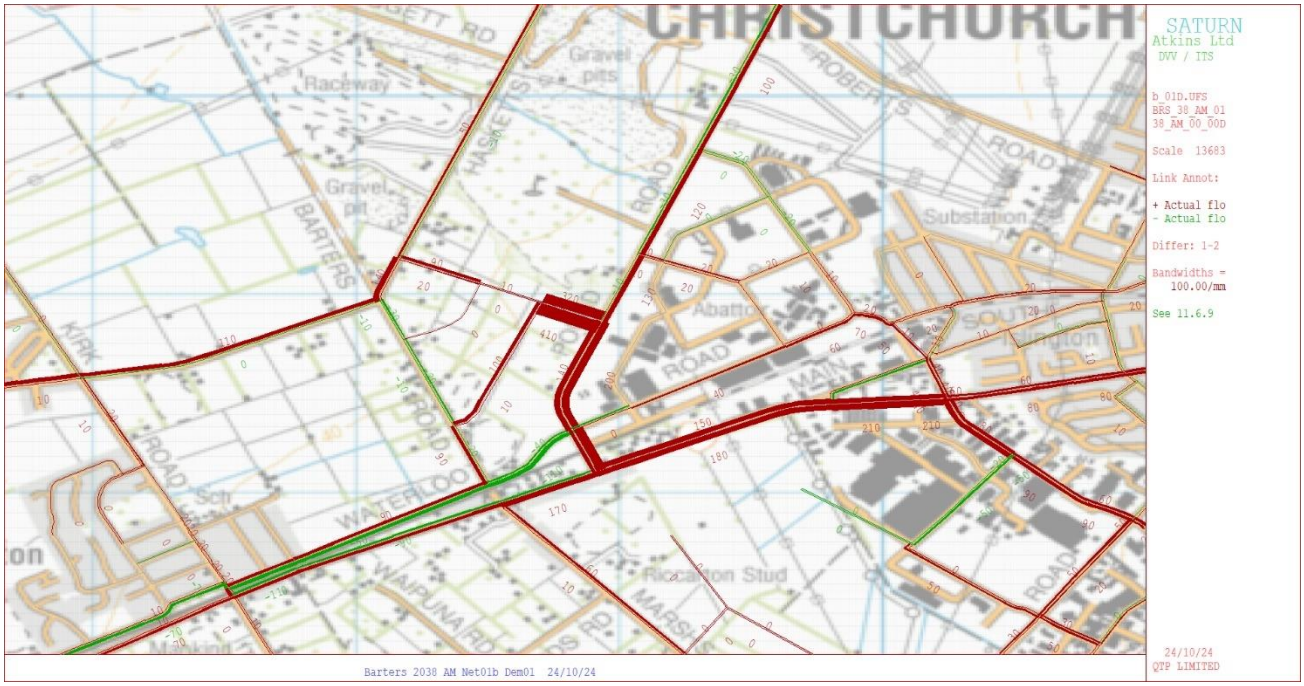
5.2.3 Note that above volumes to/from the site access points are a little higher than the directional vehicle trips listed in Table 4.1. The model deals in units of Passenger Car Units (**PCUs**) per hour. In simple terms, this converts heavy vehicle flows to car equivalents for operational assessment, at the rate of 2 cars for each heavy vehicle. Thus the illustrated modelled flow 'changes' (in PCUs) are a little higher than the tabulated values, as these double-count the HCVs.

5.2.4 Overall, on a daily basis, the Fast-track application land use is projected to generate approaching 10,700 2-way pcu movements on an average weekday (9,700 vpd), of which around 59% are to & from the East and South, 23% from the North and 17% from the West.

5.3 Traffic Flow Changes

5.3.1 The following model plots illustrate the change in modelled traffic volumes under development of the site for approximately 61ha of industrial land, per the traffic generation assumptions set out in the previous chapter, for an assessment year of 2038. These are only here compared for the 'Enhanced Access' With-Development scenario only, for brevity.

Figure 5.5: Modelled Changes in Traffic Flows Due to Development, 2038 AM Peak Hour



5.3.2 These change plots represent the net effects of additional development traffic **and** the assumed road network changes, with the latter including both a roundabout at the principal Site Access and an additional Sbnd lane on the Pound Rd approach to SH1 Main Sth Road (and Waterloo Rd).

5.3.3 Annotated trips are rounded to the nearest 10 pcus per hour. On the site access roads the values sum to values slightly higher than the two-way trips listed in Table 4.1 above. As noted in the previous sub-section, the native unit of flows in the model are Passenger Car Units (**PCUs**) in order to take into account the effects of vehicle composition (i.e. heavy vehicles) on modelled network performance. In simple terms, this converts heavy vehicle flows to car equivalents for operational assessment, at the rate of 2 cars for each heavy vehicle.

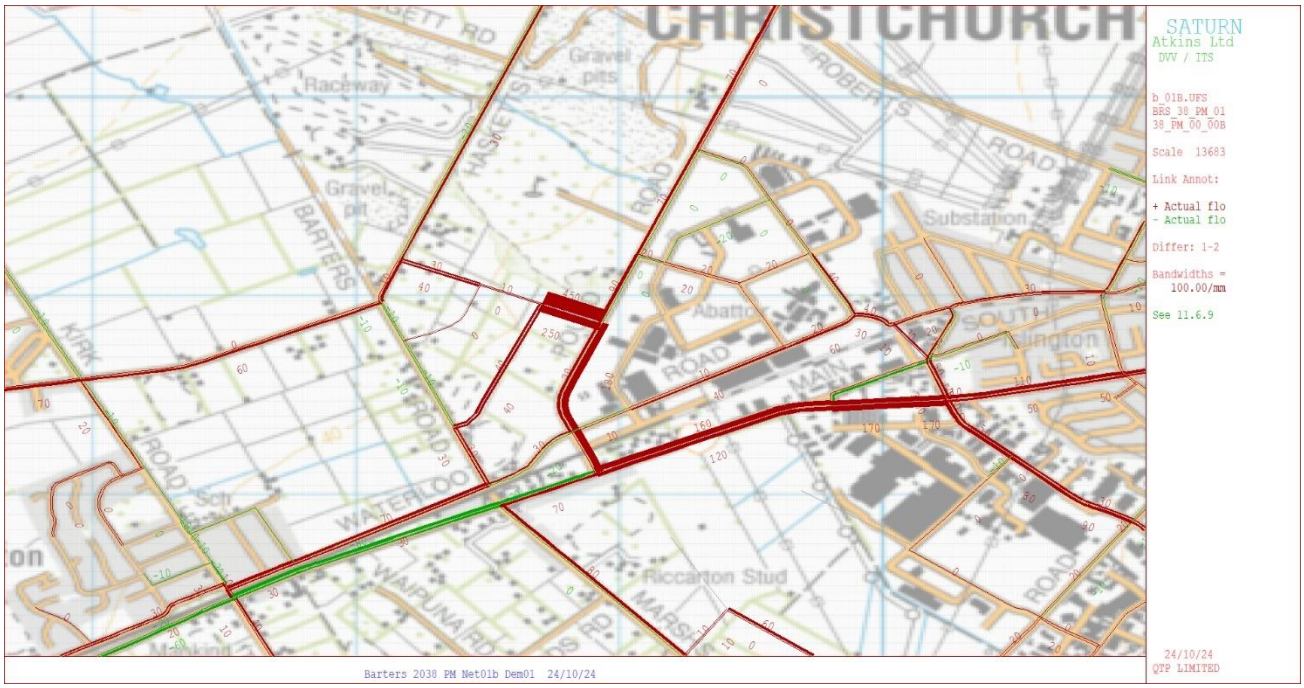
5.3.4 Thus, the illustrated modelled flow 'changes' (in PCUs) on the access roads are a little higher than the tabulated values. Referring to Table 4.1, it can be seen that with heavy vehicles comprising around 74 vehicle trips in the AM peak hour, that total 2-way trips should equal around 930 PCUs per hour. They actually equal around 950 PCU/hr in the diagram above - because of some additional use predicted of the internal site network by *non-development* vehicles - re-routing to take advantage of the new opportunity afforded by the internal site network.

5.3.5 The modelled reduction in westbound flow (green bands) on Waterloo Rd west of Pound Rd in the AM peak hour occurs (principally) because of the additional capacity provided in this scenario for the RT from Pound Rd onto Main Sth Rd.

5.3.6 The most obvious modelled increases on traffic shown in this diagram, on Main Sth Rd east of Pound Rd, (at 330 pcu/hr, two-way, equating to an addition of +23% in AM peak hour demand over the no-development scenario) are actually a little lower than the additional development traffic distributions, shown in Figure 5.1 and Figure 5.2 for the AM peak hour imply (380 pcu/hr). This occurs because of wider predicted re-routing effects.

5.3.7 Notable also, the net differences in Sbnd Pound Rd traffic (about 100 pcu/hr N of Halswell Junction Rd) are a little lower than the net addition expected at this location from Site traffic alone (+130 pcu/hr) - again because of wider (but modest) re-routing effects

Figure 5.6: Modelled Changes in Traffic Flows Due to Development, 2038 PM Peak Hour



5.4 Modelled Approach Delays

5.4.1 The following plots illustrate the modelled delays around the network at an intersection approach level, in the same manner as those presented earlier within this report for the 2024 present-day model and the 2038 base model. Note that they represent delays averaged across all turning movements to each intersection – and as such actually under-represent the projected delays exiting the site onto Pound Rd, for traffic turning to the right. (These are described more fully in following sections).

Figure 5.7: Modelled Average Link Delays, With Development (& Basic Access only), 2038 AM Peak Hour

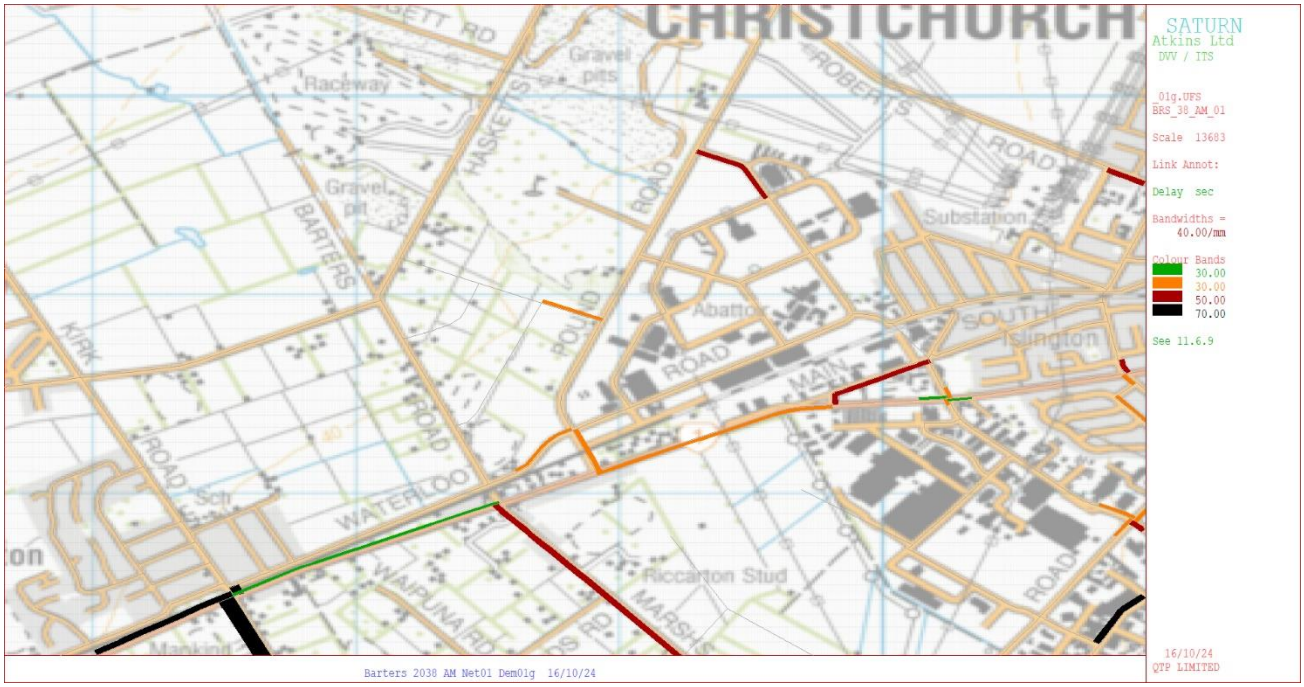


Figure 5.8: Modelled Average Link Delays, With Development (Enhanced Access), 2038 AM Peak Hour

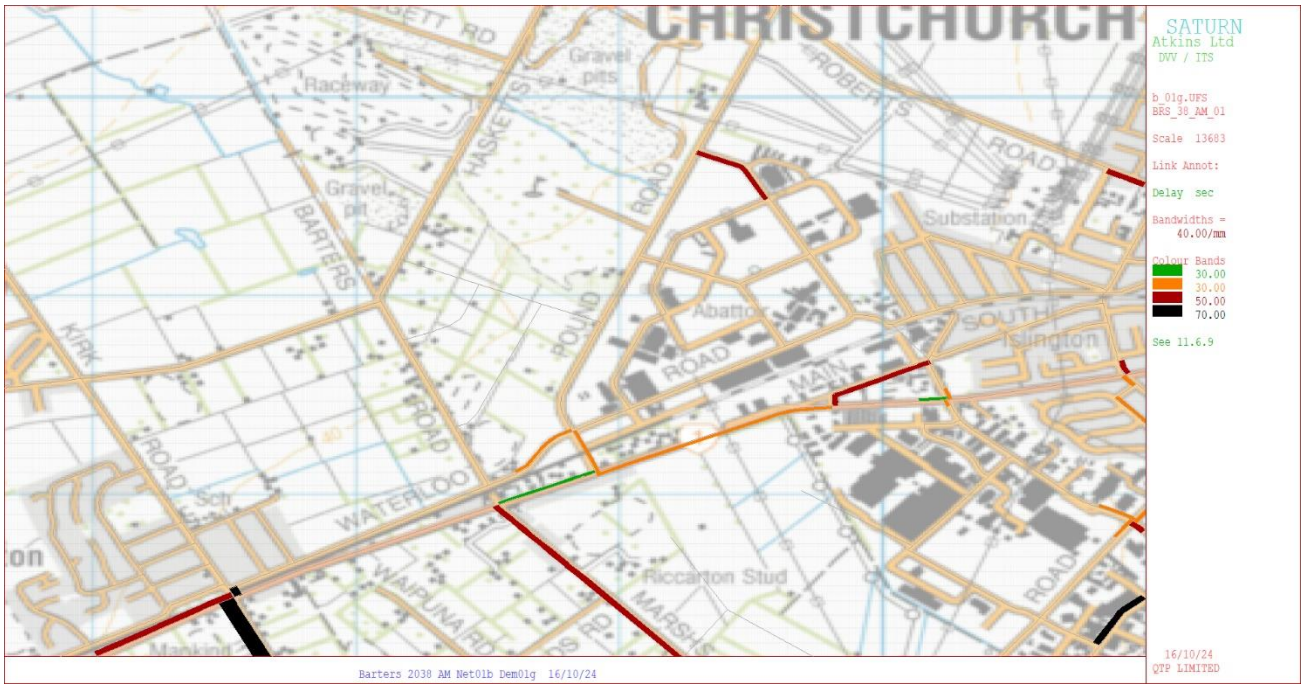


Figure 5.9: Modelled Average Link Delays, With Development (& Basic Access only), 2038 PM Peak Hour

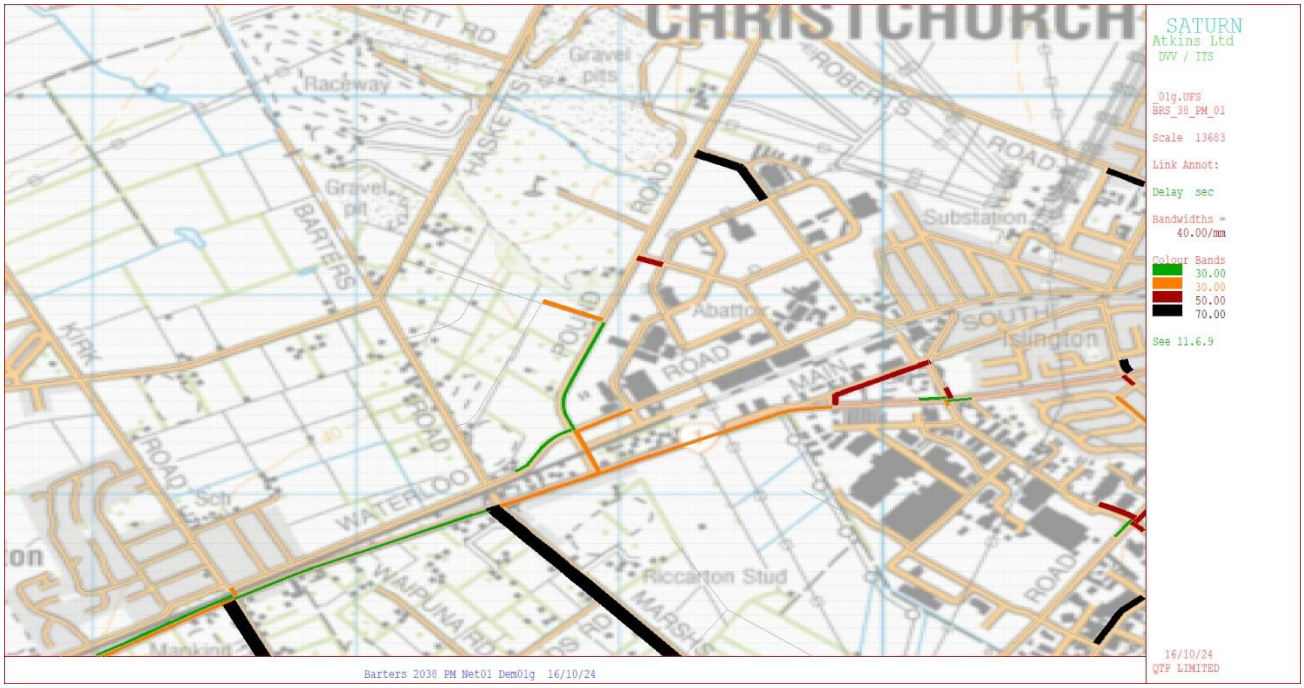
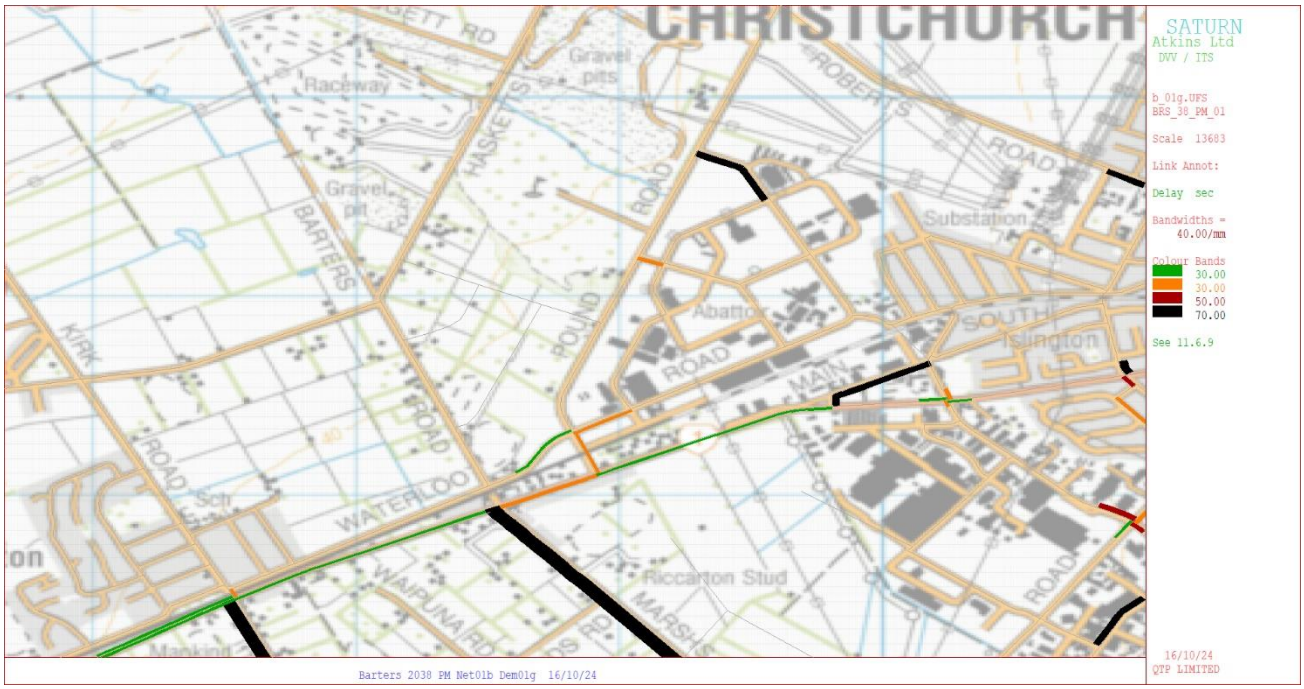


Figure 5.10: Modelled Average Link Delays, With Development (Enhanced Access), 2038 PM Peak Hour



5.4.2 The above diagrams indicate the generally-positive impacts in link delays of the 'Enhanced Access' network assumptions, compared to those for the 'Basic Access. An exception is on Foremans Rd. where added delays are forecast (for traffic exiting onto Main Sth Rd).

5.4.3 The above illustrated modelled link delays are most useful when considered together with the relative **changes** in delays due to the proposed development (presented next). In this way, locations of material changes can be considered in the context of the level of delay forecast.

5.5 Modelled Delay Changes

5.5.1 The following plots illustrate the modelled changes in approach delays in the vicinity of the Fast-track application proposal. Only delay changes greater than ±2 seconds are illustrated. The delay changes are illustrated as annotated bands, with the width of the bands proportional to the change in delay forecast. Increases in delay are illustrated as red bands, with reductions in green.

Figure 5.11: Change in Link Delays With Development (Enhanced Network), 2038 AM Peak Hour

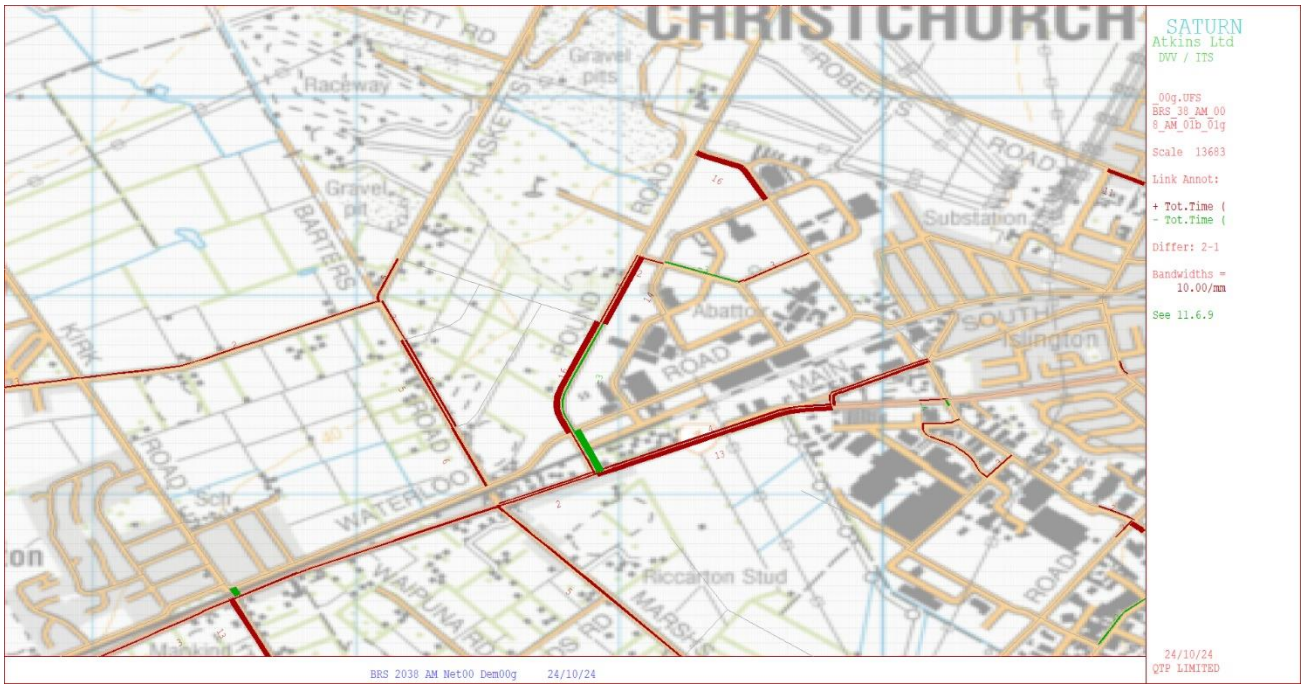
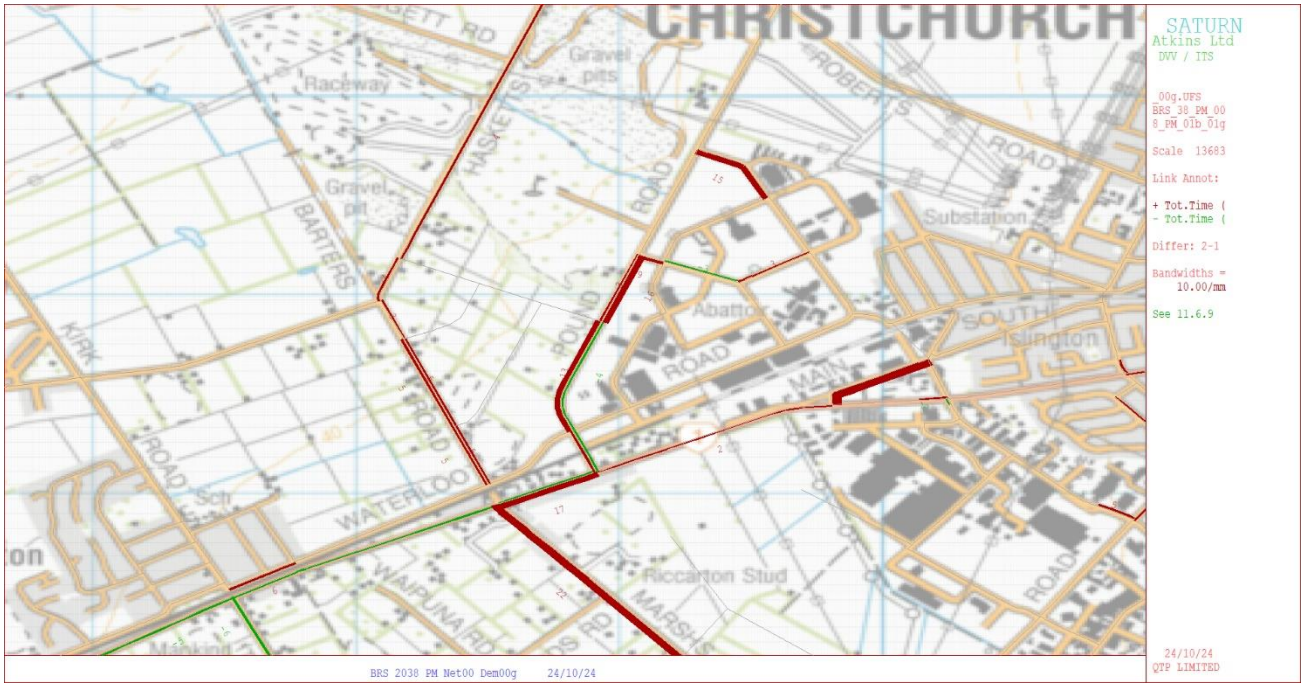


Figure 5.12: Change in Link Delays With Development (Enhanced Network), 2038 PM Peak Hour



- CAST modelling suggests that the roundabout access (and additional Site traffic) will add between 13-16 seconds delay to traffic using Pound Rd (depending on direction and

period.

- In the AM Peak the additional Site traffic may add up to 13 seconds/vehicle additional delay for Wbnd traffic using Main Sth Rd, and impose additional delays of around 16 seconds/vehicle for traffic exiting Halswell Junction Rd onto Pound Rd. Elsewhere in the local area, any additional delay impacts are indicated to be more modest.
- In the PM Peak, in addition to the delays at a new Site access roundabout on Pound Rd, additional traffic (due mainly to the Site) the modelling predicts around 17 additional seconds/vehicle delay for Wbnd traffic using Main Sth Rd at Marshs Rd. Noting that this intersection has priority for Main Sth Rd traffic, the predicted delay occurs on the single-lane approach (which follows the merge from 2 westbound lanes W of the Pound Rd signals). In this section, the model is predicting assigned flows will represent around 97% of capacity (and hence the predicted delays). Being this close to capacity, the delay estimate should therefore be treated as indicative only as it could, in practice, be potentially worse - and indicative of 'looming' capacity issues on this section of the SH (irrespective of the proposed Fast-track land use, albeit potentially advanced by it, should it proceed).
- Additional delays of around 20-30 seconds/vehicle for traffic exiting Marshs Rd and Foremans Rd onto Main Sth Rd are also predicted in the PM peak and, similar to the AM Peak, additional delays of around 15 seconds/vehicle are predicted for traffic exiting Halswell Junction Rd onto Pound Rd. Elsewhere in the local area, any additional delay impacts are indicated to be much more modest.

5.6 Sidra Intersection Modelling Cross-Check

5.6.1 By way of a cross-check of the CAST modelled operation the following key intersections around the Site have been modelled using the SIDRA intersection software:

- The principal Site Access (on Pound Rd);
- Pound Rd/SH1 Main South Rd; and
- Pound Rd/Waterloo Rd

5.6.2 SIDRA has been applied (using separate LV and HV traffic volumes predicted from relevant CAST SATURN model scenarios). Note that this exercise provides a cross-check of the modelled intersection performance for the assumed set of flows. In practice, the CAST modelling calculates the delays that are in-turn influential to the assigned traffic volumes through the intersection. That is to say, the modelled flows in CAST are in equilibrium with the modelled intersection performance. Any significant discrepancy between modelled delays in the SIDRA modelling and those of the CAST modelling would not, in practice, occur to the same extent because higher delays would result in some traffic taking alternative routes to the intersection being modelled (in SIDRA), which in-turn would reduce the modelled delays. Similarly, lower delays as modelled in SIDRA would likely attract increased volumes than with the CAST model, which in-turn would increase delays to some degree.

5.6.3 The assumed intersection layouts for each scenario, along with SIDRA modelling movement summaries and movement delay plots are provided within **Appendix B**.

5.6.4 The SIDRA modelling of the principal Site Access on Pound Road is summarised (for 2038 peak hour scenarios only) in **Table 5.1**:

Table 5.1: Summary of SIDRA modelling Results for Principal Site Access (2038 Peak Hours only)

			'Basic Access' Scenario Traffic Volumes						'Enhanced Access' Scenario Traffic Volumes		
			Priority Intersection			Roundabout			Roundabout		
Period	Approach	Movement	VPH	Delay (s)	LoS	VPH	Delay (s)	LoS	VPH	Delay (s)	LoS
AM Peak Hour	Pound S	L	205	5.4	A	205	10.2	B	262	5.9	A
		T	676	0.1	A	676	10.2	B	622	5.8	A
	Pound N	T	460	0.1	A	460	4.4	A	494	5.4	A
		R	228	9.6	A	228	8.9	A	164	9.9	A
	Site	L	162	10.9	B	162	8.6	A	96	9.5	A
		R	138	394.8	F	138	12.8	B	203	11.9	B
	Intersection	All	1869	31.9	n/a	1869	8.7	A	1841	6.9	A
PM Peak Hour	Pound S	L	129	5	A	129	4.4	A	136	4.2	A
		T	614	0.1	A	614	4.2	A	572	4	A
	Pound N	T	682	0.1	A	682	4.6	A	640	11.8	B
		R	124	8.3	A	124	9.3	A	114	16.5	B
	Site	L	285	9.1	A	285	7.5	A	175	8	A
		R	144	447	F	144	12.5	B	305	11.3	B
	Intersection	All	1978	34.8	n/a	1978	5.7	A	1942	8.8	A

5.6.5 In the above table we can see that significant delays (exceeding 10 minutes) are predicted by the SIDRA modelling when a priority intersection form is assumed (refer Appendix B, page B5 for the assumed layout). The traffic volumes assumed for this scenario are however drawn from the CAST 'Basic Access' scenario – and this predicts the average delay for the critical right turn movement from the Site Access approach to be 72 s/veh in the AM Peak (compared to SIDRA's 395 s/veh) and 107s.veh in the PM Peak (compared to SIDRA's 447 s/veh).

5.6.6 This discrepancy occurs (principally) because the SIDRA capacity estimates are lower than those calculated by CAST and (given the CAST-predicted volumes), the movement is predicted by SIDRA to operate at least 30% above capacity, whereas CAST predicts (slightly) higher capacity but given equilibrium routing, demand/capacity ratios of between 0.868-0.965, for the respective periods.

5.6.7 However, for priority intersections the important observation to make is that delays escalate very rapidly when movements exceed a demand/capacity ratio of around 0.8, and the CAST-predicted delays (for a priority intersection form only), are still very significant: The 'Level of Service' (LoS) still being predicted to be very poor (F on the descending scale of A-F). The analysis thus confirms our view that a give-way controlled intersection to serve at this location as the principal Site Access would be ill-advised.

5.7 Impact on Travel Times

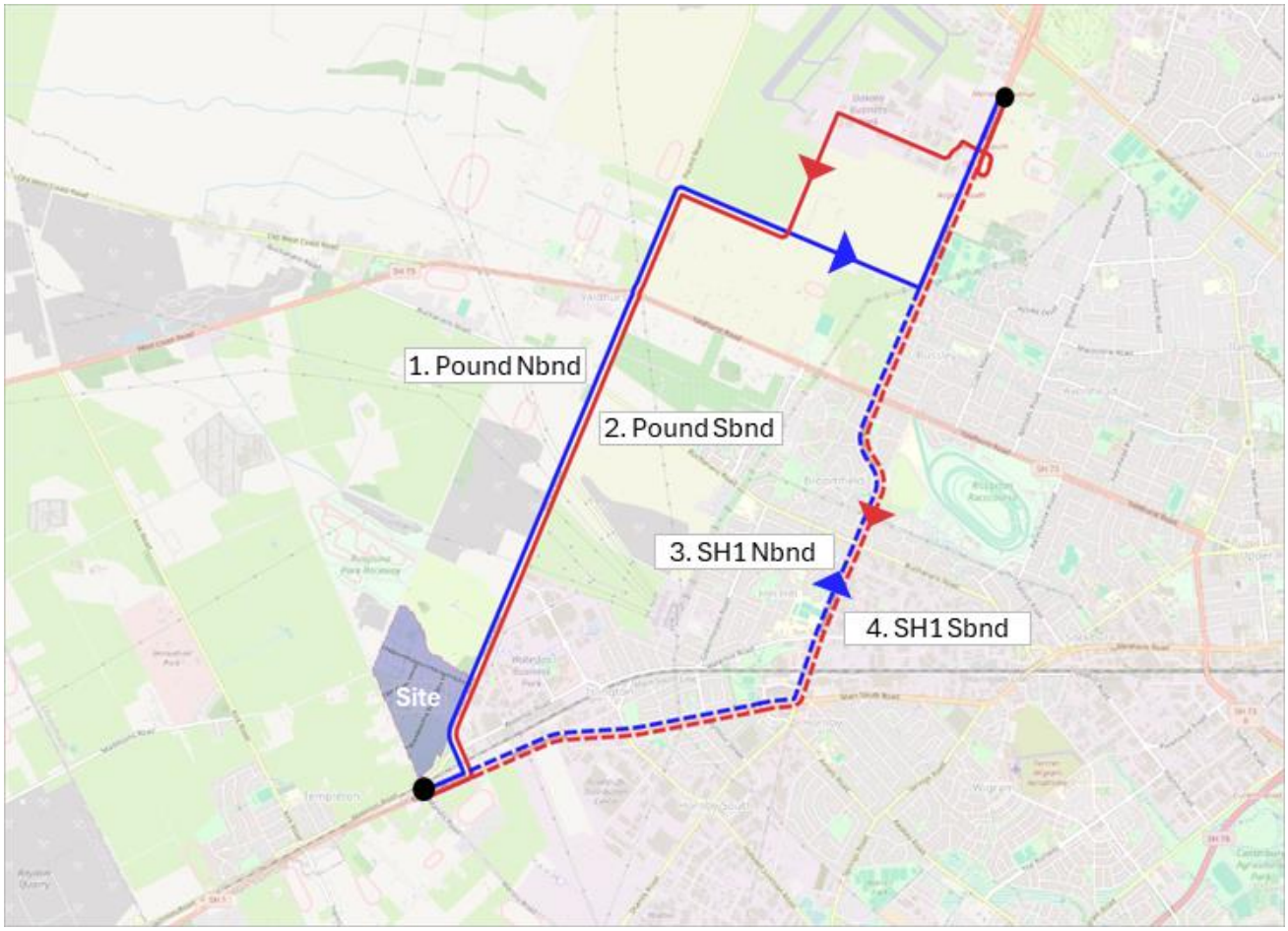
5.7.1 As noted above the modelled flows in CAST are in equilibrium with the modelled intersection performance, for each scenario. While we have also noted that the roundabout on Pound Rd currently assumed to provide the principal site access would impose some additional delay to non-development traffic (up to around 12s/veh, on average in the PM Peak, given all capacity enhancements examined), this should be placed in the context of wider journeys.

5.7.2 To facilitate this, we have extracted the model results to compare predicted journey times over alternative sample routes between two points which may represent 'typical' journeys (or parts thereof), for each modelled scenario, these being:

- the Marshs Rd/SH1 Main Sth Rd intersection, to the SE of the Site; and
- SH1 Russley Rd, where it crosses the former Avonhead Rd, south of Memorial Av.

5.7.3 In practice of course there are many (more) alternative routes between these intersections that could be considered that are taken into account within the model assignments (e.g. SH1-Yaldhurst Rd-Pound Rd).

Figure 5.13: Sample Alternative Travel Routes

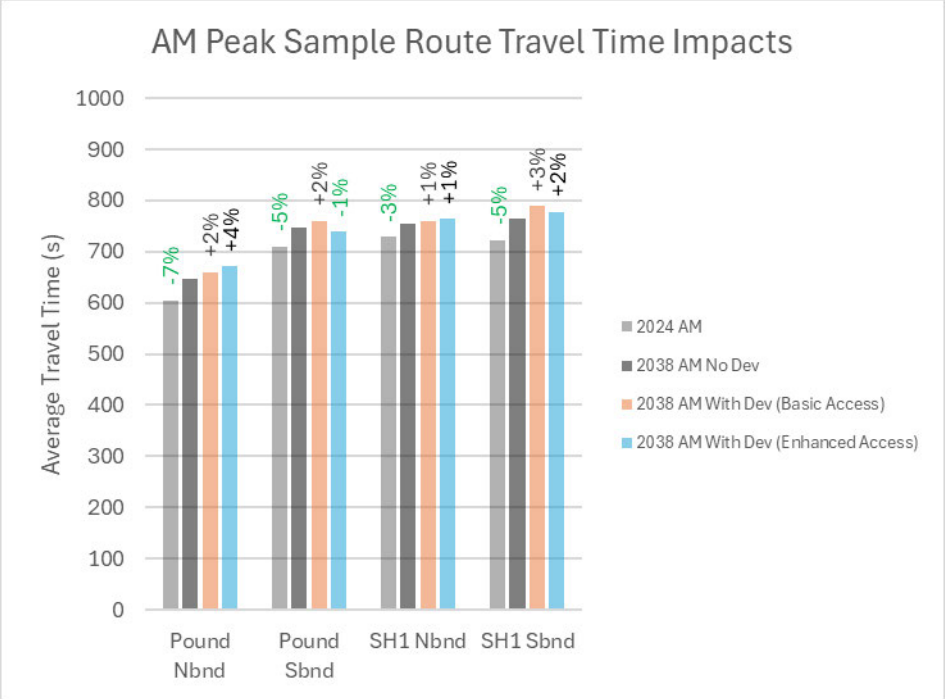


5.7.4 The total travel time results (for the complete journey) of the modelling for each scenario are tabulated in **Table 5.2**:

Table 5.2: Sample Route Travel Time Comparisons

Scenario	Travel Time (s)				Impacts (Relative to 2038 Base)				Route Speed (kph)			
	Pound Nbnd	Pound Sbnd	SH1 Nbnd	SH1 Sbnd	Pound Nbnd	Pound Sbnd	SH1 Nbnd	SH1 Sbnd	Pound Nbnd	Pound Sbnd	SH1 Nbnd	SH1 Sbnd
2024 AM	605	710	729	723	-7%	-5%	-3%	-5%	58	52	43	44
2038 AM No Dev	648	748	754	764					54	50	42	41
2038 AM With Dev (Basic Access)	660	760	760	789	+2%	+2%	+1%	+3%	53	49	41	40
2038 AM With Dev (Enhanced Access)	671	739	764	777	+4%	-1%	+1%	+2%	52	50	41	40
2024 IP	550	686	657	661	-4%	-3%	-2%	-4%	64	54	48	48
2038 IP No Dev	573	708	668	687					61	52	47	46
2038 IP With Dev (Basic Access)	579	723	668	695	+1%	+2%	+0%	+1%	60	51	47	45
2038 IP With Dev (Enhanced Access)	591	704	669	692	+3%	-1%	+0%	+1%	59	53	47	45
2024 PM	622	743	787	773	-7%	-5%	-4%	-6%	56	50	40	41
2038 PM No Dev	668	786	818	824					52	47	38	38
2038 PM With Dev (Basic Access)	688	818	825	851	+3%	+4%	+1%	+3%	51	45	38	37
2038 PM With Dev (Enhanced Access)	701	815	821	849	+5%	+4%	+0%	+3%	50	46	38	37

Figure 5.14: Comparison of Total Sample Route Travel Times (AM Peak Hour)



5.7.5 These AM Peak results indicate that:

- Without the Fast-track application land use, overall travel times on the corridors (routes) sampled are expected to deteriorate by between (about[6]) 3-7% between 2024 and 2038.
- With the development served by a priority intersection as the principal point of access (and no further capacity improvements to Pound Rd e.g. at Pound Rd/SH1 or Pound Rd/Waterloo Rd -i.e. a 'Basic Access' scenario), the additional traffic generated by the Fast-track application land use would:
  - Add around 2% (+12 seconds) to the total journey times both Nbnd and Sbnd via Pound Rd
  - Add between 1-3% (+6 and +25 seconds North and Sbnd, respectively), to the travel time of vehicles routing entirely via SH1

[6] To be precise, the % differences tabulated and shown are calculated relative to the predicted **2038** scenario. Hence when 2038 is measured relative to the (lower) 2024 travel times, the % are actually a little higher - but are within 1% of those shown.

- With the development served by a roundabout (plus the further capacity improvements for Pound Rd e.g at Pound Rd/SH1 or Pound Rd/Waterloo Rd), assumed within our 'Enhanced Access' scenario, the modelling indicates (perhaps perversely), that the potential impact would be a little higher – for the northbound Pound Rd route.
- This difference, amounting to about 11 additional seconds/vehicle, arises almost wholly because of the additional delay imposed by the assumed roundabout, compared to a priority intersection adopted for the 'Basic Access' scenario, where there is negligible delay for through vehicles.
- Our other assumptions for this scenario considered (only) the principal potential source of capacity improvement on the wider local network, being the addition of a lane on *Sbnd* Pound Rd approach to SH1. The net effect of this (-9 seconds compared to a no-development scenario) clearly indicates mitigation of both the potential effects of a 'new' roundabout **and** the additional traffic generated by the Fast-track application land use, for the Sbnd Pound Rd route. Indeed it is also suggested to provide some (limited) benefits for the SH1 Sbnd route - because Pound Rd would become more attractive and thereby offer some relief to SH1.
- While we consider that the indicated *Nbnd* Pound Rd travel time increases arising as a result of the Fast-track application proposal to be relatively minor, particularly when considered in the context of more complete journeys such as the sampled ones shown, they could almost certainly be mitigated, *should this be required*, via provision of additional Nbnd capacity that could be afforded by adding a further Nbnd lane (between SH1 and N of Waterloo Rd), to match that assumed in the 'Enhanced Access' scenario for the Sbnd direction. Modelling of such multiple options was, however, beyond the scope of our current brief.

5.7.6 Similar results to the AM peak hour modelling described above were found for both the representative interpeak and PM peak hour scenarios. These results may be seen in **Appendix C** - where comparisons between the scenarios along each route may also be found.

5.8 Modelling Results Summary

5.8.1 Given a combination of high projected (non-development) demand on Pound Road, together with the anticipated Site demands, our modelling suggests if the principal site access is served 'only' by a basic give-way intersection, (e.g. similar to that ay Enterprise Avenue/Pound Road to the north), there would be a very poor level of service (LOS F) for site traffic attempting to turn *right* (from the site onto Pound Road towards the south).

5.8.2 This, in turn would lead to greater potential for (some) site traffic (with more eastern destinations) to turn left instead (northbound on Pound Road) and then utilise the road network through Waterloo Park to access points east - rather than utilising Pound Road to the south and then Main South Rd to the east.

5.8.3 As such, providing a simple priority intersection as the principal site access is unlikely to be a suitable solution, particularly for the convenience and safety of development traffic.

5.8.4 This conclusion led us to investigate an initial 'mitigation' network, whereby the principal site access would be controlled via a roundabout intersection, the initial configuration and size of which was assumed to be similar to the existing Buchanans Rd/Pound Rd intersection to the North.

5.8.5 The modelling of this scenario suggests such a roundabout intersection would offer a reasonable level of service for Site traffic at all times - albeit at the 'cost' of some additional delay to non-site traffic using Pound Rd.

5.8.6 Although not modelled specifically, we are confident in suggesting that such additional delays to non-site traffic are likely to be lower with roundabout control of this access, compared to control via traffic signals[7], particularly outside peak periods.

5.8.7 To the South of the Site, the modelling suggests key road network constraints to be:

- the capacity of the right turn from Pound Rd to SH1 Main South Rd (west).
- the capacity of the northbound RT into Pound Rd from SH1 Main South Rd (east); and
- (with Site traffic), the southbound Pound Rd approach to the Pound/Waterloo intersection.

5.8.8 The capacity of the Pound Rd/SH1 intersection could be improved via the addition of a further RT lane (from Pound Rd to Main Sth Rd). This could however only be fully utilised if Pound Rd also has a southbound lane added over the railway and logically this additional lane would be extended to include the southbound Pound Road approach to Waterloo Rd (i.e. N of Waterloo Rd)

5.8.9 Our modelling confirms that the anticipated development traffic would add to the need for such Pound Rd capacity improvements. However, we anticipate that, given anticipated growth,

[7] Whilst provision of an alternative (traffic signal) controlled intersection at the principal Site access would be consistent with the signals at Pound/Waterloo, the distance currently shown between these intersections (given the draft Outline Plan provided by Novo) is some 600m – and this would mitigate against effective potential coordinated control between the two locations. However, we would recommend that, should investigations for the proposed Application be progressed in more detail, further consideration might be given to the relative merits of potentially reconfiguring the draft road access framework to facilitate a reduction in this distance (with a signal controlled main access). For example, location of such a signal-controlled Main Site access at the approximate existing access to the 111 Pound Rd property would offer good visibility, whilst also reducing the distance between two adjacent traffic signals to approximately 200 metres.

traffic generated by the Fast-track proposal may only advance a 'need' for such capacity improvements to Pound Rd by 3-5 years[8], such improvement being likely desirable irrespective of the proposed development, potentially as part of a broader network management strategy (e.g. to mitigate existing and predicted-worsening congestion issues at SH1/SH73). As far as we are aware however, neither CCC nor NZTA have currently programmed or allocated funding for such improvements.

5.8.10 With such improvements in place however (together with a roundabout-controlled intersection on Pound Rd providing the principal Site access) our modelling suggests that the potential traffic impacts of the proposal's traffic generation and site access on non-development traffic using the local and wider strategic road networks can essentially be mitigated (either entirely or at worst limited to fairly minimal impacts, depending upon the location and scope of measurement).

5.8.11 A caution to this is that the analysis does also indicate a potentially-looming issue may exist (whether or not this Fast-track proposal proceeds, although the proposed land use could exacerbate it), with the single-lane (westbound) capacity of the section of SH1 Main South Rd between W of Pound Rd and SH76 - at least as far as potential traffic volumes in the 2038 PM peak scenarios examined suggest.

[8] Further investigation and modelling scenarios, beyond the current scope of our brief, would be required to ascertain this timing with more precision.

This page is deliberately blank for printing

Appendix A: Local Area Model vs Count Comparisons

This page is deliberately blank for printing

2018 Base Model vs Counts

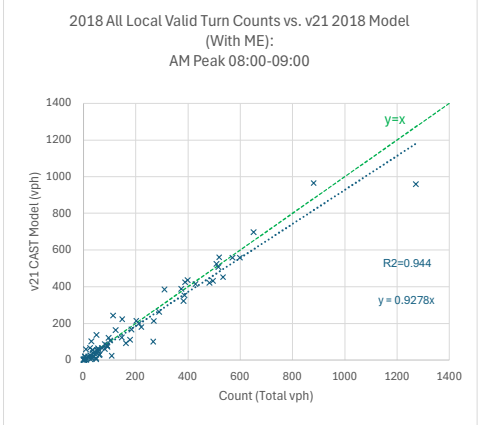
Key
GEH<
5
7.5
10
12

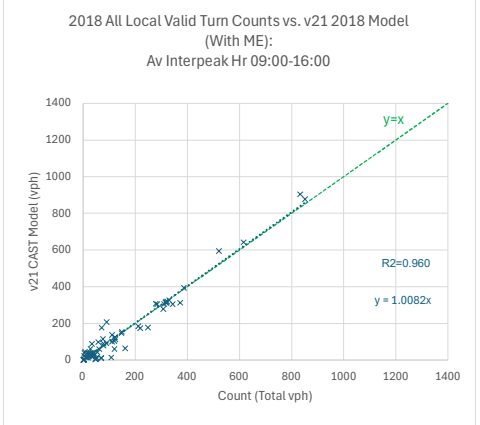
Criteria	Target Type C	Target Type E	AM
R^2	>0.95	>0.95	0.944
y = **M**x	0.90-1.10	0.95-1.05	0.928
GEH<5	>80%	>85%	79%
GEH<7.5	>85%	>90%	90%
GEH<10	>90%	>95%	97%
<12	n/a	n/a	99%
RMSE	<20%	<15%	31%
AAE	-	-	18%
Total Δ	-	-	-5%
No.Counts	-	-	78

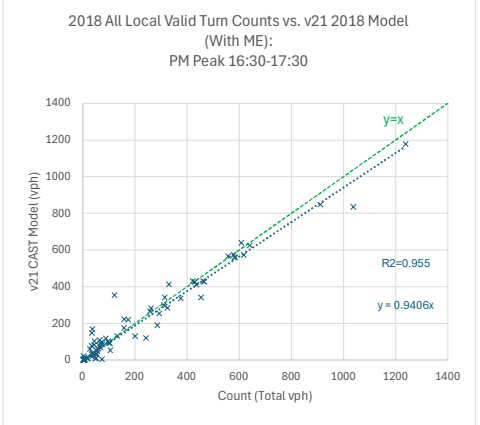
Criteria	Target Type C	Target Type E	IP
R^2	>0.95	>0.95	0.960
y = **M**x	0.90-1.10	0.95-1.05	1.008
GEH<5	>80%	>85%	82%
GEH<7.5	>85%	>90%	88%
GEH<10	>90%	>95%	99%
<12	n/a	n/a	99%
RMSE	<20%	<15%	27%
AAE	-	-	17%
Total Δ	-	-	-2%
No.Counts	-	-	76

Criteria	Target Type C	Target Type E	PM
R^2	>0.95	>0.95	0.955
y = **M**x	0.90-1.10	0.95-1.05	0.941
GEH<5	>80%	>85%	79%
GEH<7.5	>85%	>90%	92%
GEH<10	>90%	>95%	95%
<12	n/a	n/a	97%
RMSE	<20%	<15%	26%
AAE	-	-	16%
Total Δ	-	-	-2%
No.Counts	-	-	77

Intersection	Approach	Turn	NO.	A Node	B Node	C Node	AM Peak 08:00-09:00 Count	Model	Diff	GEH	Av Interpeak Hr 09:00-16:00 Count	Model	Diff	GEH	PM Peak 16:30-17:30 Count	Model	Diff	GEH
Halswell Jn Rd/Main Sth Rd	Main Sth W	L	1	8528	1387	8529	48	4	-43	9	49	4	-44	9	48	6	-41	8
		R	2	8528	1387	8530	651	697	46	2	522	594	72	3	640	624	-15	1
		R	3	8528	1387	8531	495	431	-63	3	373	312	-60	3	453	341	-111	6
	Halswell Jn Rd N	R	4	8529	1387	8528	60	26	-33	5	47	29	-17	3	73	4	-68	11
		L	5	8529	1387	8530	54	49	-4	1	63	59	-3	1	105	53	-51	6
		T	6	8529	1387	8531	269	212	-56	4	212	183	-28	2	324	284	-39	2
	Main Sth E	T	7	8530	1387	8528	516	506	-9	0	616	642	26	1	911	848	-62	2
		R	8	8530	1387	8529	48	10	-37	7	70	9	-60	10	50	11	-38	7
		L	9	8530	1387	8531	96	121	25	2	112	136	24	2	64	109	45	5
	Halswell Jn Rd S	L	10	8531	1387	8528	509	524	15	1	387	393	6	0	558	566	8	0
		T	11	8531	1387	8529	222	180	-41	3	249	177	-71	5	293	253	-39	2
		R	12	8531	1387	8530	70	66	-3	1	79	78	0	0	65	78	13	2
Buchanans Rd/Pound Rd	Pound Rd N	T	13	1390	1388	7007	482	421	-60	3	344	304	-39	2	462	430	-31	2
		R	14	1390	1388	8157	52	53	1	0	25	35	10	2	96	102	6	1
		L	15	1390	1388	8731	57	59	2	0	31	37	6	1	56	63	7	1
		U	16	1390	1388	1390	-	-	-	-	-	-	-	-	1	0	0	0
	Pound Rd S	T	17	7007	1388	1390	534	452	-81	4	319	318	0	0	608	640	32	1
		U	18	7007	1388	7007	1	0	0	0	-	-	-	-	-	-	-	-
		L	19	7007	1388	8157	38	19	-18	4	34	18	-15	3	33	31	-1	0
		R	20	7007	1388	8731	29	22	-6	1	18	12	-5	2	38	34	-3	1
	Buchanans Rd W	L	21	8157	1388	1390	91	77	-13	2	26	28	2	0	66	69	3	0
		R	22	8157	1388	7007	38	17	-20	4	36	17	-18	4	49	30	-18	3
		T	23	8157	1388	8731	202	213	11	1	77	114	37	4	131	131	0	0
	Buchanans Rd E	R	24	8731	1388	1390	81	87	6	1	28	36	8	1	75	87	12	1
		L	25	8731	1388	7007	29	14	-14	3	41	23	-17	3	52	35	-16	3
		T	26	8731	1388	8157	102	106	4	0	123	124	1	0	261	281	20	1
		U	27	8731	1388	8731	2	0	-1	2	1	0	0	0	-	-	-	-
Buchanans Rd/SH73 West Coast Rd	SH73 West Coast Rd E	R	28	1393	1389	1588	9	11	2	1	6	37	31	7	6	0	-5	3
		T	29	1393	1389	8186	429	414	-14	1	308	278	-29	2	617	573	-43	2
		L	30	1393	1389	8157	-	-	-	-	-	-	-	-	4	0	-3	3
	Buchanans Rd N	L	31	1588	1389	1393	11	0	-10	5	4	22	18	5	5	0	-4	3
		T	32	1588	1389	8157	36	38	2	0	28	30	2	0	38	34	-3	1
	Buchanans Rd S	T	33	8157	1389	1588	26	25	0	0	35	35	0	0	59	61	2	0
		L	34	8157	1389	8186	90	79	-10	1	90	92	2	0	174	220	46	3
	SH73 West Coast Rd W	T	35	8186	1389	1393	570	558	-11	0	312	305	-6	0	466	427	-38	2
		R	36	8186	1389	8157	123	163	40	3	79	90	11	1	67	92	25	3
Pound Rd/SH73 Yaldhurst Rd	Pound Rd S	T	37	1388	1390	2123	383	322	-60	3	220	173	-46	3	435	411	-23	1
		L	38	1388	1390	7006	92	73	-18	2	40	32	-7	1	52	31	-20	3
		R	39	1388	1390	8737	148	222	74	5	72	176	104	9	121	354	233	15
	Pound Rd N	T	40	2123	1390	1388	290	262	-27	2	148	146	-1	0	375	336	-38	2
		R	41	2123	1390	7006	178	111	-66	6	121	60	-60	6	286	189	-96	6
		L	42	2123	1390	8737	49	38	-10	2	55	42	-12	2	103	92	-10	1
	SH73 West Coast Rd W	R	43	7006	1390	1388	47	29	-17	3	32	24	-7	2	38	38	0	0
		L	44	7006	1390	2123	267	100	-166	12	162	64	-97	9	242	120	-121	9
		T	45	7006	1390	8737	519	560	41	2	323	318	-4	0	421	430	9	0
	SH73 Yaldhurst Rd E	L	46	8737	1390	1388	113	242	129	10	91	206	115	9	159	222	63	5
		R	47	8737	1390	2123	81	60	-20	3	52	14	-37	7	54	48	-5	1
		T	48	8737	1390	7006	374	388	14	1	321	311	-9	1	582	561	-20	1
Old West Coast Rd/SH73 West Coast Rd	SH73 West Coast Rd W	L	49	1389	1393	1588	2	0	-1	2	2	0	-1	2	1	0	0	0
		T	50	1389	1393	2563	598	558	-39	2	331	326	-4	0	430	427	-2	0
	Old West Coast Rd N	R	51	1588	1393	1389	1	0	0	0	-	-	-	-	-	-	-	-
		L	52	1588	1393	2563	162	92	-69	6	70	12	-57	9	98	94	-3	0
	SH73 West Coast Rd E	T	53	2563	1393	1389	389	424	35	2	317	314	-2	0	578	573	-4	0
		R	54	2563	1393	1588	108	24	-83	10	109	14	-94	12	200	130	-69	5
Kirk Rd/Main Sth Rd/Miners Rd	Miners Rd S	L	55	1545	1541	2047	57	50	-6	1	29	61	32	5	53	52	0	0
		R	56	1545	1541	2395	1	4	3	2	5	3	-1	1	1	2	1	1
		T	57	1545	1541	8174	5	17	12	4	12	15	3	1	7	13	6	2
	Main Sth Rd W	R	58	2047	1541	1545	30	102	72	9	24	33	9	2	44	103	59	7
		T	59	2047	1541	2395	1272	958	-313	9	852	877	25	1	1038	835	-202	7
		L	60	2047	1541	8174	63	30	-32	5	37	38	1	0	33	77	44	6
	Main Sth Rd E	L	61	2395	1541	1545	18	19	1	0	23	23	0	0	34	17	-16	3
		T	62	2395	1541	2047	880	965	85	3	833	904	71	2	1238	1178	-59	2
		R	63	2395	1541	8174	184	166	-17	1	149	153	4	0	310	299	-10	1
	Kirk Rd N	T	64	8174	1541	1545	5	20	15	4	11	16	5	1	3	22	19	5
		R	65	8174	1541	2047	5	4	0	0	13	14	1	0	4	6	2	1
		L	66	8174	1541	2395	212	199	-12	1	124	113	-10	1	158	175	17	1
Barters Rd/Waterloo Rd	Waterloo Rd E	T	67	3505	2388	8134	147	123	-23	2	112	100	-11	1	314	341	27	2
		R	68	3505	2388	8158	36	53	17	3	36	23	-12	2	74	97	23	2
	Barters Rd N	L	69	8134	2388	3505	386	352	-33	2	121	103	-17	2	258	266	8	0
		R	70	8134	2388	8158	7	5	-1	1	4	5	1	0	7	4	-2	1
	Waterloo Rd W	T	71	8158	2388	3505	50	137	87	9	34	88	54	7	36	168	132	13
		L	72	8158	2388	8134	3	0	-2	2	3	1	-1	1	4	1	-2	2
Pound Rd/Roberts Rd	Pound Rd N	L	73	1388	7007	3772	25	66	41	6	18	37	19	4	43	82	39	5
		T	74	1388	7007	5089	310	385	75	4	279	307	28	2	330	413	83	4
	Roberts Rd E	R	75	3772	7007	1388	9	58	49	8	8	45	37	7	34	147	113	12
		L	76	3772	7007	5089	27	4	-22	6	48	4	-43	9	16	8	-7	2
	Pound Rd S	T	77	5089	7007	1388	399	435	36	2	285	304	19	1	583	558	-24	1
		R	78	5089	7007	3772	32	8	-23	5	50	6	-43	8	19	7	-11	3
Foremans Rd/Halswell Jn Rd	Foremans Rd W	L	79	7037	7039	8169	34	55	21	3	40	36	-3	1	27	60	33	5
		R	80	7037	7039	8529	56	64	8	1	59	97	38	4	88	118	30	3







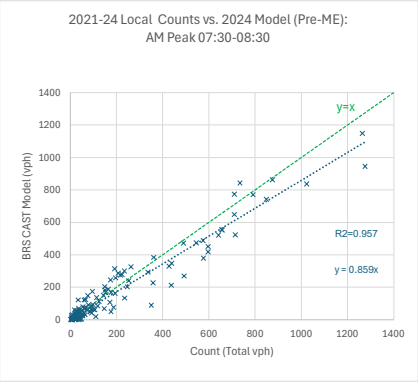
2024 Pre-ME Model vs Counts

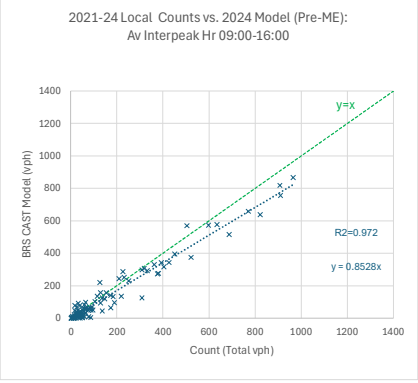
Key
GEH<
5
7.5
10
12

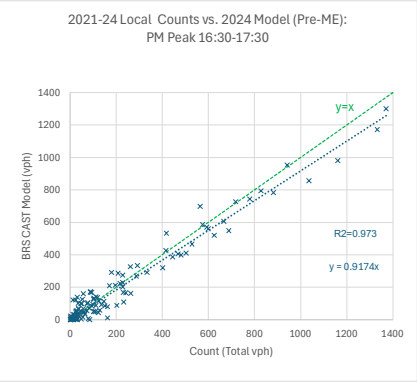
Criteria	Target Type C	Target Type E	AM	Criteria	Target Type C	Target Type E	IP	Criteria	Target Type C	Target Type E	PM
R^2	>0.95	>0.95	0.957	R^2	>0.95	>0.95	0.972	R^2	>0.95	>0.95	0.973
y = **Mx**	0.90-1.10	0.95-1.05	0.859	y = **Mx**	0.90-1.10	0.95-1.05	0.853	y = **Mx**	0.90-1.10	0.95-1.05	0.917
GEH<5	>80%	>85%	71%	GEH<5	>80%	>85%	73%	GEH<5	>80%	>85%	68%
GEH<7.5	>85%	>90%	85%	GEH<7.5	>85%	>90%	88%	GEH<7.5	>85%	>90%	88%
GEH<10	>90%	>95%	96%	GEH<10	>90%	>95%	97%	GEH<10	>90%	>95%	95%
<12	n/a	n/a	98%	<12	n/a	n/a	98%	<12	n/a	n/a	98%
RMSE	<20%	<15%	38%	RMSE	<20%	<15%	35%	RMSE	<20%	<15%	29%
AAE	-	-	25%	AAE	-	-	20%	AAE	-	-	21%
Total Δ	-	-	-12%	Total Δ	-	-	-16%	Total Δ	-	-	-6%
No.Counts	-	-	122	No.Counts	-	-	104	No.Counts	-	-	122

							AM Peak 07:30-08:30				Av Interpeak Hr 09:00-16:00				PM Peak 16:30-17:30			
Intersection	Approach	Turn	NO.	A Node	B Node	C Node	Count	Model	Diff	GEH	Count	Model	Diff	GEH	Count	Model	Diff	GEH
Pound Rd/Waterloo Rd	Pound Rd N	L	1	4500	8846	8851	9	0	-8	4	12	0	-11	5	2	0	-1	2
		T	2	4500	8846	8845	428	330	-97	5	381	276	-104	6	529	466	-62	3
		R	3	4500	8846	3505	38	59	21	3	36	31	-4	1	103	49	-53	6
	Waterloo Rd E	L	4	8851	8846	8845	64	31	-32	5	93	69	-23	3	113	88	-24	3
		T	5	8851	8846	3505	54	24	-29	5	41	28	-12	2	104	51	-52	6
		R	6	8851	8846	4500	23	0	-22	7	14	0	-13	5	32	0	-31	8
	Pound Rd S	L	7	8845	8846	3505	33	11	-21	5	48	20	-27	5	78	105	27	3
		T	8	8845	8846	4500	576	380	-195	9	376	273	-102	6	469	406	-62	3
		R	9	8845	8846	8851	67	77	10	1	65	64	0	0	21	27	6	1
	Waterloo Rd W	L	10	3505	8846	4500	171	107	-63	5	31	27	-3	1	75	98	23	2
		T	11	3505	8846	8851	147	68	-78	8	35	14	-20	4	37	26	-10	2
		R	12	3505	8846	8845	96	174	78	7	33	92	59	7	32	139	107	12
Barters Rd/Waterloo Rd	Waterloo Rd E	T	13	3505	2388	8134	92	84	-7	1	76	57	-18	2	233	108	-124	10
		R	14	3505	2388	4501	41	10	-30	6	39	22	-16	3	51	98	47	5
	Waterloo Rd W	L	15	8134	2388	4501	26	18	-7	2	5	6	1	1	19	9	-9	3
		T	16	8134	2388	3505	358	227	-130	8	63	54	-8	1	113	140	27	2
	Barters Rd	L	17	4501	2388	3505	60	122	62	7	40	78	38	5	25	122	97	11
		R	18	4501	2388	8134	6	1	-4	3	8	9	1	0	11	1	-9	4
Barters Rd/Hasketts Rd/Maddisons Rd	Hasketts Rd N	L	19	4503	8158	4502	21	1	-19	6	25	9	-15	4	17	1	-15	5
		T	20	4503	8158	2046	124	113	-10	1	68	58	-9	1	203	88	-114	10
	Barters Rd S	L	21	4502	8158	2046	26	10	-15	4	15	22	7	2	47	98	51	6
		R	22	4502	8158	4503	40	18	-21	4	20	7	-12	4	16	9	-6	2
	Maddisons Rd W	T	23	2046	8158	4503	118	86	-31	3	64	36	-27	4	151	86	-64	6
		R	24	2046	8158	4502	34	122	88	10	19	78	59	9	14	122	108	13
Kirk Rd/Main Sth Rd/Miners Rd	Miners Rd N	L	25	8156	2042	8186	28	4	-23	6	41	1	-39	9	25	1	-23	7
		T	26	8156	2042	2446	47	7	-39	8	50	5	-44	9	31	13	-17	4
		R	27	8156	2042	2425	8	0	-7	4	13	0	-12	5	4	0	-3	3
	SH73 West Coast Rd E	L	28	8186	2042	2446	90	63	-26	3	51	53	2	0	58	160	102	10
		T	29	8186	2042	2425	217	275	58	4	227	287	60	4	565	699	134	5
		R	30	8186	2042	8156	47	1	-45	9	35	2	-32	8	16	5	-10	3
	Kirk Rd S	L	31	2446	2042	2425	32	43	11	2	32	49	17	3	83	71	-11	1
		T	32	2446	2042	8156	39	4	-34	8	50	9	-40	8	17	12	-4	1
		R	33	2446	2042	8186	61	68	7	1	43	39	-3	1	63	48	-14	2
	SH73 West Coast Rd W	L	34	2425	2042	8156	10	0	-9	4	19	0	-18	6	3	0	-2	2
		T	35	2425	2042	8186	657	552	-104	4	232	251	19	1	288	268	-19	1
		R	36	2425	2042	2446	66	124	58	6	26	68	42	6	38	67	29	4
Dawsons Rd/Jones Rd	Jones Rd NE	L	37	2486	2477	2047	12	9	-2	1	16	8	-7	2	30	1	-28	7
		T	38	2486	2477	2478	106	62	-43	5	78	8	-69	11	137	94	-42	4
		R	39	2486	2477	2427	2	1	0	1	4	1	-2	2	2	2	0	0
	Dawsons Rd SE	L	40	2047	2477	2478	38	16	-21	4	40	14	-25	5	49	5	-43	8
		T	41	2047	2477	2427	37	51	14	2	23	35	12	2	26	53	27	4
		R	42	2047	2477	2486	7	3	-3	2	10	8	-1	1	10	11	1	0
	Jones Rd SW	L	43	2478	2477	2427	8	6	-1	1	2	0	-1	2	5	2	-2	2
		T	44	2478	2477	2486	110	19	-90	11	87	4	-82	12	163	11	-151	16
		R	45	2478	2477	2047	37	0	-36	9	50	2	-47	9	86	0	-85	13
	Dawsons Rd NW	L	46	2427	2477	2486	4	4	0	0	4	1	-2	2	2	3	1	1
		T	47	2427	2477	2047	34	41	7	1	19	47	28	5	41	32	-8	2
		R	48	2427	2477	2478	3	0	-2	2	4	0	-3	3	3	23	20	6
Kirk Rd/Waterloo Rd	Waterloo Rd E	L	49	8134	8174	1541	18	60	42	7	-	-	-	-	26	23	-2	1
		R	50	8134	8174	3504	50	57	7	1	-	-	-	-	129	58	-70	7
	Kirk Rd S	T	51	1541	8174	3504	253	240	-12	1	-	-	-	-	293	333	40	2
		R	52	1541	8174	8134	76	148	72	7	-	-	-	-	54	126	72	8
	Kirk Rd N	L	53	3504	8174	8134	100	63	-36	4	-	-	-	-	56	16	-39	7
		T	54	3504	8174	1541	234	301	67	4	-	-	-	-	218	224	6	0
Kirk Rd/Main Sth Rd/Trents Rd	Kirk Rd N	L	55	8174	1541	2395	207	286	79	5	-	-	-	-	197	213	16	1
		T	56	8174	1541	1545	8	23	15	4	-	-	-	-	14	33	19	4
		R	57	8174	1541	2047	26	53	27	4	-	-	-	-	32	1	-30	8
	Main Sth Rd E	L	58	2395	1541	1545	34	29	-4	1	-	-	-	-	58	68	10	1
		T	59	2395	1541	2047	710	648	-61	2	-	-	-	-	1161	981	-179	6
		R	60	2395	1541	8174	150	182	32	3	-	-	-	-	229	275	46	3
	Trents Rd S	L	61	1545	1541	2047	22	44	22	4	-	-	-	-	28	50	22	4
		T	62	1545	1541	8174	20	37	17	3	-	-	-	-	20	16	-3	1
		R	63	1545	1541	2395	5	26	21	5	-	-	-	-	2	13	11	4
	Main Sth Rd W	L	64	2047	1541	8174	153	168	15	1	-	-	-	-	94	168	74	6
		T	65	2047	1541	2395	1023	837	-185	6	-	-	-	-	719	727	8	0
		R	66	2047	1541	1545	5	13	8	3	-	-	-	-	10	11	1	0
Barters Rd/Main Sth Rd/Marshs Rd	Main Sth Rd E	L	67	8845	2395	8920	86	50	-35	4	97	50	-46	5	163	80	-82	7
		T	68	8845	2395	1541	791	771	-19	1	907	818	-88	3	1333	1173	-159	5
	Marshs Rd S	L	69	8920	2395	1541	78	91	13	1	76	48	-27	4	105	128	23	2
		R	70	8920	2395	8845	18	24	6	1	23	25	2	1	8	19	11	3
	Main Sth Rd W	T	71	1541	2395	8845	1276	945	-330	10	770	659	-110	4	882	783	-98	3
		R	72	1541	2395	8920	149	204	55	4	65	98	33	4	89	170	81	7
Pound Rd/Main Sth Rd	Pound Rd N	L	73	8846	8845	7037	164	187	23	2	147	120	-26	2	89	172	83	7
		R	74	8846	8845	2395	439	348	-90	5	404	317	-86	5	626	520	-105	4
	Main Sth Rd E	T	75	7037	8845	2395	490	472	-17	1	598	573	-24	1	780	744	-35	1
		R	76	7037	8845	8846	176	49	-126	12	174	65	-108	10	147	113	-33	3
	Main Sth Rd W	L	77	2395	8845	8846	596	419	-176	8	332	292	-39	2	416	426	10	0
		T	78	2395	8845	7037	655	555	-99	4	451	396	-54	3	482	399	-82	4

							AM Peak 07:30-08:30				Av Interpeak Hr 09:00-16:00				PM Peak 16:30-17:30			
Intersection	Approach	Turn	NO.	A Node	B Node	C Node	Count	Model	Diff	GEH	Count	Model	Diff	GEH	Count	Model	Diff	GEH
Halswell Jn Rd/Main Sth Rd	Halswell Jn Rd N	L	79	8529	1387	8530	61	72	11	1	60	83	23	3	100	95	-4	1
		T	80	8529	1387	8531	174	244	70	5	155	156	1	0	180	292	112	7
		R	81	8529	1387	8528	22	4	-17	5	20	7	-12	4	22	9	-12	3
	Main Sth Rd E	L	82	8530	1387	8531	177	168	-8	1	174	140	-33	3	35	101	66	8
		T	83	8530	1387	8528	336	293	-42	2	522	375	-146	7	667	606	-60	2
		R	84	8530	1387	8529	87	50	-36	4	55	62	7	1	30	56	26	4
	Halswell Jn Rd S	L	85	8531	1387	8528	247	203	-43	3	252	230	-21	1	264	162	-101	7
		T	86	8531	1387	8529	235	134	-100	7	184	133	-50	4	232	168	-63	5
		R	87	8531	1387	8530	98	94	-3	0	130	94	-35	3	104	132	28	3
	Main Sth Rd W	L	88	8528	1387	8529	15	13	-1	0	16	7	-8	3	26	8	-17	4
		T	89	8528	1387	8530	545	474	-70	3	427	343	-83	4	402	320	-81	4
		R	90	8528	1387	8531	194	162	-31	2	190	96	-93	8	120	137	17	1
Buchanans Rd/Pound Rd	Pound Rd N	L	91	1390	1388	8731	33	39	6	1	30	24	-5	1	43	49	6	1
		T	92	1390	1388	7007	596	451	-144	6	393	342	-50	3	600	561	-38	2
		R	93	1390	1388	8157	55	79	24	3	35	34	0	0	111	50	-60	7
	Buchanans Rd E	L	94	8731	1388	7007	51	30	-20	3	50	23	-26	5	57	42	-14	2
		T	95	8731	1388	8157	114	136	22	2	115	134	19	2	209	287	78	5
		R	96	8731	1388	1390	30	44	14	2	31	22	-8	2	65	35	-29	4
	Pound Rd S	L	97	7007	1388	8157	52	32	-19	3	51	36	-14	2	74	55	-18	2
		T	98	7007	1388	1390	714	523	-190	8	363	330	-32	2	689	548	-140	6
		R	99	7007	1388	8731	54	37	-16	3	24	20	-3	1	124	44	-79	9
	Buchanans Rd W	L	100	8157	1388	1390	37	69	32	4	40	24	-15	3	37	69	32	4
		T	101	8157	1388	8731	196	258	62	4	105	103	-1	0	125	116	-8	1
		R	102	8157	1388	7007	61	39	-21	3	63	28	-34	5	30	30	0	0
Pound Rd/SH73 Yaldhurst Rd	Pound Rd N		103	2123	1390	8737	92	42	-49	6	88	51	-36	4	96	84	-11	1
			104	2123	1390	1388	437	213	-223	12	219	135	-83	6	445	387	-57	3
			105	2123	1390	7006	187	77	-109	10	83	63	-19	2	229	202	-26	2
	SH73 Yaldhurst Rd E		106	8737	1390	1388	263	325	62	4	210	244	34	2	229	229	0	0
			107	8737	1390	7006	361	384	23	1	319	307	-11	1	418	533	115	5
			108	8737	1390	2123	71	59	-11	1	60	9	-50	9	80	7	-72	11
	Pound Rd S		109	1388	1390	7006	29	53	24	4	39	30	-8	2	21	31	10	2
			110	1388	1390	2123	492	270	-221	11	309	125	-183	12	504	411	-92	4
			111	1388	1390	8737	192	313	121	8	127	220	93	7	171	210	39	3
	SH73 West Coast Rd W		112	7006	1390	2123	351	89	-261	18	137	45	-91	10	242	166	-75	5
			113	7006	1390	8737	575	488	-86	4	309	298	-10	1	334	292	-41	2
			114	7006	1390	1388	10	31	21	5	40	20	-19	4	26	44	18	3
Link Counts	Buchanans W Hasketts (L2883)	NWbnd	115	8157	1389		143	150	7	1	129	158	29	2	262	327	65	4
		SEbnd	116	1389	8157		224	278	54	3	137	125	-11	1	102	126	24	2
	Main Sth E Pound (TMS S00349)	SWbnd	117	7037	8845		641	521	-119	5	822	638	-183	7	1037	856	-180	6
		NEbnd	118	8845	7037		849	742	-106	4	687	516	-170	7	593	571	-21	1
	Main Sth W Marshs (TMS S00350)	SWbnd	119	2395	1541		875	862	-38	1	965	866	-121	4	1371	1300	-90	3
		NEbnd	120	1541	2395		1264	1148	-115	3	910	757	-152	5	942	953	11	0
	SH73 E Pound (TMS 07300006)	Wbnd	121	8737	1390		710	773	54	2	635	576	-77	3	828	794	-62	2
		Ebnd	122	1390	8737		734	843	106	4	504	570	62	3	575	586	5	0







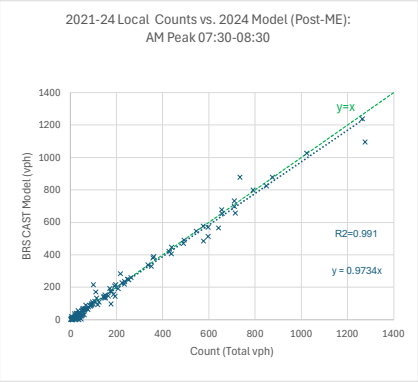
2024 Post-ME Model vs Counts

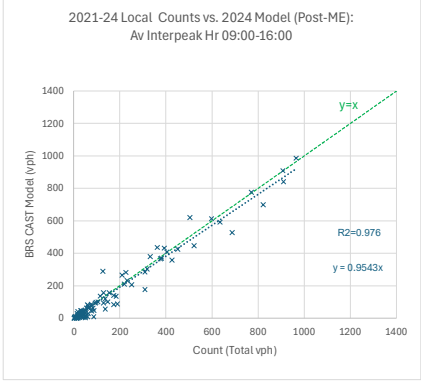
Key
GEH<
5
7.5
10
12

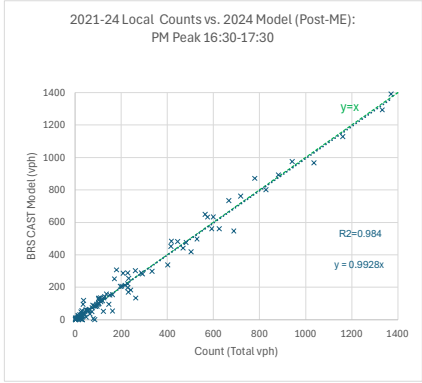
Criteria	Target Type C	Target Type E	AM	Criteria	Target Type C	Target Type E	IP	Criteria	Target Type C	Target Type E	PM
R^2	>0.95	>0.95	0.991	R^2	>0.95	>0.95	0.976	R^2	>0.95	>0.95	0.984
y = **M**x	0.90-1.10	0.95-1.05	0.973	y = **M**x	0.90-1.10	0.95-1.05	0.954	y = **M**x	0.90-1.10	0.95-1.05	0.992
GEH<5	>80%	>85%	93%	GEH<5	>80%	>85%	84%	GEH<5	>80%	>85%	88%
GEH<7.5	>85%	>90%	98%	GEH<7.5	>85%	>90%	90%	GEH<7.5	>85%	>90%	92%
GEH<10	>90%	>95%	100%	GEH<10	>90%	>95%	98%	GEH<10	>90%	>95%	98%
<12	n/a	n/a	100%	<12	n/a	n/a	100%	<12	n/a	n/a	99%
RMSE	<20%	<15%	16%	RMSE	<20%	<15%	26%	RMSE	<20%	<15%	19%
AAE	-	-	8%	AAE	-	-	16%	AAE	-	-	12%
Total Δ	-	-	-2%	Total Δ	-	-	-7%	Total Δ	-	-	-1%
No.Counts	-	-	122	No.Counts	-	-	104	No.Counts	-	-	122

							AM Peak 07:30-08:30				Av Interpeak Hr 09:00-16:00				PM Peak 16:30-17:30			
Intersection	Approach	Turn	NO.	A Node	B Node	C Node	Count	Model	Diff	GEH	Count	Model	Diff	GEH	Count	Model	Diff	GEH
Pound Rd/Waterloo Rd	Pound Rd N	L	1	4500	8846	8851	9	0	-8	4	12	0	-11	5	2	0	-1	2
		T	2	4500	8846	8845	428	421	-6	0	381	370	-10	1	529	498	-30	1
		R	3	4500	8846	3505	38	39	1	0	36	36	0	0	103	102	0	0
	Waterloo Rd E	L	4	8851	8846	8845	64	64	0	0	93	93	0	0	113	111	-1	0
		T	5	8851	8846	3505	54	61	7	1	41	45	4	1	104	123	19	2
		R	6	8851	8846	4500	23	0	-22	7	14	0	-13	5	32	0	-31	8
	Pound Rd S	L	7	8845	8846	3505	33	36	3	0	48	34	-13	2	78	89	11	1
		T	8	8845	8846	4500	576	485	-90	4	376	366	-9	1	469	441	-27	1
		R	9	8845	8846	8851	67	89	22	2	65	65	0	0	21	18	-2	1
	Waterloo Rd W	L	10	3505	8846	4500	171	193	22	2	31	47	16	3	75	74	0	0
		T	11	3505	8846	8851	147	135	-11	1	35	26	-8	2	37	37	0	0
		R	12	3505	8846	8845	96	109	13	1	33	46	13	2	32	36	4	1
Barters Rd/Waterloo Rd	Waterloo Rd E	T	13	3505	2388	8134	92	97	5	0	76	86	10	1	233	254	21	1
		R	14	3505	2388	4501	41	39	-1	0	39	29	-9	2	51	59	8	1
	Waterloo Rd W	L	15	8134	2388	4501	26	26	0	0	5	7	2	1	19	12	-6	2
		T	16	8134	2388	3505	358	381	23	1	63	79	16	2	113	120	7	1
	Barters Rd	L	17	4501	2388	3505	60	57	-2	0	40	40	0	0	25	27	2	0
		R	18	4501	2388	8134	6	5	0	0	8	8	0	0	11	11	0	0
Barters Rd/Hasketts Rd/Maddisons Rd	Hasketts Rd N	L	19	4503	8158	4502	21	6	-14	4	25	8	-16	4	17	11	-5	2
		T	20	4503	8158	2046	124	109	-14	1	68	68	0	0	203	206	3	0
	Barters Rd S	L	21	4502	8158	2046	26	39	13	2	15	29	14	3	47	59	12	2
		R	22	4502	8158	4503	40	26	-13	3	20	8	-11	3	16	12	-3	1
	Maddisons Rd W	T	23	2046	8158	4503	118	92	-25	3	64	64	0	0	151	152	1	0
		R	24	2046	8158	4502	34	56	22	3	19	40	21	4	14	27	13	3
Kirk Rd/Main Sth Rd/Miners Rd	Miners Rd N	L	25	8156	2042	8186	28	7	-20	5	41	4	-36	8	25	4	-20	5
		T	26	8156	2042	2446	47	22	-24	4	50	15	-34	6	31	26	-4	1
		R	27	8156	2042	2425	8	0	-7	4	13	0	-12	5	4	0	-3	3
	SH73 West Coast Rd E	L	28	8186	2042	2446	90	89	0	0	51	51	0	0	58	58	0	0
		T	29	8186	2042	2425	217	283	66	4	227	282	55	3	565	650	85	3
		R	30	8186	2042	8156	47	5	-41	8	35	7	-27	6	16	13	-2	1
	Kirk Rd S	L	31	2446	2042	2425	32	34	2	0	32	35	3	0	83	86	3	0
		T	32	2446	2042	8156	39	15	-23	5	50	8	-41	8	17	17	0	0
		R	33	2446	2042	8186	61	65	4	0	43	43	0	0	63	63	0	0
	SH73 West Coast Rd W	L	34	2425	2042	8156	10	0	-9	4	19	0	-18	6	3	0	-2	2
		T	35	2425	2042	8186	657	655	-1	0	232	232	0	0	288	289	1	0
		R	36	2425	2042	2446	66	68	2	0	26	27	1	0	38	37	0	0
Dawsons Rd/Jones Rd	Jones Rd NE	L	37	2486	2477	2047	12	3	-8	3	16	13	-2	1	30	1	-28	8
		T	38	2486	2477	2478	106	113	7	1	78	44	-33	4	137	158	21	2
		R	39	2486	2477	2427	2	1	0	1	4	3	0	0	2	1	0	1
	Dawsons Rd SE	L	40	2047	2477	2478	38	38	0	0	40	38	-1	0	49	16	-32	6
		T	41	2047	2477	2427	37	38	1	0	23	23	0	0	26	26	0	0
		R	42	2047	2477	2486	7	6	0	0	10	8	-1	1	10	10	0	0
	Jones Rd SW	L	43	2478	2477	2427	8	6	-1	1	2	0	-1	2	5	7	2	1
		T	44	2478	2477	2486	110	171	61	5	87	9	-77	11	163	53	-109	11
		R	45	2478	2477	2047	37	0	-36	9	50	2	-47	9	86	0	-85	13
	Dawsons Rd NW	L	46	2427	2477	2486	4	4	0	0	4	3	0	1	2	1	0	1
		T	47	2427	2477	2047	34	29	-4	1	19	19	0	0	41	37	-3	1
		R	48	2427	2477	2478	3	4	1	0	4	0	-3	3	3	10	7	3
Kirk Rd/Waterloo Rd	Waterloo Rd E	L	49	8134	8174	1541	18	16	-1	0	-	-	-	-	26	15	-10	3
		R	50	8134	8174	3504	50	53	3	0	-	-	-	-	129	143	14	1
	Kirk Rd S	T	51	1541	8174	3504	253	247	-5	0	-	-	-	-	293	282	-10	1
		R	52	1541	8174	8134	76	64	-11	1	-	-	-	-	54	52	-1	0
	Kirk Rd N	L	53	3504	8174	8134	100	215	115	9	-	-	-	-	56	57	1	0
		T	54	3504	8174	1541	234	220	-13	1	-	-	-	-	218	213	-4	0
Kirk Rd/Main Sth Rd/Trents Rd	Kirk Rd N	L	55	8174	1541	2395	207	192	-14	1	-	-	-	-	197	205	8	1
		T	56	8174	1541	1545	8	16	8	2	-	-	-	-	14	22	8	2
		R	57	8174	1541	2047	26	28	2	0	-	-	-	-	32	0	-31	8
	Main Sth Rd E	L	58	2395	1541	1545	34	34	0	0	-	-	-	-	58	58	0	0
		T	59	2395	1541	2047	710	698	-11	0	-	-	-	-	1161	1128	-32	1
		R	60	2395	1541	8174	150	152	2	0	-	-	-	-	229	221	-7	1
	Trents Rd S	L	61	1545	1541	2047	22	21	0	0	-	-	-	-	28	29	1	0
		T	62	1545	1541	8174	20	24	4	1	-	-	-	-	20	17	-2	1
		R	63	1545	1541	2395	5	19	14	4	-	-	-	-	2	8	6	3
	Main Sth Rd W	L	64	2047	1541	8174	153	135	-17	1	-	-	-	-	94	96	2	0
		T	65	2047	1541	2395	1023	1027	4	0	-	-	-	-	719	762	43	2
		R	66	2047	1541	1545	5	5	0	0	-	-	-	-	10	10	0	0
Barters Rd/Main Sth Rd/Marshs Rd	Main Sth Rd E	L	67	8845	2395	8920	86	86	0	0	97	97	0	0	163	155	-7	1
		T	68	8845	2395	1541	791	800	9	0	907	909	2	0	1333	1293	-39	1
	Marshs Rd S	L	69	8920	2395	1541	78	78	0	0	76	76	0	0	105	98	-6	1
		R	70	8920	2395	8845	18	36	18	4	23	21	-1	0	8	8	0	0
	Main Sth Rd W	T	71	1541	2395	8845	1276	1095	-180	5	770	776	6	0	882	893	11	0
		R	72	1541	2395	8920	149	143	-5	0	65	65	0	0	89	82	-6	1
Pound Rd/Main Sth Rd	Pound Rd N	L	73	8846	8845	7037	164	146	-17	1	147	101	-45	4	89	84	-4	1
		R	74	8846	8845	2395	439	447	8	0	404	408	4	0	626	561	-64	3
	Main Sth Rd E	T	75	7037	8845	2395	490	469	-20	1	598	613	15	1	780	871	91	3
		R	76	7037	8845	8846	176	97	-78	7	174	85	-88	8	147	96	-50	5
	Main Sth Rd W	L	77	2395	8845	8846	596	513	-82	4	332	379	47	3	416	452	36	2
		T	78	2395	8845	7037	655	678	23	1	451	426	-24	1	482	476	-5	0

							AM Peak 07:30-08:30				Av Interpeak Hr 09:00-16:00				PM Peak 16:30-17:30			
Intersection	Approach	Turn	NO.	A Node	B Node	C Node	Count	Model	Diff	GEH	Count	Model	Diff	GEH	Count	Model	Diff	GEH
Halswell Jn Rd/Main Sth Rd	Halswell Jn Rd N	L	79	8529	1387	8530	61	67	6	1	60	83	23	3	100	95	-4	1
		T	80	8529	1387	8531	174	174	0	0	155	157	2	0	180	307	127	8
		R	81	8529	1387	8528	22	11	-10	3	20	7	-12	4	22	10	-11	3
	Main Sth Rd E	L	82	8530	1387	8531	177	178	1	0	174	140	-33	3	35	95	60	7
		T	83	8530	1387	8528	336	338	2	0	522	447	-74	3	667	734	67	3
		R	84	8530	1387	8529	87	85	-1	0	55	62	7	1	30	56	26	4
	Halswell Jn Rd S	L	85	8531	1387	8528	247	250	3	0	252	206	-45	3	264	134	-129	9
		T	86	8531	1387	8529	235	235	0	0	184	134	-49	4	232	170	-61	4
		R	87	8531	1387	8530	98	99	1	0	130	94	-35	3	104	132	28	3
	Main Sth Rd W	L	88	8528	1387	8529	15	15	0	0	16	7	-8	3	26	7	-18	5
		T	89	8528	1387	8530	545	546	1	0	427	358	-68	3	402	338	-63	3
		R	90	8528	1387	8531	194	145	-48	4	190	87	-102	9	120	117	-2	0
Buchanans Rd/Pound Rd	Pound Rd N	L	91	1390	1388	8731	33	38	5	1	30	28	-1	0	43	49	6	1
		T	92	1390	1388	7007	596	569	-26	1	393	432	39	2	600	634	34	1
		R	93	1390	1388	8157	55	69	14	2	35	43	8	1	111	135	24	2
	Buchanans Rd E	L	94	8731	1388	7007	51	25	-25	4	50	31	-18	3	57	57	0	0
		T	95	8731	1388	8157	114	133	19	2	115	136	21	2	209	286	77	5
		R	96	8731	1388	1390	30	31	1	0	31	22	-8	2	65	35	-29	4
	Pound Rd S	L	97	7007	1388	8157	52	32	-19	3	51	34	-16	3	74	49	-24	3
		T	98	7007	1388	1390	714	657	-56	2	363	436	73	4	689	547	-141	6
		R	99	7007	1388	8731	54	49	-4	1	24	26	2	0	124	51	-72	8
	Buchanans Rd W	L	100	8157	1388	1390	37	39	2	0	40	38	-1	0	37	119	82	9
		T	101	8157	1388	8731	196	216	20	1	105	101	-3	0	125	135	10	1
		R	102	8157	1388	7007	61	29	-31	5	63	28	-34	5	30	29	0	0
Pound Rd/SH73 Yaldhurst Rd	Pound Rd N		103	2123	1390	8737	92	92	0	0	88	47	-40	5	96	84	-11	1
			104	2123	1390	1388	437	406	-30	2	219	210	-8	1	445	481	36	2
			105	2123	1390	7006	187	156	-30	2	83	62	-20	2	229	198	-30	2
	SH73 Yaldhurst Rd E		106	8737	1390	1388	263	260	-2	0	210	265	55	4	229	288	59	4
			107	8737	1390	7006	361	389	28	1	319	303	-15	1	418	483	65	3
			108	8737	1390	2123	71	69	-1	0	60	9	-50	9	80	7	-72	11
	Pound Rd S		109	1388	1390	7006	29	29	0	0	39	30	-8	2	21	31	10	2
			110	1388	1390	2123	492	490	-1	0	309	176	-132	9	504	419	-84	4
			111	1388	1390	8737	192	208	16	1	127	289	162	11	171	252	81	6
	SH73 West Coast Rd W		112	7006	1390	2123	351	329	-21	1	137	56	-80	8	242	183	-58	4
			113	7006	1390	8737	575	577	2	0	309	284	-24	1	334	298	-35	2
			114	7006	1390	1388	10	10	0	0	40	28	-11	2	26	48	22	4
Link Counts	Buchanans W Hasketts (L2883)	NWbnd	115	8157	1389		143	141	-1	0	129	156	27	2	262	302	40	2
		SEbnd	116	1389	8157		224	227	3	0	137	120	-16	1	102	131	29	3
	Main Sth E Pound (TMS S00349)	SWbnd	117	7037	8845		641	566	-74	3	822	699	-122	4	1037	968	-68	2
		NEbnd	118	8845	7037		849	824	-24	1	687	527	-159	6	593	561	-31	1
	Main Sth W Marshs (TMS S00350)	SWbnd	119	2395	1541		875	878	-21	1	965	986	-8	0	1371	1391	-5	0
		NEbnd	120	1541	2395		1264	1238	-25	1	910	841	-68	2	942	975	33	1
	SH73 E Pound (TMS 07300006)	Wbnd	121	8737	1390		710	732	4	0	635	592	-61	3	828	801	-54	2
		Ebnd	122	1390	8737		734	878	141	5	504	620	112	5	575	633	52	2







This page is deliberately blank for printing

Appendix B: SIDRA Movement Summary Tabulations and Delay Diagrams

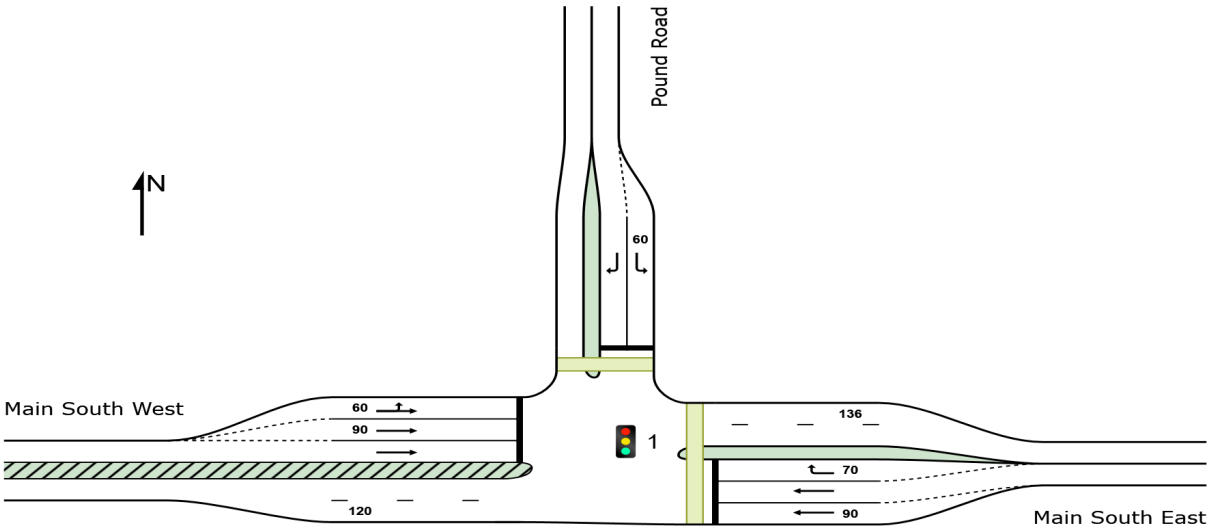
This page is deliberately blank for printing

SITE LAYOUT

Site: 1 [A. Main South/Pound Existing Layout Schematic (Site Folder: Main Sth/Pound - GONZO net demands)]

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



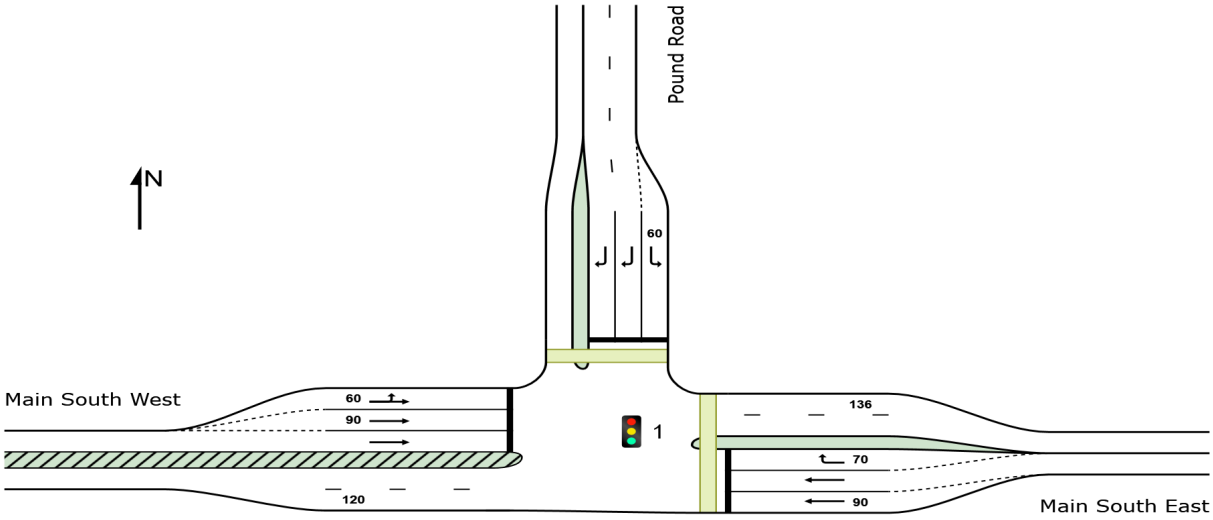
Organisation: QTP LTD | Licence: PLUS / 1PC | Created: Saturday, 19 October 2024 10:15:34 am
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model \SIDRA\Barters.sip9

SITE LAYOUT

Site: 1 [A0. Main South/Pound Improved Layout Schematic (Site Folder: Main Sth/Pound - GONZO net demands)]

Main South/Pound: Additional Pound RT Lane
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.

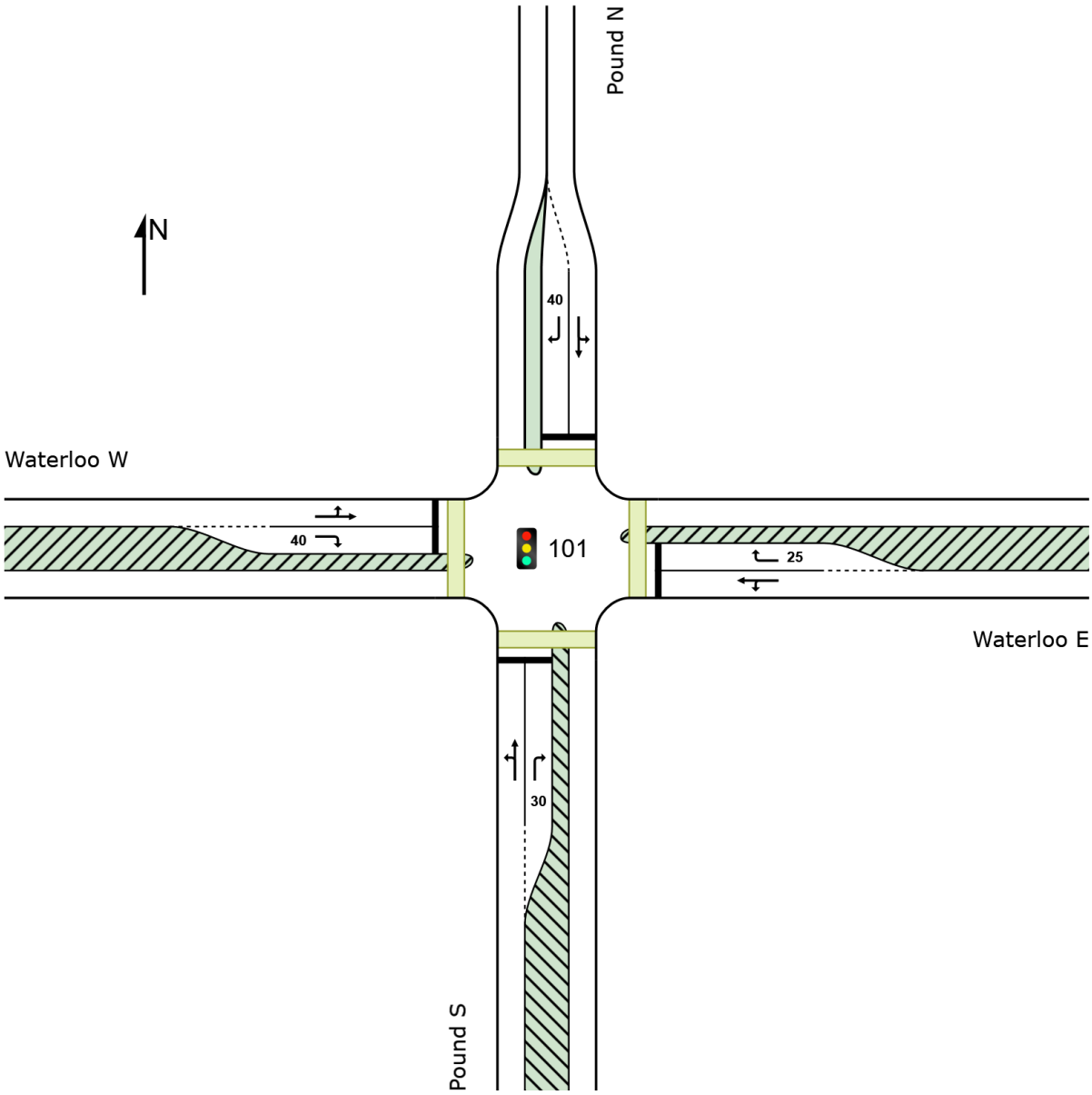


SITE LAYOUT

Site: 101 [B. Pound/Waterloo Existing Layout Schematic (Site Folder: Main Sth/Pound - GONZO net demands)]

Pound/Waterloo (2038 AM with Dev - 01b Demands)
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



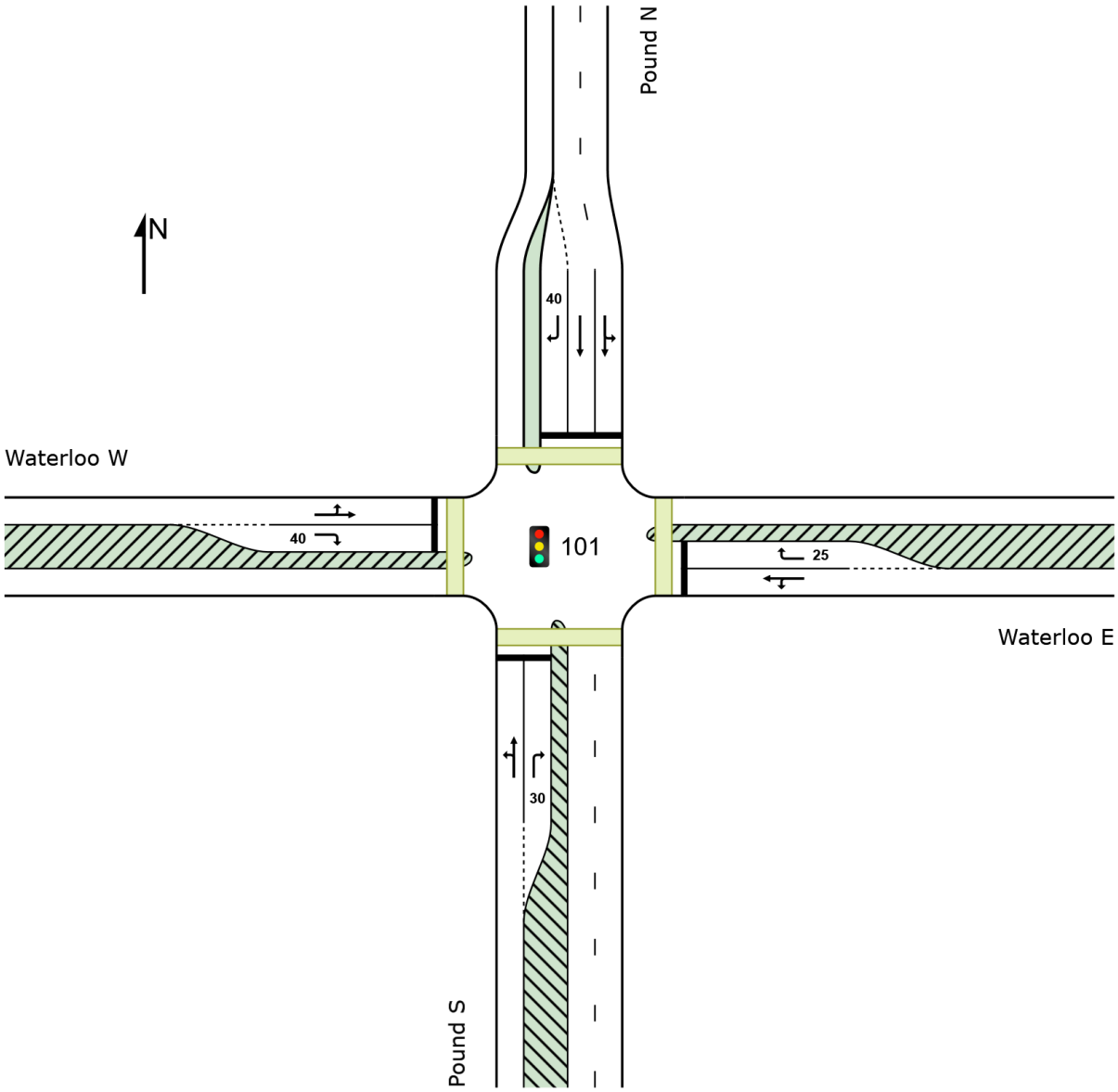
Organisation: QTP LTD | Licence: PLUS / 1PC | Created: Saturday, 19 October 2024 10:15:51 am
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters.sip9

SITE LAYOUT

Site: 101 [B0. Pound/Waterloo Potential Improved Layout Schematic (Site Folder: Main Sth/Pound - GONZO net demands)]

Pound/Waterloo (2038 PM with Dev - 01b Demands)
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



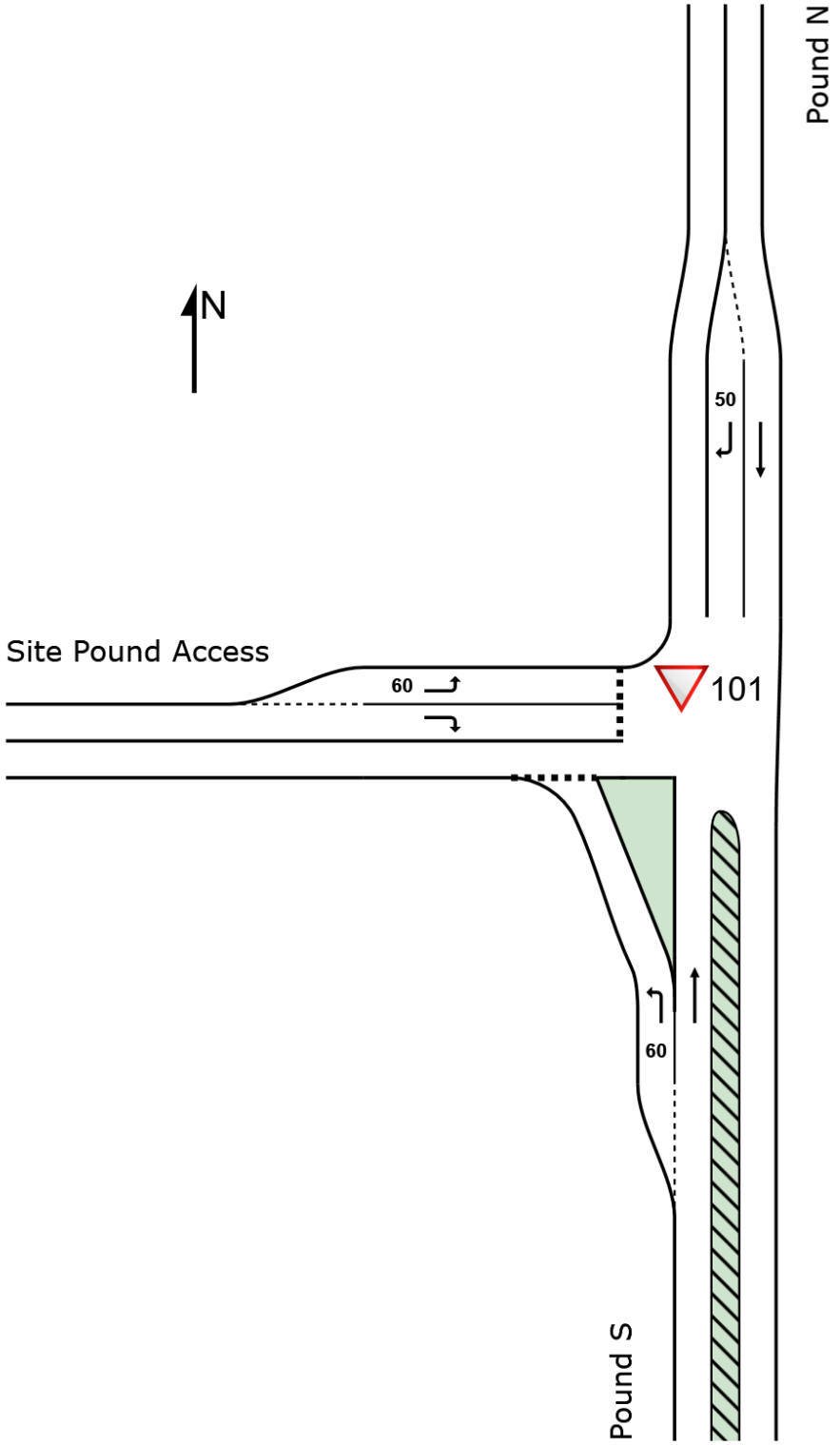
Organisation: QTP LTD | Licence: PLUS / 1PC | Created: Saturday, 19 October 2024 10:15:53 am
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters.sip9

SITE LAYOUT

Site: 101 [C. Pound/Site Assumed Priority Intersection Schematic (Site Folder: Main Sth/Pound - GONZO net demands)]

Pound/Site (Priority)
Site Category: (None)
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.

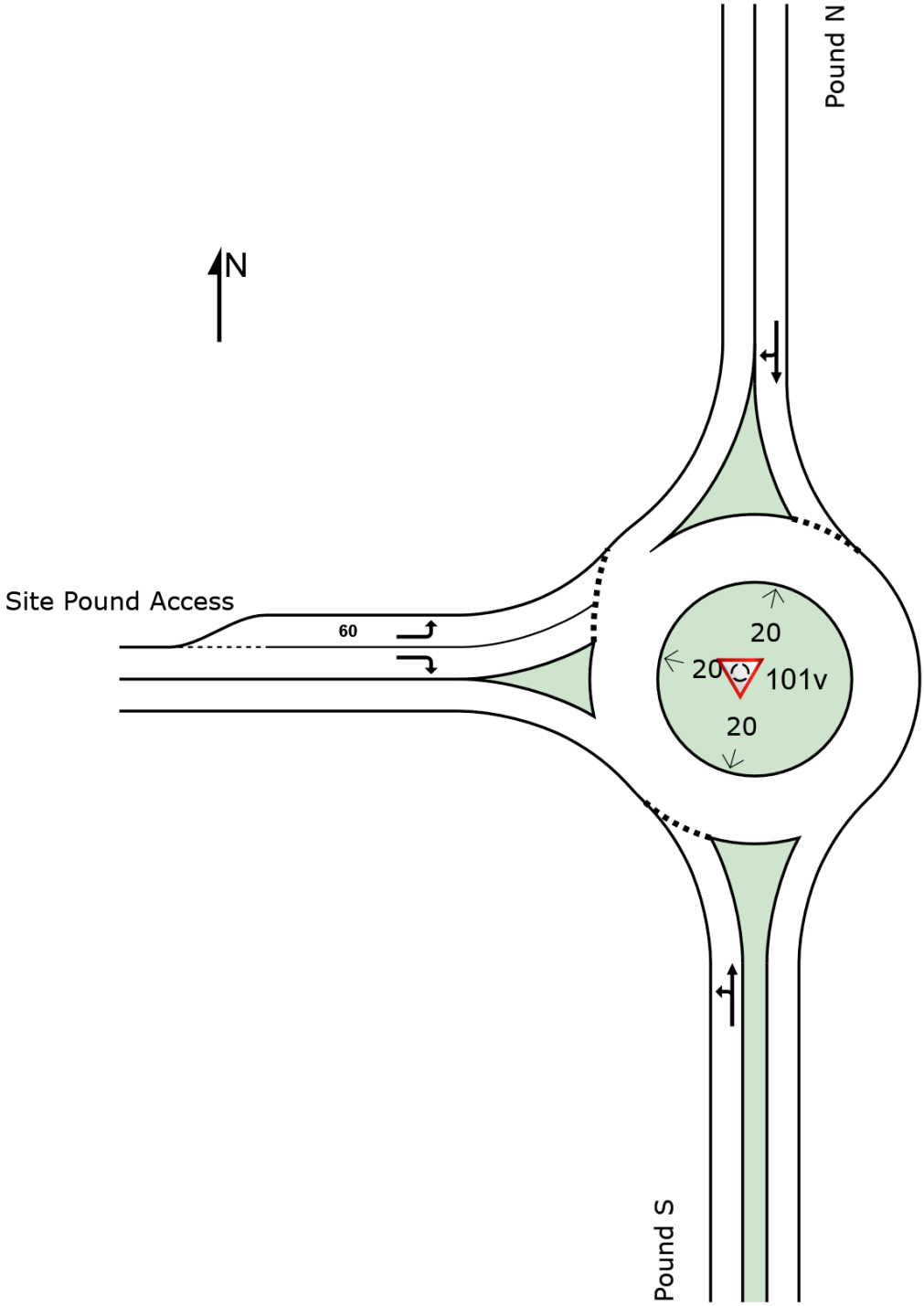


SITE LAYOUT

Site: 101v [C0. Pound/Site Assumed (initial) Roundabout Schematic (Site Folder: Main Sth/Pound - GONZO net demands)]

Pound/Site (Priority)
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 1 [A. Main South/Pound Existing Layout Schematic (Site Folder: Main Sth/Pound - GONZO net demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	461	11.9	461	11.9	0.317	13.3	LOS B	6.6	50.9	0.63	0.53	0.63	42.4
6	R2	All MCs	141	31.3	141	31.3	* 0.619	41.6	LOS D	5.5	49.1	0.99	0.83	1.04	27.5
Approach			602	16.4	602	16.4	0.619	19.9	LOS B	6.6	50.9	0.71	0.60	0.72	38.6
North: Pound Road															
1	L2	All MCs	132	31.2	132	31.2	0.147	13.7	LOS B	2.3	20.5	0.48	0.67	0.48	38.9
2	R2	All MCs	395	17.1	395	17.1	* 0.658	28.1	LOS C	13.1	105.3	0.89	0.83	0.89	32.1
Approach			526	20.6	526	20.6	0.658	24.5	LOS C	13.1	105.3	0.79	0.79	0.79	33.6
West: Main South West															
3	L2	All MCs	574	9.4	574	9.4	0.471	10.4	LOS B	9.9	75.2	0.48	0.71	0.48	40.6
4	T1	All MCs	661	4.3	661	4.3	* 0.664	29.3	LOS C	11.9	86.0	0.95	0.82	0.96	35.7
Approach			1235	6.6	1235	6.6	0.664	20.5	LOS C	11.9	86.0	0.73	0.76	0.74	37.5
All Vehicles			2363	12.2	2363	12.2	0.664	21.2	LOS C	13.1	105.3	0.74	0.73	0.75	36.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

MOVEMENT SUMMARY

Site: 1 [A1. Main South/Pound (2024 Observed AM 0730-0830) (Site Folder: Main Sth/Pound - GONZO net demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	461	11.9	461	11.9	0.317	13.3	LOS B	6.6	50.9	0.63	0.53	0.63	42.4
6	R2	All MCs	141	31.3	141	31.3	* 0.619	41.6	LOS D	5.5	49.1	0.99	0.83	1.04	27.5
Approach			602	16.4	602	16.4	0.619	19.9	LOS B	6.6	50.9	0.71	0.60	0.72	38.6
North: Pound Road															
1	L2	All MCs	132	31.2	132	31.2	0.147	13.7	LOS B	2.3	20.5	0.48	0.67	0.48	38.9
2	R2	All MCs	395	17.1	395	17.1	* 0.658	28.1	LOS C	13.1	105.3	0.89	0.83	0.89	32.1
Approach			526	20.6	526	20.6	0.658	24.5	LOS C	13.1	105.3	0.79	0.79	0.79	33.6
West: Main South West															
3	L2	All MCs	574	9.4	574	9.4	0.471	10.4	LOS B	9.9	75.2	0.48	0.71	0.48	40.6
4	T1	All MCs	661	4.3	661	4.3	* 0.664	29.3	LOS C	11.9	86.0	0.95	0.82	0.96	35.7
Approach			1235	6.6	1235	6.6	0.664	20.5	LOS C	11.9	86.0	0.73	0.76	0.74	37.5
All Vehicles			2363	12.2	2363	12.2	0.664	21.2	LOS C	13.1	105.3	0.74	0.73	0.75	36.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

MOVEMENT SUMMARY

Site: 1 [A2. Main South/Pound (2024 Observed PM 1630-1730) (Site Folder: Main Sth/Pound - GONZO net demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	821	5.9	821	5.9	0.707	23.3	LOS C	16.8	123.8	0.87	0.76	0.87	38.3
6	R2	All MCs	155	27.2	155	27.2	* 0.796	47.7	LOS D	6.7	57.8	1.00	0.97	1.28	25.9
Approach			976	9.3	976	9.3	0.796	27.2	LOS C	16.8	123.8	0.89	0.79	0.94	36.2
North: Pound Road															
1	L2	All MCs	94	15.7	94	15.7	0.083	15.9	LOS B	1.2	9.8	0.36	0.63	0.36	41.1
2	R2	All MCs	659	7.0	659	7.0	* 0.830	36.2	LOS D	25.3	188.0	0.93	0.93	1.05	31.5
Approach			753	8.1	753	8.1	0.830	33.6	LOS C	25.3	188.0	0.86	0.89	0.97	30.2
West: Main South West															
3	L2	All MCs	438	12.5	438	12.5	0.354	9.0	LOS A	6.3	48.6	0.40	0.67	0.40	41.4
4	T1	All MCs	507	9.5	507	9.5	* 0.790	38.9	LOS D	10.5	79.8	1.00	0.96	1.19	32.7
Approach			945	10.9	945	10.9	0.790	25.0	LOS C	10.5	79.8	0.72	0.83	0.82	35.6
All Vehicles			2674	9.5	2674	9.5	0.830	28.2	LOS C	25.3	188.0	0.82	0.83	0.91	34.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

MOVEMENT SUMMARY

Site: 1 [A3. Main South/Pound (2038 CAST AM No Dev) (Site Folder: Main Sth/Pound - GONZO net demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	478	18.7	478	18.7	0.351	14.3	LOS B	7.1	58.0	0.65	0.55	0.65	42.0
6	R2	All MCs	125	6.7	125	6.7	* 0.628	44.0	LOS D	5.0	37.2	1.00	0.83	1.07	27.0
Approach			603	16.2	603	16.2	0.628	20.4	LOS C	7.1	58.0	0.72	0.61	0.74	38.6
North: Pound Road															
1	L2	All MCs	224	5.6	224	5.6	0.223	14.8	LOS B	4.3	31.9	0.53	0.70	0.53	38.5
2	R2	All MCs	447	5.9	447	5.9	* 0.678	27.9	LOS C	14.8	109.0	0.90	0.84	0.90	32.4
Approach			672	5.8	672	5.8	0.678	23.5	LOS C	14.8	109.0	0.77	0.79	0.77	34.1
West: Main South West															
3	L2	All MCs	606	4.7	606	4.7	0.457	9.0	LOS A	9.3	67.6	0.43	0.69	0.43	41.5
4	T1	All MCs	685	10.4	685	10.4	* 0.653	27.6	LOS C	12.0	91.4	0.93	0.80	0.93	36.3
Approach			1292	7.7	1292	7.7	0.653	18.9	LOS B	12.0	91.4	0.70	0.75	0.70	38.2
All Vehicles			2566	9.2	2566	9.2	0.678	20.4	LOS C	14.8	109.0	0.72	0.73	0.73	37.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

MOVEMENT SUMMARY

Site: 1 [A4. Main South/Pound (2038 CAST PM No Dev) (Site Folder: Main Sth/Pound - GONZO net demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	909	2.7	909	2.7	* 0.748	24.3	LOS C	19.2	137.8	0.88	0.79	0.90	38.2
6	R2	All MCs	114	4.6	114	4.6	0.632	46.4	LOS D	4.6	33.6	1.00	0.83	1.08	26.7
Approach			1023	2.9	1023	2.9	0.748	26.7	LOS C	19.2	137.8	0.89	0.79	0.92	36.5
North: Pound Road															
1	L2	All MCs	87	3.6	87	3.6	0.076	15.1	LOS B	1.3	9.2	0.40	0.64	0.40	40.6
2	R2	All MCs	607	5.0	607	5.0	* 0.762	30.2	LOS C	20.7	150.8	0.89	0.87	0.93	33.2
Approach			695	4.8	695	4.8	0.762	28.3	LOS C	20.7	150.8	0.83	0.84	0.87	32.1
West: Main South West															
3	L2	All MCs	538	2.5	538	2.5	0.393	8.4	LOS A	7.4	52.6	0.38	0.67	0.38	41.9
4	T1	All MCs	508	10.4	508	10.4	0.655	32.5	LOS C	9.5	72.2	0.97	0.83	1.00	34.6
Approach			1046	6.3	1046	6.3	0.655	20.1	LOS C	9.5	72.2	0.67	0.75	0.68	37.5
All Vehicles			2764	4.7	2764	4.7	0.762	24.6	LOS C	20.7	150.8	0.79	0.79	0.82	35.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

MOVEMENT SUMMARY

Site: 1 [A5. Main South/Pound (2038 CAST AM With Dev) (Site Folder: Main Sth/Pound - GONZO net demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	515	17.2	515	17.2	0.365	13.8	LOS B	7.6	61.0	0.65	0.55	0.65	42.3
6	R2	All MCs	197	5.9	197	5.9	* 0.736	43.3	LOS D	8.0	59.0	1.00	0.90	1.15	27.2
Approach			712	14.1	712	14.1	0.736	21.9	LOS C	8.0	61.0	0.74	0.65	0.78	37.7
North: Pound Road															
1	L2	All MCs	279	5.3	279	5.3	0.265	15.0	LOS B	5.3	38.7	0.52	0.70	0.52	38.9
2	R2	All MCs	451	6.5	451	6.5	* 0.740	31.6	LOS C	16.2	119.4	0.93	0.88	0.98	31.3
Approach			729	6.1	729	6.1	0.740	25.2	LOS C	16.2	119.4	0.77	0.81	0.81	33.3
West: Main South West															
3	L2	All MCs	583	4.2	583	4.2	0.462	10.3	LOS B	10.0	72.6	0.48	0.70	0.48	40.7
4	T1	All MCs	742	9.4	742	9.4	* 0.769	32.8	LOS C	14.5	109.8	0.98	0.92	1.09	34.6
Approach			1325	7.1	1325	7.1	0.769	22.9	LOS C	14.5	109.8	0.76	0.83	0.82	36.6
All Vehicles			2766	8.6	2766	8.6	0.769	23.3	LOS C	16.2	119.4	0.76	0.78	0.81	36.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

MOVEMENT SUMMARY

Site: 1 [A6. Main South/Pound (2038 CAST PM With Dev) (Site Folder: Main Sth/Pound - GONZO net demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	895	3.1	895	3.1	0.767	25.7	LOS C	19.5	140.3	0.89	0.81	0.93	37.7
6	R2	All MCs	203	7.8	203	7.8	* 0.840	49.8	LOS D	8.9	66.8	1.00	1.00	1.33	25.8
Approach			1098	3.9	1098	3.9	0.840	30.2	LOS C	19.5	140.3	0.91	0.84	1.00	35.1
North: Pound Road															
1	L2	All MCs	141	3.0	141	3.0	0.113	15.5	LOS B	1.8	13.2	0.36	0.63	0.36	41.5
2	R2	All MCs	668	4.9	668	4.9	* 0.850	38.4	LOS D	26.9	196.2	0.95	0.96	1.10	30.7
Approach			809	4.6	809	4.6	0.850	34.4	LOS C	26.9	196.2	0.85	0.90	0.97	29.9
West: Main South West															
3	L2	All MCs	496	2.5	496	2.5	0.381	9.4	LOS A	7.6	54.1	0.42	0.68	0.42	41.2
4	T1	All MCs	518	10.2	518	10.2	* 0.871	44.8	LOS D	11.7	89.1	1.00	1.08	1.36	31.0
Approach			1014	6.4	1014	6.4	0.871	27.5	LOS C	11.7	89.1	0.72	0.88	0.90	34.5
All Vehicles			2921	5.0	2921	5.0	0.871	30.4	LOS C	26.9	196.2	0.83	0.87	0.96	33.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

MOVEMENT SUMMARY

Site: 1 [A0. Main South/Pound Improved Layout Schematic (Site Folder: Main Sth/Pound - GONZO net demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Main South/Pound: Additional Pound RT Lane
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	468	17.5	468	17.5	0.279	9.4	LOS A	5.5	44.5	0.53	0.45	0.53	44.5
6	R2	All MCs	299	6.7	299	6.7	* 0.750	38.9	LOS D	11.8	87.2	0.99	0.90	1.10	28.5
Approach			767	13.3	767	13.3	0.750	20.9	LOS C	11.8	87.2	0.71	0.62	0.75	37.8
North: Pound Road															
1	L2	All MCs	293	12.6	293	12.6	0.299	14.9	LOS B	5.8	45.3	0.55	0.71	0.55	38.4
2	R2	All MCs	626	8.4	626	8.4	* 0.777	35.4	LOS D	14.7	110.6	0.95	0.87	1.02	29.7
Approach			919	9.7	919	9.7	0.777	28.8	LOS C	14.7	110.6	0.82	0.82	0.87	32.0
West: Main South West															
3	L2	All MCs	532	4.4	532	4.4	0.472	13.1	LOS B	11.0	79.7	0.57	0.74	0.57	39.0
4	T1	All MCs	757	9.3	757	9.3	* 0.748	31.2	LOS C	14.4	109.0	0.97	0.90	1.05	35.1
Approach			1288	7.3	1288	7.3	0.748	23.8	LOS C	14.4	109.0	0.81	0.83	0.85	36.3
All Vehicles			2975	9.6	2975	9.6	0.777	24.6	LOS C	14.7	110.6	0.79	0.77	0.83	35.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

MOVEMENT SUMMARY

Site: 1 [A7. Main South/Pound (2038 CAST AM with Dev - Improved) (Site Folder: Main Sth/Pound - GONZO net demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	468	17.5	468	17.5	0.279	9.4	LOS A	5.5	44.5	0.53	0.45	0.53	44.5
6	R2	All MCs	299	6.7	299	6.7	* 0.750	38.9	LOS D	11.8	87.2	0.99	0.90	1.10	28.5
Approach			767	13.3	767	13.3	0.750	20.9	LOS C	11.8	87.2	0.71	0.62	0.75	37.8
North: Pound Road															
1	L2	All MCs	293	12.6	293	12.6	0.299	14.9	LOS B	5.8	45.3	0.55	0.71	0.55	38.4
2	R2	All MCs	626	8.4	626	8.4	* 0.777	35.4	LOS D	14.7	110.6	0.95	0.87	1.02	29.7
Approach			919	9.7	919	9.7	0.777	28.8	LOS C	14.7	110.6	0.82	0.82	0.87	32.0
West: Main South West															
3	L2	All MCs	532	4.4	532	4.4	0.472	13.1	LOS B	11.0	79.7	0.57	0.74	0.57	39.0
4	T1	All MCs	757	9.3	757	9.3	* 0.748	31.2	LOS C	14.4	109.0	0.97	0.90	1.05	35.1
Approach			1288	7.3	1288	7.3	0.748	23.8	LOS C	14.4	109.0	0.81	0.83	0.85	36.3
All Vehicles			2975	9.6	2975	9.6	0.777	24.6	LOS C	14.7	110.6	0.79	0.77	0.83	35.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

MOVEMENT SUMMARY

Site: 1 [A8. Main South/Pound (2038 CAST PM with Dev - Improved) (Site Folder: Main Sth/Pound - GONZO net demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	879	2.8	879	2.8	0.551	15.3	LOS B	14.2	101.7	0.71	0.62	0.71	41.9
6	R2	All MCs	219	9.6	219	9.6	* 0.630	37.6	LOS D	8.2	61.9	0.97	0.83	0.99	28.9
Approach			1098	4.1	1098	4.1	0.630	19.7	LOS B	14.2	101.7	0.76	0.66	0.76	39.2
North: Pound Road															
1	L2	All MCs	228	4.6	228	4.6	0.203	11.6	LOS B	3.8	27.6	0.46	0.67	0.46	40.0
2	R2	All MCs	697	5.1	697	5.1	* 0.664	28.8	LOS C	14.0	102.1	0.87	0.82	0.87	32.3
Approach			925	5.0	925	5.0	0.664	24.6	LOS C	14.0	102.1	0.77	0.78	0.77	33.9
West: Main South West															
3	L2	All MCs	455	0.7	455	0.7	0.379	11.5	LOS B	8.2	57.5	0.50	0.71	0.50	40.0
4	T1	All MCs	543	9.9	543	9.9	* 0.659	31.8	LOS C	10.0	76.2	0.96	0.83	0.99	34.9
Approach			998	5.7	998	5.7	0.659	22.5	LOS C	10.0	76.2	0.75	0.77	0.77	36.7
All Vehicles			3021	4.9	3021	4.9	0.664	22.1	LOS C	14.2	102.1	0.76	0.73	0.77	36.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Saturday, 19 October 2024 9:35:29 am
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model \SIDRA\Barters.sip9

MOVEMENT SUMMARY

Site: 101 [B. Pound/Waterloo Existing Layout Schematic (Site Folder: Main Sth/Pound - GONZO net demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Pound/Waterloo (2038 AM with Dev - 01b Demands)
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	88	9.5	88	9.5	0.802	36.5	LOS D	21.5	158.3	0.90	0.88	0.99	37.3
2	T1	All MCs	506	5.6	506	5.6	0.802	31.9	LOS C	21.5	158.3	0.90	0.88	0.99	38.1
3	R2	All MCs	137	0.8	137	0.8	0.344	34.2	LOS C	4.0	27.9	0.76	0.76	0.76	36.8
Approach			732	5.2	732	5.2	0.802	32.9	LOS C	21.5	158.3	0.87	0.86	0.95	34.3
East: Waterloo E															
4	L2	All MCs	43	4.9	43	4.9	0.211	24.3	LOS C	3.7	27.7	0.74	0.65	0.74	37.9
5	T1	All MCs	92	9.2	92	9.2	0.211	19.7	LOS B	3.7	27.7	0.74	0.65	0.74	38.7
6	R2	All MCs	1	0.0	1	0.0	0.007	40.4	LOS D	0.0	0.3	0.92	0.59	0.92	31.7
Approach			136	7.8	136	7.8	0.211	21.4	LOS C	3.7	27.7	0.74	0.65	0.74	38.4
North: Pound N															
7	L2	All MCs	1	0.0	1	0.0	0.417	18.2	LOS B	9.6	70.7	0.68	0.59	0.68	41.3
8	T1	All MCs	387	6.5	387	6.5	0.417	13.7	LOS B	9.6	70.7	0.68	0.59	0.68	42.2
9	R2	All MCs	109	20.2	109	20.2	* 0.663	42.3	LOS D	4.5	36.7	0.98	0.87	1.12	31.1
Approach			498	9.5	498	9.5	0.663	20.0	LOS B	9.6	70.7	0.74	0.65	0.77	39.1
West: Waterloo W															
10	L2	All MCs	217	8.3	217	8.3	0.800	41.7	LOS D	15.8	118.6	0.96	0.94	1.11	33.8
11	T1	All MCs	181	9.3	181	9.3	* 0.800	37.1	LOS D	15.8	118.6	0.96	0.94	1.11	34.4
12	R2	All MCs	243	5.2	243	5.2	0.601	37.8	LOS D	8.4	61.2	0.91	0.82	0.91	34.4
Approach			641	7.4	641	7.4	0.800	38.9	LOS D	15.8	118.6	0.94	0.89	1.04	32.2
All Vehicles			2006	7.1	2006	7.1	0.802	30.8	LOS C	21.5	158.3	0.85	0.80	0.92	34.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

MOVEMENT SUMMARY

Site: 101 [B1. Pound/Waterloo (2038 AM No Dev) (Site Folder: Main Sth/Pound - GONZO net demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Pound/Waterloo (2038 AM with Dev - 01b Demands)
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	88	9.5	88	9.5	0.802	36.5	LOS D	21.5	158.3	0.90	0.88	0.99	37.3
2	T1	All MCs	506	5.6	506	5.6	0.802	31.9	LOS C	21.5	158.3	0.90	0.88	0.99	38.1
3	R2	All MCs	137	0.8	137	0.8	0.344	34.2	LOS C	4.0	27.9	0.76	0.76	0.76	36.8
Approach			732	5.2	732	5.2	0.802	32.9	LOS C	21.5	158.3	0.87	0.86	0.95	34.3
East: Waterloo E															
4	L2	All MCs	43	4.9	43	4.9	0.211	24.3	LOS C	3.7	27.7	0.74	0.65	0.74	37.9
5	T1	All MCs	92	9.2	92	9.2	0.211	19.7	LOS B	3.7	27.7	0.74	0.65	0.74	38.7
6	R2	All MCs	1	0.0	1	0.0	0.007	40.4	LOS D	0.0	0.3	0.92	0.59	0.92	31.7
Approach			136	7.8	136	7.8	0.211	21.4	LOS C	3.7	27.7	0.74	0.65	0.74	38.4
North: Pound N															
7	L2	All MCs	1	0.0	1	0.0	0.417	18.2	LOS B	9.6	70.7	0.68	0.59	0.68	41.3
8	T1	All MCs	387	6.5	387	6.5	0.417	13.7	LOS B	9.6	70.7	0.68	0.59	0.68	42.2
9	R2	All MCs	109	20.2	109	20.2	* 0.663	42.3	LOS D	4.5	36.7	0.98	0.87	1.12	31.1
Approach			498	9.5	498	9.5	0.663	20.0	LOS B	9.6	70.7	0.74	0.65	0.77	39.1
West: Waterloo W															
10	L2	All MCs	217	8.3	217	8.3	0.800	41.7	LOS D	15.8	118.6	0.96	0.94	1.11	33.8
11	T1	All MCs	181	9.3	181	9.3	* 0.800	37.1	LOS D	15.8	118.6	0.96	0.94	1.11	34.4
12	R2	All MCs	243	5.2	243	5.2	0.601	37.8	LOS D	8.4	61.2	0.91	0.82	0.91	34.4
Approach			641	7.4	641	7.4	0.800	38.9	LOS D	15.8	118.6	0.94	0.89	1.04	32.2
All Vehicles			2006	7.1	2006	7.1	0.802	30.8	LOS C	21.5	158.3	0.85	0.80	0.92	34.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Saturday, 19 October 2024 9:35:49 am
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model \SIDRA\Barters.sip9

MOVEMENT SUMMARY

Site: 101 [B2. Pound/Waterloo (2038 PM No Dev) (Site Folder: Main Sth/Pound - GONZO net demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Pound/Waterloo (2038 AM with Dev - 01b Demands)
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	117	5.4	117	5.4	0.577	19.9	LOS B	14.8	106.5	0.66	0.63	0.66	42.3
2	T1	All MCs	507	2.5	507	2.5	0.577	15.3	LOS B	14.8	106.5	0.66	0.63	0.66	43.3
3	R2	All MCs	28	3.7	28	3.7	0.078	25.1	LOS C	0.7	5.0	0.63	0.68	0.63	38.4
Approach			653	3.1	653	3.1	0.577	16.6	LOS B	14.8	106.5	0.66	0.63	0.66	40.6
East: Waterloo E															
4	L2	All MCs	118	3.6	118	3.6	0.700	48.5	LOS D	12.2	87.5	0.97	0.86	1.01	34.0
5	T1	All MCs	209	3.0	209	3.0	* 0.700	43.9	LOS D	12.2	87.5	0.97	0.86	1.01	34.6
6	R2	All MCs	1	0.0	1	0.0	0.005	49.0	LOS D	0.0	0.2	0.87	0.59	0.87	33.0
Approach			328	3.2	328	3.2	0.700	45.6	LOS D	12.2	87.5	0.97	0.86	1.01	30.6
North: Pound N															
7	L2	All MCs	1	0.0	1	0.0	0.554	16.2	LOS B	12.2	88.9	0.64	0.57	0.64	42.9
8	T1	All MCs	522	5.0	522	5.0	0.554	11.7	LOS B	12.2	88.9	0.64	0.57	0.64	43.8
9	R2	All MCs	225	9.3	225	9.3	* 0.734	33.4	LOS C	8.7	65.4	0.91	0.91	1.05	34.1
Approach			748	6.3	748	6.3	0.734	18.2	LOS B	12.2	88.9	0.72	0.67	0.77	39.8
West: Waterloo W															
10	L2	All MCs	146	10.1	146	10.1	0.488	32.9	LOS C	7.3	55.9	0.90	0.79	0.90	34.3
11	T1	All MCs	68	10.8	68	10.8	0.488	28.3	LOS C	7.3	55.9	0.90	0.79	0.90	35.0
12	R2	All MCs	56	3.8	56	3.8	0.374	43.6	LOS D	2.2	15.8	0.97	0.75	0.97	30.8
Approach			271	8.9	271	8.9	0.488	34.0	LOS C	7.3	55.9	0.92	0.78	0.92	33.7
All Vehicles			2000	5.1	2000	5.1	0.734	24.3	LOS C	14.8	106.5	0.77	0.70	0.79	37.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Saturday, 19 October 2024 9:35:53 am
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model \SIDRA\Barters.sip9

MOVEMENT SUMMARY

Site: 101 [Pound/Waterloo (2038 AM with Dev - 01b Demands) (Site Folder: Main Sth/Pound - GONZO net demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Pound/Waterloo (2038 AM with Dev - 01b Demands)
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	60	8.8	60	8.8	0.883	45.1	LOS D	31.5	231.2	0.95	1.02	1.16	34.8
2	T1	All MCs	667	5.4	667	5.4	* 0.883	40.5	LOS D	31.5	231.2	0.95	1.02	1.16	35.5
3	R2	All MCs	104	2.0	104	2.0	0.476	44.0	LOS D	3.7	26.0	0.89	0.79	0.89	33.8
Approach			832	5.2	832	5.2	0.883	41.3	LOS D	31.5	231.2	0.95	0.99	1.13	31.9
East: Waterloo E															
4	L2	All MCs	56	5.7	56	5.7	0.251	26.9	LOS C	4.2	31.3	0.79	0.68	0.79	36.8
5	T1	All MCs	87	8.4	87	8.4	0.251	22.3	LOS C	4.2	31.3	0.79	0.68	0.79	37.6
6	R2	All MCs	1	0.0	1	0.0	0.009	44.0	LOS D	0.0	0.3	0.95	0.58	0.95	30.8
Approach			144	7.3	144	7.3	0.251	24.2	LOS C	4.2	31.3	0.79	0.68	0.79	37.2
North: Pound N															
7	L2	All MCs	1	0.0	1	0.0	0.713	26.7	LOS C	19.6	150.6	0.81	0.73	0.81	40.7
8	T1	All MCs	669	11.2	669	11.2	0.713	22.2	LOS C	19.6	150.6	0.81	0.73	0.81	41.5
9	R2	All MCs	29	10.7	29	10.7	0.215	48.4	LOS D	1.1	8.5	0.93	0.73	0.93	31.5
Approach			700	11.1	700	11.1	0.713	23.3	LOS C	19.6	150.6	0.81	0.73	0.81	37.9
West: Waterloo W															
10	L2	All MCs	216	8.8	216	8.8	0.881	53.6	LOS D	18.4	138.3	1.00	1.07	1.32	30.9
11	T1	All MCs	184	8.6	184	8.6	* 0.881	49.0	LOS D	18.4	138.3	1.00	1.07	1.32	31.5
12	R2	All MCs	193	6.0	193	6.0	0.552	41.5	LOS D	6.7	49.6	0.91	0.81	0.91	33.8
Approach			593	7.8	593	7.8	0.881	48.2	LOS D	18.4	138.3	0.97	0.99	1.19	29.8
All Vehicles			2268	7.8	2268	7.8	0.883	36.5	LOS D	31.5	231.2	0.90	0.89	1.02	33.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Saturday, 19 October 2024 9:35:47 am
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model \SIDRA\Barters.sip9

MOVEMENT SUMMARY

Site: 101 [Pound/Waterloo (2038 PM with Dev - 01b Demands) (Site Folder: Main Sth/Pound - GONZO net demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Pound/Waterloo (2038 PM with Dev - 01b Demands)
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	91	4.7	91	4.7	0.569	18.5	LOS B	15.1	109.3	0.63	0.59	0.63	43.0
2	T1	All MCs	580	3.4	580	3.4	0.569	13.9	LOS B	15.1	109.3	0.63	0.59	0.63	44.0
3	R2	All MCs	2	0.0	2	0.0	0.013	40.5	LOS D	0.1	0.5	0.86	0.62	0.86	33.0
Approach			673	3.6	673	3.6	0.569	14.6	LOS B	15.1	109.3	0.63	0.59	0.63	41.6
East: Waterloo E															
4	L2	All MCs	112	3.8	112	3.8	0.839	59.3	LOS E	15.2	109.0	1.00	1.02	1.23	31.7
5	T1	All MCs	243	2.6	243	2.6	* 0.839	54.7	LOS D	15.2	109.0	1.00	1.02	1.23	32.3
6	R2	All MCs	1	0.0	1	0.0	0.006	54.1	LOS D	0.0	0.3	0.89	0.59	0.89	32.3
Approach			356	3.0	356	3.0	0.839	56.1	LOS E	15.2	109.0	1.00	1.02	1.23	28.2
North: Pound N															
7	L2	All MCs	1	0.0	1	0.0	0.894	39.4	LOS D	33.5	245.2	0.92	1.02	1.15	35.3
8	T1	All MCs	767	5.2	767	5.2	* 0.894	34.8	LOS C	33.5	245.2	0.92	1.02	1.15	36.0
9	R2	All MCs	179	11.2	179	11.2	0.592	31.1	LOS C	5.7	43.6	0.82	0.80	0.82	36.6
Approach			947	6.3	947	6.3	0.894	34.1	LOS C	33.5	245.2	0.90	0.98	1.08	34.0
West: Waterloo W															
10	L2	All MCs	125	17.6	125	17.6	0.551	35.2	LOS D	7.6	59.6	0.94	0.80	0.94	33.7
11	T1	All MCs	89	7.1	89	7.1	0.551	30.4	LOS C	7.6	59.6	0.94	0.80	0.94	34.5
12	R2	All MCs	46	2.3	46	2.3	0.442	48.1	LOS D	1.9	13.7	1.00	0.73	1.00	29.7
Approach			261	11.3	261	11.3	0.551	35.8	LOS D	7.6	59.6	0.95	0.78	0.95	33.2
All Vehicles			2237	5.6	2237	5.6	0.894	31.9	LOS C	33.5	245.2	0.84	0.85	0.95	34.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Saturday, 19 October 2024 9:35:55 am
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model \SIDRA\Barters.sip9

MOVEMENT SUMMARY

Site: 101 [B0. Pound/Waterloo Potential Improved Layout Schematic (Site Folder: Main Sth/Pound - GONZO net demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Pound/Waterloo (2038 PM with Dev - 01b Demands)
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	91	4.7	91	4.7	0.619	23.1	LOS C	17.2	124.3	0.71	0.66	0.71	41.7
2	T1	All MCs	580	3.4	580	3.4	0.619	18.5	LOS B	17.2	124.3	0.71	0.66	0.71	42.6
3	R2	All MCs	2	0.0	2	0.0	0.006	23.0	LOS C	0.0	0.3	0.54	0.59	0.54	40.1
Approach			673	3.6	673	3.6	0.619	19.1	LOS B	17.2	124.3	0.71	0.66	0.71	39.5
East: Waterloo E															
4	L2	All MCs	112	3.8	112	3.8	0.687	46.7	LOS D	12.8	92.0	0.95	0.84	0.98	34.7
5	T1	All MCs	243	2.6	243	2.6	* 0.687	42.1	LOS D	12.8	92.0	0.95	0.84	0.98	35.3
6	R2	All MCs	1	0.0	1	0.0	0.004	47.1	LOS D	0.0	0.2	0.84	0.59	0.84	33.6
Approach			356	3.0	356	3.0	0.687	43.6	LOS D	12.8	92.0	0.95	0.84	0.98	31.2
North: Pound N															
7	L2	All MCs	1	0.0	1	0.0	0.354	14.3	LOS B	8.0	58.2	0.57	0.50	0.57	43.2
8	T1	All MCs	767	5.2	767	5.2	0.354	9.7	LOS A	8.0	58.2	0.57	0.50	0.57	44.1
9	R2	All MCs	179	11.2	179	11.2	* 0.689	32.7	LOS C	6.8	51.8	0.91	0.88	1.03	33.9
Approach			947	6.3	947	6.3	0.689	14.1	LOS B	8.0	58.2	0.64	0.57	0.66	41.8
West: Waterloo W															
10	L2	All MCs	125	17.6	125	17.6	0.451	31.1	LOS C	7.1	55.2	0.88	0.77	0.88	35.1
11	T1	All MCs	89	7.1	89	7.1	0.451	26.4	LOS C	7.1	55.2	0.88	0.77	0.88	35.8
12	R2	All MCs	46	2.3	46	2.3	0.285	42.0	LOS D	1.8	12.6	0.95	0.74	0.95	31.3
Approach			261	11.3	261	11.3	0.451	31.4	LOS C	7.1	55.2	0.89	0.76	0.89	34.6
All Vehicles			2237	5.6	2237	5.6	0.689	22.3	LOS C	17.2	124.3	0.74	0.66	0.75	38.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

MOVEMENT SUMMARY

Site: 101 [B3. Pound/Waterloo (2038 PM with Dev - 01b Demands) - Improved (Site Folder: Main Sth/Pound - GONZO net demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Pound/Waterloo (2038 PM with Dev - 01b Demands)
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	91	4.7	91	4.7	0.619	23.1	LOS C	17.2	124.3	0.71	0.66	0.71	41.7
2	T1	All MCs	580	3.4	580	3.4	0.619	18.5	LOS B	17.2	124.3	0.71	0.66	0.71	42.6
3	R2	All MCs	2	0.0	2	0.0	0.006	23.0	LOS C	0.0	0.3	0.54	0.59	0.54	40.1
Approach			673	3.6	673	3.6	0.619	19.1	LOS B	17.2	124.3	0.71	0.66	0.71	39.5
East: Waterloo E															
4	L2	All MCs	112	3.8	112	3.8	0.687	46.7	LOS D	12.8	92.0	0.95	0.84	0.98	34.7
5	T1	All MCs	243	2.6	243	2.6	* 0.687	42.1	LOS D	12.8	92.0	0.95	0.84	0.98	35.3
6	R2	All MCs	1	0.0	1	0.0	0.004	47.1	LOS D	0.0	0.2	0.84	0.59	0.84	33.6
Approach			356	3.0	356	3.0	0.687	43.6	LOS D	12.8	92.0	0.95	0.84	0.98	31.2
North: Pound N															
7	L2	All MCs	1	0.0	1	0.0	0.354	14.3	LOS B	8.0	58.2	0.57	0.50	0.57	43.2
8	T1	All MCs	767	5.2	767	5.2	0.354	9.7	LOS A	8.0	58.2	0.57	0.50	0.57	44.1
9	R2	All MCs	179	11.2	179	11.2	* 0.689	32.7	LOS C	6.8	51.8	0.91	0.88	1.03	33.9
Approach			947	6.3	947	6.3	0.689	14.1	LOS B	8.0	58.2	0.64	0.57	0.66	41.8
West: Waterloo W															
10	L2	All MCs	125	17.6	125	17.6	0.451	31.1	LOS C	7.1	55.2	0.88	0.77	0.88	35.1
11	T1	All MCs	89	7.1	89	7.1	0.451	26.4	LOS C	7.1	55.2	0.88	0.77	0.88	35.8
12	R2	All MCs	46	2.3	46	2.3	0.285	42.0	LOS D	1.8	12.6	0.95	0.74	0.95	31.3
Approach			261	11.3	261	11.3	0.451	31.4	LOS C	7.1	55.2	0.89	0.76	0.89	34.6
All Vehicles			2237	5.6	2237	5.6	0.689	22.3	LOS C	17.2	124.3	0.74	0.66	0.75	38.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

MOVEMENT SUMMARY

Site: 101 [B4. Pound/Waterloo (2038 AM with Dev - 01b Demands) - Improved (Site Folder: Main Sth/Pound - GONZO net demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Pound/Waterloo (2038 AM with Dev - 01b Demands)
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	60	8.8	60	8.8	0.896	47.6	LOS D	32.7	240.2	0.96	1.06	1.20	34.0
2	T1	All MCs	667	5.4	667	5.4	* 0.896	43.0	LOS D	32.7	240.2	0.96	1.06	1.20	34.6
3	R2	All MCs	104	2.0	104	2.0	0.298	31.8	LOS C	2.7	19.4	0.68	0.73	0.68	38.2
Approach			832	5.2	832	5.2	0.896	41.9	LOS D	32.7	240.2	0.93	1.02	1.14	31.7
East: Waterloo E															
4	L2	All MCs	56	5.7	56	5.7	0.251	26.9	LOS C	4.2	31.3	0.79	0.68	0.79	36.9
5	T1	All MCs	87	8.4	87	8.4	0.251	22.3	LOS C	4.2	31.3	0.79	0.68	0.79	37.6
6	R2	All MCs	1	0.0	1	0.0	0.009	44.0	LOS D	0.0	0.3	0.95	0.58	0.95	30.8
Approach			144	7.3	144	7.3	0.251	24.2	LOS C	4.2	31.3	0.79	0.68	0.79	37.3
North: Pound N															
7	L2	All MCs	1	0.0	1	0.0	0.343	15.8	LOS B	7.4	56.7	0.61	0.52	0.61	42.4
8	T1	All MCs	669	11.2	669	11.2	0.343	11.3	LOS B	7.4	56.7	0.61	0.52	0.61	43.3
9	R2	All MCs	29	10.7	29	10.7	0.227	42.3	LOS D	1.1	8.7	0.94	0.73	0.94	31.2
Approach			700	11.1	700	11.1	0.343	12.6	LOS B	7.4	56.7	0.62	0.53	0.62	42.6
West: Waterloo W															
10	L2	All MCs	216	8.8	216	8.8	0.881	53.6	LOS D	18.4	138.3	1.00	1.07	1.32	31.0
11	T1	All MCs	184	8.6	184	8.6	* 0.881	49.0	LOS D	18.4	138.3	1.00	1.07	1.32	31.5
12	R2	All MCs	193	6.0	193	6.0	0.552	41.5	LOS D	6.7	49.6	0.91	0.81	0.91	33.8
Approach			593	7.8	593	7.8	0.881	48.2	LOS D	18.4	138.3	0.97	0.99	1.19	29.8
All Vehicles			2268	7.8	2268	7.8	0.896	33.4	LOS C	32.7	240.2	0.84	0.84	0.97	34.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

MOVEMENT SUMMARY

Site: 101 [C. Pound/Site Assumed Priority Intersection Schematic (Site Folder: Main Sth/Pound - GONZO net demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Pound/Site (Priority)
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	205	4.1	205	4.1	0.159	5.4	LOS A	0.7	4.9	0.35	0.54	0.35	45.3
2	T1	All MCs	676	5.9	676	5.9	0.360	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
Approach			881	5.5	881	5.5	0.360	1.4	LOS A	0.7	4.9	0.08	0.13	0.08	48.7
North: Pound N															
8	T1	All MCs	460	9.6	460	9.6	0.251	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
9	R2	All MCs	228	8.3	228	8.3	0.307	9.6	LOS A	1.5	10.9	0.66	0.88	0.78	43.1
Approach			688	9.2	688	9.2	0.307	3.2	NA	1.5	10.9	0.22	0.29	0.26	47.4
West: Site Pound Access															
10	L2	All MCs	162	26.0	162	26.0	0.283	10.9	LOS B	1.1	9.8	0.66	0.88	0.77	42.4
12	R2	All MCs	138	3.8	138	3.8	1.362	394.8	LOS F	26.6	192.5	1.00	3.01	8.28	7.8
Approach			300	15.8	300	15.8	1.362	187.4	LOS F	26.6	192.5	0.82	1.86	4.22	13.9
All Vehicles			1869	8.5	1869	8.5	1.362	31.9	NA	26.6	192.5	0.25	0.47	0.81	34.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Saturday, 19 October 2024 9:35:32 am
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters.sip9

MOVEMENT SUMMARY

Site: 101 [C1. Pound/Site (2038 CAST AM With Dev) (Site Folder: Main Sth/Pound - GONZO net demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Pound/Site (Priority)
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	205	4.1	205	4.1	0.159	5.4	LOS A	0.7	4.9	0.35	0.54	0.35	45.3
2	T1	All MCs	676	5.9	676	5.9	0.360	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
Approach			881	5.5	881	5.5	0.360	1.4	LOS A	0.7	4.9	0.08	0.13	0.08	48.7
North: Pound N															
8	T1	All MCs	460	9.6	460	9.6	0.251	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
9	R2	All MCs	228	8.3	228	8.3	0.307	9.6	LOS A	1.5	10.9	0.66	0.88	0.78	43.1
Approach			688	9.2	688	9.2	0.307	3.2	NA	1.5	10.9	0.22	0.29	0.26	47.4
West: Site Pound Access															
10	L2	All MCs	162	26.0	162	26.0	0.283	10.9	LOS B	1.1	9.8	0.66	0.88	0.77	42.4
12	R2	All MCs	138	3.8	138	3.8	1.362	394.8	LOS F	26.6	192.5	1.00	3.01	8.28	7.8
Approach			300	15.8	300	15.8	1.362	187.4	LOS F	26.6	192.5	0.82	1.86	4.22	13.9
All Vehicles			1869	8.5	1869	8.5	1.362	31.9	NA	26.6	192.5	0.25	0.47	0.81	34.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [C2. Pound/Site (2038 CAST PM With Dev) (Site Folder: Main Sth/Pound - GONZO net demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Pound/Site (Priority)
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	129	9.8	129	9.8	0.094	5.0	LOS A	0.4	2.9	0.24	0.49	0.24	45.5
2	T1	All MCs	614	4.1	614	4.1	0.323	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
Approach			743	5.1	743	5.1	0.323	1.0	LOS A	0.4	2.9	0.04	0.09	0.04	49.0
North: Pound N															
8	T1	All MCs	682	6.3	682	6.3	0.364	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
9	R2	All MCs	124	12.7	124	12.7	0.156	8.3	LOS A	0.6	4.9	0.60	0.77	0.60	43.7
Approach			806	7.3	806	7.3	0.364	1.4	NA	0.6	4.9	0.09	0.12	0.09	48.8
West: Site Pound Access															
10	L2	All MCs	285	7.4	285	7.4	0.366	9.1	LOS A	1.8	13.5	0.63	0.87	0.80	43.4
12	R2	All MCs	144	2.9	144	2.9	1.423	447.0	LOS F	30.4	218.4	1.00	3.18	8.92	7.0
Approach			429	5.9	429	5.9	1.423	156.2	LOS F	30.4	218.4	0.75	1.65	3.53	15.8
All Vehicles			1979	6.2	1979	6.2	1.423	34.8	NA	30.4	218.4	0.22	0.44	0.82	33.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101v [C0. Pound/Site Assumed (initial) Roundabout Schematic (Site Folder: Main Sth/Pound - GONZO net demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Pound/Site (Priority)
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	205	4.1	205	4.1	0.824	10.2	LOS B	15.5	113.3	1.00	0.80	1.22	43.4
2	T1	All MCs	676	5.9	676	5.9	0.824	10.2	LOS B	15.5	113.3	1.00	0.80	1.22	43.6
Approach			881	5.5	881	5.5	0.824	10.2	LOS B	15.5	113.3	1.00	0.80	1.22	43.6
North: Pound N															
8	T1	All MCs	460	9.6	460	9.6	0.587	4.4	LOS A	6.4	48.3	0.64	0.50	0.64	45.1
9	R2	All MCs	228	8.3	228	8.3	0.587	8.9	LOS A	6.4	48.3	0.64	0.50	0.64	44.5
Approach			688	9.2	688	9.2	0.587	5.9	LOS A	6.4	48.3	0.64	0.50	0.64	44.9
West: Site Pound Access															
10	L2	All MCs	162	26.0	162	26.0	0.274	8.6	LOS A	2.0	17.4	0.89	0.73	0.89	44.0
12	R2	All MCs	138	3.8	138	3.8	0.242	12.8	LOS B	1.8	12.7	0.88	0.76	0.88	42.0
Approach			300	15.8	300	15.8	0.274	10.5	LOS B	2.0	17.4	0.88	0.74	0.88	43.0
All Vehicles			1869	8.5	1869	8.5	0.824	8.7	LOS A	15.5	113.3	0.85	0.68	0.95	44.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101v [C3. Pound/Site (2038 CAST AM With Dev) - Roundabout - No Change in demands (Site Folder: Main Sth/ Pound - GONZO net demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Pound/Site (Priority)
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	205	4.1	205	4.1	0.824	10.2	LOS B	15.5	113.3	1.00	0.80	1.22	43.4
2	T1	All MCs	676	5.9	676	5.9	0.824	10.2	LOS B	15.5	113.3	1.00	0.80	1.22	43.6
Approach			881	5.5	881	5.5	0.824	10.2	LOS B	15.5	113.3	1.00	0.80	1.22	43.6
North: Pound N															
8	T1	All MCs	460	9.6	460	9.6	0.587	4.4	LOS A	6.4	48.3	0.64	0.50	0.64	45.1
9	R2	All MCs	228	8.3	228	8.3	0.587	8.9	LOS A	6.4	48.3	0.64	0.50	0.64	44.5
Approach			688	9.2	688	9.2	0.587	5.9	LOS A	6.4	48.3	0.64	0.50	0.64	44.9
West: Site Pound Access															
10	L2	All MCs	162	26.0	162	26.0	0.274	8.6	LOS A	2.0	17.4	0.89	0.73	0.89	44.0
12	R2	All MCs	138	3.8	138	3.8	0.242	12.8	LOS B	1.8	12.7	0.88	0.76	0.88	42.0
Approach			300	15.8	300	15.8	0.274	10.5	LOS B	2.0	17.4	0.88	0.74	0.88	43.0
All Vehicles			1869	8.5	1869	8.5	0.824	8.7	LOS A	15.5	113.3	0.85	0.68	0.95	44.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101v [C4. Pound/Site (2038 CAST PM With Dev) - Roundabout - No Change in demands (Site Folder: Main Sth/ Pound - GONZO net demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Pound/Site (Priority)
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	129	9.8	129	9.8	0.605	4.4	LOS A	6.7	49.1	0.62	0.45	0.62	45.5
2	T1	All MCs	614	4.1	614	4.1	0.605	4.2	LOS A	6.7	49.1	0.62	0.45	0.62	45.8
Approach			743	5.1	743	5.1	0.605	4.2	LOS A	6.7	49.1	0.62	0.45	0.62	45.7
North: Pound N															
8	T1	All MCs	682	6.3	682	6.3	0.678	4.6	LOS A	8.3	61.9	0.73	0.50	0.73	45.2
9	R2	All MCs	124	12.7	124	12.7	0.678	9.3	LOS A	8.3	61.9	0.73	0.50	0.73	44.5
Approach			806	7.3	806	7.3	0.678	5.3	LOS A	8.3	61.9	0.73	0.50	0.73	45.1
West: Site Pound Access															
10	L2	All MCs	285	7.4	285	7.4	0.351	7.5	LOS A	2.7	19.9	0.83	0.69	0.83	44.7
12	R2	All MCs	144	2.9	144	2.9	0.228	12.5	LOS B	1.5	10.8	0.79	0.74	0.79	42.1
Approach			429	5.9	429	5.9	0.351	9.2	LOS A	2.7	19.9	0.82	0.71	0.82	43.8
All Vehicles			1979	6.2	1979	6.2	0.678	5.7	LOS A	8.3	61.9	0.71	0.53	0.71	45.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101v [C5. Pound/Site (2038 CAST AM With Dev) - Roundabout - 01b demands (Site Folder: Main Sth/Pound - GONZO net demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Pound/Site (Priority)
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	262	6.0	262	6.0	0.761	5.9	LOS A	11.1	82.1	0.87	0.58	0.90	44.9
2	T1	All MCs	622	6.4	622	6.4	0.761	5.8	LOS A	11.1	82.1	0.87	0.58	0.90	45.1
Approach			884	6.3	884	6.3	0.761	5.8	LOS A	11.1	82.1	0.87	0.58	0.90	45.1
North: Pound N															
8	T1	All MCs	494	10.4	494	10.4	0.631	5.4	LOS A	6.7	50.7	0.78	0.58	0.79	44.8
9	R2	All MCs	164	7.1	164	7.1	0.631	9.9	LOS A	6.7	50.7	0.78	0.58	0.79	44.2
Approach			658	9.6	658	9.6	0.631	6.5	LOS A	6.7	50.7	0.78	0.58	0.79	44.7
West: Site Pound Access															
10	L2	All MCs	96	20.9	96	20.9	0.192	9.5	LOS A	1.2	10.0	0.81	0.73	0.81	43.6
12	R2	All MCs	203	13.5	203	13.5	0.281	11.9	LOS B	2.1	16.6	0.85	0.72	0.85	42.3
Approach			299	15.8	299	15.8	0.281	11.1	LOS B	2.1	16.6	0.84	0.73	0.84	42.7
All Vehicles			1841	9.0	1841	9.0	0.761	6.9	LOS A	11.1	82.1	0.83	0.60	0.85	44.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Saturday, 19 October 2024 9:35:38 am
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters.sip9

MOVEMENT SUMMARY

Site: 101v [C6. Pound/Site (2038 CAST PM With Dev) - Roundabout - 01b demands (Site Folder: Main Sth/Pound - GONZO net demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Pound/Site (Priority)
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	136	13.2	136	13.2	0.573	4.2	LOS A	6.5	47.7	0.60	0.43	0.60	45.6
2	T1	All MCs	572	4.4	572	4.4	0.573	4.0	LOS A	6.5	47.7	0.60	0.43	0.60	45.9
Approach			707	6.1	707	6.1	0.573	4.0	LOS A	6.5	47.7	0.60	0.43	0.60	45.8
North: Pound N															
8	T1	All MCs	640	6.9	640	6.9	0.799	11.8	LOS B	13.7	101.8	1.00	0.90	1.31	42.5
9	R2	All MCs	114	9.3	114	9.3	0.799	16.5	LOS B	13.7	101.8	1.00	0.90	1.31	41.9
Approach			754	7.3	754	7.3	0.799	12.5	LOS B	13.7	101.8	1.00	0.90	1.31	42.4
West: Site Pound Access															
10	L2	All MCs	175	5.4	175	5.4	0.260	8.0	LOS A	1.7	12.7	0.78	0.69	0.78	44.4
12	R2	All MCs	305	5.5	305	5.5	0.352	11.3	LOS B	2.7	19.7	0.81	0.71	0.81	42.7
Approach			480	5.5	480	5.5	0.352	10.1	LOS B	2.7	19.7	0.79	0.70	0.79	43.3
All Vehicles			1941	6.4	1941	6.4	0.799	8.8	LOS A	13.7	101.8	0.80	0.68	0.92	43.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

DELAY - AVERAGE (CONTROL)

Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 1 [A1. Main South/Pound (2024 Observed AM 0730-0830) (Site Folder: Main Sth/Pound - GONZO net demands)]

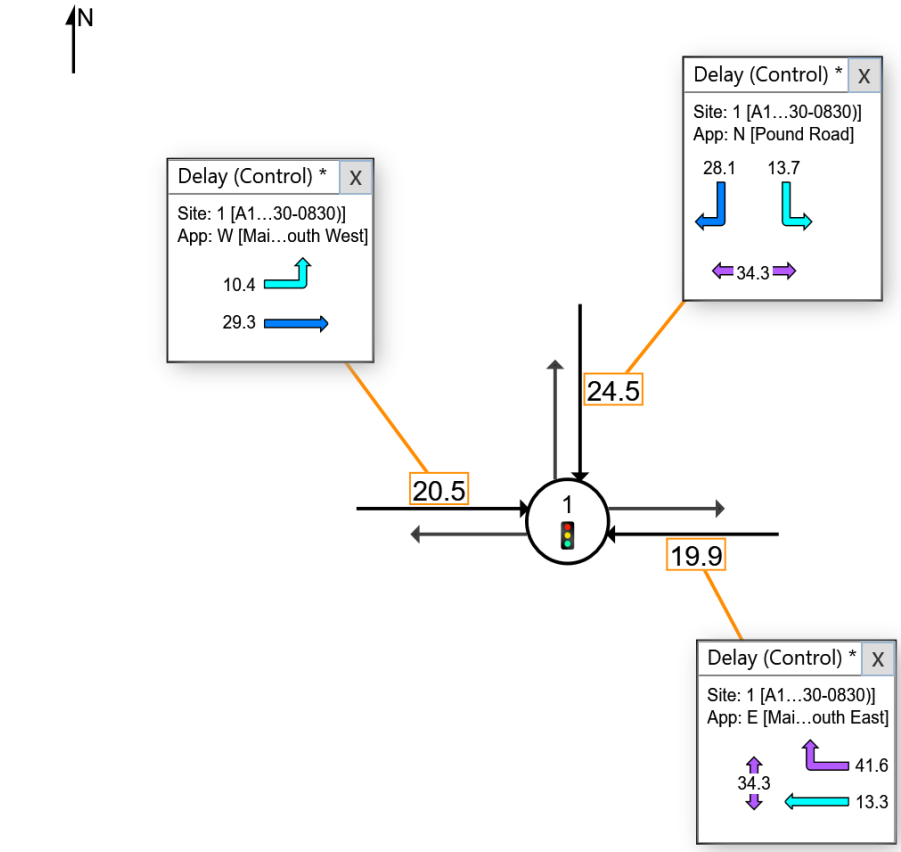
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F | NA

NA: The movement only runs in short lanes and these are not included in determining Queue Storage Ratio, or the movement has zero volume for the selected Movement Class.
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Pedestrian Level of Service Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Approach values are flow-weighted average values for vehicle movements (pedestrian delays not included).

DELAY - AVERAGE (CONTROL)

Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 1 [A2. Main South/Pound (2024 Observed PM 1630-1730) (Site Folder: Main Sth/Pound - GONZO net demands)]

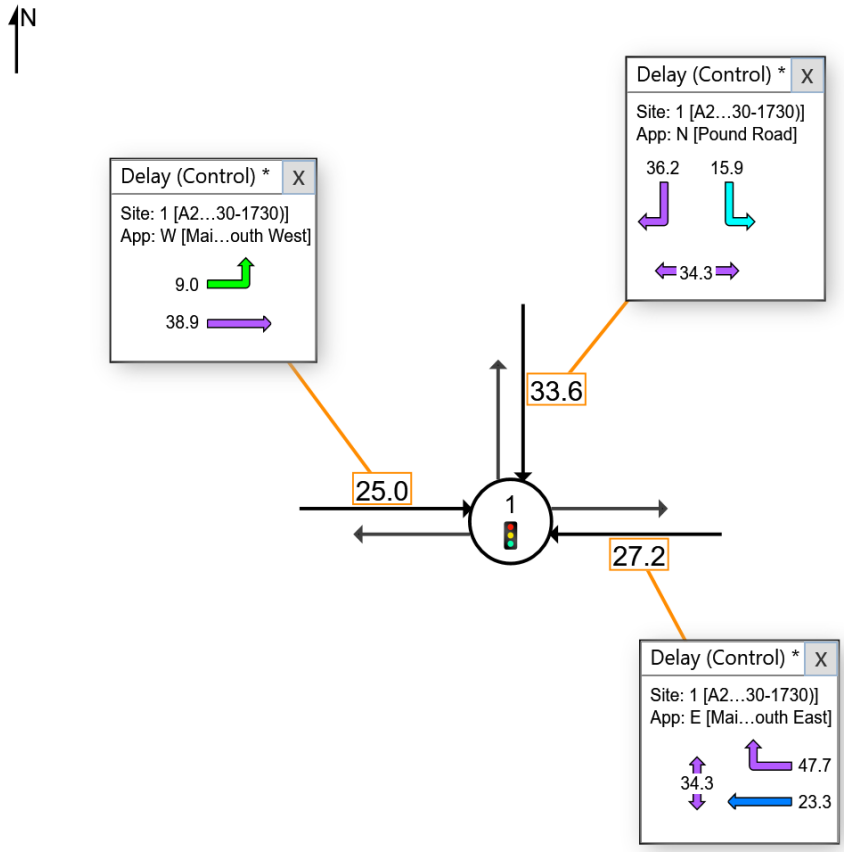
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Colour code based on Level of Service

LOS A	LOS B	LOS C	LOS D	LOS E	LOS F	NA

NA: The movement only runs in short lanes and these are not included in determining Queue Storage Ratio, or the movement has zero volume for the selected Movement Class.
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Pedestrian Level of Service Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Approach values are flow-weighted average values for vehicle movements (pedestrian delays not included).

DELAY - AVERAGE (CONTROL)

Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 1 [A3. Main South/Pound (2038 CAST AM No Dev) (Site Folder: Main Sth/Pound - GONZO net demands)]

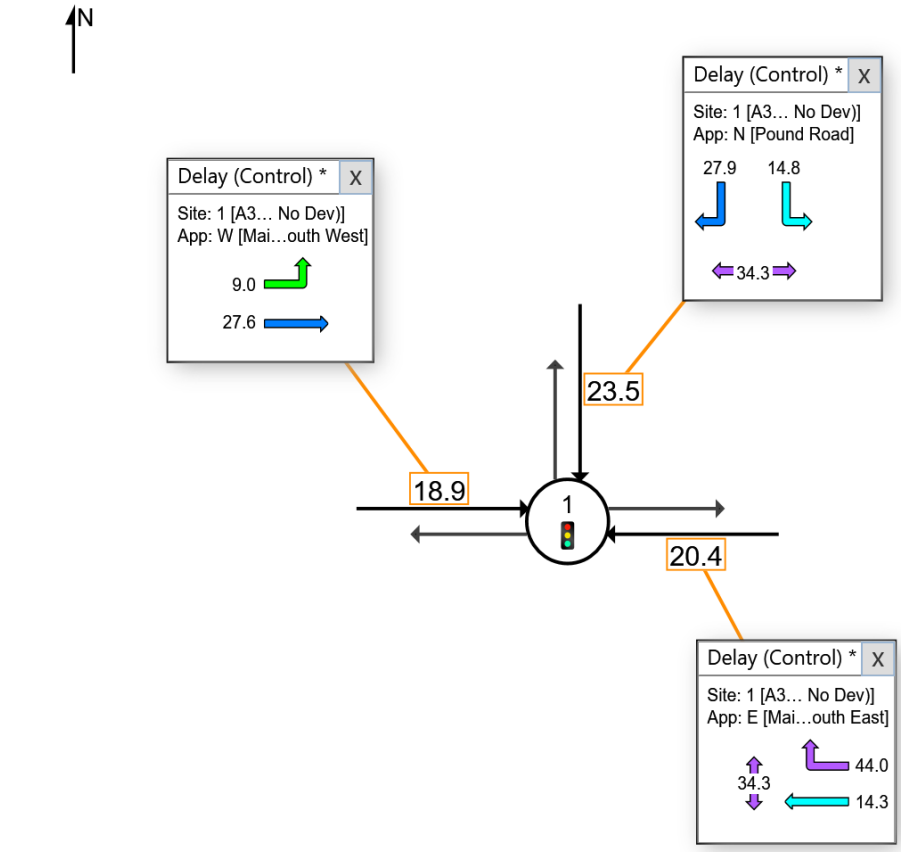
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Colour code based on Level of Service

LOS A	LOS B	LOS C	LOS D	LOS E	LOS F	NA

NA: The movement only runs in short lanes and these are not included in determining Queue Storage Ratio, or the movement has zero volume for the selected Movement Class.
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Pedestrian Level of Service Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Approach values are flow-weighted average values for vehicle movements (pedestrian delays not included).

DELAY - AVERAGE (CONTROL)

Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 1 [A4. Main South/Pound (2038 CAST PM No Dev) (Site Folder: Main Sth/Pound - GONZO net demands)]

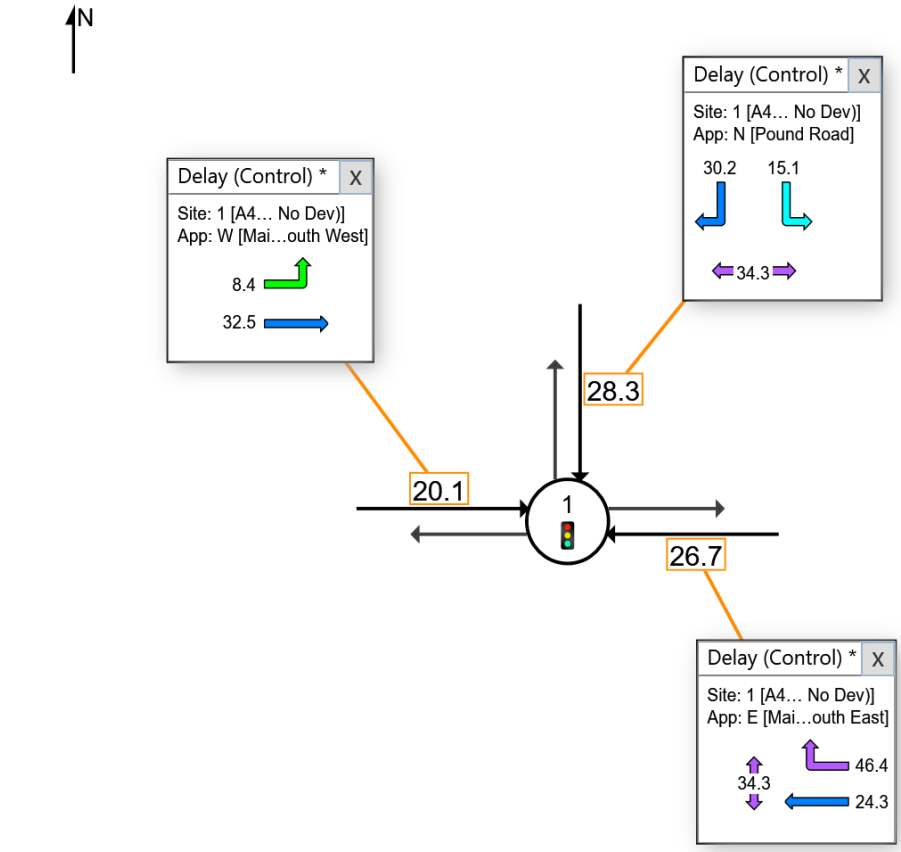
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Colour code based on Level of Service

LOS A	LOS B	LOS C	LOS D	LOS E	LOS F	NA

NA: The movement only runs in short lanes and these are not included in determining Queue Storage Ratio, or the movement has zero volume for the selected Movement Class.
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Pedestrian Level of Service Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Approach values are flow-weighted average values for vehicle movements (pedestrian delays not included).

DELAY - AVERAGE (CONTROL)

Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 1 [A5. Main South/Pound (2038 CAST AM With Dev) (Site Folder: Main Sth/Pound - GONZO net demands)]

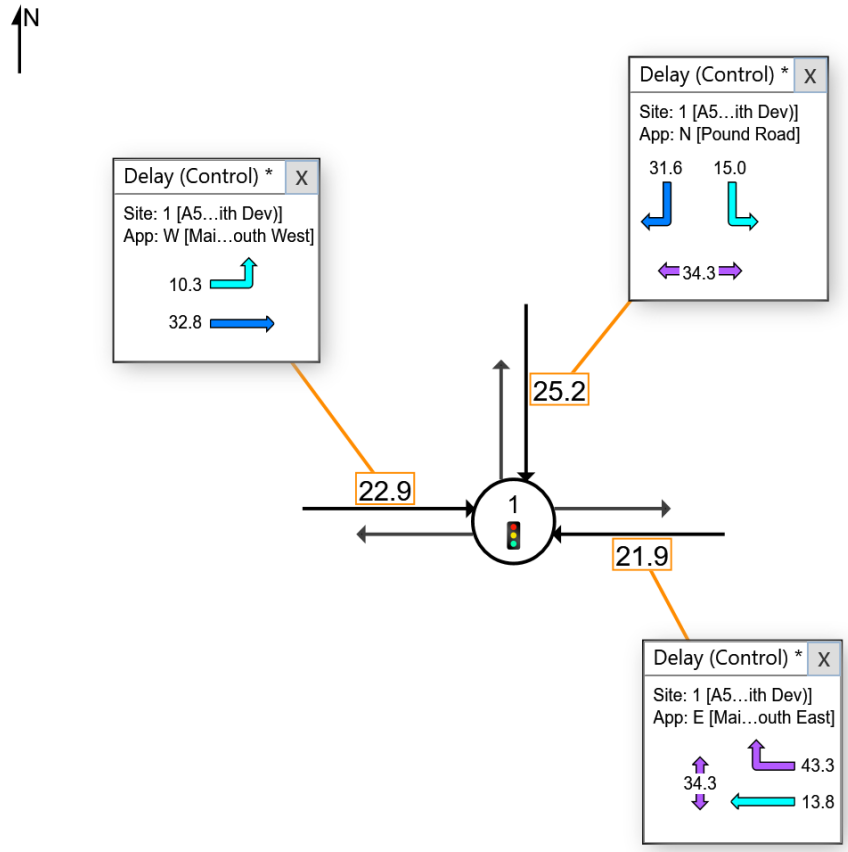
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Colour code based on Level of Service

LOS A	LOS B	LOS C	LOS D	LOS E	LOS F	NA

NA: The movement only runs in short lanes and these are not included in determining Queue Storage Ratio, or the movement has zero volume for the selected Movement Class.
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Pedestrian Level of Service Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Approach values are flow-weighted average values for vehicle movements (pedestrian delays not included).

DELAY - AVERAGE (CONTROL)

Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 1 [A6. Main South/Pound (2038 CAST PM With Dev) (Site Folder: Main Sth/Pound - GONZO net demands)]

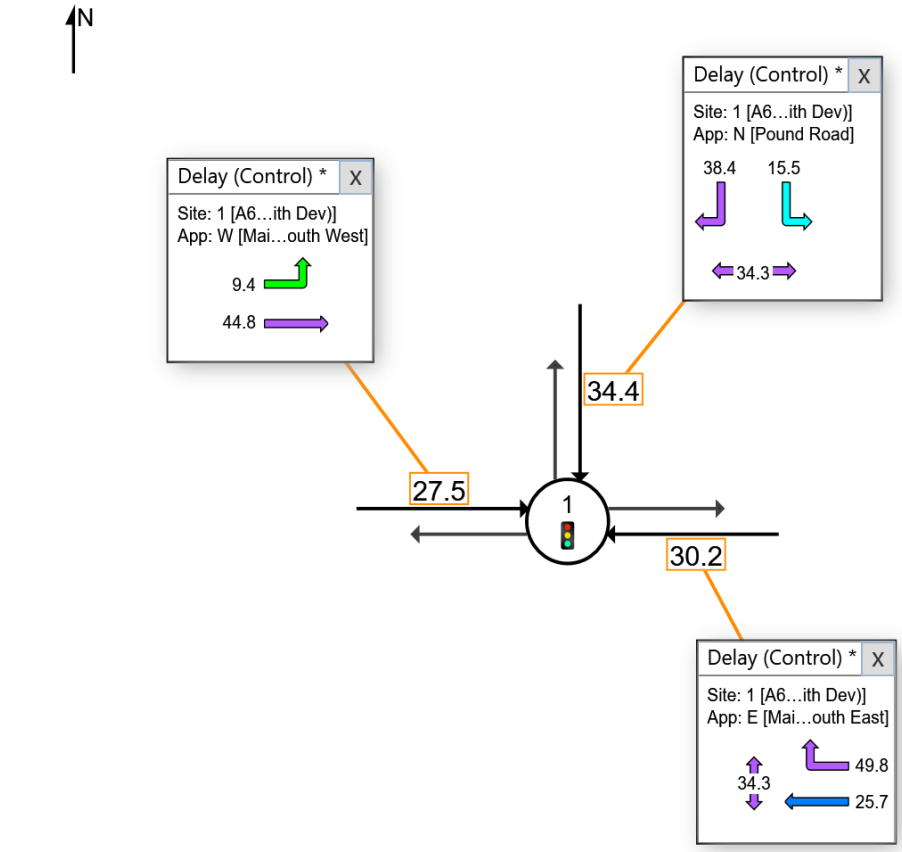
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Colour code based on Level of Service

LOS A	LOS B	LOS C	LOS D	LOS E	LOS F	NA

NA: The movement only runs in short lanes and these are not included in determining Queue Storage Ratio, or the movement has zero volume for the selected Movement Class.
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Pedestrian Level of Service Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Approach values are flow-weighted average values for vehicle movements (pedestrian delays not included).

DELAY - AVERAGE (CONTROL)

Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 1 [A7. Main South/Pound (2038 CAST AM with Dev - Improved) (Site Folder: Main Sth/Pound - GONZO net demands)]

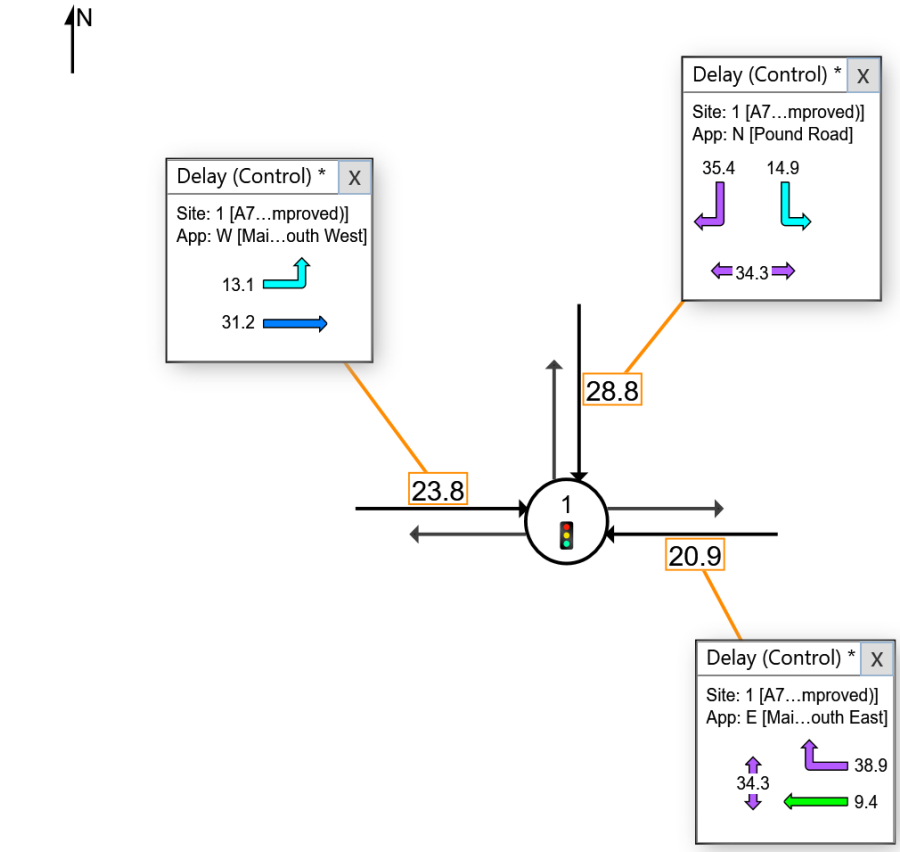
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Colour code based on Level of Service

LOS A	LOS B	LOS C	LOS D	LOS E	LOS F	NA

NA: The movement only runs in short lanes and these are not included in determining Queue Storage Ratio, or the movement has zero volume for the selected Movement Class.
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Pedestrian Level of Service Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Approach values are flow-weighted average values for vehicle movements (pedestrian delays not included).

DELAY - AVERAGE (CONTROL)

Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 1 [A8. Main South/Pound (2038 CAST PM with Dev - Improved) (Site Folder: Main Sth/Pound - GONZO net demands)]

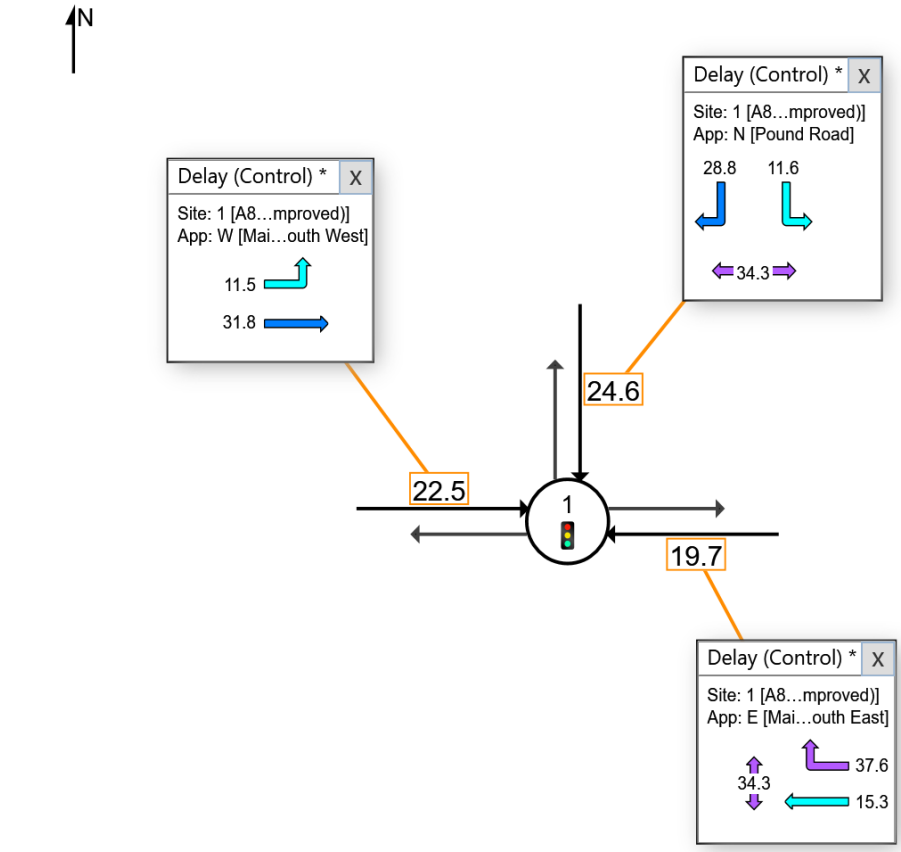
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F | NA

NA: The movement only runs in short lanes and these are not included in determining Queue Storage Ratio, or the movement has zero volume for the selected Movement Class.
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Pedestrian Level of Service Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Approach values are flow-weighted average values for vehicle movements (pedestrian delays not included).

DELAY - AVERAGE (CONTROL)

Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 101 [B1. Pound/Waterloo (2038 AM No Dev) (Site Folder: Main Sth/Pound - GONZO net demands)]

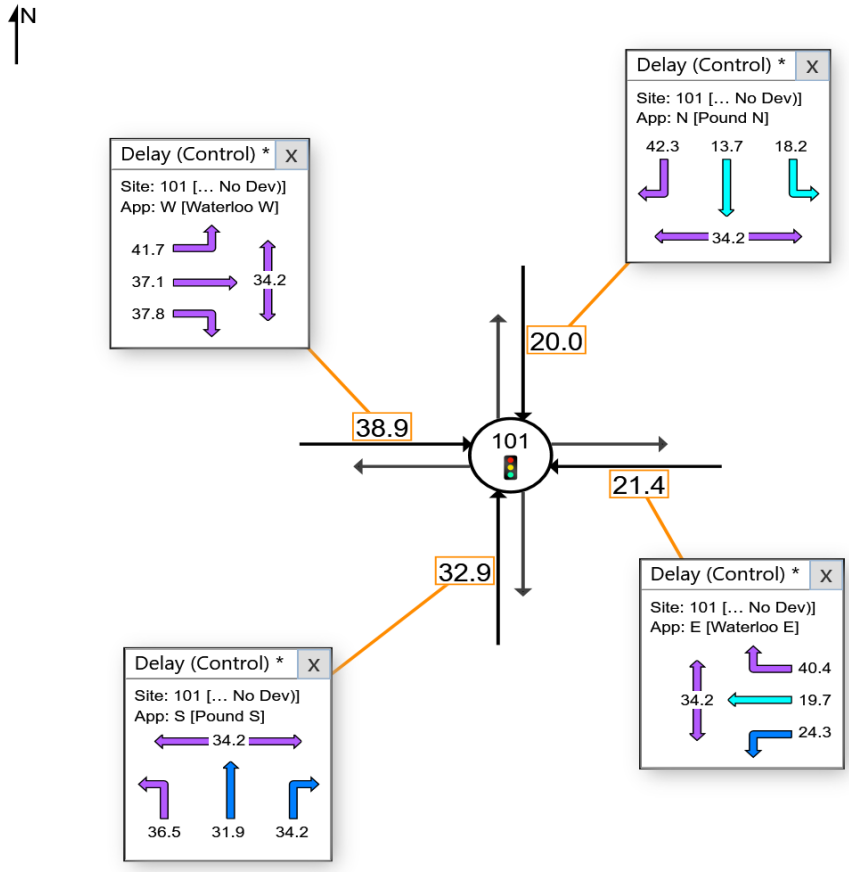
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Pound/Waterloo (2038 AM with Dev - 01b Demands)
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F | NA

NA: The movement only runs in short lanes and these are not included in determining Queue Storage Ratio, or the movement has zero volume for the selected Movement Class.
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Pedestrian Level of Service Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Approach values are flow-weighted average values for vehicle movements (pedestrian delays not included).

DELAY - AVERAGE (CONTROL)

Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 101 [B2. Pound/Waterloo (2038 PM No Dev) (Site Folder: Main Sth/Pound - GONZO net demands)]

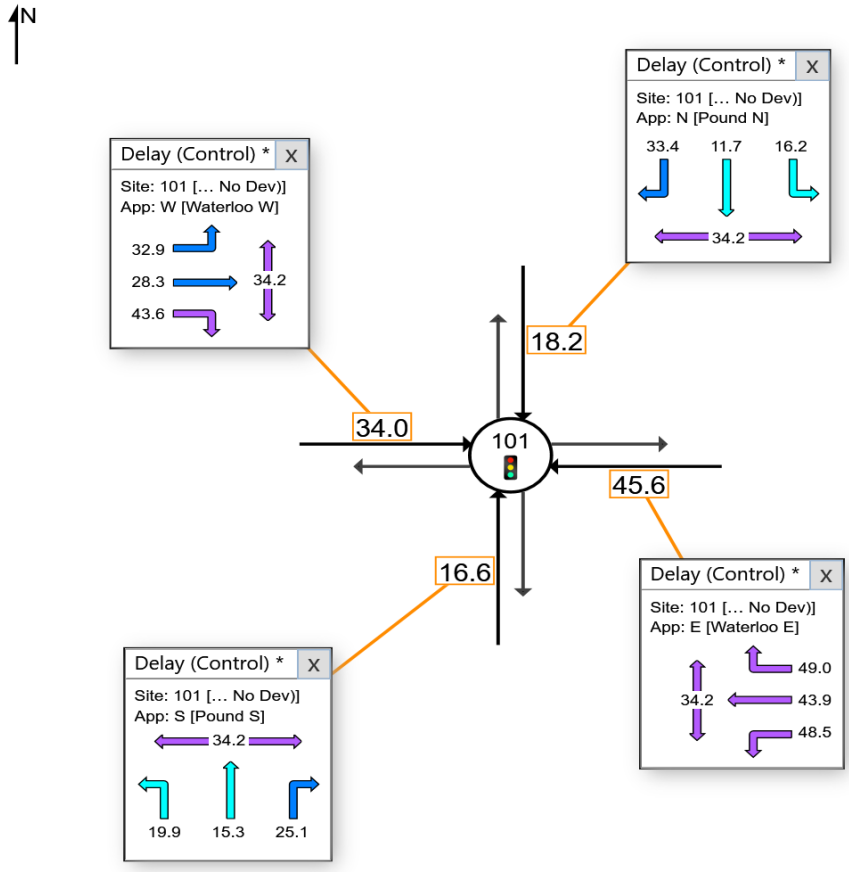
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Pound/Waterloo (2038 AM with Dev - 01b Demands)
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Colour code based on Level of Service

LOS A	LOS B	LOS C	LOS D	LOS E	LOS F	NA

NA: The movement only runs in short lanes and these are not included in determining Queue Storage Ratio, or the movement has zero volume for the selected Movement Class.
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Pedestrian Level of Service Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Approach values are flow-weighted average values for vehicle movements (pedestrian delays not included).

DELAY - AVERAGE (CONTROL)

Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 101 [Pound/Waterloo (2038 AM with Dev - 01b Demands) (Site Folder: Main Sth/Pound - GONZO net demands)]

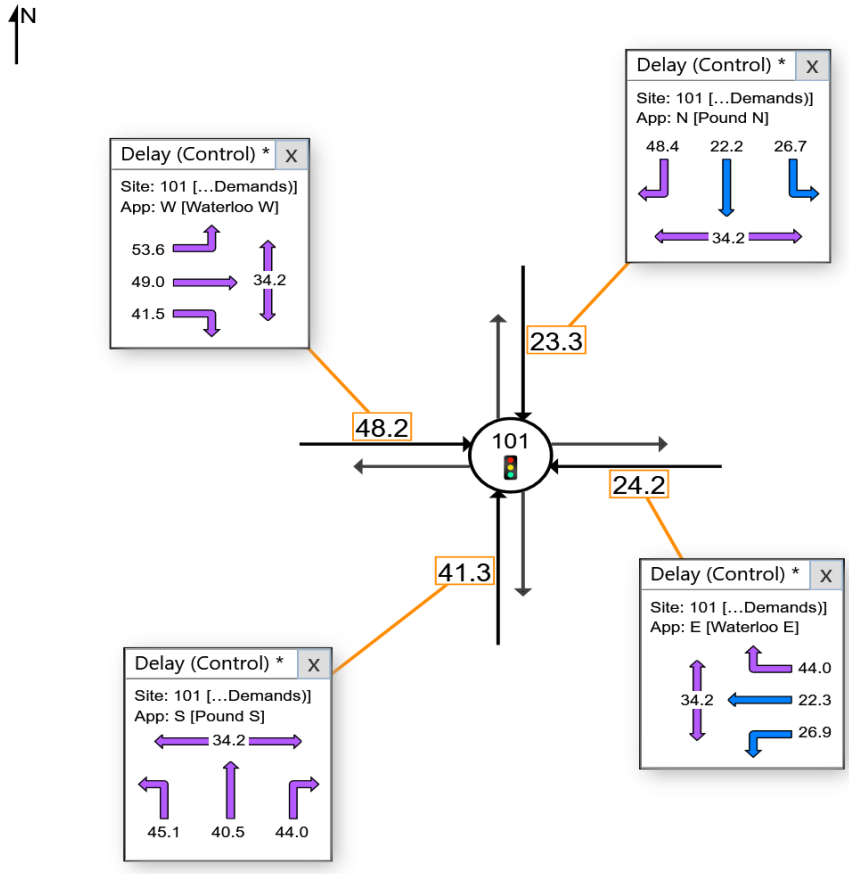
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Pound/Waterloo (2038 AM with Dev - 01b Demands)
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Colour code based on Level of Service

LOS A	LOS B	LOS C	LOS D	LOS E	LOS F	NA

NA: The movement only runs in short lanes and these are not included in determining Queue Storage Ratio, or the movement has zero volume for the selected Movement Class.
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Pedestrian Level of Service Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Approach values are flow-weighted average values for vehicle movements (pedestrian delays not included).

DELAY - AVERAGE (CONTROL)

Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 101 [Pound/Waterloo (2038 PM with Dev - 01b Demands) (Site Folder: Main Sth/Pound - GONZO net demands)]

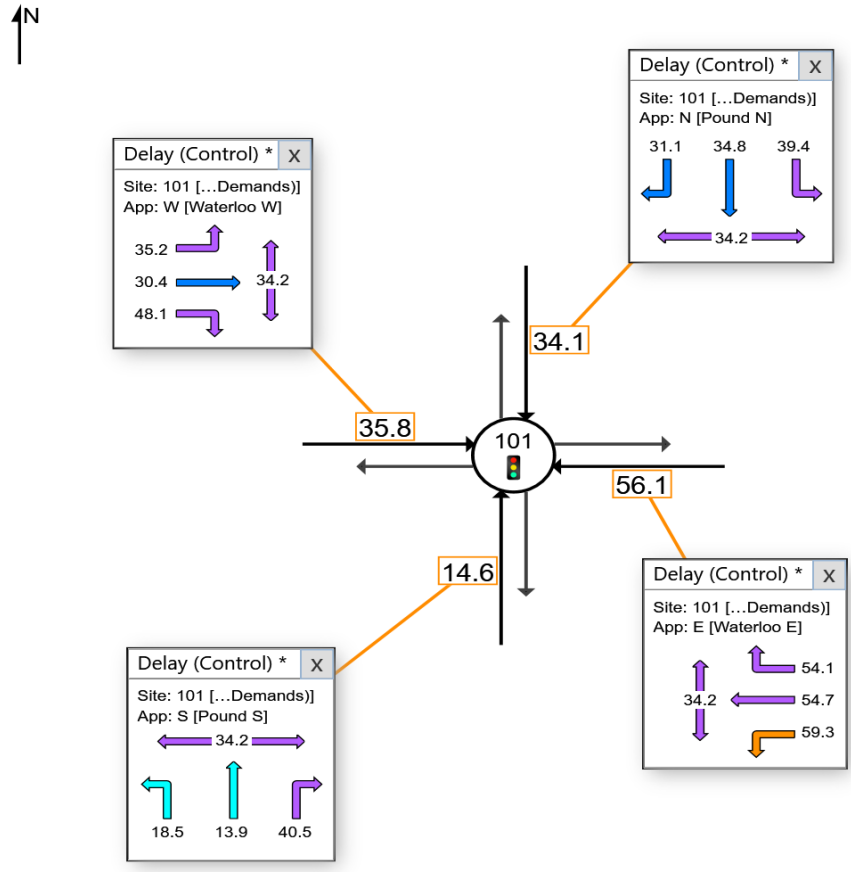
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Pound/Waterloo (2038 PM with Dev - 01b Demands)
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Colour code based on Level of Service

LOS A	LOS B	LOS C	LOS D	LOS E	LOS F	NA

NA: The movement only runs in short lanes and these are not included in determining Queue Storage Ratio, or the movement has zero volume for the selected Movement Class.
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Pedestrian Level of Service Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Approach values are flow-weighted average values for vehicle movements (pedestrian delays not included).

DELAY - AVERAGE (CONTROL)

Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 101 [B0. Pound/Waterloo Potential Improved Layout Schematic (Site Folder: Main Sth/Pound - GONZO net demands)]

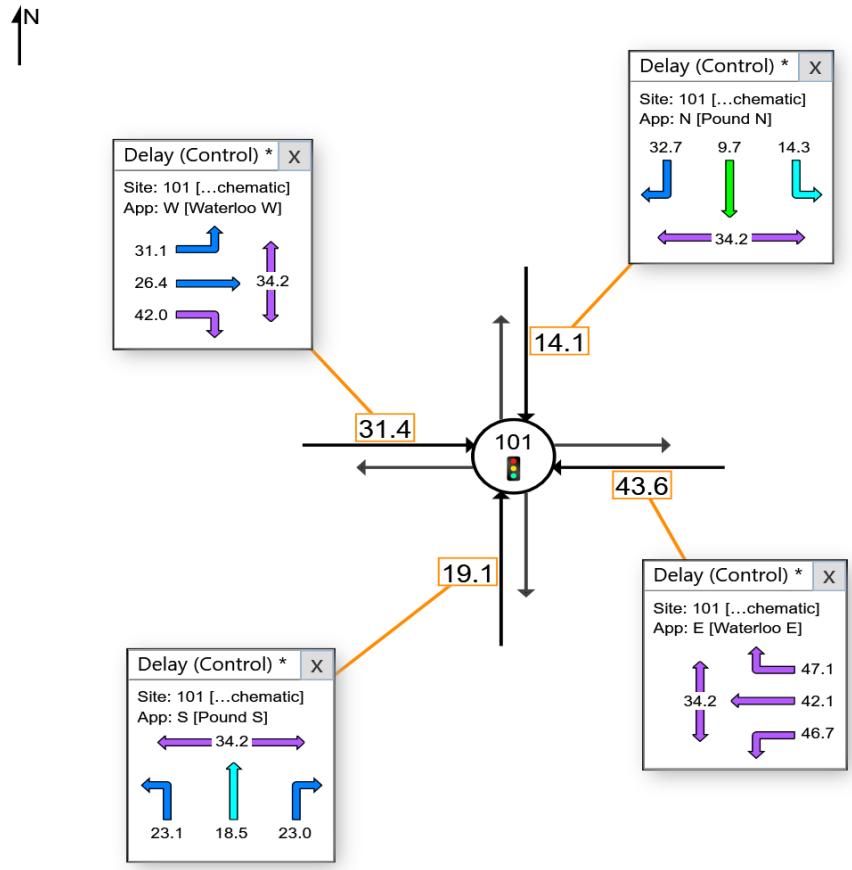
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Pound/Waterloo (2038 PM with Dev - 01b Demands)
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Colour code based on Level of Service

LOS A	LOS B	LOS C	LOS D	LOS E	LOS F	NA

NA: The movement only runs in short lanes and these are not included in determining Queue Storage Ratio, or the movement has zero volume for the selected Movement Class.
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Pedestrian Level of Service Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Approach values are flow-weighted average values for vehicle movements (pedestrian delays not included).

DELAY - AVERAGE (CONTROL)

Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 101 [B4. Pound/Waterloo (2038 AM with Dev - 01b Demands) - Improved (Site Folder: Main Sth/Pound - GONZO net demands)]

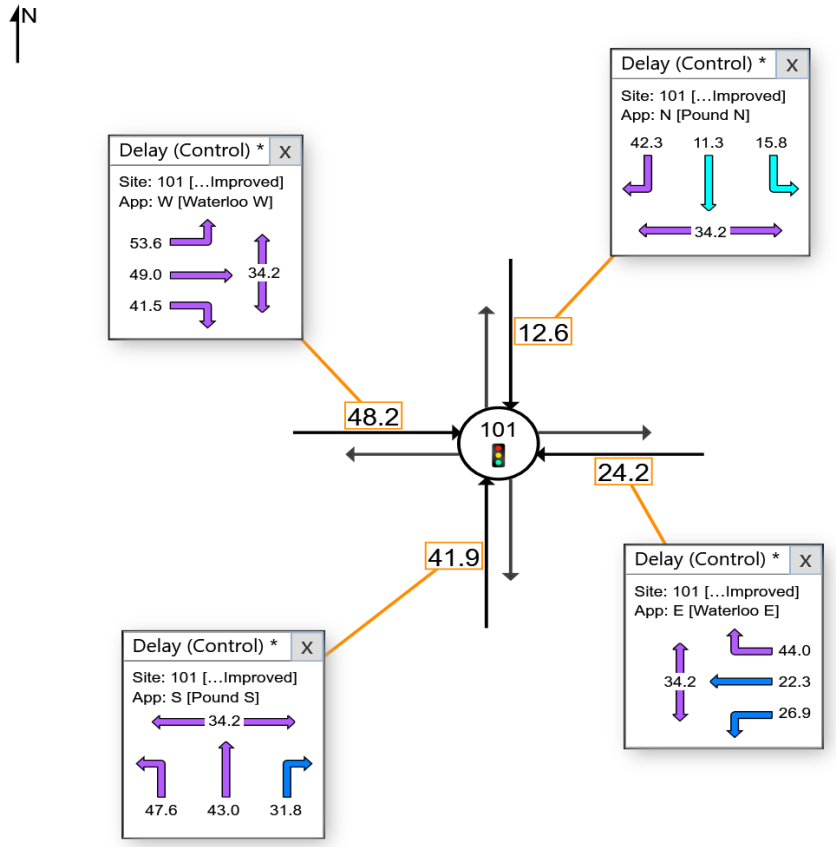
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Pound/Waterloo (2038 AM with Dev - 01b Demands)
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Colour code based on Level of Service

LOS A	LOS B	LOS C	LOS D	LOS E	LOS F	NA

NA: The movement only runs in short lanes and these are not included in determining Queue Storage Ratio, or the movement has zero volume for the selected Movement Class.
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Pedestrian Level of Service Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Approach values are flow-weighted average values for vehicle movements (pedestrian delays not included).

DELAY - AVERAGE (CONTROL)

Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 101 [B3. Pound/Waterloo (2038 PM with Dev - 01b Demands) - Improved (Site Folder: Main Sth/Pound - GONZO net demands)]

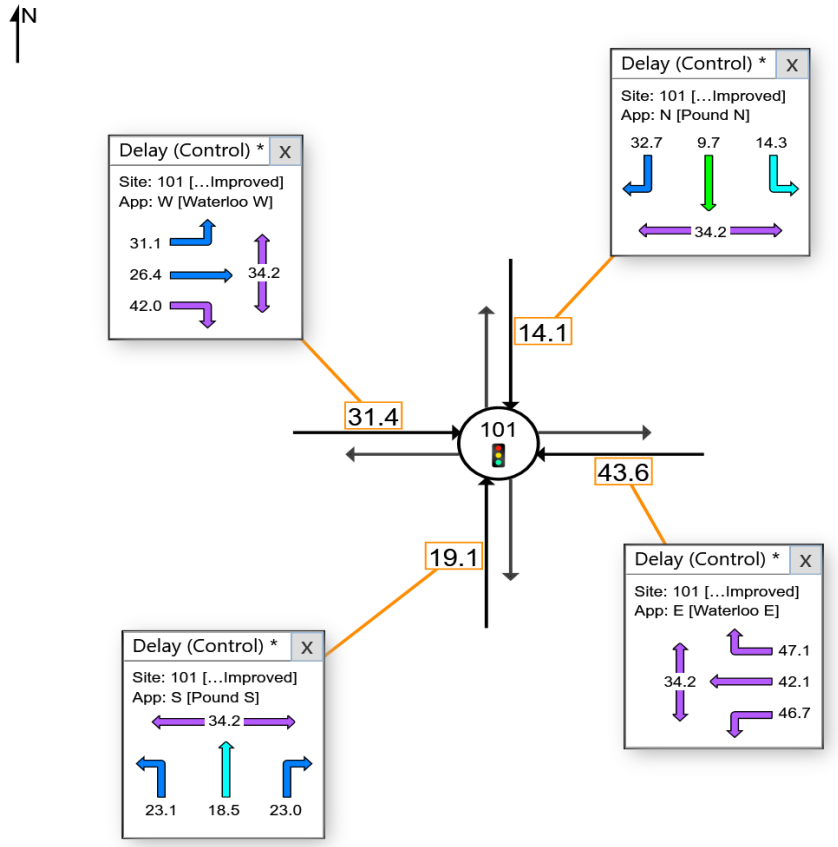
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Pound/Waterloo (2038 PM with Dev - 01b Demands)
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F | NA

NA: The movement only runs in short lanes and these are not included in determining Queue Storage Ratio, or the movement has zero volume for the selected Movement Class.
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Pedestrian Level of Service Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Approach values are flow-weighted average values for vehicle movements (pedestrian delays not included).

DELAY - AVERAGE (CONTROL)

Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 101 [C1. Pound/Site (2038 CAST AM With Dev) (Site Folder: Main Sth/Pound - GONZO net demands)]

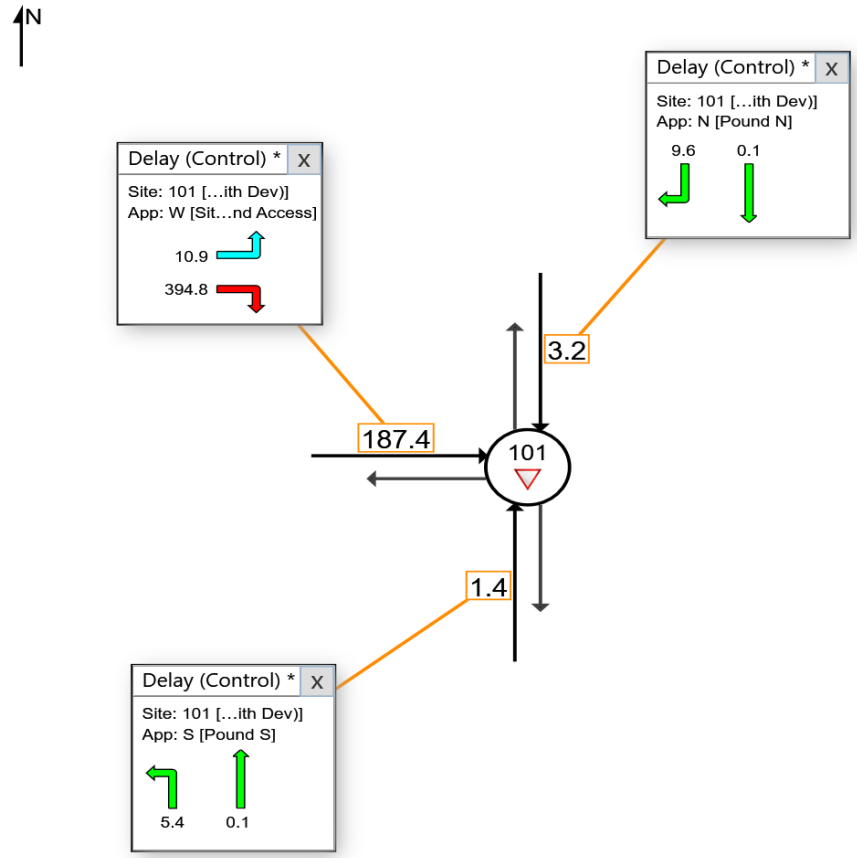
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Pound/Site (Priority)
Site Category: (None)
Give-Way (Two-Way)

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F | NA

NA: The movement only runs in short lanes and these are not included in determining Queue Storage Ratio, or the movement has zero volume for the selected Movement Class.
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Approach values are flow-weighted average values for vehicle movements (pedestrian delays not included).

DELAY - AVERAGE (CONTROL)

Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 101 [C2. Pound/Site (2038 CAST PM With Dev) (Site Folder: Main Sth/Pound - GONZO net demands)]

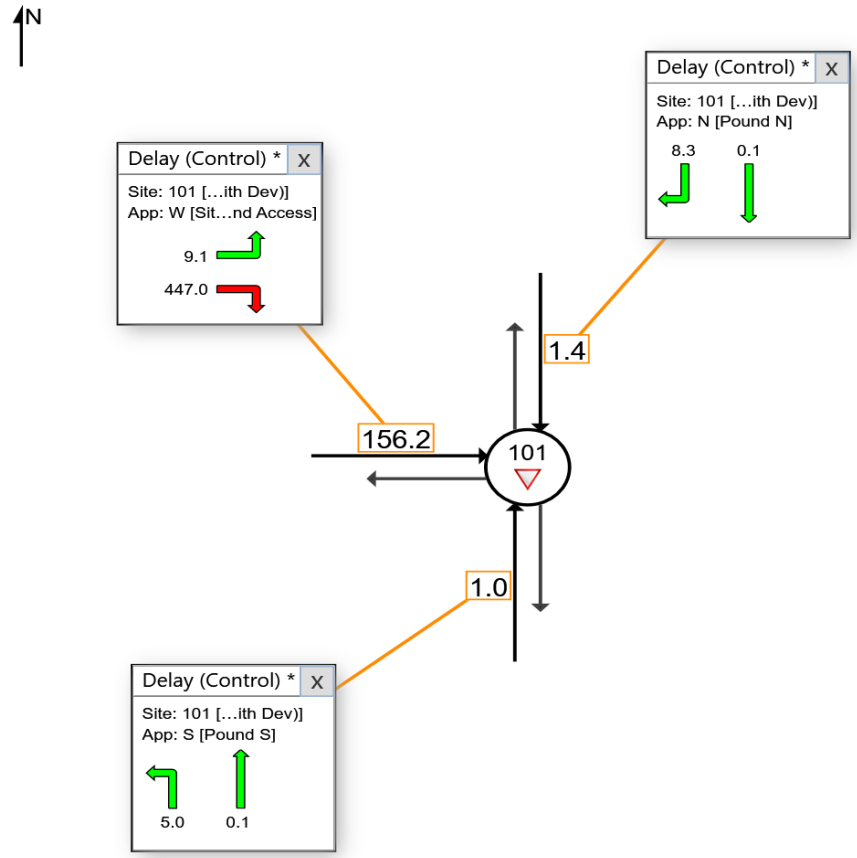
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Pound/Site (Priority)
Site Category: (None)
Give-Way (Two-Way)

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F | NA

NA: The movement only runs in short lanes and these are not included in determining Queue Storage Ratio, or the movement has zero volume for the selected Movement Class.
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Approach values are flow-weighted average values for vehicle movements (pedestrian delays not included).

DELAY - AVERAGE (CONTROL)

Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 101v [C3. Pound/Site (2038 CAST AM With Dev) - Roundabout - No Change in demands (Site Folder: Main Sth/ Pound - GONZO net demands)]

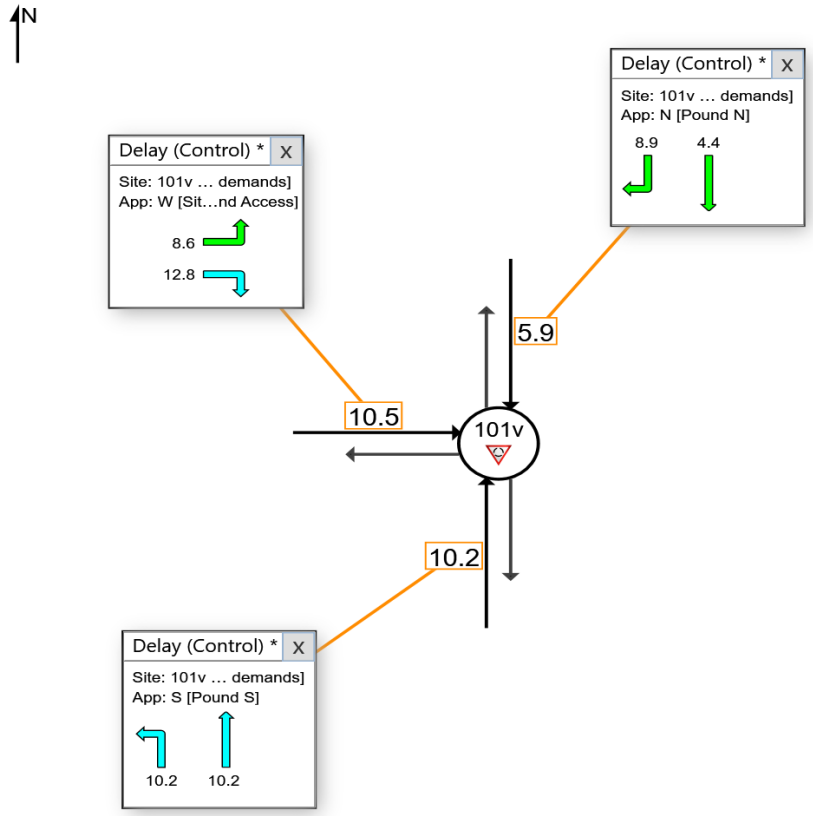
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Pound/Site (Priority)
Site Category: (None)
Roundabout

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Colour code based on Level of Service

LOS A	LOS B	LOS C	LOS D	LOS E	LOS F	NA

NA: The movement only runs in short lanes and these are not included in determining Queue Storage Ratio, or the movement has zero volume for the selected Movement Class.
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout Level of Service Method: SIDRA Roundabout LOS
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Approach values are flow-weighted average values for vehicle movements (pedestrian delays not included).

DELAY - AVERAGE (CONTROL)

Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 101v [C4. Pound/Site (2038 CAST PM With Dev) - Roundabout - No Change in demands (Site Folder: Main Sth/ Pound - GONZO net demands)]

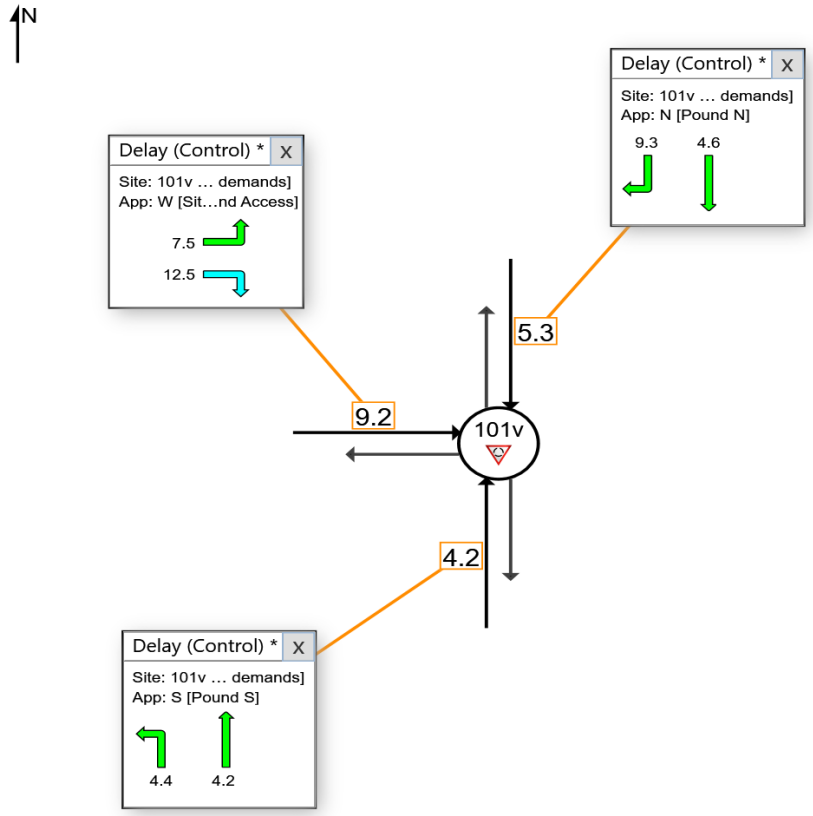
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Pound/Site (Priority)
Site Category: (None)
Roundabout

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Colour code based on Level of Service

LOS A	LOS B	LOS C	LOS D	LOS E	LOS F	NA

NA: The movement only runs in short lanes and these are not included in determining Queue Storage Ratio, or the movement has zero volume for the selected Movement Class.
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout Level of Service Method: SIDRA Roundabout LOS
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Approach values are flow-weighted average values for vehicle movements (pedestrian delays not included).

DELAY - AVERAGE (CONTROL)

Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 101v [C5. Pound/Site (2038 CAST AM With Dev) - Roundabout - 01b demands (Site Folder: Main Sth/Pound - GONZO net demands)]

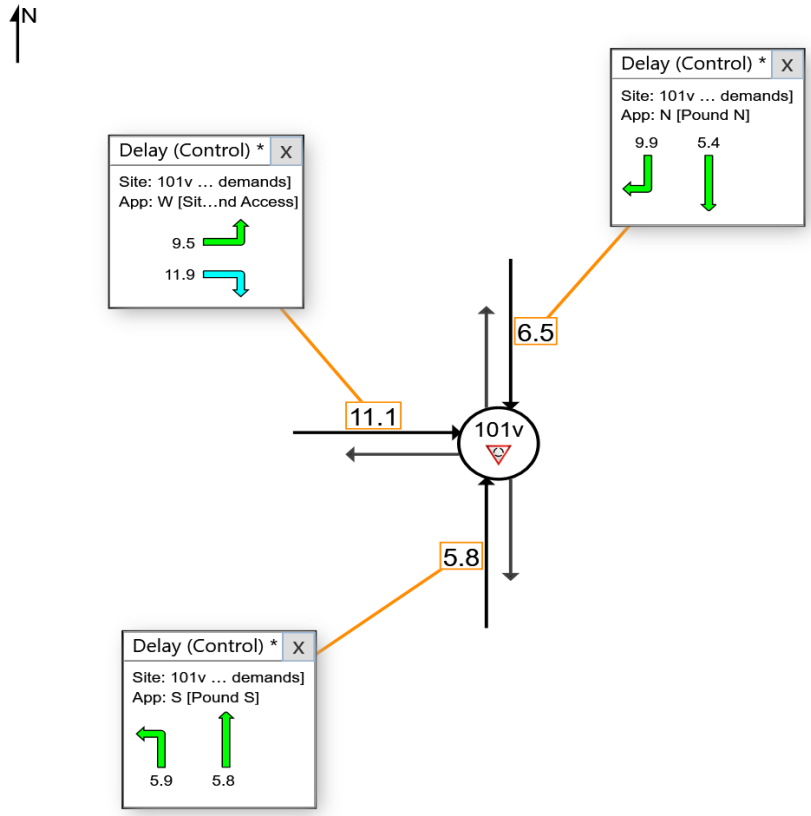
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Pound/Site (Priority)
Site Category: (None)
Roundabout

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Colour code based on Level of Service

LOS A	LOS B	LOS C	LOS D	LOS E	LOS F	NA

NA: The movement only runs in short lanes and these are not included in determining Queue Storage Ratio, or the movement has zero volume for the selected Movement Class.
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout Level of Service Method: SIDRA Roundabout LOS
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Approach values are flow-weighted average values for vehicle movements (pedestrian delays not included).

DELAY - AVERAGE (CONTROL)

Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 101v [C6. Pound/Site (2038 CAST PM With Dev) - Roundabout - 01b demands (Site Folder: Main Sth/Pound - GONZO net demands)]

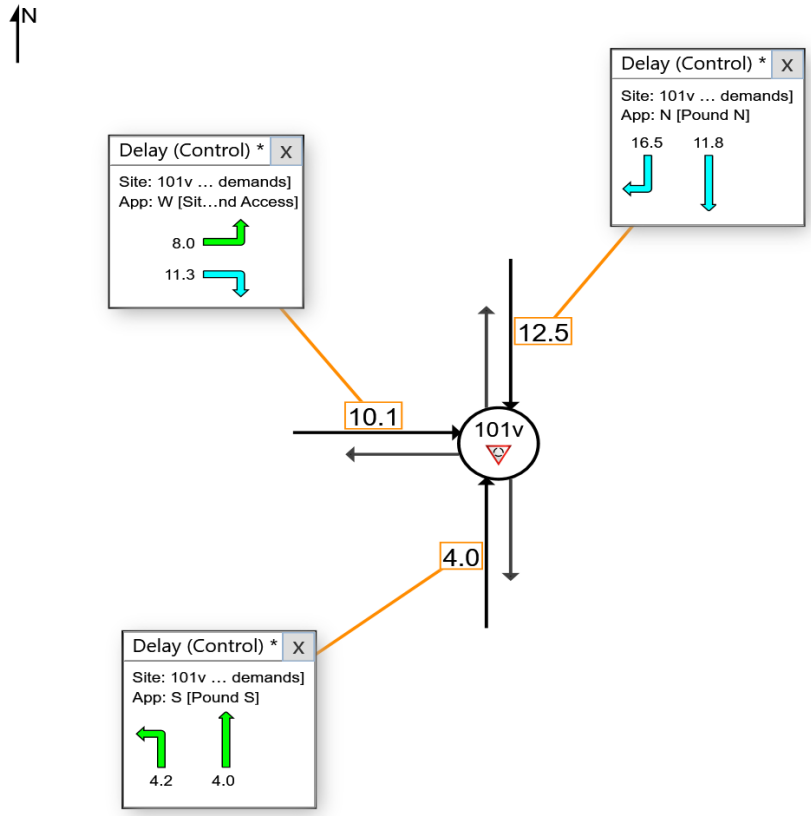
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Pound/Site (Priority)
Site Category: (None)
Roundabout

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Colour code based on Level of Service

LOS A	LOS B	LOS C	LOS D	LOS E	LOS F	NA

NA: The movement only runs in short lanes and these are not included in determining Queue Storage Ratio, or the movement has zero volume for the selected Movement Class.
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout Level of Service Method: SIDRA Roundabout LOS
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

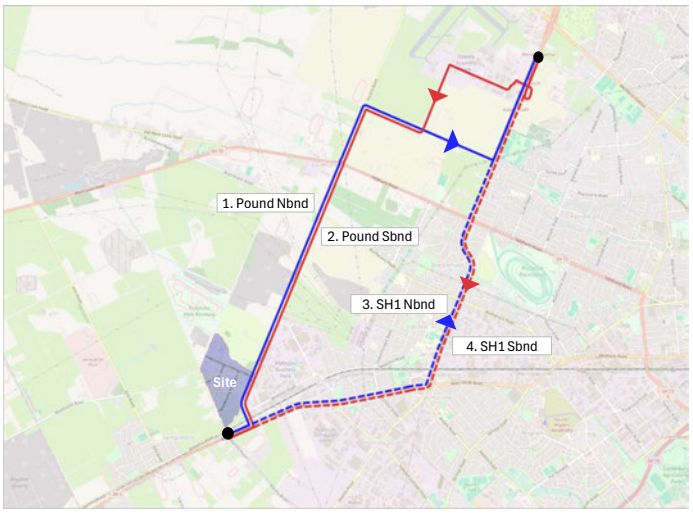
Approach values are flow-weighted average values for vehicle movements (pedestrian delays not included).

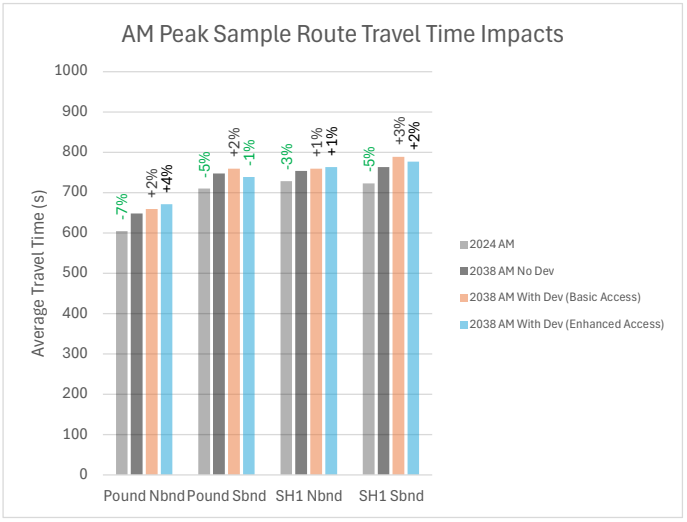
This page is deliberately blank for printing

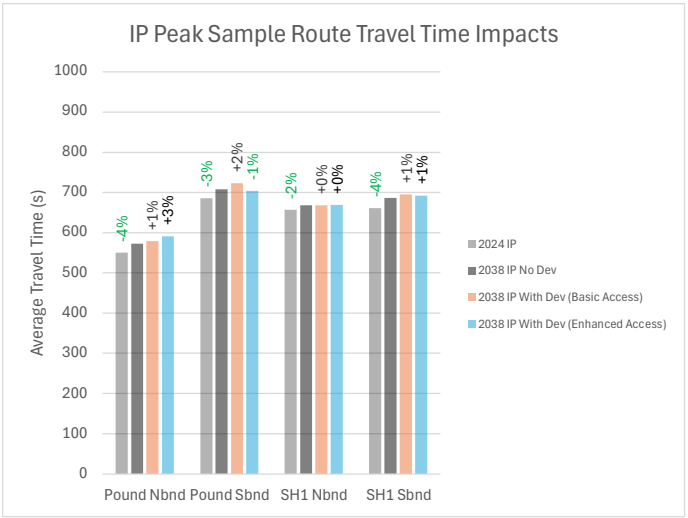
Appendix C: Selected Route Travel Time Analyses

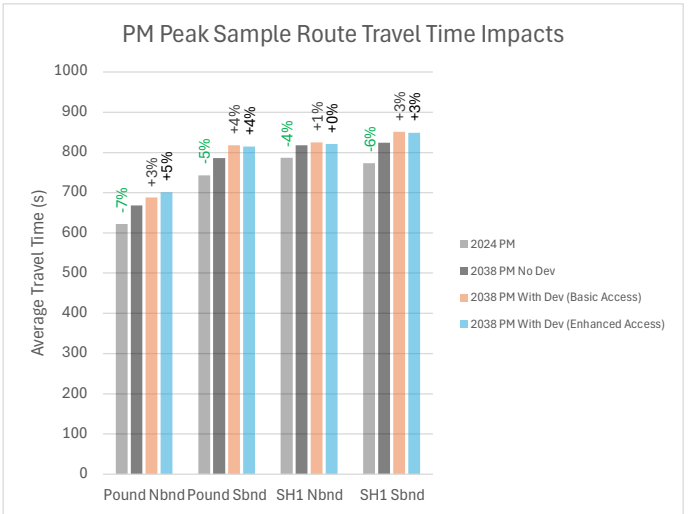
This page is deliberately blank for printing

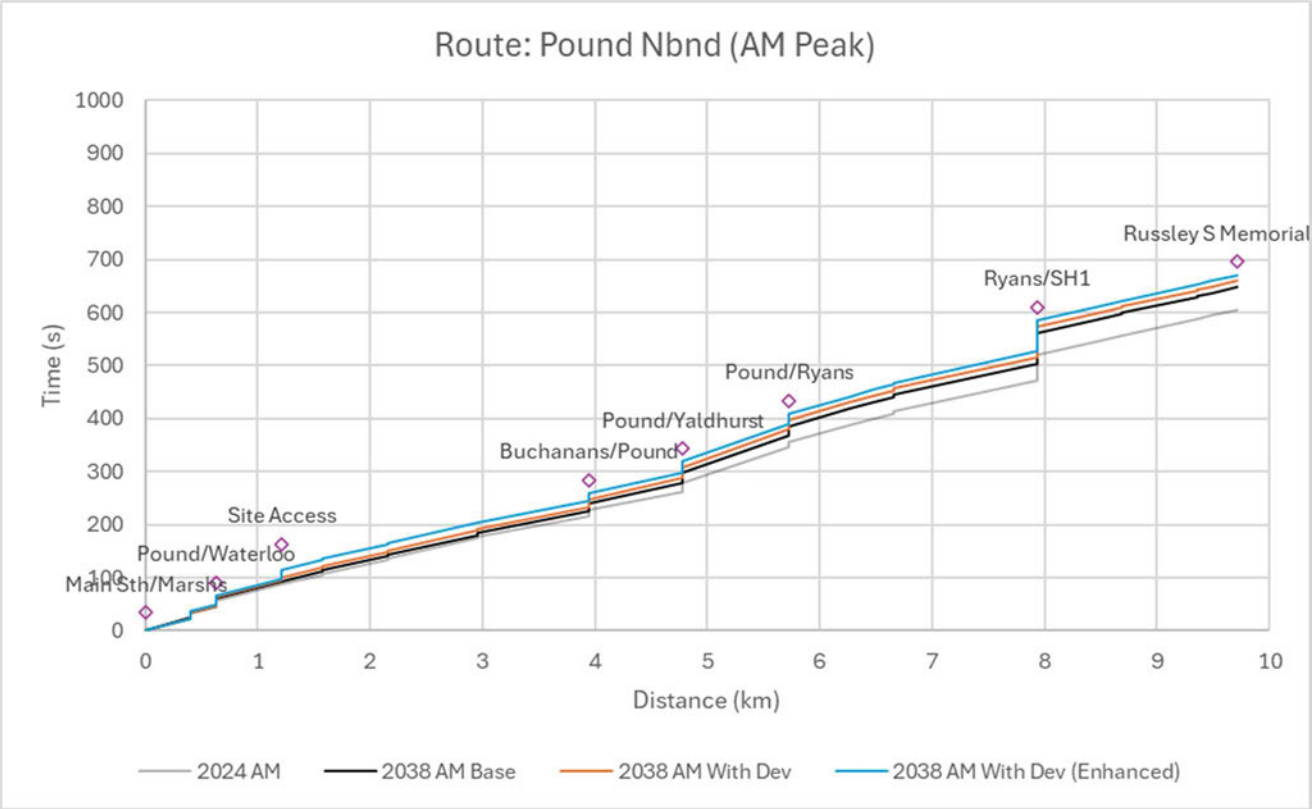
Scenario	Travel Time (s)				Impacts (Relative to 2038 Base)				Route Speed (kph)			
	Pound Nbnd	Pound Sbnd	SH1 Nbnd	SH1 Sbnd	Pound Nbnd	Pound Sbnd	SH1 Nbnd	SH1 Sbnd	Pound Nbnd	Pound Sbnd	SH1 Nbnd	SH1 Sbnd
2024 AM	605	710	729	723	-7%	-5%	-3%	-5%	58	52	43	44
2038 AM No Dev	648	748	754	764					54	50	42	41
2038 AM With Dev (Basic Access)	660	760	760	789	+2%	+2%	+1%	+3%	53	49	41	40
2038 AM With Dev (Enhanced Access)	671	739	764	777	+4%	-1%	+1%	+2%	52	50	41	40
2024 IP	550	686	657	661	-4%	-3%	-2%	-4%	64	54	48	48
2038 IP No Dev	573	708	668	687					61	52	47	46
2038 IP With Dev (Basic Access)	579	723	668	695	+1%	+2%	+0%	+1%	60	51	47	45
2038 IP With Dev (Enhanced Access)	591	704	669	692	+3%	-1%	+0%	+1%	59	53	47	45
2024 PM	622	743	787	773	-7%	-5%	-4%	-6%	56	50	40	41
2038 PM No Dev	668	786	818	824					52	47	38	38
2038 PM With Dev (Basic Access)	688	818	825	851	+3%	+4%	+1%	+3%	51	45	38	37
2038 PM With Dev (Enhanced Access)	701	815	821	849	+5%	+4%	+0%	+3%	50	46	38	37

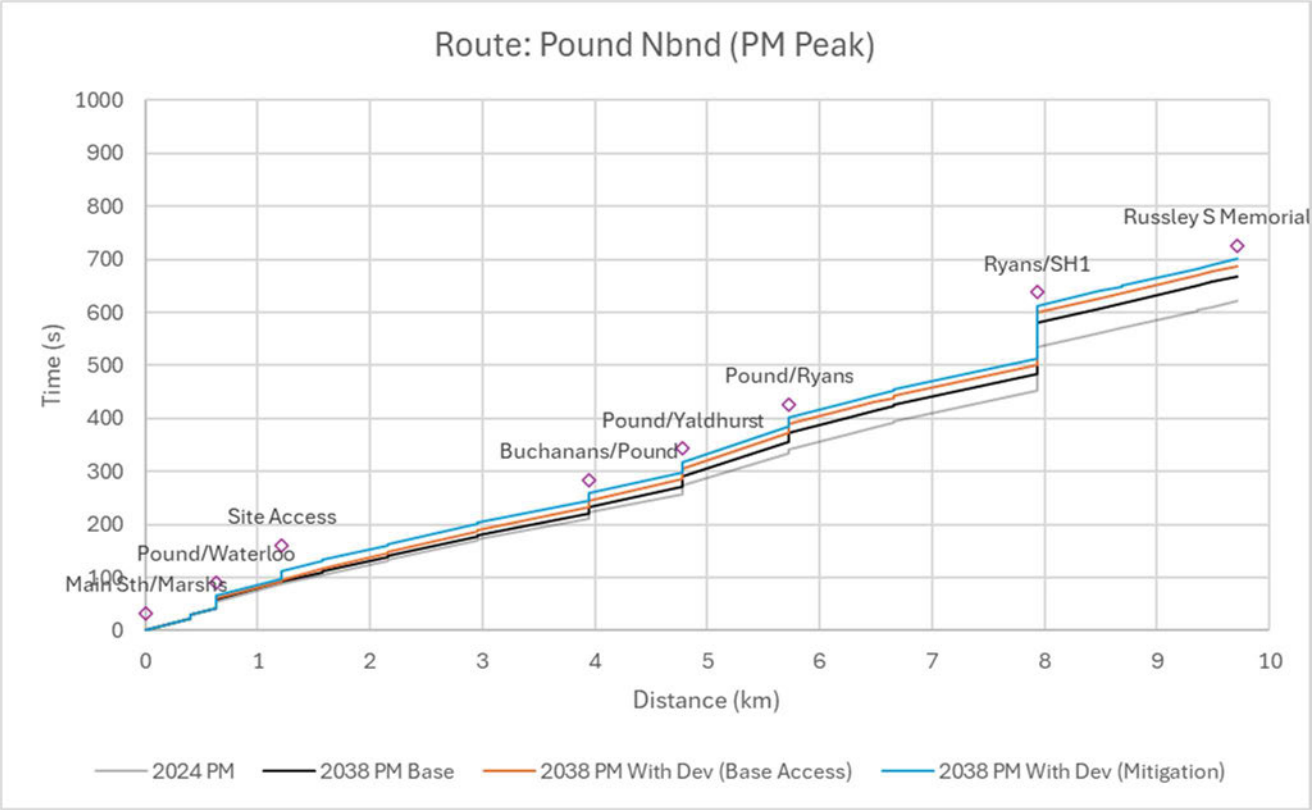


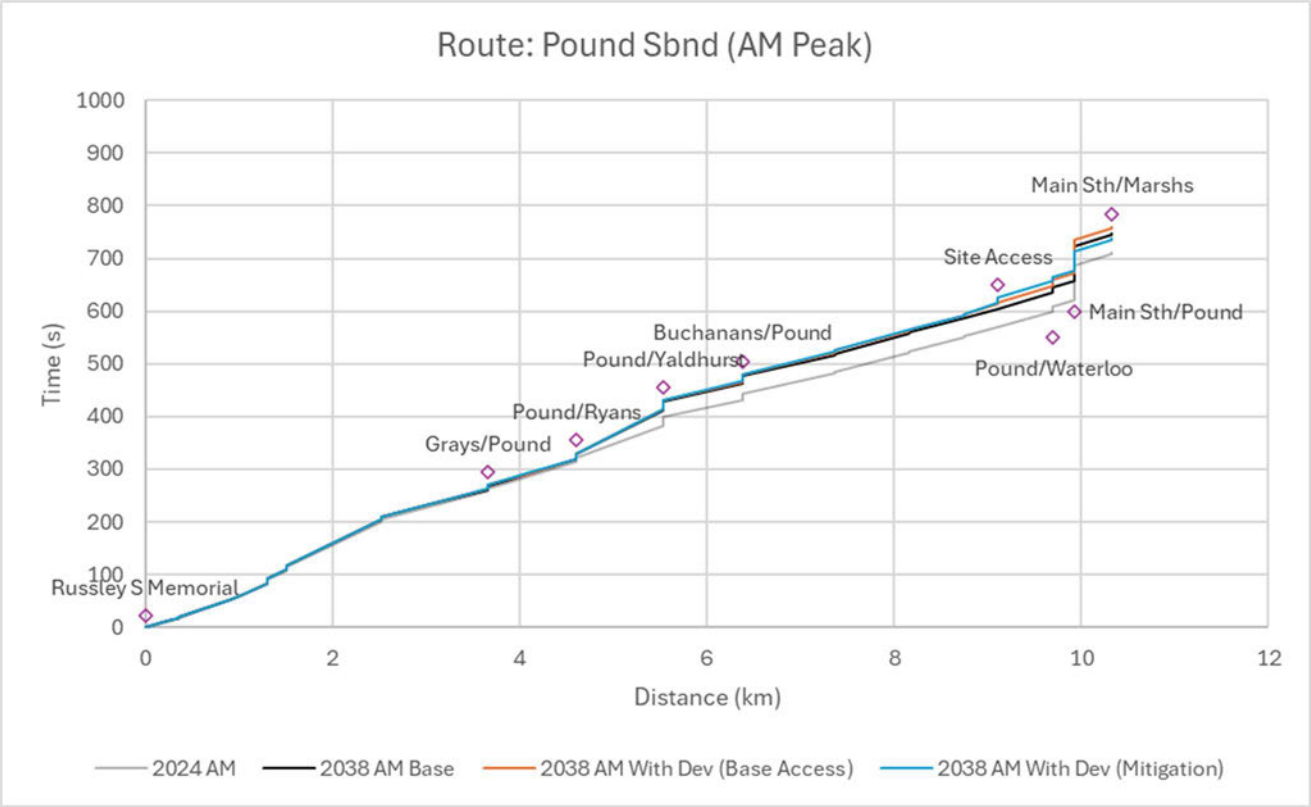


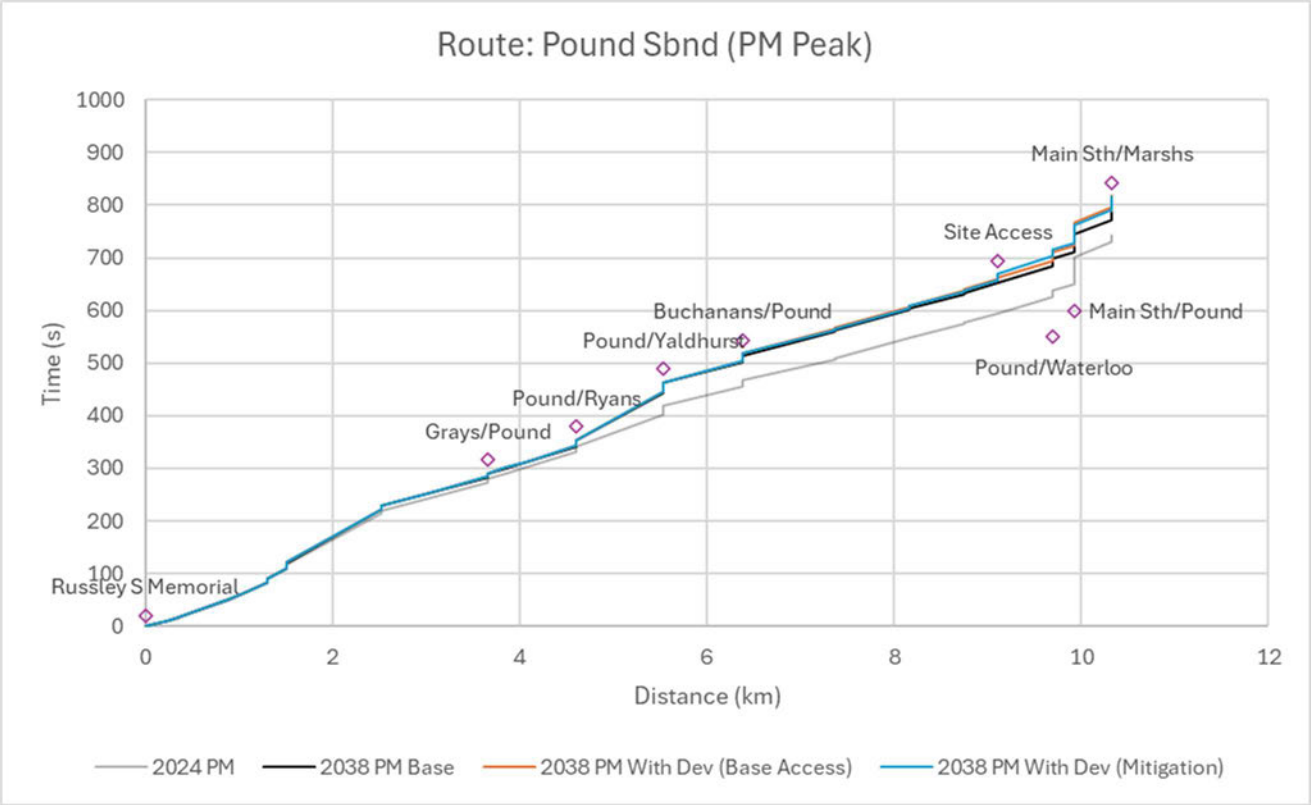


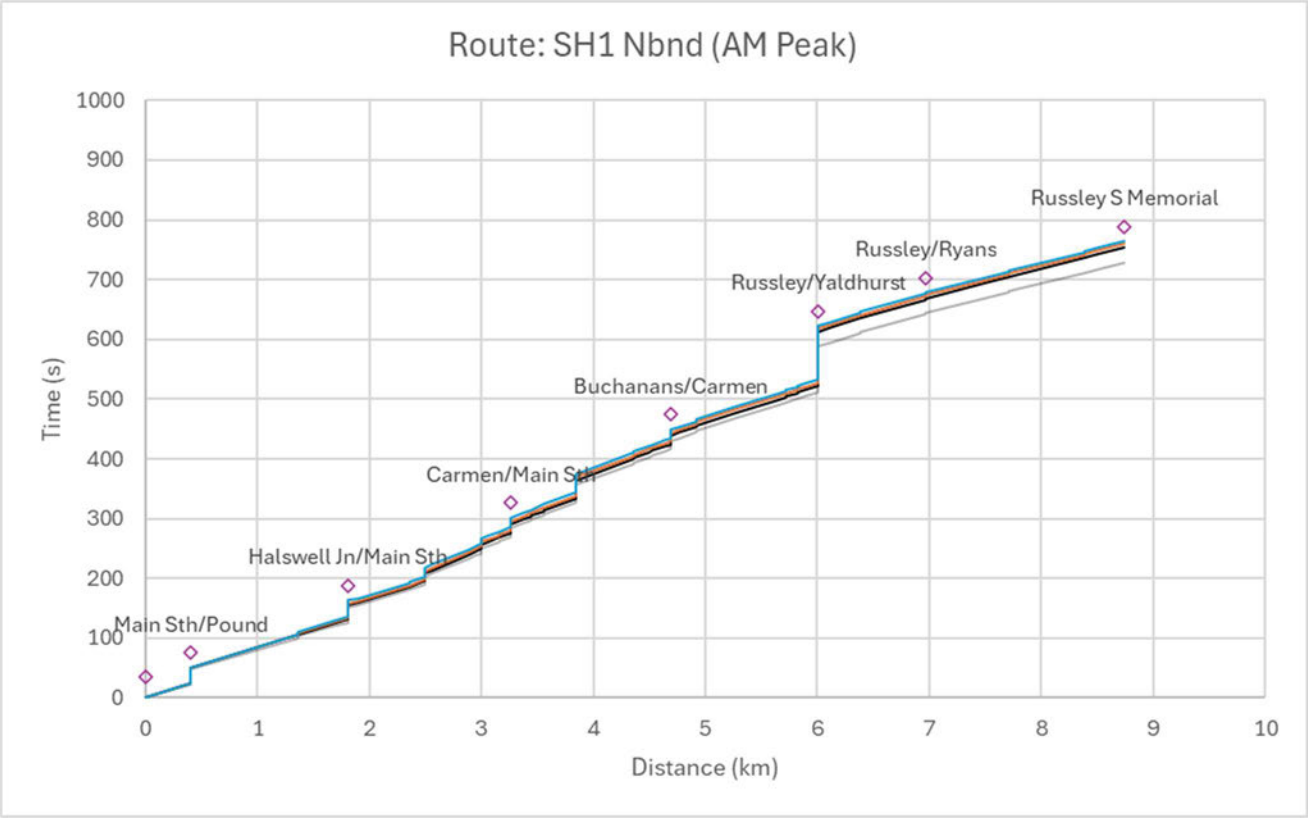


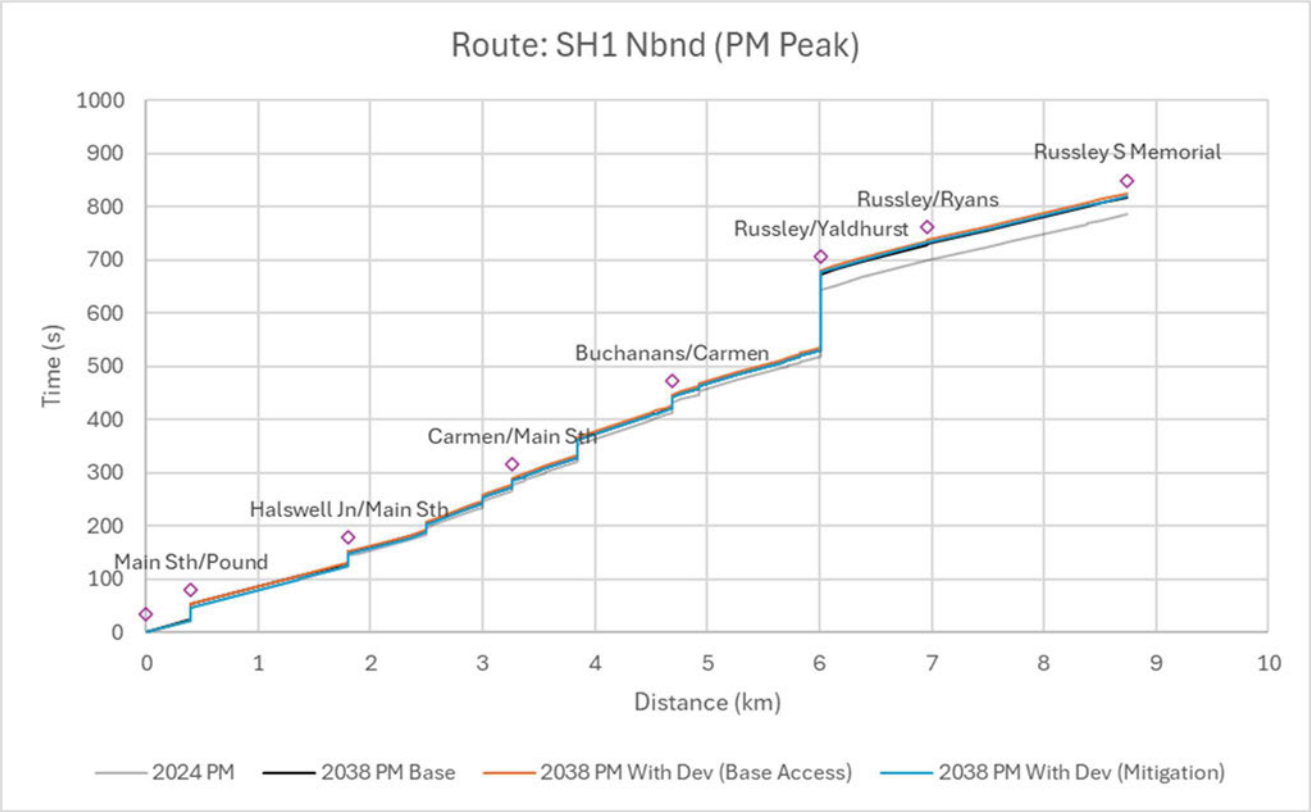

Route: Pound Nbnd (AM Peak)
Time (s)
Distance (km)
Main Sth/Marsh
Pound/Waterloo
Site Access
Buchanans/Pound
Pound/Yaldhurst
Pound/Ryans
Ryans/SH1
Russley S Memorial
2024 AM
2038 AM Base
2038 AM With Dev
2038 AM With Dev (Enhanced)

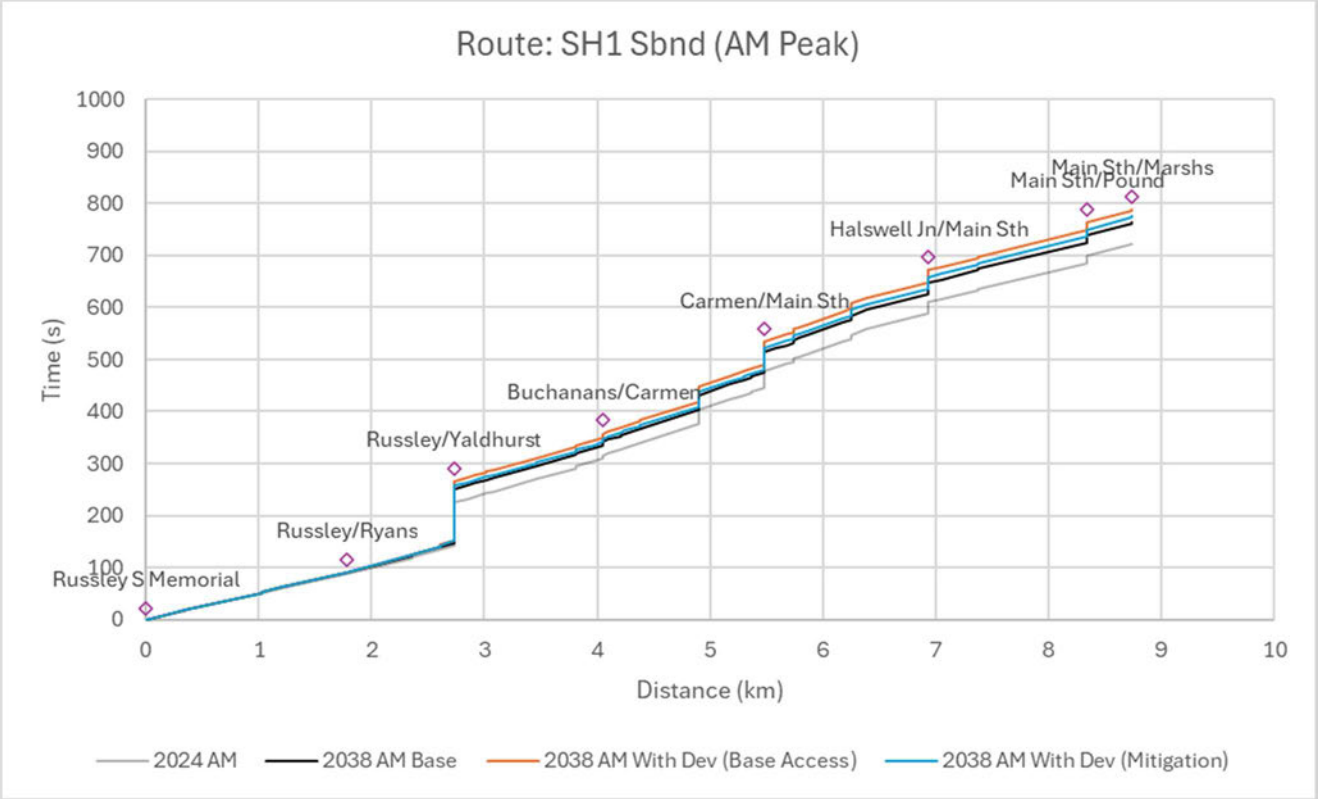

Route: Pound Nbnd (PM Peak)
Time (s)
Distance (km)
Main Sth/Marsh
Pound/Waterloo
Site Access
Buchanans/Pound
Pound/Yaldhurst
Pound/Ryans
Ryans/SH1
Russley S Memorial
2024 PM
2038 PM Base
2038 PM With Dev (Base Access)
2038 PM With Dev (Mitigation)

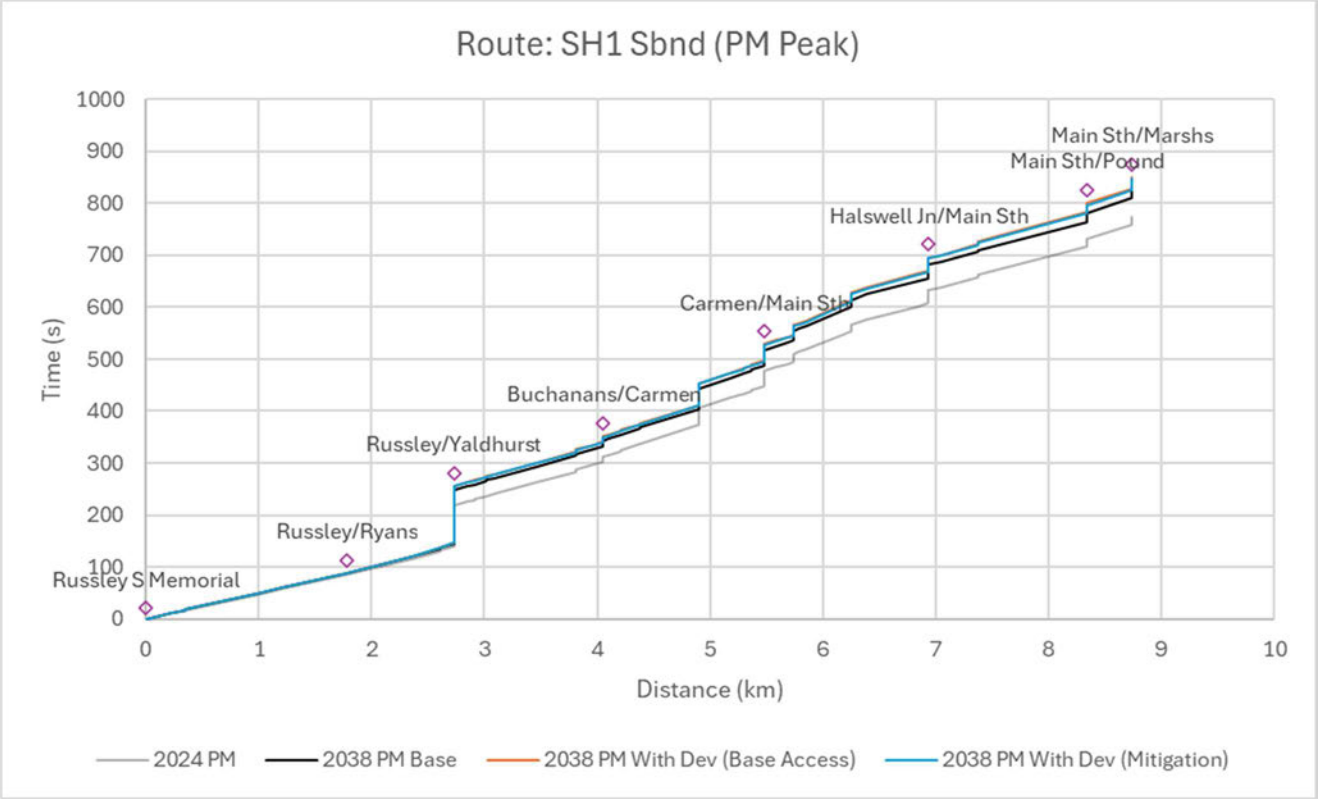

Route: Pound Sbnd (AM Peak)
Time (s)
Distance (km)
Russley S Memorial
Grays/Pound
Pound/Ryans
Pound/Yaldhurst
Buchanans/Pound
Pound/Waterloo
Main Sth/Pound
Site Access
Main Sth/Marshs
2024 AM
2038 AM Base
2038 AM With Dev (Base Access)
2038 AM With Dev (Mitigation)


Route: Pound Sbnd (PM Peak)
Time (s)
Distance (km)
Russley S Memorial
Grays/Pound
Pound/Ryans
Pound/Yaldhurst
Buchanans/Pound
Pound/Waterloo
Main Sth/Pound
Site Access
Main Sth/Marshs
2024 PM
2038 PM Base
2038 PM With Dev (Base Access)
2038 PM With Dev (Mitigation)


Route: SH1 Nbnd (AM Peak)
Time (s)
Distance (km)
Main Sth/Pound
Halswell Jn/Main Sth
Carmen/Main Sth
Buchanans/Carmen
Russley/Yaldhurst
Russley/Ryans
Russley S Memorial


Route: SH1 Nbnd (PM Peak)
Time (s)
Distance (km)
Main Sth/Pound
Halswell Jn/Main Sth
Carmen/Main Sth
Buchanans/Carmen
Russley/Yaldhurst
Russley/Ryans
Russley S Memorial
2024 PM
2038 PM Base
2038 PM With Dev (Base Access)
2038 PM With Dev (Mitigation)


Route: SH1 Sbnd (AM Peak)
Time (s)
Distance (km)
Russley S Memorial
Russley/Ryans
Russley/Yaldhurst
Buchanans/Carmen
Carmen/Main Sth
Halswell Jn/Main Sth
Main Sth/Pound
Main Sth/Marshs
2024 AM
2038 AM Base
2038 AM With Dev (Base Access)
2038 AM With Dev (Mitigation)


Route: SH1 Sbnd (PM Peak)
Time (s)
Distance (km)
Russley S Memorial
Russley/Ryans
Russley/Yaldhurst
Buchanans/Carmen
Carmen/Main Sth
Halswell Jn/Main Sth
Main Sth/Pound
Main Sth/Marshs
2024 PM
2038 PM Base
2038 PM With Dev (Base Access)
2038 PM With Dev (Mitigation)

This page is deliberately blank for printing

Appendix 6

TRICS Traffic Generation Data

NOVO GROUP MONTRÉAL STREET CHRISTCHURCH Licence No: 191301

Calculation Reference: AUDIT-191301-240813-0807

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : D - INDUSTRIAL ESTATE
TOTAL VEHICLES

Selected regions and areas:

09	NORTH		
	TV	TEES VALLEY	1 days
11	SCOTLAND		
	PK	PERTH & KINROSS	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter:	Site area
Actual Range:	55.00 to 57.30 (units: hect)
Range Selected by User:	40 to 80 (units: hect)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/16 to 10/09/20

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Thursday	1 days
Friday	1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	2 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Edge of Town	1
Neighbourhood Centre (PPS6 Local Centre)	1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Village	1
No Sub Category	1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Inclusion of Servicing Vehicles Counts:

Servicing vehicles Included	X days - Selected
Servicing vehicles Excluded	2 days - Selected

Secondary Filtering selection:

Use Class:

Not Known	2 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 has been used for this purpose, which can be found within the Library module of TRICS®.

Filter by Site Operations Breakdown:
All Surveys Included

Population within 500m Range:
All Surveys Included

Secondary Filtering selection (Cont.):

Population within 1 mile:

5,001 to 10,000	1 days
25,001 to 50,000	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

50,001 to 75,000	1 days
125,001 to 250,000	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	1 days
1.6 to 2.0	1 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No	2 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	2 days

This data displays the number of selected surveys with PTAL Ratings.

Covid-19 Restrictions	Yes	At least one survey within the selected data set was undertaken at a time of Covid-19 restrictions

LIST OF SITES relevant to selection parameters

1 PK-02-D-01 INDUSTRIAL ESTATE PERTH & KINROSS
RUTHVENFIELD ROAD
PERTH
INVERALMOND
Edge of Town
No Sub Category
Total Site area: 57.30 hect
Survey date: THURSDAY *10/09/20* *Survey Type: MANUAL*

2 TV-02-D-03 INDUSTRIAL ESTATE TEES VALLEY
WYNYARD AVENUE
NEAR BILLINGHAM
WYNYARD
Neighbourhood Centre (PPS6 Local Centre)
Village
Total Site area: 55.00 hect
Survey date: FRIDAY *04/09/20* *Survey Type: MANUAL*

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
TOTAL VEHICLES
Calculation factor: 1 hect
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate
00:00 - 00:30	1	57.30	0.140	1	57.30	0.052	1	57.30	0.192
00:30 - 01:00	1	57.30	0.157	1	57.30	0.087	1	57.30	0.244
01:00 - 01:30	1	57.30	0.157	1	57.30	0.000	1	57.30	0.157
01:30 - 02:00	1	57.30	0.227	1	57.30	0.052	1	57.30	0.279
02:00 - 02:30	1	57.30	0.227	1	57.30	0.070	1	57.30	0.297
02:30 - 03:00	1	57.30	0.192	1	57.30	0.070	1	57.30	0.262
03:00 - 03:30	1	57.30	0.209	1	57.30	0.017	1	57.30	0.226
03:30 - 04:00	1	57.30	0.244	1	57.30	0.122	1	57.30	0.366
04:00 - 04:30	1	57.30	0.349	1	57.30	0.052	1	57.30	0.401
04:30 - 05:00	1	57.30	0.384	1	57.30	0.140	1	57.30	0.524
05:00 - 05:30	1	57.30	0.803	1	57.30	0.489	1	57.30	1.292
05:30 - 06:00	1	57.30	1.012	1	57.30	0.366	1	57.30	1.378
06:00 - 06:30	1	57.30	2.199	1	57.30	0.838	1	57.30	3.037
06:30 - 07:00	1	57.30	4.450	1	57.30	1.204	1	57.30	5.654
07:00 - 07:30	2	56.15	3.642	2	56.15	1.389	2	56.15	5.031
07:30 - 08:00	2	56.15	5.022	2	56.15	2.378	2	56.15	7.400
08:00 - 08:30	2	56.15	4.159	2	56.15	2.386	2	56.15	6.545
08:30 - 09:00	2	56.15	3.562	2	56.15	2.066	2	56.15	5.628
09:00 - 09:30	2	56.15	2.903	2	56.15	2.618	2	56.15	5.521
09:30 - 10:00	2	56.15	2.333	2	56.15	2.422	2	56.15	4.755
10:00 - 10:30	2	56.15	2.511	2	56.15	2.547	2	56.15	5.058
10:30 - 11:00	2	56.15	2.084	2	56.15	2.689	2	56.15	4.773
11:00 - 11:30	2	56.15	2.128	2	56.15	2.858	2	56.15	4.986
11:30 - 12:00	2	56.15	2.422	2	56.15	3.010	2	56.15	5.432
12:00 - 12:30	2	56.15	2.600	2	56.15	3.357	2	56.15	5.957
12:30 - 13:00	2	56.15	2.591	2	56.15	2.716	2	56.15	5.307
13:00 - 13:30	2	56.15	2.520	2	56.15	3.134	2	56.15	5.654
13:30 - 14:00	2	56.15	2.520	2	56.15	2.030	2	56.15	4.550
14:00 - 14:30	2	56.15	2.422	2	56.15	3.224	2	56.15	5.646
14:30 - 15:00	2	56.15	2.351	2	56.15	3.019	2	56.15	5.370
15:00 - 15:30	2	56.15	2.333	2	56.15	3.482	2	56.15	5.815
15:30 - 16:00	2	56.15	2.529	2	56.15	3.001	2	56.15	5.530
16:00 - 16:30	2	56.15	2.573	2	56.15	4.274	2	56.15	6.847
16:30 - 17:00	2	56.15	2.066	2	56.15	3.793	2	56.15	5.859
17:00 - 17:30	2	56.15	1.710	2	56.15	3.847	2	56.15	5.557
17:30 - 18:00	2	56.15	1.558	2	56.15	2.894	2	56.15	4.452
18:00 - 18:30	2	56.15	1.264	2	56.15	2.208	2	56.15	3.472
18:30 - 19:00	2	56.15	1.042	2	56.15	1.772	2	56.15	2.814
19:00 - 19:30	1	57.30	1.536	1	57.30	2.094	1	57.30	3.630
19:30 - 20:00	1	57.30	1.291	1	57.30	1.449	1	57.30	2.740
20:00 - 20:30	1	57.30	0.838	1	57.30	0.541	1	57.30	1.379
20:30 - 21:00	1	57.30	0.785	1	57.30	0.366	1	57.30	1.151
21:00 - 21:30	1	57.30	0.925	1	57.30	0.279	1	57.30	1.204
21:30 - 22:00	1	57.30	0.855	1	57.30	0.401	1	57.30	1.256
22:00 - 22:30	1	57.30	0.803	1	57.30	0.349	1	57.30	1.152
22:30 - 23:00	1	57.30	0.908	1	57.30	0.471	1	57.30	1.379
23:00 - 23:30	1	57.30	0.785	1	57.30	0.297	1	57.30	1.082
23:30 - 24:00	1	57.30	1.030	1	57.30	0.349	1	57.30	1.379
Total Rates:			81.351			77.269			158.620

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

Parameter summary

Trip rate parameter range selected:	55.00 to 57.30 (units: hect)
Survey date date range:	01/01/16 - 10/09/20
Number of weekdays (Monday-Friday):	2
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
TAXIS
Calculation factor: 1 hect
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate
00:00 - 00:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
00:30 - 01:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
01:00 - 01:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
01:30 - 02:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
02:00 - 02:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
02:30 - 03:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
03:00 - 03:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
03:30 - 04:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
04:00 - 04:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
04:30 - 05:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
05:00 - 05:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
05:30 - 06:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
06:00 - 06:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
06:30 - 07:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
07:00 - 07:30	2	56.15	0.000	2	56.15	0.000	2	56.15	0.000
07:30 - 08:00	2	56.15	0.009	2	56.15	0.000	2	56.15	0.009
08:00 - 08:30	2	56.15	0.000	2	56.15	0.000	2	56.15	0.000
08:30 - 09:00	2	56.15	0.000	2	56.15	0.009	2	56.15	0.009
09:00 - 09:30	2	56.15	0.000	2	56.15	0.000	2	56.15	0.000
09:30 - 10:00	2	56.15	0.000	2	56.15	0.000	2	56.15	0.000
10:00 - 10:30	2	56.15	0.000	2	56.15	0.000	2	56.15	0.000
10:30 - 11:00	2	56.15	0.000	2	56.15	0.000	2	56.15	0.000
11:00 - 11:30	2	56.15	0.018	2	56.15	0.009	2	56.15	0.027
11:30 - 12:00	2	56.15	0.000	2	56.15	0.009	2	56.15	0.009
12:00 - 12:30	2	56.15	0.000	2	56.15	0.000	2	56.15	0.000
12:30 - 13:00	2	56.15	0.000	2	56.15	0.000	2	56.15	0.000
13:00 - 13:30	2	56.15	0.009	2	56.15	0.009	2	56.15	0.018
13:30 - 14:00	2	56.15	0.000	2	56.15	0.000	2	56.15	0.000
14:00 - 14:30	2	56.15	0.000	2	56.15	0.000	2	56.15	0.000
14:30 - 15:00	2	56.15	0.000	2	56.15	0.000	2	56.15	0.000
15:00 - 15:30	2	56.15	0.000	2	56.15	0.000	2	56.15	0.000
15:30 - 16:00	2	56.15	0.000	2	56.15	0.000	2	56.15	0.000
16:00 - 16:30	2	56.15	0.009	2	56.15	0.000	2	56.15	0.009
16:30 - 17:00	2	56.15	0.000	2	56.15	0.009	2	56.15	0.009
17:00 - 17:30	2	56.15	0.009	2	56.15	0.000	2	56.15	0.009
17:30 - 18:00	2	56.15	0.000	2	56.15	0.009	2	56.15	0.009
18:00 - 18:30	2	56.15	0.000	2	56.15	0.000	2	56.15	0.000
18:30 - 19:00	2	56.15	0.000	2	56.15	0.000	2	56.15	0.000
19:00 - 19:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
19:30 - 20:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
20:00 - 20:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
20:30 - 21:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
21:00 - 21:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
21:30 - 22:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
22:00 - 22:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
22:30 - 23:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
23:00 - 23:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
23:30 - 24:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
Total Rates:			0.054			0.054			0.108

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
OGVS
Calculation factor: 1 hect
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate
00:00 - 00:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
00:30 - 01:00	1	57.30	0.017	1	57.30	0.000	1	57.30	0.017
01:00 - 01:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
01:30 - 02:00	1	57.30	0.017	1	57.30	0.017	1	57.30	0.034
02:00 - 02:30	1	57.30	0.017	1	57.30	0.017	1	57.30	0.034
02:30 - 03:00	1	57.30	0.017	1	57.30	0.052	1	57.30	0.069
03:00 - 03:30	1	57.30	0.017	1	57.30	0.000	1	57.30	0.017
03:30 - 04:00	1	57.30	0.035	1	57.30	0.070	1	57.30	0.105
04:00 - 04:30	1	57.30	0.017	1	57.30	0.000	1	57.30	0.017
04:30 - 05:00	1	57.30	0.070	1	57.30	0.052	1	57.30	0.122
05:00 - 05:30	1	57.30	0.140	1	57.30	0.140	1	57.30	0.280
05:30 - 06:00	1	57.30	0.105	1	57.30	0.070	1	57.30	0.175
06:00 - 06:30	1	57.30	0.122	1	57.30	0.332	1	57.30	0.454
06:30 - 07:00	1	57.30	0.227	1	57.30	0.227	1	57.30	0.454
07:00 - 07:30	2	56.15	0.151	2	56.15	0.294	2	56.15	0.445
07:30 - 08:00	2	56.15	0.223	2	56.15	0.392	2	56.15	0.615
08:00 - 08:30	2	56.15	0.232	2	56.15	0.365	2	56.15	0.597
08:30 - 09:00	2	56.15	0.169	2	56.15	0.223	2	56.15	0.392
09:00 - 09:30	2	56.15	0.294	2	56.15	0.294	2	56.15	0.588
09:30 - 10:00	2	56.15	0.258	2	56.15	0.347	2	56.15	0.605
10:00 - 10:30	2	56.15	0.285	2	56.15	0.240	2	56.15	0.525
10:30 - 11:00	2	56.15	0.116	2	56.15	0.321	2	56.15	0.437
11:00 - 11:30	2	56.15	0.223	2	56.15	0.240	2	56.15	0.463
11:30 - 12:00	2	56.15	0.303	2	56.15	0.214	2	56.15	0.517
12:00 - 12:30	2	56.15	0.374	2	56.15	0.899	2	56.15	1.273
12:30 - 13:00	2	56.15	0.223	2	56.15	0.223	2	56.15	0.446
13:00 - 13:30	2	56.15	0.267	2	56.15	0.312	2	56.15	0.579
13:30 - 14:00	2	56.15	0.187	2	56.15	0.267	2	56.15	0.454
14:00 - 14:30	2	56.15	0.338	2	56.15	0.187	2	56.15	0.525
14:30 - 15:00	2	56.15	0.258	2	56.15	0.276	2	56.15	0.534
15:00 - 15:30	2	56.15	0.294	2	56.15	0.187	2	56.15	0.481
15:30 - 16:00	2	56.15	0.419	2	56.15	0.178	2	56.15	0.597
16:00 - 16:30	2	56.15	0.321	2	56.15	0.267	2	56.15	0.588
16:30 - 17:00	2	56.15	0.178	2	56.15	0.142	2	56.15	0.320
17:00 - 17:30	2	56.15	0.196	2	56.15	0.142	2	56.15	0.338
17:30 - 18:00	2	56.15	0.196	2	56.15	0.107	2	56.15	0.303
18:00 - 18:30	2	56.15	0.196	2	56.15	0.151	2	56.15	0.347
18:30 - 19:00	2	56.15	0.125	2	56.15	0.098	2	56.15	0.223
19:00 - 19:30	1	57.30	0.140	1	57.30	0.192	1	57.30	0.332
19:30 - 20:00	1	57.30	0.140	1	57.30	0.035	1	57.30	0.175
20:00 - 20:30	1	57.30	0.017	1	57.30	0.052	1	57.30	0.069
20:30 - 21:00	1	57.30	0.035	1	57.30	0.035	1	57.30	0.070
21:00 - 21:30	1	57.30	0.017	1	57.30	0.000	1	57.30	0.017
21:30 - 22:00	1	57.30	0.035	1	57.30	0.017	1	57.30	0.052
22:00 - 22:30	1	57.30	0.017	1	57.30	0.052	1	57.30	0.069
22:30 - 23:00	1	57.30	0.035	1	57.30	0.052	1	57.30	0.087
23:00 - 23:30	1	57.30	0.017	1	57.30	0.052	1	57.30	0.069
23:30 - 24:00	1	57.30	0.035	1	57.30	0.070	1	57.30	0.105
Total Rates:			7.115			7.900			15.015

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
PSVS
Calculation factor: 1 hect
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate
00:00 - 00:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
00:30 - 01:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
01:00 - 01:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
01:30 - 02:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
02:00 - 02:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
02:30 - 03:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
03:00 - 03:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
03:30 - 04:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
04:00 - 04:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
04:30 - 05:00	1	57.30	0.000	1	57.30	0.017	1	57.30	0.017
05:00 - 05:30	1	57.30	0.000	1	57.30	0.157	1	57.30	0.157
05:30 - 06:00	1	57.30	0.017	1	57.30	0.105	1	57.30	0.122
06:00 - 06:30	1	57.30	0.122	1	57.30	0.122	1	57.30	0.244
06:30 - 07:00	1	57.30	0.052	1	57.30	0.140	1	57.30	0.192
07:00 - 07:30	2	56.15	0.018	2	56.15	0.071	2	56.15	0.089
07:30 - 08:00	2	56.15	0.018	2	56.15	0.045	2	56.15	0.063
08:00 - 08:30	2	56.15	0.018	2	56.15	0.071	2	56.15	0.089
08:30 - 09:00	2	56.15	0.018	2	56.15	0.027	2	56.15	0.045
09:00 - 09:30	2	56.15	0.045	2	56.15	0.053	2	56.15	0.098
09:30 - 10:00	2	56.15	0.018	2	56.15	0.009	2	56.15	0.027
10:00 - 10:30	2	56.15	0.053	2	56.15	0.036	2	56.15	0.089
10:30 - 11:00	2	56.15	0.036	2	56.15	0.036	2	56.15	0.072
11:00 - 11:30	2	56.15	0.053	2	56.15	0.036	2	56.15	0.089
11:30 - 12:00	2	56.15	0.018	2	56.15	0.036	2	56.15	0.054
12:00 - 12:30	2	56.15	0.027	2	56.15	0.027	2	56.15	0.054
12:30 - 13:00	2	56.15	0.036	2	56.15	0.018	2	56.15	0.054
13:00 - 13:30	2	56.15	0.045	2	56.15	0.045	2	56.15	0.090
13:30 - 14:00	2	56.15	0.045	2	56.15	0.018	2	56.15	0.063
14:00 - 14:30	2	56.15	0.027	2	56.15	0.036	2	56.15	0.063
14:30 - 15:00	2	56.15	0.018	2	56.15	0.027	2	56.15	0.045
15:00 - 15:30	2	56.15	0.018	2	56.15	0.071	2	56.15	0.089
15:30 - 16:00	2	56.15	0.018	2	56.15	0.045	2	56.15	0.063
16:00 - 16:30	2	56.15	0.080	2	56.15	0.053	2	56.15	0.133
16:30 - 17:00	2	56.15	0.062	2	56.15	0.018	2	56.15	0.080
17:00 - 17:30	2	56.15	0.036	2	56.15	0.027	2	56.15	0.063
17:30 - 18:00	2	56.15	0.027	2	56.15	0.009	2	56.15	0.036
18:00 - 18:30	2	56.15	0.062	2	56.15	0.027	2	56.15	0.089
18:30 - 19:00	2	56.15	0.080	2	56.15	0.009	2	56.15	0.089
19:00 - 19:30	1	57.30	0.192	1	57.30	0.035	1	57.30	0.227
19:30 - 20:00	1	57.30	0.035	1	57.30	0.017	1	57.30	0.052
20:00 - 20:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
20:30 - 21:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
21:00 - 21:30	1	57.30	0.000	1	57.30	0.017	1	57.30	0.017
21:30 - 22:00	1	57.30	0.017	1	57.30	0.000	1	57.30	0.017
22:00 - 22:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
22:30 - 23:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
23:00 - 23:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
23:30 - 24:00	1	57.30	0.000	1	57.30	0.035	1	57.30	0.035
Total Rates:			1.311			1.495			2.806

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
CYCLISTS
Calculation factor: 1 hect
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate
00:00 - 00:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
00:30 - 01:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
01:00 - 01:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
01:30 - 02:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
02:00 - 02:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
02:30 - 03:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
03:00 - 03:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
03:30 - 04:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
04:00 - 04:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
04:30 - 05:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
05:00 - 05:30	1	57.30	0.035	1	57.30	0.000	1	57.30	0.035
05:30 - 06:00	1	57.30	0.017	1	57.30	0.000	1	57.30	0.017
06:00 - 06:30	1	57.30	0.017	1	57.30	0.000	1	57.30	0.017
06:30 - 07:00	1	57.30	0.000	1	57.30	0.035	1	57.30	0.035
07:00 - 07:30	2	56.15	0.009	2	56.15	0.000	2	56.15	0.009
07:30 - 08:00	2	56.15	0.000	2	56.15	0.000	2	56.15	0.000
08:00 - 08:30	2	56.15	0.018	2	56.15	0.009	2	56.15	0.027
08:30 - 09:00	2	56.15	0.000	2	56.15	0.000	2	56.15	0.000
09:00 - 09:30	2	56.15	0.000	2	56.15	0.000	2	56.15	0.000
09:30 - 10:00	2	56.15	0.009	2	56.15	0.009	2	56.15	0.018
10:00 - 10:30	2	56.15	0.000	2	56.15	0.000	2	56.15	0.000
10:30 - 11:00	2	56.15	0.000	2	56.15	0.000	2	56.15	0.000
11:00 - 11:30	2	56.15	0.009	2	56.15	0.000	2	56.15	0.009
11:30 - 12:00	2	56.15	0.027	2	56.15	0.027	2	56.15	0.054
12:00 - 12:30	2	56.15	0.000	2	56.15	0.000	2	56.15	0.000
12:30 - 13:00	2	56.15	0.009	2	56.15	0.018	2	56.15	0.027
13:00 - 13:30	2	56.15	0.000	2	56.15	0.000	2	56.15	0.000
13:30 - 14:00	2	56.15	0.009	2	56.15	0.009	2	56.15	0.018
14:00 - 14:30	2	56.15	0.000	2	56.15	0.036	2	56.15	0.036
14:30 - 15:00	2	56.15	0.000	2	56.15	0.009	2	56.15	0.009
15:00 - 15:30	2	56.15	0.000	2	56.15	0.009	2	56.15	0.009
15:30 - 16:00	2	56.15	0.000	2	56.15	0.009	2	56.15	0.009
16:00 - 16:30	2	56.15	0.000	2	56.15	0.000	2	56.15	0.000
16:30 - 17:00	2	56.15	0.018	2	56.15	0.018	2	56.15	0.036
17:00 - 17:30	2	56.15	0.000	2	56.15	0.009	2	56.15	0.009
17:30 - 18:00	2	56.15	0.000	2	56.15	0.009	2	56.15	0.009
18:00 - 18:30	2	56.15	0.000	2	56.15	0.036	2	56.15	0.036
18:30 - 19:00	2	56.15	0.009	2	56.15	0.009	2	56.15	0.018
19:00 - 19:30	1	57.30	0.017	1	57.30	0.000	1	57.30	0.017
19:30 - 20:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
20:00 - 20:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
20:30 - 21:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
21:00 - 21:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
21:30 - 22:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
22:00 - 22:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
22:30 - 23:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
23:00 - 23:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
23:30 - 24:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
Total Rates:			0.203			0.251			0.454

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
CARS
Calculation factor: 1 hect
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate
00:00 - 00:30	1	57.30	0.140	1	57.30	0.052	1	57.30	0.192
00:30 - 01:00	1	57.30	0.140	1	57.30	0.087	1	57.30	0.227
01:00 - 01:30	1	57.30	0.157	1	57.30	0.000	1	57.30	0.157
01:30 - 02:00	1	57.30	0.209	1	57.30	0.035	1	57.30	0.244
02:00 - 02:30	1	57.30	0.209	1	57.30	0.035	1	57.30	0.244
02:30 - 03:00	1	57.30	0.157	1	57.30	0.017	1	57.30	0.174
03:00 - 03:30	1	57.30	0.192	1	57.30	0.017	1	57.30	0.209
03:30 - 04:00	1	57.30	0.209	1	57.30	0.052	1	57.30	0.261
04:00 - 04:30	1	57.30	0.332	1	57.30	0.052	1	57.30	0.384
04:30 - 05:00	1	57.30	0.314	1	57.30	0.052	1	57.30	0.366
05:00 - 05:30	1	57.30	0.558	1	57.30	0.140	1	57.30	0.698
05:30 - 06:00	1	57.30	0.785	1	57.30	0.157	1	57.30	0.942
06:00 - 06:30	1	57.30	1.483	1	57.30	0.192	1	57.30	1.675
06:30 - 07:00	1	57.30	3.421	1	57.30	0.436	1	57.30	3.857
07:00 - 07:30	2	56.15	2.858	2	56.15	0.499	2	56.15	3.357
07:30 - 08:00	2	56.15	3.544	2	56.15	0.988	2	56.15	4.532
08:00 - 08:30	2	56.15	2.743	2	56.15	1.051	2	56.15	3.794
08:30 - 09:00	2	56.15	2.743	2	56.15	1.086	2	56.15	3.829
09:00 - 09:30	2	56.15	1.906	2	56.15	1.398	2	56.15	3.304
09:30 - 10:00	2	56.15	1.434	2	56.15	1.407	2	56.15	2.841
10:00 - 10:30	2	56.15	1.523	2	56.15	1.683	2	56.15	3.206
10:30 - 11:00	2	56.15	1.380	2	56.15	1.647	2	56.15	3.027
11:00 - 11:30	2	56.15	1.327	2	56.15	1.888	2	56.15	3.215
11:30 - 12:00	2	56.15	1.443	2	56.15	2.004	2	56.15	3.447
12:00 - 12:30	2	56.15	1.487	2	56.15	1.674	2	56.15	3.161
12:30 - 13:00	2	56.15	1.799	2	56.15	1.932	2	56.15	3.731
13:00 - 13:30	2	56.15	1.621	2	56.15	2.173	2	56.15	3.794
13:30 - 14:00	2	56.15	1.710	2	56.15	1.220	2	56.15	2.930
14:00 - 14:30	2	56.15	1.523	2	56.15	2.262	2	56.15	3.785
14:30 - 15:00	2	56.15	1.434	2	56.15	2.084	2	56.15	3.518
15:00 - 15:30	2	56.15	1.532	2	56.15	2.663	2	56.15	4.195
15:30 - 16:00	2	56.15	1.541	2	56.15	2.110	2	56.15	3.651
16:00 - 16:30	2	56.15	1.451	2	56.15	3.197	2	56.15	4.648
16:30 - 17:00	2	56.15	1.469	2	56.15	3.232	2	56.15	4.701
17:00 - 17:30	2	56.15	1.095	2	56.15	3.277	2	56.15	4.372
17:30 - 18:00	2	56.15	1.149	2	56.15	2.458	2	56.15	3.607
18:00 - 18:30	2	56.15	0.784	2	56.15	1.817	2	56.15	2.601
18:30 - 19:00	2	56.15	0.650	2	56.15	1.496	2	56.15	2.146
19:00 - 19:30	1	57.30	1.030	1	57.30	1.710	1	57.30	2.740
19:30 - 20:00	1	57.30	0.977	1	57.30	1.239	1	57.30	2.216
20:00 - 20:30	1	57.30	0.785	1	57.30	0.436	1	57.30	1.221
20:30 - 21:00	1	57.30	0.733	1	57.30	0.262	1	57.30	0.995
21:00 - 21:30	1	57.30	0.855	1	57.30	0.227	1	57.30	1.082
21:30 - 22:00	1	57.30	0.768	1	57.30	0.366	1	57.30	1.134
22:00 - 22:30	1	57.30	0.750	1	57.30	0.262	1	57.30	1.012
22:30 - 23:00	1	57.30	0.838	1	57.30	0.384	1	57.30	1.222
23:00 - 23:30	1	57.30	0.733	1	57.30	0.227	1	57.30	0.960
23:30 - 24:00	1	57.30	0.977	1	57.30	0.227	1	57.30	1.204
Total Rates:			56.898			51.910			108.808

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
LGVS
Calculation factor: 1 hect
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate
00:00 - 00:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
00:30 - 01:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
01:00 - 01:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
01:30 - 02:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
02:00 - 02:30	1	57.30	0.000	1	57.30	0.017	1	57.30	0.017
02:30 - 03:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
03:00 - 03:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
03:30 - 04:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
04:00 - 04:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
04:30 - 05:00	1	57.30	0.000	1	57.30	0.017	1	57.30	0.017
05:00 - 05:30	1	57.30	0.105	1	57.30	0.052	1	57.30	0.157
05:30 - 06:00	1	57.30	0.105	1	57.30	0.035	1	57.30	0.140
06:00 - 06:30	1	57.30	0.471	1	57.30	0.192	1	57.30	0.663
06:30 - 07:00	1	57.30	0.733	1	57.30	0.401	1	57.30	1.134
07:00 - 07:30	2	56.15	0.606	2	56.15	0.525	2	56.15	1.131
07:30 - 08:00	2	56.15	1.211	2	56.15	0.944	2	56.15	2.155
08:00 - 08:30	2	56.15	1.167	2	56.15	0.899	2	56.15	2.066
08:30 - 09:00	2	56.15	0.632	2	56.15	0.712	2	56.15	1.344
09:00 - 09:30	2	56.15	0.641	2	56.15	0.855	2	56.15	1.496
09:30 - 10:00	2	56.15	0.623	2	56.15	0.659	2	56.15	1.282
10:00 - 10:30	2	56.15	0.650	2	56.15	0.588	2	56.15	1.238
10:30 - 11:00	2	56.15	0.552	2	56.15	0.650	2	56.15	1.202
11:00 - 11:30	2	56.15	0.508	2	56.15	0.686	2	56.15	1.194
11:30 - 12:00	2	56.15	0.659	2	56.15	0.748	2	56.15	1.407
12:00 - 12:30	2	56.15	0.712	2	56.15	0.748	2	56.15	1.460
12:30 - 13:00	2	56.15	0.534	2	56.15	0.534	2	56.15	1.068
13:00 - 13:30	2	56.15	0.570	2	56.15	0.579	2	56.15	1.149
13:30 - 14:00	2	56.15	0.579	2	56.15	0.516	2	56.15	1.095
14:00 - 14:30	2	56.15	0.534	2	56.15	0.739	2	56.15	1.273
14:30 - 15:00	2	56.15	0.641	2	56.15	0.632	2	56.15	1.273
15:00 - 15:30	2	56.15	0.490	2	56.15	0.561	2	56.15	1.051
15:30 - 16:00	2	56.15	0.543	2	56.15	0.668	2	56.15	1.211
16:00 - 16:30	2	56.15	0.677	2	56.15	0.757	2	56.15	1.434
16:30 - 17:00	2	56.15	0.356	2	56.15	0.392	2	56.15	0.748
17:00 - 17:30	2	56.15	0.374	2	56.15	0.392	2	56.15	0.766
17:30 - 18:00	2	56.15	0.169	2	56.15	0.312	2	56.15	0.481
18:00 - 18:30	2	56.15	0.223	2	56.15	0.205	2	56.15	0.428
18:30 - 19:00	2	56.15	0.187	2	56.15	0.169	2	56.15	0.356
19:00 - 19:30	1	57.30	0.175	1	57.30	0.157	1	57.30	0.332
19:30 - 20:00	1	57.30	0.140	1	57.30	0.157	1	57.30	0.297
20:00 - 20:30	1	57.30	0.035	1	57.30	0.052	1	57.30	0.087
20:30 - 21:00	1	57.30	0.017	1	57.30	0.070	1	57.30	0.087
21:00 - 21:30	1	57.30	0.052	1	57.30	0.035	1	57.30	0.087
21:30 - 22:00	1	57.30	0.035	1	57.30	0.017	1	57.30	0.052
22:00 - 22:30	1	57.30	0.035	1	57.30	0.035	1	57.30	0.070
22:30 - 23:00	1	57.30	0.035	1	57.30	0.035	1	57.30	0.070
23:00 - 23:30	1	57.30	0.035	1	57.30	0.017	1	57.30	0.052
23:30 - 24:00	1	57.30	0.017	1	57.30	0.017	1	57.30	0.034
Total Rates:			15.828			15.776			31.604

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
MOTOR CYCLES
Calculation factor: 1 hect
BOLD print indicates peak (busiest) period

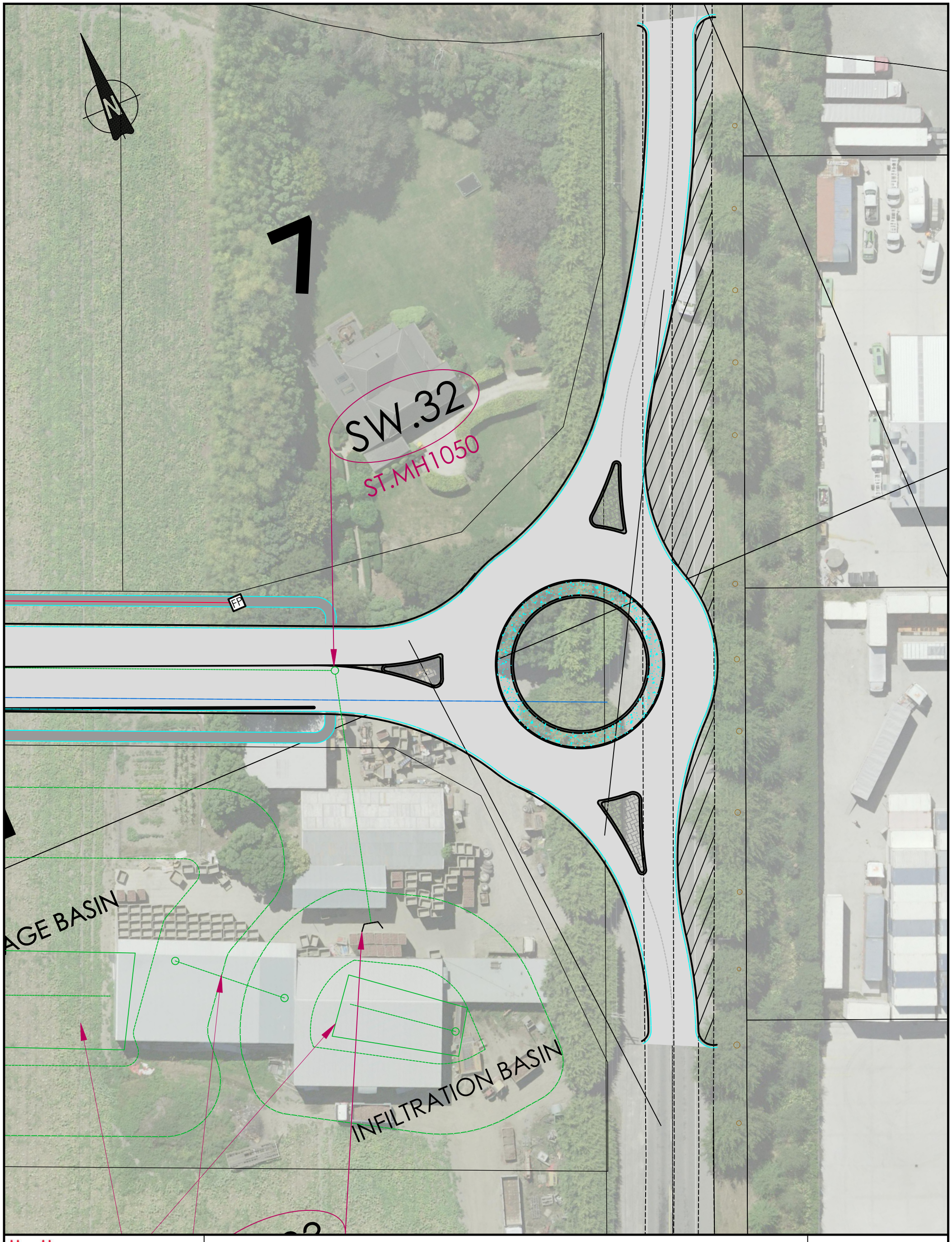
	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate
00:00 - 00:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
00:30 - 01:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
01:00 - 01:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
01:30 - 02:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
02:00 - 02:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
02:30 - 03:00	1	57.30	0.017	1	57.30	0.000	1	57.30	0.017
03:00 - 03:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
03:30 - 04:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
04:00 - 04:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
04:30 - 05:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
05:00 - 05:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
05:30 - 06:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
06:00 - 06:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
06:30 - 07:00	1	57.30	0.017	1	57.30	0.000	1	57.30	0.017
07:00 - 07:30	2	56.15	0.009	2	56.15	0.000	2	56.15	0.009
07:30 - 08:00	2	56.15	0.018	2	56.15	0.009	2	56.15	0.027
08:00 - 08:30	2	56.15	0.000	2	56.15	0.000	2	56.15	0.000
08:30 - 09:00	2	56.15	0.000	2	56.15	0.009	2	56.15	0.009
09:00 - 09:30	2	56.15	0.018	2	56.15	0.018	2	56.15	0.036
09:30 - 10:00	2	56.15	0.000	2	56.15	0.000	2	56.15	0.000
10:00 - 10:30	2	56.15	0.000	2	56.15	0.000	2	56.15	0.000
10:30 - 11:00	2	56.15	0.000	2	56.15	0.036	2	56.15	0.036
11:00 - 11:30	2	56.15	0.000	2	56.15	0.000	2	56.15	0.000
11:30 - 12:00	2	56.15	0.000	2	56.15	0.000	2	56.15	0.000
12:00 - 12:30	2	56.15	0.000	2	56.15	0.009	2	56.15	0.009
12:30 - 13:00	2	56.15	0.000	2	56.15	0.009	2	56.15	0.009
13:00 - 13:30	2	56.15	0.009	2	56.15	0.018	2	56.15	0.027
13:30 - 14:00	2	56.15	0.000	2	56.15	0.009	2	56.15	0.009
14:00 - 14:30	2	56.15	0.000	2	56.15	0.000	2	56.15	0.000
14:30 - 15:00	2	56.15	0.000	2	56.15	0.000	2	56.15	0.000
15:00 - 15:30	2	56.15	0.000	2	56.15	0.000	2	56.15	0.000
15:30 - 16:00	2	56.15	0.009	2	56.15	0.000	2	56.15	0.009
16:00 - 16:30	2	56.15	0.036	2	56.15	0.000	2	56.15	0.036
16:30 - 17:00	2	56.15	0.000	2	56.15	0.000	2	56.15	0.000
17:00 - 17:30	2	56.15	0.000	2	56.15	0.009	2	56.15	0.009
17:30 - 18:00	2	56.15	0.018	2	56.15	0.000	2	56.15	0.018
18:00 - 18:30	2	56.15	0.000	2	56.15	0.009	2	56.15	0.009
18:30 - 19:00	2	56.15	0.000	2	56.15	0.000	2	56.15	0.000
19:00 - 19:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
19:30 - 20:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
20:00 - 20:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
20:30 - 21:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
21:00 - 21:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
21:30 - 22:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
22:00 - 22:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
22:30 - 23:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
23:00 - 23:30	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
23:30 - 24:00	1	57.30	0.000	1	57.30	0.000	1	57.30	0.000
Total Rates:			0.151			0.135			0.286

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

Appendix 7

Pound Road Access Roundabout – Concept Design



novo group
Planning. Traffic. Development.

Novo Group Limited
PO Box 365
Christchurch 8014

NovoGroup.co.nz

Pound Road Subdivision
Ngai Tahu Properties Ltd

Pound Rd Site Access Intersection

Concept Design

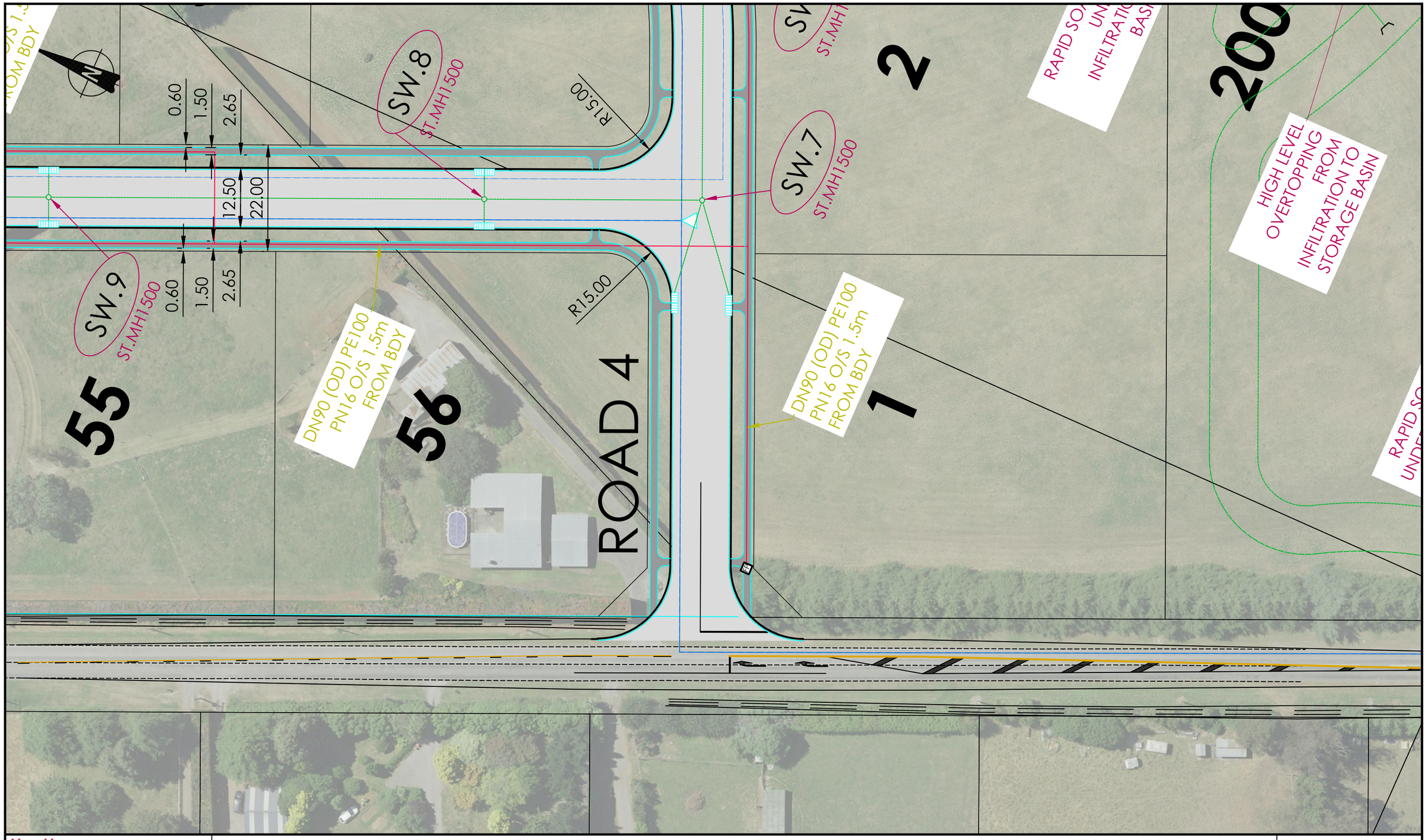
Drawing: **0383-012 - Pound Fast - DWD100X-B**

Sheet
0383-012-DWD1006-B

Scale @A3 1/500
Date 16/06/2025
By N Fuller
Project # 0383-012

Appendix 8

Barters Road Access Intersections – Concept Design



novo group
Planning. Traffic. Development.

Novo Group Limited
PO Box 365
Christchurch 8014

NovoGroup.co.nz

Pound Road Subdivision
NTP Development Holdings Ltd

Barters Road Southern Site Access

Concept Design

Drawing: **0383-012 - Pound Fast - DWD100X-B**

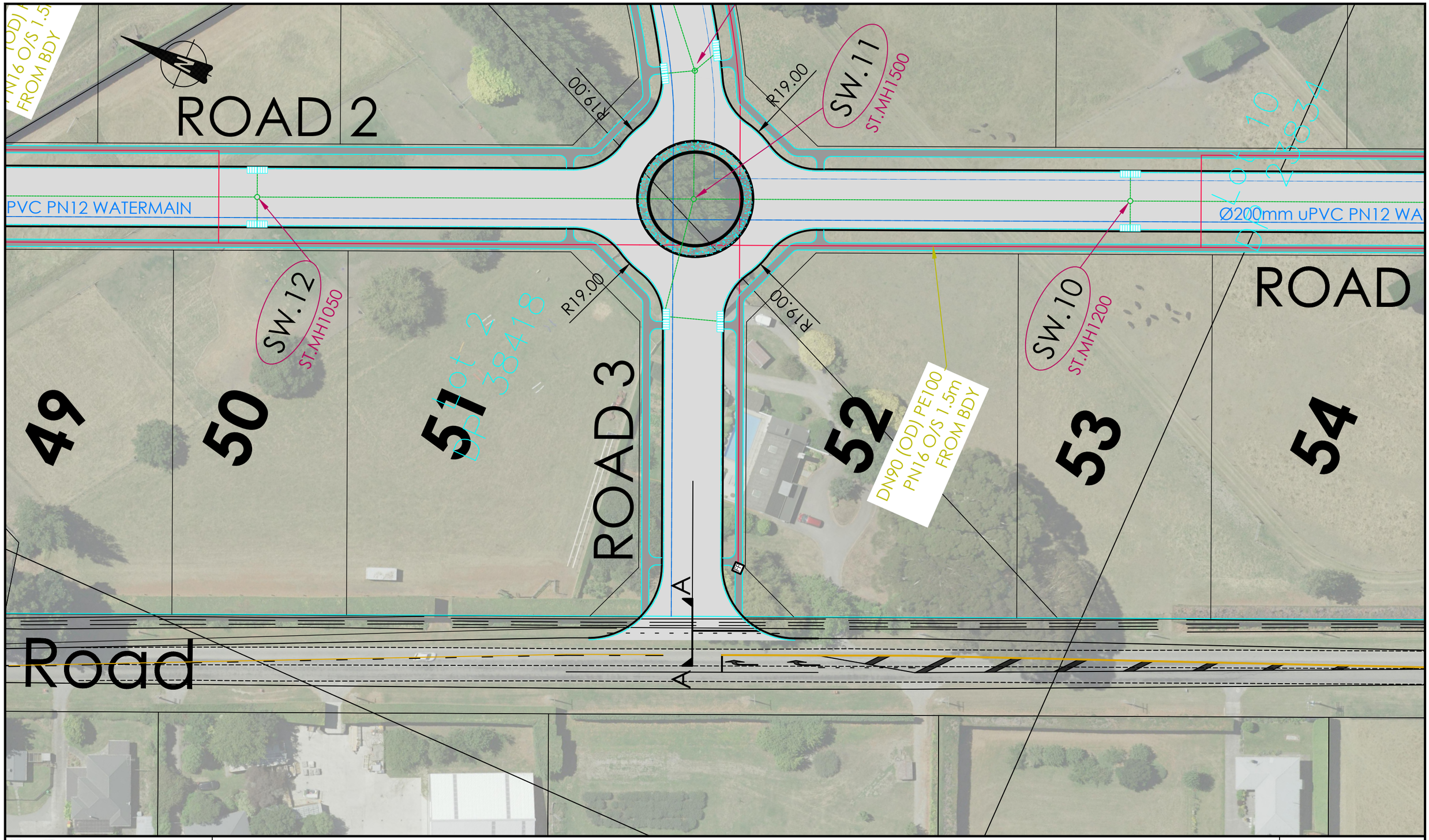
Sheet **0383-012-DWD1003-B**

Scale @A3 1/750

Date 27/06/2025

By N Fuller

Project #0383-012



novo group Planning. Traffic. Development.	**Pound Road Subdivision** **NTP Development Holdings Ltd**	Sheet **0383-012-DWD1004-B**
Novo Group Limited PO Box 365 Christchurch 8014 NovoGroup.co.nz	**Barters Road Northern Site Access**	Scale @A3 1/750
	Concept Design	Date 16/06/2025 By N Fuller
	Drawing: **0383-012 - Pound Fast - DWD100X-B**	Project #0383-012

Appendix 9

Hasketts Road Access Intersection – Concept Design

novo group
Planning. Traffic. Development.

Novo Group Limited
PO Box 365
Christchurch 8014

NovoGroup.co.nz

Pound Road Subdivision
NTP Development Holdings Ltd

Hasketts Rd Site Access Intersection

Concept Design

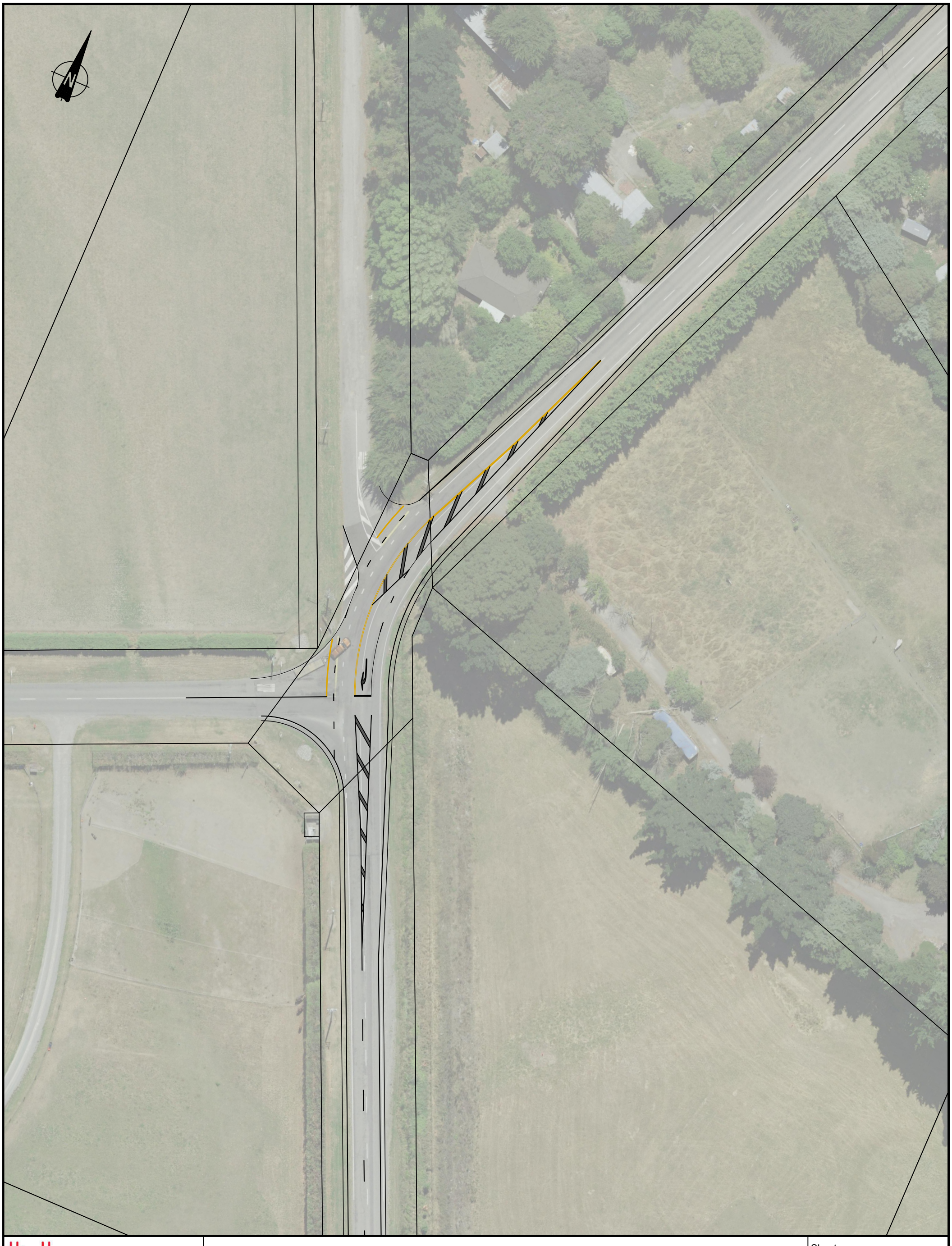
Drawing: **0383-012 - Pound Fast - DWD100X-B**

Sheet
0383-012-DWD1005-B

Scale @A3 1/500
Date 27/06/2025
By N Fuller
Project # 0383-012

Appendix 10

Barters Road / Hasketts Road / Maddisons Road Intersection Upgrade – Concept Design



novo group
Planning. Traffic. Development.

Novo Group Limited
PO Box 365
Christchurch 8014

NovoGroup.co.nz

Pound Road Subdivision
NTP Development Holdings Ltd

Barters Road / Hasketts Rd / Maddisons Road Intersection Upgrade

Concept Design

Drawing: **0383-012 - Pound Fast - DWD100X-B**

Sheet
0383-012-DWD1002-B

Scale @A3 1/750
Date 27/06/2025
By N Fuller
Project # 0383-012

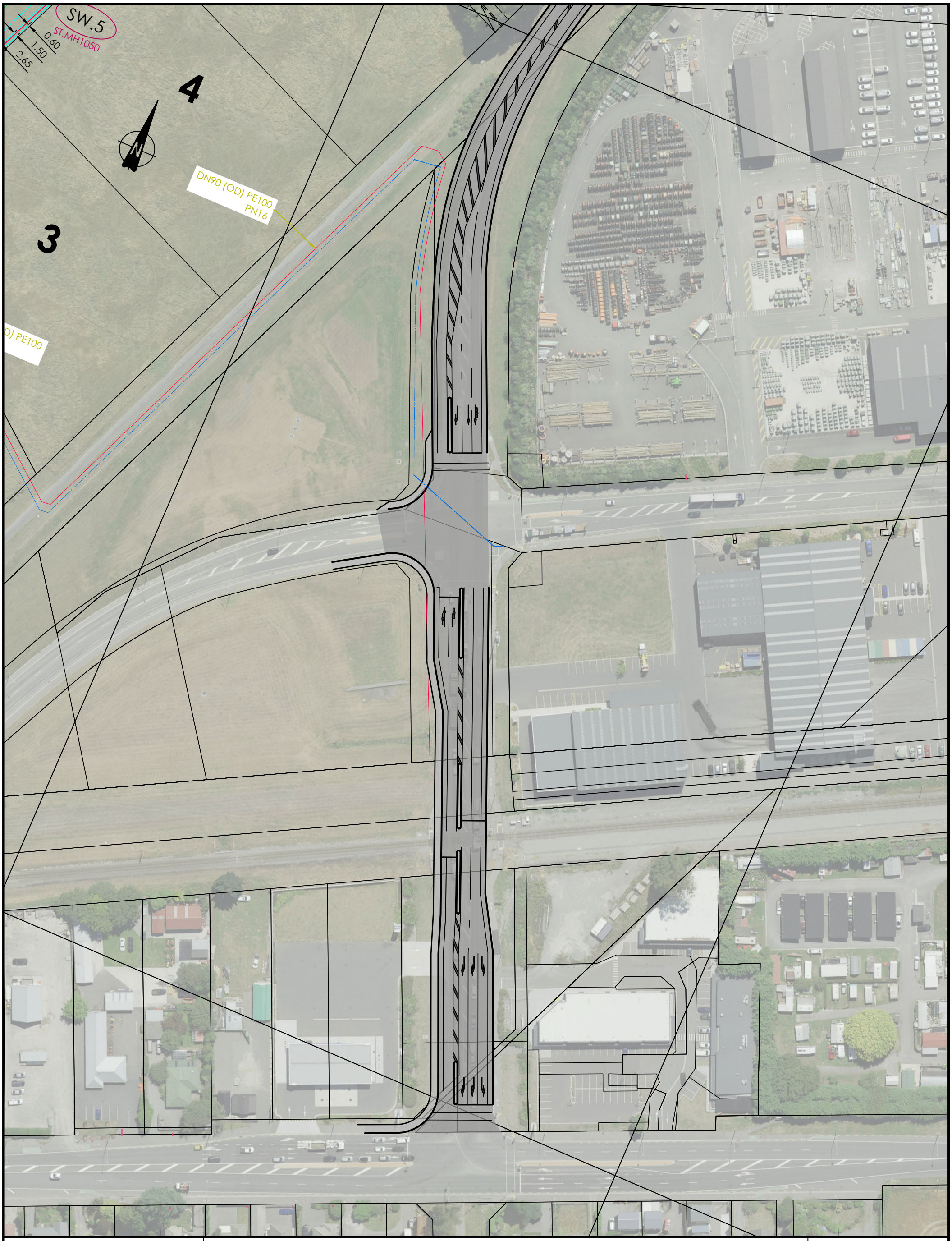
Appendix 11

District Plan Transport Compliance

Rule / Standard	Comment	Complies?
7.4.3.1 Minimum and maximum number and dimensions of car parking spaces required	To be determined at Resource Consent stage for activities.	Assumed to comply
7.4.3.2 Minimum number of cycle parking facilities required	To be determined at Resource Consent stage for activities.	Assumed to comply
7.4.3.3 Minimum number of loading spaces required	To be determined at Resource Consent stage for activities.	Assumed to comply
7.4.3.4 Manoeuvring for parking and loading areas	To be determined at Resource Consent stage for activities.	Assumed to comply
7.4.3.5 Gradient of parking and loading areas	To be determined at Resource Consent stage for activities.	Assumed to comply
7.4.3.6 Design of parking areas and loading areas	To be determined at Resource Consent stage for activities.	Assumed to comply
7.4.3.7 Access design	To be determined at Resource Consent stage for activities.	Assumed to comply
7.4.3.8 Vehicle crossings	The sight distance requirements for a 50km/h rural road may not be achieved for Lot 29.	May not comply
7.4.3.9 Location of buildings and access in relation to road/rail level crossings	Complies	Complies
7.4.3.10 High trip generators	To be determined at Resource Consent stage for activities.	-
7.4.3.11 Vehicle access to sites fronting more than one street - Within the Central City	Not Applicable	N/A
7.4.3.12 Lane Formation - Within the Central City	Not Applicable	N/A
8.6.3 Access	*All sites shall have access which is able to allow vehicles to pass to and from a formed road, and such access shall be in accordance with Appendix 8.10.2 to this chapter and the standards set out in Chapter 7.* The access to Lot 44 can comply with these requirements.	Complies
8.6.4 Roads	*All roads shall be laid out, constructed and vested in accordance with the standards set out in Appendix 8.10.3, and in Chapter 7, except where alternative standards are set out in an outline development plan.* The proposed internal roads will be comply with the Local Road – Industrial standards.	Complies
17.5.2.7 Vehicle trips	*The maximum number of vehicle trips per site for all activities, other than for farming or Commercial Film or Video Production, shall be 100 per day.* The sites are likely to generate greater than 100 vehicle movements per day.	**No**

Appendix 12

Pound Road / Waterloo Road / SH1 Upgrades – Concept Arrangement



Pound Road Subdivision
NTP Development Holdings Ltd

State Highway 1 / Pound Road / Waterloo Road Intersection Upgrade

Concept Design

Drawing: **0383-012 - Pound Fast - DWD100X-B**

Sheet **0383-012-DWD1001-B**

Scale @A3 1/1,250

Date 27/06/2025

By N Fuller

Project # 0383-012

novo group
Planning. Traffic. Development.

Novo Group Limited
PO Box 365
Christchurch 8014

NovoGroup.co.nz

Appendix 13

Pound Road / Waterloo Road / SH1 Intersection – Interim Capacity Assessment

QTP Ltd
3a/212 Antigua Street
PO Box 106 • Christchurch 8140 • New Zealand

Memorandum

To:	Nick Fuller, Novo Group
From:	Paul Roberts, QTP
Subject:	Barters Road Fast-track Application – Potential Traffic Mitigation Staging
Date:	09 July 2025
Copy:	

1 Introduction

1.1 This memo summarises the additional traffic modelling investigation that you have requested QTP Ltd conduct, to understand when potential Pound Rd / SH1 and associated Pound Rd / Waterloo Rd intersection upgrades[1] may be required.

1.2 The scope adopted for this modelling is as follows:

- Use SIDRA models of these intersections;
- Assume that development of the application site occurs starting in 2027 and is evenly-spread up to full occupation in 2038;
- Use the version of the CAST model adopted for the reporting to date (including the Pound Rd site access as a roundabout to enable traffic to more easily head to / from SH1) to inform SIDRA demands; and
- No inclusion of an additional (southern) leg at the SH1 / Pound Rd intersection.

1.1 Key assumptions for and results of the modelling is presented in subsequent sections of this memo below. SIDRA output tables are provided in **Appendix A**.

[1] Refer "Traffic Network Effects Modelling Technical Report" (Barters Rd Traffic Modelling v02a-Complete.pdf), QTP Ltd.

2 Key Assumptions

2.1 Per your instructions, given a requirement for indicative timeframes only, this investigation of the potential timing for roading upgrades in the vicinity of the Barters Road Fast-track application Site has been conducted without *further* network-wide (CAST) traffic modelling. Rather, it relies upon use of isolated intersection modelling, using the industry-standard SIDRA Intersection 9.1 modelling software.

2.2 The traffic demands used for this exercise have therefore used the following simplified approach:

- Base (non-development) traffic demands for model scenarios at each year have been simply interpolated, between the 2024 (counted) volumes and the previously modelled scenario[2] for 2038 (network modelling using CAST).

- Development (traffic) demands have been simply-interpolated assuming that development may commence, at the earliest, in 2027 (0% development) and reach its full potential by 2038 (100% development)[3].

Table 2-1: Assumptions for Adopted Traffic Demands

Year	Yrs from 2024	Base Traffic Increment	Development Traffic Increment
2024	0	0%	0%
2025	1	7%	0%
2026	2	14%	0%
2027	3	21%	0%
2028	4	29%	9%
2029	5	36%	18%
2030	6	43%	27%
2031	7	50%	36%
2032	8	57%	45%
2033	9	64%	55%
2034	10	71%	64%
2035	11	79%	73%
2036	12	86%	82%
2037	13	93%	91%
2038	14	100%	100%

[2] The scenario adopted to extract the *base* traffic flow projections is the previously-modelled CAST 2038 base (No development) scenario, using 'standard' SIDRA peaking increment for demands (where effectively an additional c.5% factor is applied to hourly traffic demands prior to CAST assignment, to reflect 'peaking-within-the-peak).

[3] The scenario adopted to extract the adopted 2038 development traffic distribution is the previously-modelled CAST 2038 With Full development and Mitigation scenario.

3 SH1 Main South Road/Pound Road Intersection

3.1 The (SIDRA-modelled) performance at this intersection under each of the options is summarised in the following tables. Note that for brevity we have restricted the modelling to the AM and PM peak hours only (these being 0730-0830 and 1630-1730 respectively). More-detailed results for each of these periods and for all years modelled may be found within **Appendix A**.

3.2 **Table 3-2** and **Table 3-3** summarise the average modelled delays (in seconds/vehicle) for each turn, approach and the intersection as a whole. The colour-coding for these delays reflects the following anticipated level-of-service (using SIDRA-standard thresholds for traffic signal intersections), measured on a descending scale of A-F:

Table 3-1: Colour-coding Key to Level of Service, based on Control-delays

LOS Key	Signals – Upper Control Delay Thresholds
A	10
B	20
C	35
D	55
E	80
F	>80

Table 3-2: Main Sth/Pound Delay and Level of Service (AM Peak Hour)

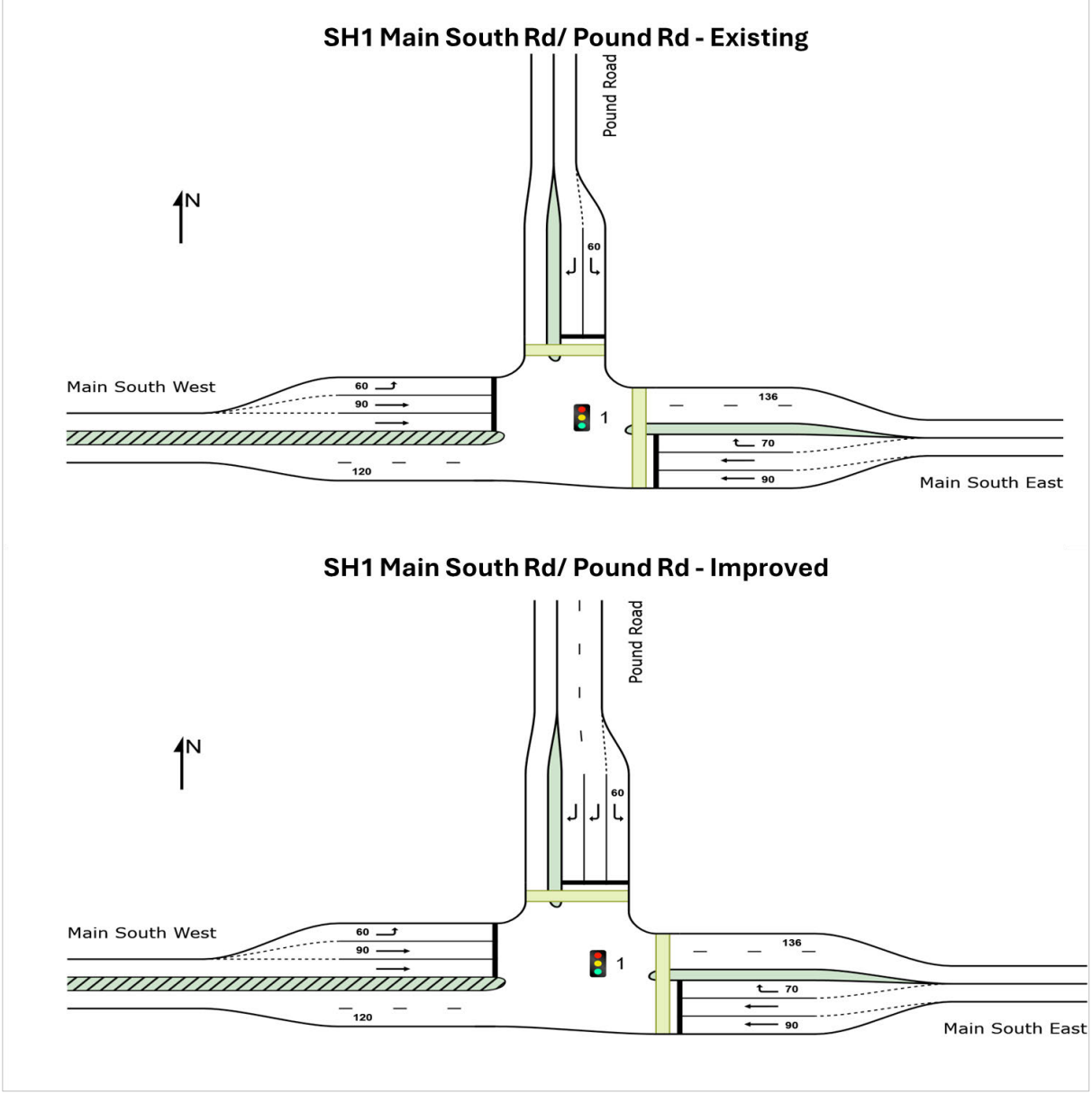
		AM Peak Hour: Average Delay (& LOS)															
		Existing Layout															Improved
Approach	Movement	2024	2028 (0% Dev)	2033 (0% Dev)	2038 (0% Dev)	2028 (9% Dev)	2029 (18% Dev)	2030 (27% Dev)	2031 (36% Dev)	2032 (45% Dev)	2033 (55% Dev)	2034 (64% Dev)	2035 (73% Dev)	2036 (82% Dev)	2037 (91% Dev)	2038 (100% Dev)	2038 (100% Dev)
Main Sth (E)	Thru	9.7	10.3	10.4	10.6	9.7	10.4	9.7	9.8	9.8	9.8	9.2	9.2	9.2	10.8	12.3	6.3
	Right	35.3	36.8	38.1	36.7	36.1	36.0	38.0	36.8	42.1	42.1	50.9	46.6	71.1	70.6	**81.3**	33.3
	Approach	15.7	16.4	16.4	16.0	16.5	17.0	18.4	18.6	21.1	21.1	25.4	24.4	35.4	37.0	43.6	18.6
Pound (N)	Left	12.7	12.7	13.3	13.4	12.8	12.3	12.4	12.0	12.1	12.1	12.3	11.8	11.9	14.7	17.7	12.7
	Right	30.4	27.6	27.5	29.1	31.2	28.7	33.1	34.1	35.6	38.4	51.5	58.2	65.2	**95.1**	**118.7**	34.2
	Approach	26.0	23.5	23.1	23.9	25.8	23.9	26.4	26.5	27.3	29.2	36.6	40.1	43.9	62.2	76.5	25.2
Main Sth (W)	Left	10.0	9.5	8.9	9.0	10.0	10.0	10.5	11.1	11.1	11.1	11.7	12.4	12.4	13.0	13.6	15.2
	Thru	23.3	23.5	22.0	23.0	23.5	25.7	25.7	29.4	29.5	29.7	29.9	39.1	39.0	47.0	54.7	29.9
	Approach	17.1	17.0	15.9	16.4	17.2	18.4	18.6	20.8	20.9	21.0	21.3	26.5	26.4	30.9	35.2	22.9
All	All	18.7	18.3	17.8	18.3	19.1	19.4	20.5	21.7	22.6	23.2	26.6	29.7	33.9	41.7	49.7	22.3
	(Optimal Cycle Time)	60	60	60	60	60	60	60	60	60	60	60	60	60	70	80	60

Table 3-3: Main Sth/Pound Delay and Level of Service (PM Peak Hour)

		PM Peak Hour: Average Delay (& LOS)															
		Existing Layout															Improved
Approach	Movement	2024	2028 (0% Dev)	2033 (0% Dev)	2038 (0% Dev)	2028 (9% Dev)	2029 (18% Dev)	2030 (27% Dev)	2031 (36% Dev)	2032 (45% Dev)	2033 (55% Dev)	2034 (64% Dev)	2035 (73% Dev)	2036 (82% Dev)	2037 (91% Dev)	2038 (100% Dev)	2038 (100% Dev)
Main Sth (E)	Thru	19.9	17.7	17.7	16.5	19.9	20.0	20.0	23.6	22.4	22.4	23.8	27.8	28.0	33.9	32.2	15.3
	Right	47.6	44.3	37.5	35.3	45.5	49.6	44.4	55.2	50.7	54.5	62.5	68.5	**83.0**	**89.3**	79.6	38.7
	Approach	24.3	21.5	20.2	18.6	23.9	24.8	24.2	29.3	27.6	28.6	31.6	36.2	39.8	46.1	42.9	20.6
Pound (N)	Left	15.0	12.2	11.0	10.6	14.6	15.0	14.9	16.4	17.5	17.9	17.2	19.5	20.0	21.3	22.5	11.2
	Right	40.7	36.4	29.0	27.4	39.3	42.7	47.4	43.3	56.4	65.2	61.3	67.9	**80.0**	76.3	**104.3**	29.6
	Approach	37.5	33.4	26.7	25.3	35.8	38.5	42.1	38.5	49.1	55.8	52.1	57.3	66.3	63.3	**84.2**	25.0
Main Sth (W)	Left	8.8	8.6	8.6	8.6	8.8	8.8	9.2	9.0	9.5	9.5	9.5	9.7	9.7	9.9	10.4	12.4
	Thru	34.7	30.7	30.0	26.7	34.3	34.2	39.8	42.0	41.7	41.4	51.3	51.0	50.5	62.5	61.5	32.7
	Approach	22.7	20.1	19.4	17.4	22.1	22.0	24.9	25.9	25.8	25.5	30.3	30.2	29.8	35.6	35.2	22.3
All	All	27.4	24.3	21.6	19.8	26.6	27.7	29.6	30.8	33.3	35.7	37.3	40.6	44.7	48.0	53.4	22.5
	(Optimal Cycle Time)	70	60	60	60	70	70	70	80	80	80	80	90	90	100	100	80

3.3 Aside from the right-hand column, the above results reflect the SIDRA-modelled performance of the existing intersection layout, shown in schematic form in the uppermost diagram below. The right-most columns however reflect the SIDRA-modelled performance (for assumed demands in 2038, with full development), given an additional southbound lane added to Pound Road.

Figure 3-1: Schematic Options for Main South Rd / Pound Rd



3.4 The anticipated reduction of performance of the (existing) intersection layout to accommodate increasing traffic demands may also be seen by reference to the predicted 'degree of saturation', shown in **Table 3-4** and **Table 3-5** for the AM and PM peak hours respectively. This measure is the ratio of traffic demand to the anticipated capacity (the latter depending upon available lane configuration/use and assumed signal cycle and phase times). For traffic signals the 'practical' (maximum desirable) degree of saturation is generally taken to be 0.9. Where the modelling suggests this would be exceeded, this has been highlighted in orange.

Table 3-4: Main Sth/Pound Degree of Saturation (AM Peak Hour)

		AM Peak Hour: Degree of Saturation															
		Existing Layout															Improved
Approach	Movement	2024	2028 (0% Dev)	2033 (0% Dev)	2038 (0% Dev)	2028 (9% Dev)	2029 (18% Dev)	2030 (27% Dev)	2031 (36% Dev)	2032 (45% Dev)	2033 (55% Dev)	2034 (64% Dev)	2035 (73% Dev)	2036 (82% Dev)	2037 (91% Dev)	2038 (100% Dev)	2038 (100% Dev)
Main Sth (E)	Thru	0.309	0.322	0.324	0.345	0.311	0.323	0.312	0.313	0.313	0.313	0.304	0.305	0.305	0.308	0.309	0.261
	Right	0.800	0.735	0.764	0.707	0.745	0.743	0.822	0.814	0.885	0.885	0.935	0.919	0.980	0.970	0.978	0.825
	Approach	0.697	0.735	0.764	0.707	0.745	0.743	0.822	0.814	0.885	0.885	0.935	0.919	0.980	0.970	0.978	0.825
Pound (N)	Left	0.162	0.180	0.208	0.243	0.197	0.196	0.231	0.245	0.264	0.264	0.306	0.316	0.335	0.337	0.342	0.384
	Right	0.795	0.752	0.752	0.793	0.809	0.778	0.837	0.849	0.865	0.886	0.942	0.958	0.971	0.997	1.011	0.847
	Approach	0.795	0.752	0.752	0.793	0.809	0.778	0.837	0.849	0.865	0.886	0.942	0.958	0.971	0.997	0.011	0.847
Main Sth (W)	Left	0.494	0.458	0.463	0.482	0.491	0.491	0.505	0.518	0.518	0.518	0.532	0.546	0.547	0.534	0.526	0.616
	Thru	0.754	0.759	0.721	0.764	0.759	0.812	0.811	0.871	0.873	0.875	0.876	0.946	0.945	0.959	0.968	0.873
	Approach	0.754	0.759	0.721	0.764	0.759	0.812	0.811	0.871	0.873	0.875	0.876	0.946	0.945	0.959	0.968	0.873
All	All	0.800	0.759	0.764	0.793	0.809	0.812	0.837	0.871	0.885	0.886	0.942	0.958	0.980	0.997	1.011	0.873
	(Optimal Cycle Time)	60	60	60	60	60	60	60	60	60	60	60	60	60	70	80	60

Table 3-5: Main Sth/Pound Degree of Saturation (PM Peak Hour)

		PM Peak Hour: Degree of Saturation															
		Existing Layout															Improved
Approach	Movement	2024	2028 (0% Dev)	2033 (0% Dev)	2038 (0% Dev)	2028 (9% Dev)	2029 (18% Dev)	2030 (27% Dev)	2031 (36% Dev)	2032 (45% Dev)	2033 (55% Dev)	2034 (64% Dev)	2035 (73% Dev)	2036 (82% Dev)	2037 (91% Dev)	2038 (100% Dev)	2038 (100% Dev)
Main Sth (E)	Thru	0.687	0.697	0.705	0.683	0.693	0.694	0.697	0.719	0.696	0.698	0.723	0.737	0.741	0.777	0.757	0.541
	Right	0.800	0.887	0.737	0.601	0.840	0.890	0.833	0.896	0.860	0.895	0.935	0.930	0.967	0.963	0.943	0.710
	Approach	0.870	0.887	0.737	0.683	0.840	0.890	0.833	0.896	0.860	0.895	0.935	0.930	0.967	0.963	0.943	0.710
Pound (N)	Left	0.087	0.085	0.080	0.076	0.096	0.107	0.117	0.124	0.135	0.147	0.155	0.163	0.173	0.179	0.190	0.215
	Right	0.883	0.881	0.827	0.809	0.871	0.889	0.909	0.875	0.923	0.944	0.936	0.941	0.962	0.950	0.987	0.701
	Approach	0.883	0.881	0.827	0.809	0.871	0.889	0.909	0.875	0.923	0.944	0.936	0.941	0.962	0.950	0.987	0.701
Main Sth (W)	Left	0.360	0.377	0.388	0.400	0.369	0.372	0.382	0.371	0.380	0.382	0.385	0.382	0.384	0.383	0.391	0.441
	Thru	0.859	0.858	0.844	0.763	0.847	0.846	0.913	0.891	0.887	0.884	0.951	0.926	0.922	0.957	0.953	0.711
	Approach	0.859	0.858	0.844	0.763	0.847	0.846	0.913	0.891	0.887	0.884	0.951	0.926	0.922	0.957	0.953	0.711
All	All	0.883	0.887	0.844	0.809	0.871	0.890	0.913	0.896	0.923	0.944	0.951	0.941	0.967	0.963	0.987	0.711
	(Optimal Cycle Time)	70	60	60	60	70	70	70	80	80	80	80	90	90	100	100	80

3.5 A final important consideration is the potential impact on of additional traffic on queuing on the Pound Road (southbound) approach to Main South Road. Even 'today' this can be observed, in the PM peak, to extend beyond the railway crossing to the N of the intersection. SIDRA-modelled southbound queues (along with other key measures) are summarised in **Table 3-6**.

Figure 3-2: Indicative Pound Rd Southbound Queuing– 2025 PM Peak Hour

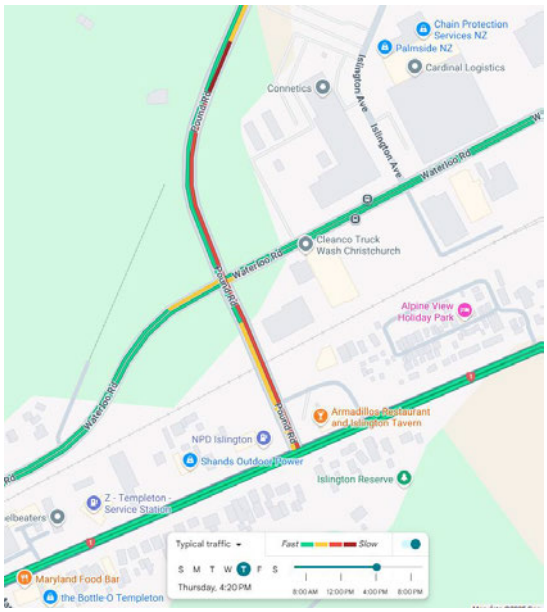


Table 3-6: Main Sth / Pound Summary Analysis (Both Peak Hours)

		AM Peak Hour				PM Peak Hour			
Layout	Scenario	Pound Sbnd Q[1]	Max Deg Sat[2]	Worst Delay (Lane)[3]	Av Delay (Int)[3]	Pound Sbnd Q[1]	Max Deg Sat[2]	Worst Delay (Lane)[3]	Av Delay (Int)[3]
Existing Layout	2024	98.4	0.795	35.3	18.7	194.6	0.883	47.6	27.4
	2028 (0% Dev)	92.0	0.759	36.8	18.3	168.1	0.887	44.3	24.3
	2033 (0% Dev)	91.4	0.764	38.1	17.8	138.6	0.844	37.5	21.6
	2038 (0% Dev)	100.3	0.793	36.7	18.3	127.3	0.809	35.3	19.8
	2028 (9% Dev)	102.0	0.809	36.1	19.1	188.6	0.871	45.5	26.6
	2029 (18% Dev)	98.3	0.812	36.0	19.4	201.8	0.890	49.6	27.7
	2030 (27% Dev)	109.9	0.837	38.0	20.0	219.1	0.913	47.4	29.6
	2031 (36% Dev)	113.9	0.871	36.8	21.7	218.6	0.896	55.2	30.8
	2032 (45% Dev)	119.5	0.885	42.1	22.6	262.2	0.923	56.4	33.3
	2033 (55% Dev)	128.8	0.886	42.1	23.2	291.4	0.944	65.2	35.7
	2034 (64% Dev)	155.3	0.942	51.5	26.6	284.9	0.951	62.5	37.3
	2035 (73% Dev)	170.6	0.958	58.2	29.7	320.0	0.941	68.5	40.6
	2036 (82% Dev)	185.4	0.980	71.1	33.9	358.9	0.967	**83.0**	44.7
	2037 (91% Dev)	249.3	0.997	**95.1**	41.7	367.4	0.963	**89.3**	48.0
	2038 (100% Dev)	299.2	1.011	**118.7**	49.7	446.7	0.987	**104.3**	53.4
Improved (2 ln Sbnd)	2038 (100% Dev)	75.7	0.873	34.2	22.3	111.2	0.711	38.7	22.5

1. Queue length Key (=95%ile length in m, at start of green)

Q<91m (clear of rail crossing)
83m (Railway)<Q<182m (Waterloo Rd)
Q>182m (Waterloo Rd)

3.6 Taking all of the above into account, we suggest that this intersection would likely have to be improved (along the lines shown) by around 2030/31 (or on development of approximately 30% of the ultimate capacity of the Barters Road site), in order to appropriately mitigate the potential impact of additional traffic.

3.7 Note however that this can only be an *approximate* guide, because:

- The modelling is based upon the assumed traffic generation (reported previously), which in turn assumes 'average' densities. Development (at different stages) may occur in such a way that occupancy reflects densities and/or resulting traffic generation rates that may be higher (or lower) than the 'average' rates assumed.
- Background (non-development) traffic growth could be higher or lower than assumed, depending, for example on approval of presently un-zoned land (for residential and/or business purposes).
- The actual assignment (routing) of traffic on the network will reflect both the level of demand and network capacity. The latter will depend not only on potential improvements undertaken local to the Site, but also on potential improvements further afield.

4 Pound Road /Waterloo Road Intersection

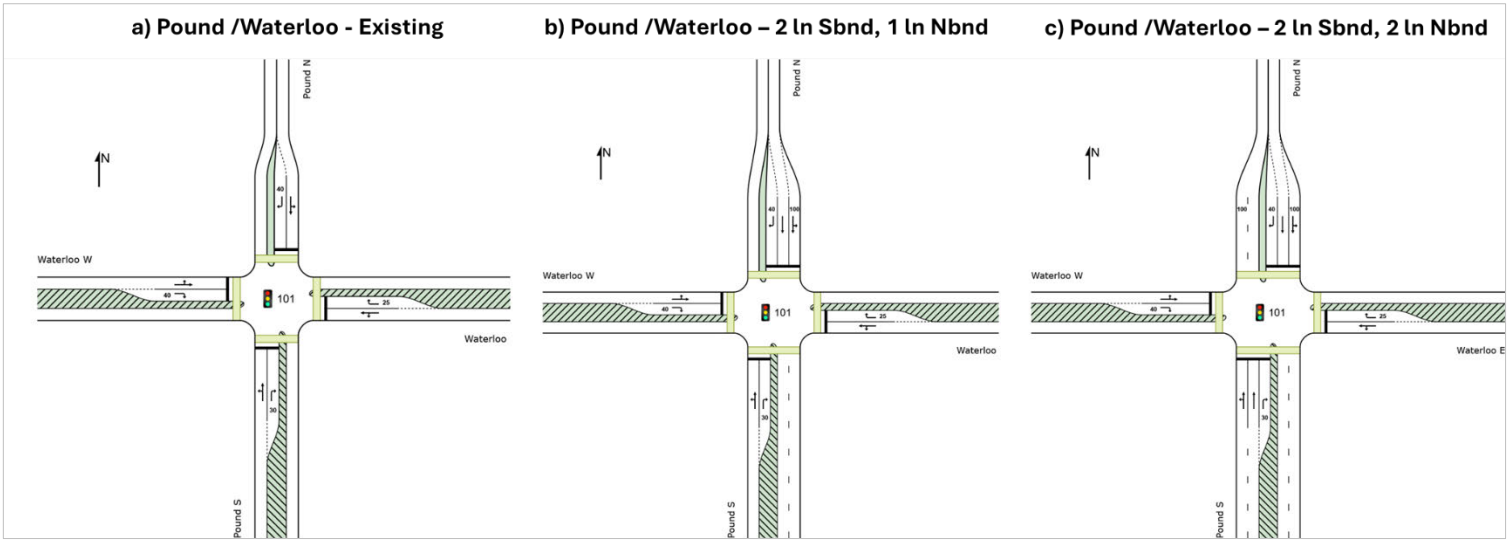
4.1 Three layout options have been examined for potential improvement of this intersection:

a) The existing layout

b) Addition of a Sbnd lane (only), to accord with the potential Sbnd improvement at Main Sth/Pound

c) Addition of a further Nbnd Pound Rd lane (N of railway)

Figure 4-1: Schematic Options for Pound Rd / Waterloo Rd



4.2 The (SIDRA-modelled) peak hour performance at this intersection under each of the options[4] is summarised in **Table 4-1**. Again, more-detailed results for each of these periods and for all years modelled may be found within **Appendix A**.

4.3 Note that as this intersection is modelled in 'isolation' from the preceeding Main South /Pound intersection, and this reflects their currently 'independent' SCATS operation and different 'optimal' cycle times adopted. Thus the results shown in in **Table 4-1** (particularly for the PM peak) are likely to represent a somewhat 'optimistic' view of the performance of this intersection – because (as shown in the preceding section), *without improvement* of Main South /Pound, southbound queuing (from Main South Road) in the PM peak could be potentially significantly-exacerbated by additional traffic resulting from development of more than around 30% of the site - thus (more frequently) impeding the southbound capacity at Pound /Waterloo than assumed here. If, however, Main Sth/Pound is improved, as shown above, then the potential impact of such queuing on the capacity of Pound/Waterloo is not predicted to be an issue - even with full development of the Site.

[4] Note that Improvement options b) and c) have only been examined under the 2038 with Full development scenario

Table 4-1: Pound / Waterloo Summary Analysis (Both Peak Hours)

		AM Peak Hour				PM Peak Hour			
Layout	Scenario	Pound Nbnd Q[1]	Max Deg Sat[2]	Worst Delay (Lane)[3]	Av Delay (Int)[3]	Pound Nbnd Q[1]	Max Deg Sat[2]	Worst Delay (Lane)[3]	Av Delay (Int)[3]
Existing Layout	2024	81.0	0.737	24.0	14.9	56.9	0.595	23.8	11.8
	2028 (0% Dev)	79.2	0.739	24.0	15.3	61.9	0.634	22.9	12.8
	2033 (0% Dev)	85.3	0.778	23.6	16.4	64.8	0.654	24.1	13.6
	2038 (0% Dev)	81.8	0.768	23.2	16.8	68.2	0.745	25.3	14.8
	2028 (9% Dev)	88.8	0.772	24.0	16.0	65.4	0.653	22.9	13.0
	2029 (18% Dev)	100.3	0.812	23.9	16.9	69.3	0.672	22.9	13.4
	2030 (27% Dev)	100.0	0.838	26.1	17.2	67.4	0.690	25.1	13.1
	2031 (36% Dev)	112.5	0.857	26.1	18.4	71.8	0.703	25.2	13.6
	2032 (45% Dev)	133.9	0.824	30.7	20.1	76.7	0.718	25.3	14.3
	2033 (55% Dev)	149.0	0.851	30.5	21.4	81.4	0.751	25.3	15.4
	2034 (64% Dev)	182.1	0.895	36.6	24.2	86.4	0.801	25.4	16.8
	2035 (73% Dev)	189.3	0.924	41.7	26.0	91.6	0.842	26.7	18.5
	2036 (82% Dev)	223.6	0.935	44.4	29.5	94.9	0.856	31.4	21.2
	2037 (91% Dev)	277.4	0.958	58.3	35.3	92.5	0.889	39.3	23.3
	2038 (100% Dev)	383.0	1.000	**90.8**	47.6	98.4	0.927	42.7	28.5
Improved (1 ln Nbnd)	2038 (100% Dev)	382.7	0.993	**85.8**	50.2	110.2	0.893	41.1	17.8
Improved (2 ln Nbnd)	2038 (100% Dev)	32.3	0.767	23.2	14.5	23.6	0.728	25.3	12.3

c.65% dev (2034) is indicative threshold?

1. Queue length Key (=95%ile length in m, at start of green)

Q<83m (clear of rail crossing)
83m (Railway)<Q<182m (Main Sth Rd)
Q>182m (Main Sth Rd)

4.4 The above summary confirms that, under the existing layout, northbound queuing at Waterloo Road would likely become more of an issue given on-going development of the Site, such that beyond around 2033/34 (or around 60% of Site development, at the traffic generation rates assumed), queuing could extend sufficiently far S to impede entry from either west of east from Main South Rd.

4.5 The results presented in the penultimate scenario row, for Option (b), confirms that the addition of a Sbnd lane *only* to Pound Rd (to align with the recommended treatment further S to Main Sth Rd) would do little to mitigate the key potential impacts (particularly in the AM peak) at this Pound /Waterloo intersection.

4.6 However, the final scenario row, for Option (c), confirms that this scale of improvement, which assumes an additional lane on *both* Pound Rd approaches, would add sufficient capacity to completely mitigate the potential impacts of all additional development traffic (and anticipated background growth to 2038).

5 Conclusions

5.1 This analysis suggests that the existing SH1 Main South Road / Pound Road intersection would likely have to be improved, via addition of a further Southbound Pound Road lane, by around 2030/31 (or on development of approximately 30% of the ultimate capacity of the Barters Road site), in order to appropriately mitigate the potential impact of additional Site and background traffic.

5.2 The analysis of the existing Pound Road / Waterloo Road intersection suggests that given on-going development of the Fast-track application Site, beyond around 2033/34 (or around 60% of Site development, at the traffic generation rates assumed), queuing could extend sufficiently far S along Pound Road to impede entry from either west of east from Main South Rd. Improvement via an additional lane on both Pound Rd approaches[5], would however add sufficient capacity to completely mitigate such potential impacts of all additional development traffic (and anticipated background growth to 2038). It is therefore recommended that such an improvement be implemented by 2033/34 (at the latest) – or in practical terms, would be implemented coincident with the earlier improvement of Main South Rd /Pound Rd (i.e. by around 2030/31).

5.3 We emphasise that these recommendations have however not taken into account the potential costs of implementation, which may bear on an ultimate decision on preferred option(s) and their timing.

5.4 Furthermore, these recommendations should only be treated as an *approximate* guide, because:

- The modelling is based upon the assumed traffic generation (reported previously), which in turn assumes 'average' densities. Development (at different stages) may occur in such a way that, in practice, actual occupancy may reflect densities and/or resulting traffic generation rates that may be higher (or indeed lower) than the 'average' rates assumed.
- Background (non-development) traffic growth could be higher, or lower than assumed, depending, for example on the potential development of presently un-zoned land (for residential and/or business purposes).
- In practice, the actual assignment (routing) of traffic on the network will reflect both the level of demand and network capacity. The latter will depend not only on potential improvements undertaken local to the Site, but also on potential improvements further afield.

[5] Note that Pound Rd Northbound approach to Waterloo Rd is only 'served' by one-lane at a time from Main South Rd. Our queue length analysis suggests that the additional Nbnd Pound Rd approach lane to Waterloo Rd need only be commenced North of the Railway, rather than developed for the full distance between Waterloo Rd and Main Sth Rd (the latter being our recommendation for the Pound Road *Sbnd* improvement). However, given the potential cost of these works (beyond our scope or expertise to identify), we would recommend that consideration be given to undertaking further and more-detailed costing and network modelling work (including consideration of signal coordination strategies and wider network improvements) to confirm the exact scope of, and timing for, the potential improvements.

5.5 Overall, however, if both sets of improvements are implemented as suggested, this modelling suggests that both intersections should operate with a high level of service, even at peak times, well into the future: The analysis confirms that they should accommodate full Site development (and assumed future background growth to 2038), with a similar (or better) level of service than the existing intersections provide (under present-day demands).

Appendix A. SIDRA Analyses - Movement Tables

Note that the demands shown in these tables (effectively) represent input average hourly demands x 1.053, this being equivalent to adoption of a ‘standard’ SIDRA assumption of a 30 minute peak flow analysis period.

This page is deliberately blank for printing

MOVEMENT SUMMARY

Site: 1 [A1. Main South/Pound (2024 Observed AM 0730-0830) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	461	11.9	461	11.9	0.309	9.7	LOS A	4.9	37.6	0.61	0.52	0.61	44.3
6	R2	All MCs	141	31.3	141	31.3	* 0.697	35.3	LOS D	4.4	39.5	1.00	0.89	1.19	29.4
Approach			602	16.4	602	16.4	0.697	15.7	LOS B	4.9	39.5	0.70	0.60	0.75	40.6
North: Pound Road															
1	L2	All MCs	132	31.2	132	31.2	0.162	12.7	LOS B	2.0	17.6	0.54	0.68	0.54	39.1
2	R2	All MCs	395	17.1	395	17.1	* 0.795	30.4	LOS C	12.3	98.4	0.98	0.95	1.17	31.3
Approach			526	20.6	526	20.6	0.795	26.0	LOS C	12.3	98.4	0.87	0.89	1.02	32.9
West: Main South West															
3	L2	All MCs	574	9.4	574	9.4	0.494	10.0	LOS B	8.4	63.4	0.53	0.72	0.53	40.8
4	T1	All MCs	661	4.3	661	4.3	* 0.754	23.3	LOS C	11.3	82.2	0.95	0.85	1.02	38.0
Approach			1235	6.6	1235	6.6	0.754	17.1	LOS B	11.3	82.2	0.76	0.79	0.80	39.0
All Vehicles			2363	12.2	2363	12.2	0.795	18.7	LOS B	12.3	98.4	0.77	0.77	0.83	38.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:50:29 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model \SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 1 [A2a. Main South/Pound (2028 CAST AM No Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	459	13.7	459	13.7	0.322	10.3	LOS B	5.0	39.4	0.63	0.53	0.63	44.0
6	R2	All MCs	135	25.2	135	25.2	* 0.735	36.8	LOS D	4.4	37.2	1.00	0.93	1.27	29.0
Approach			594	16.3	594	16.3	0.735	16.4	LOS B	5.0	39.4	0.72	0.62	0.78	40.3
North: Pound Road															
1	L2	All MCs	155	21.3	155	21.3	0.180	12.7	LOS B	2.4	19.5	0.55	0.69	0.55	39.2
2	R2	All MCs	403	13.6	403	13.6	* 0.752	27.6	LOS C	11.8	92.0	0.96	0.91	1.08	32.3
Approach			558	15.8	558	15.8	0.752	23.5	LOS C	11.8	92.0	0.84	0.85	0.93	33.9
West: Main South West															
3	L2	All MCs	574	8.0	574	8.0	0.478	9.5	LOS A	7.9	59.3	0.51	0.71	0.51	41.2
4	T1	All MCs	658	6.1	658	6.1	* 0.759	23.5	LOS C	11.4	83.6	0.95	0.86	1.03	37.9
Approach			1232	7.0	1232	7.0	0.759	17.0	LOS B	11.4	83.6	0.74	0.79	0.79	39.1
All Vehicles			2384	11.4	2384	11.4	0.759	18.3	LOS B	11.8	92.0	0.76	0.76	0.82	38.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:50:30 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model \SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 1 [A2b. Main South/Pound (2028 CAST AM With 9% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	459	13.7	459	13.7	0.311	9.7	LOS A	4.9	38.1	0.61	0.52	0.61	44.3
6	R2	All MCs	158	23.4	158	23.4	* 0.745	36.1	LOS D	5.1	42.7	1.00	0.94	1.26	29.2
Approach			617	16.2	617	16.2	0.745	16.5	LOS B	5.1	42.7	0.71	0.62	0.78	40.1
North: Pound Road															
1	L2	All MCs	169	21.9	169	21.9	0.197	12.8	LOS B	2.6	21.6	0.55	0.69	0.55	39.1
2	R2	All MCs	411	13.6	411	13.6	* 0.809	31.2	LOS C	13.0	102.0	0.98	0.97	1.21	31.0
Approach			580	16.0	580	16.0	0.809	25.8	LOS C	13.0	102.0	0.86	0.89	1.02	33.0
West: Main South West															
3	L2	All MCs	575	8.0	575	8.0	0.491	10.0	LOS A	8.4	62.7	0.53	0.72	0.53	40.8
4	T1	All MCs	658	6.1	658	6.1	* 0.759	23.5	LOS C	11.4	83.6	0.95	0.86	1.03	37.9
Approach			1233	7.0	1233	7.0	0.759	17.2	LOS B	11.4	83.6	0.76	0.80	0.80	39.0
All Vehicles			2430	11.5	2430	11.5	0.809	19.1	LOS B	13.0	102.0	0.77	0.78	0.85	37.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:50:31 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model \SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 1 [A3. Main South/Pound (2029 CAST AM With 18% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	459	14.4	459	14.4	0.323	10.4	LOS B	5.0	39.6	0.63	0.53	0.63	44.0
6	R2	All MCs	159	22.0	159	22.0	* 0.743	36.0	LOS D	5.1	42.5	1.00	0.94	1.26	29.2
Approach			618	16.3	618	16.3	0.743	17.0	LOS B	5.1	42.5	0.73	0.64	0.79	39.9
North: Pound Road															
1	L2	All MCs	175	20.0	175	20.0	0.196	12.3	LOS B	2.6	21.3	0.53	0.69	0.53	39.4
2	R2	All MCs	420	12.6	420	12.6	* 0.778	28.7	LOS C	12.7	98.3	0.97	0.94	1.13	31.9
Approach			595	14.8	595	14.8	0.778	23.9	LOS C	12.7	98.3	0.84	0.86	0.96	33.8
West: Main South West															
3	L2	All MCs	576	7.6	576	7.6	0.491	10.0	LOS A	8.4	62.6	0.53	0.72	0.53	40.8
4	T1	All MCs	658	6.5	658	6.5	* 0.812	25.7	LOS C	12.1	89.8	0.97	0.91	1.11	37.0
Approach			1234	7.1	1234	7.1	0.812	18.4	LOS B	12.1	89.8	0.77	0.82	0.84	38.4
All Vehicles			2447	11.3	2447	11.3	0.812	19.4	LOS B	12.7	98.3	0.77	0.79	0.86	37.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:50:33 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model \SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 1 [A4. Main South/Pound (2030 CAST AM With 27% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	458	14.8	458	14.8	0.312	9.7	LOS A	4.9	38.3	0.61	0.52	0.61	44.3
6	R2	All MCs	202	18.8	202	18.8	* 0.822	38.0	LOS D	6.8	55.4	1.00	1.04	1.41	28.6
Approach			660	16.1	660	16.1	0.822	18.4	LOS B	6.8	55.4	0.73	0.68	0.86	39.1
North: Pound Road															
1	L2	All MCs	207	19.8	207	19.8	0.231	12.4	LOS B	3.1	25.8	0.55	0.70	0.55	39.3
2	R2	All MCs	430	11.9	430	11.9	* 0.837	33.1	LOS C	14.3	109.9	1.00	1.01	1.29	30.3
Approach			637	14.4	637	14.4	0.837	26.4	LOS C	14.3	109.9	0.85	0.91	1.05	32.8
West: Main South West															
3	L2	All MCs	579	7.4	579	7.4	0.505	10.5	LOS B	8.9	66.1	0.56	0.73	0.56	40.5
4	T1	All MCs	656	6.9	656	6.9	* 0.811	25.7	LOS C	12.1	89.7	0.97	0.91	1.11	37.0
Approach			1235	7.1	1235	7.1	0.811	18.6	LOS B	12.1	89.7	0.78	0.83	0.85	38.3
All Vehicles			2532	11.3	2532	11.3	0.837	20.5	LOS C	14.3	109.9	0.78	0.81	0.90	37.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:50:34 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 1 [A5. Main South/Pound (2031 CAST AM With 36% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	458	15.3	458	15.3	0.313	9.8	LOS A	4.9	38.5	0.61	0.52	0.61	44.3
6	R2	All MCs	224	17.4	224	17.4	* 0.814	36.8	LOS D	7.4	59.9	1.00	1.02	1.36	29.0
Approach			682	16.0	682	16.0	0.814	18.6	LOS B	7.4	59.9	0.74	0.68	0.86	38.9
North: Pound Road															
1	L2	All MCs	227	18.9	227	18.9	0.245	12.0	LOS B	3.4	27.4	0.53	0.70	0.53	39.6
2	R2	All MCs	439	10.9	439	10.9	* 0.849	34.1	LOS C	14.9	113.9	1.00	1.03	1.32	30.0
Approach			666	13.7	666	13.7	0.849	26.5	LOS C	14.9	113.9	0.84	0.92	1.05	32.7
West: Main South West															
3	L2	All MCs	580	7.1	580	7.1	0.518	11.1	LOS B	9.3	69.2	0.59	0.74	0.59	40.1
4	T1	All MCs	656	7.3	656	7.3	* 0.871	29.4	LOS C	13.3	99.3	0.98	1.00	1.24	35.7
Approach			1236	7.2	1236	7.2	0.871	20.8	LOS C	13.3	99.3	0.80	0.88	0.93	37.3
All Vehicles			2584	11.2	2584	11.2	0.871	21.7	LOS C	14.9	113.9	0.79	0.84	0.94	36.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:50:36 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 1 [A6. Main South/Pound (2032 CAST AM With 45% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	457	15.8	457	15.8	0.313	9.8	LOS A	4.9	38.6	0.61	0.52	0.61	44.3
6	R2	All MCs	246	15.9	246	15.9	* 0.885	42.1	LOS D	9.0	71.5	1.00	1.16	1.61	27.4
Approach			703	15.8	703	15.8	0.885	21.1	LOS C	9.0	71.5	0.75	0.74	0.96	37.7
North: Pound Road															
1	L2	All MCs	246	18.3	246	18.3	0.264	12.1	LOS B	3.7	29.9	0.54	0.70	0.54	39.6
2	R2	All MCs	449	10.2	449	10.2	* 0.865	35.6	LOS D	15.7	119.5	1.00	1.06	1.37	29.5
Approach			695	13.1	695	13.1	0.865	27.3	LOS C	15.7	119.5	0.84	0.93	1.07	32.4
West: Main South West															
3	L2	All MCs	581	6.7	581	6.7	0.518	11.1	LOS B	9.3	69.1	0.59	0.74	0.59	40.2
4	T1	All MCs	655	7.8	655	7.8	* 0.873	29.5	LOS C	13.4	99.8	0.98	1.01	1.24	35.7
Approach			1236	7.3	1236	7.3	0.873	20.9	LOS C	13.4	99.8	0.80	0.88	0.94	37.3
All Vehicles			2634	11.1	2634	11.1	0.885	22.6	LOS C	15.7	119.5	0.79	0.86	0.98	36.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:50:37 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 1 [A7. Main South/Pound (2033 AM No Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	456	16.2	456	16.2	0.324	10.4	LOS B	5.0	40.0	0.63	0.53	0.63	43.9
6	R2	All MCs	127	16.5	127	16.5	* 0.764	38.1	LOS D	4.2	33.5	1.00	0.95	1.34	28.6
Approach			583	16.3	583	16.3	0.764	16.4	LOS B	5.0	40.0	0.71	0.62	0.79	40.3
North: Pound Road															
1	L2	All MCs	184	12.0	184	12.0	0.208	13.3	LOS B	2.9	22.7	0.57	0.70	0.57	38.9
2	R2	All MCs	414	9.7	414	9.7	* 0.752	27.5	LOS C	12.1	91.4	0.96	0.91	1.08	32.4
Approach			598	10.4	598	10.4	0.752	23.1	LOS C	12.1	91.4	0.84	0.85	0.92	34.1
West: Main South West															
3	L2	All MCs	576	6.4	576	6.4	0.463	8.9	LOS A	7.5	55.4	0.48	0.70	0.48	41.5
4	T1	All MCs	655	8.2	655	8.2	* 0.721	22.0	LOS C	10.8	80.9	0.93	0.83	0.98	38.5
Approach			1231	7.4	1231	7.4	0.721	15.9	LOS B	10.8	80.9	0.72	0.77	0.75	39.6
All Vehicles			2412	10.3	2412	10.3	0.764	17.8	LOS B	12.1	91.4	0.75	0.75	0.80	38.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:50:39 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model \SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 1 [A8. Main South/Pound (2033 CAST AM With 55% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	456	16.2	456	16.2	0.313	9.8	LOS A	4.8	38.6	0.61	0.52	0.61	44.3
6	R2	All MCs	246	15.9	246	15.9	* 0.885	42.1	LOS D	9.0	71.5	1.00	1.16	1.61	27.4
Approach			702	16.1	702	16.1	0.885	21.1	LOS C	9.0	71.5	0.75	0.74	0.96	37.7
North: Pound Road															
1	L2	All MCs	246	18.3	246	18.3	0.264	12.1	LOS B	3.7	29.9	0.54	0.70	0.54	39.6
2	R2	All MCs	461	10.0	461	10.0	* 0.886	38.4	LOS D	17.0	128.8	1.00	1.11	1.44	28.6
Approach			707	12.9	707	12.9	0.886	29.2	LOS C	17.0	128.8	0.84	0.97	1.13	31.7
West: Main South West															
3	L2	All MCs	583	6.3	583	6.3	0.518	11.1	LOS B	9.4	69.1	0.59	0.74	0.59	40.2
4	T1	All MCs	655	8.2	655	8.2	* 0.875	29.7	LOS C	13.4	100.7	0.98	1.01	1.25	35.6
Approach			1238	7.4	1238	7.4	0.875	21.0	LOS C	13.4	100.7	0.80	0.88	0.94	37.3
All Vehicles			2647	11.1	2647	11.1	0.886	23.2	LOS C	17.0	128.8	0.80	0.87	1.00	35.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:50:40 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 1 [A9. Main South/Pound (2034 CAST AM With 64% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	456	16.7	456	16.7	0.304	9.2	LOS A	4.7	37.4	0.59	0.50	0.59	44.6
6	R2	All MCs	290	13.8	290	13.8	* 0.935	50.9	LOS D	12.1	95.0	1.00	1.32	1.89	25.2
Approach			746	15.5	746	15.5	0.935	25.4	LOS C	12.1	95.0	0.75	0.82	1.10	35.8
North: Pound Road															
1	L2	All MCs	286	17.5	286	17.5	0.306	12.3	LOS B	4.4	35.6	0.56	0.71	0.56	39.5
2	R2	All MCs	467	8.6	467	8.6	* 0.942	51.5	LOS D	20.7	155.3	1.00	1.30	1.78	25.1
Approach			753	12.0	753	12.0	0.942	36.6	LOS D	20.7	155.3	0.83	1.08	1.32	29.1
West: Main South West															
3	L2	All MCs	584	6.0	584	6.0	0.532	11.7	LOS B	9.8	72.3	0.61	0.75	0.61	39.8
4	T1	All MCs	654	8.7	654	8.7	* 0.876	29.9	LOS C	13.5	101.2	0.98	1.01	1.26	35.6
Approach			1238	7.4	1238	7.4	0.876	21.3	LOS C	13.5	101.2	0.81	0.89	0.95	37.1
All Vehicles			2737	10.9	2737	10.9	0.942	26.6	LOS C	20.7	155.3	0.80	0.92	1.09	34.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:50:42 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 1 [A10. Main South/Pound (2035 CAST AM With 73% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	456	17.3	456	17.3	0.305	9.2	LOS A	4.7	37.7	0.59	0.50	0.59	44.6
6	R2	All MCs	312	13.1	312	13.1	* 0.919	46.6	LOS D	12.4	96.8	1.00	1.24	1.74	26.2
Approach			768	15.6	768	15.6	0.919	24.4	LOS C	12.4	96.8	0.76	0.80	1.06	36.2
North: Pound Road															
1	L2	All MCs	305	17.0	305	17.0	0.316	11.8	LOS B	4.6	36.9	0.54	0.71	0.54	39.7
2	R2	All MCs	477	8.0	477	8.0	* 0.958	58.2	LOS E	22.8	170.6	1.00	1.38	1.92	23.6
Approach			782	11.5	782	11.5	0.958	40.1	LOS D	22.8	170.6	0.82	1.12	1.38	28.0
West: Main South West															
3	L2	All MCs	585	5.6	585	5.6	0.546	12.4	LOS B	10.3	75.4	0.64	0.76	0.64	39.4
4	T1	All MCs	654	9.2	654	9.2	* 0.946	39.1	LOS D	16.5	124.8	0.99	1.20	1.54	32.7
Approach			1239	7.5	1239	7.5	0.946	26.5	LOS C	16.5	124.8	0.82	0.99	1.12	35.0
All Vehicles			2789	10.9	2789	10.9	0.958	29.7	LOS C	22.8	170.6	0.81	0.97	1.18	33.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:50:43 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 1 [A11. Main South/Pound (2036 CAST AM With 82% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	455	17.8	455	17.8	0.305	9.2	LOS A	4.7	37.7	0.59	0.50	0.59	44.6
6	R2	All MCs	334	12.6	334	12.6	* 0.980	71.1	LOS E	17.4	135.3	1.00	1.54	2.30	21.2
Approach			789	15.6	789	15.6	0.980	35.4	LOS D	17.4	135.3	0.77	0.94	1.32	32.2
North: Pound Road															
1	L2	All MCs	324	16.7	324	16.7	0.335	11.9	LOS B	4.9	39.6	0.55	0.71	0.55	39.7
2	R2	All MCs	486	7.2	486	7.2	* 0.971	65.2	LOS E	24.9	185.4	1.00	1.45	2.05	22.2
Approach			810	11.0	810	11.0	0.971	43.9	LOS D	24.9	185.4	0.82	1.16	1.45	27.0
West: Main South West															
3	L2	All MCs	587	5.5	587	5.5	0.547	12.4	LOS B	10.3	75.6	0.64	0.76	0.64	39.4
4	T1	All MCs	652	9.5	652	9.5	* 0.945	39.0	LOS D	16.4	124.3	0.99	1.19	1.54	32.7
Approach			1239	7.6	1239	7.6	0.945	26.4	LOS C	16.4	124.3	0.82	0.99	1.11	35.1
All Vehicles			2838	10.8	2838	10.8	0.980	33.9	LOS C	24.9	185.4	0.81	1.02	1.27	31.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:50:45 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 1 [A12. Main South/Pound (2037 CAST AM With 91% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 70 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	455	18.2	455	18.2	0.308	10.8	LOS B	5.5	44.1	0.60	0.51	0.60	43.8
6	R2	All MCs	356	11.8	356	11.8	*0.970	70.6	LOS E	19.8	152.5	1.00	1.40	2.02	21.2
Approach			811	15.4	811	15.4	0.970	37.0	LOS D	19.8	152.5	0.77	0.90	1.22	31.6
North: Pound Road															
1	L2	All MCs	344	16.3	344	16.3	0.337	14.7	LOS B	5.7	45.6	0.52	0.70	0.52	39.7
2	R2	All MCs	496	6.7	496	6.7	*0.997	95.1	LOS F	33.7	249.3	1.00	1.55	2.22	18.2
Approach			840	10.6	840	10.6	0.997	62.2	LOS E	33.7	249.3	0.80	1.21	1.52	22.8
West: Main South West															
3	L2	All MCs	588	5.1	588	5.1	0.534	13.0	LOS B	11.5	84.3	0.62	0.75	0.62	39.1
4	T1	All MCs	652	10.0	652	10.0	*0.959	47.0	LOS D	19.6	149.1	0.99	1.22	1.54	30.5
Approach			1240	7.7	1240	7.7	0.959	30.9	LOS C	19.6	149.1	0.81	1.00	1.10	33.4
All Vehicles			2891	10.7	2891	10.7	0.997	41.7	LOS D	33.7	249.3	0.80	1.03	1.26	29.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:50:46 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 1 [A13. Main South/Pound (2038 CAST AM No Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	478	18.7	478	18.7	0.345	10.6	LOS B	5.3	43.2	0.64	0.54	0.64	43.9
6	R2	All MCs	125	6.7	125	6.7	* 0.707	36.7	LOS D	4.0	29.7	1.00	0.89	1.21	29.1
Approach			603	16.2	603	16.2	0.707	16.0	LOS B	5.3	43.2	0.72	0.61	0.76	40.6
North: Pound Road															
1	L2	All MCs	224	5.6	224	5.6	0.243	13.4	LOS B	3.7	26.8	0.59	0.71	0.59	38.9
2	R2	All MCs	447	5.9	447	5.9	* 0.793	29.1	LOS C	13.6	100.3	0.97	0.94	1.14	31.8
Approach			672	5.8	672	5.8	0.793	23.9	LOS C	13.6	100.3	0.84	0.87	0.96	33.8
West: Main South West															
3	L2	All MCs	606	4.7	606	4.7	0.482	9.0	LOS A	8.1	58.6	0.49	0.71	0.49	41.5
4	T1	All MCs	685	10.4	685	10.4	* 0.764	23.0	LOS C	11.8	90.0	0.94	0.86	1.03	38.1
Approach			1292	7.7	1292	7.7	0.764	16.4	LOS B	11.8	90.0	0.73	0.79	0.77	39.4
All Vehicles			2566	9.2	2566	9.2	0.793	18.3	LOS B	13.6	100.3	0.76	0.77	0.82	38.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:50:48 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 1 [A14. Main South/Pound (2038 CAST AM With Dev (100%) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	454	18.7	454	18.7	0.309	12.3	LOS B	6.2	50.5	0.60	0.51	0.60	43.0
6	R2	All MCs	378	11.4	378	11.4	* 0.978	81.3	LOS F	24.2	186.3	1.00	1.39	1.96	19.6
Approach			832	15.4	832	15.4	0.978	43.6	LOS D	24.2	186.3	0.78	0.91	1.22	29.6
North: Pound Road															
1	L2	All MCs	363	16.0	363	16.0	0.342	17.7	LOS B	6.5	52.0	0.50	0.70	0.50	39.6
2	R2	All MCs	505	5.9	505	5.9	* 1.011	118.7	LOS F	40.7	299.2	1.00	1.59	2.25	15.9
Approach			868	10.1	868	10.1	1.011	76.5	LOS E	40.7	299.2	0.79	1.22	1.51	20.3
West: Main South West															
3	L2	All MCs	590	4.7	590	4.7	0.526	13.6	LOS B	12.8	93.3	0.60	0.75	0.60	38.7
4	T1	All MCs	651	10.4	651	10.4	* 0.968	54.7	LOS D	22.6	172.7	0.99	1.23	1.53	28.7
Approach			1241	7.7	1241	7.7	0.968	35.2	LOS D	22.6	172.7	0.81	1.00	1.09	32.0
All Vehicles			2941	10.6	2941	10.6	1.011	49.7	LOS D	40.7	299.2	0.79	1.04	1.25	27.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:50:49 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 1 [A15. Main South/Pound (2038 CAST AM with 100% Dev - Improved) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	454	18.7	454	18.7	0.261	6.3	LOS A	3.8	30.8	0.49	0.42	0.49	46.2
6	R2	All MCs	378	11.4	378	11.4	* 0.825	33.3	LOS C	12.4	95.2	1.00	1.00	1.28	30.3
Approach			832	15.4	832	15.4	0.825	18.6	LOS B	12.4	95.2	0.72	0.68	0.85	38.5
North: Pound Road															
1	L2	All MCs	363	16.0	363	16.0	0.384	12.7	LOS B	5.9	47.3	0.59	0.73	0.59	39.2
2	R2	All MCs	505	5.9	505	5.9	* 0.847	34.2	LOS C	10.3	75.7	0.98	0.95	1.21	30.1
Approach			868	10.1	868	10.1	0.847	25.2	LOS C	10.3	75.7	0.82	0.86	0.95	33.3
West: Main South West															
3	L2	All MCs	590	4.7	590	4.7	0.616	15.2	LOS B	12.2	88.5	0.75	0.80	0.75	37.8
4	T1	All MCs	651	10.4	651	10.4	* 0.873	29.9	LOS C	13.2	100.5	0.98	1.01	1.25	35.7
Approach			1241	7.7	1241	7.7	0.873	22.9	LOS C	13.2	100.5	0.87	0.91	1.01	36.5
All Vehicles			2941	10.6	2941	10.6	0.873	22.3	LOS C	13.2	100.5	0.81	0.83	0.95	36.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:50:51 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 1 [A16. Main South/Pound (2024 Observed PM 1630-1730) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 70 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	821	5.9	821	5.9	0.687	19.9	LOS B	14.5	106.6	0.85	0.74	0.86	39.8
6	R2	All MCs	155	27.2	155	27.2	* 0.870	47.6	LOS D	6.3	54.7	1.00	1.08	1.52	25.9
Approach			976	9.3	976	9.3	0.870	24.3	LOS C	14.5	106.6	0.88	0.80	0.96	37.3
North: Pound Road															
1	L2	All MCs	94	15.7	94	15.7	0.087	15.0	LOS B	1.2	9.5	0.40	0.64	0.40	40.9
2	R2	All MCs	659	7.0	659	7.0	* 0.883	40.7	LOS D	26.2	194.6	0.98	1.02	1.25	29.6
Approach			753	8.1	753	8.1	0.883	37.5	LOS D	26.2	194.6	0.91	0.97	1.14	28.9
West: Main South West															
3	L2	All MCs	438	12.5	438	12.5	0.360	8.8	LOS A	5.7	44.4	0.41	0.67	0.41	41.6
4	T1	All MCs	507	9.5	507	9.5	* 0.859	34.7	LOS C	11.5	87.4	0.99	0.97	1.20	33.9
Approach			945	10.9	945	10.9	0.859	22.7	LOS C	11.5	87.4	0.72	0.83	0.84	36.5
All Vehicles			2674	9.5	2674	9.5	0.883	27.4	LOS C	26.2	194.6	0.83	0.86	0.97	34.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:50:53 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 1 [A17a. Main South/Pound (2028 CAST PM No Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	833	4.9	833	4.9	0.697	17.7	LOS B	13.0	94.9	0.86	0.76	0.88	40.7
6	R2	All MCs	142	22.5	142	22.5	* 0.887	44.3	LOS D	5.2	43.4	1.00	1.16	1.78	26.8
Approach			975	7.5	975	7.5	0.887	21.5	LOS C	13.0	94.9	0.88	0.82	1.01	38.5
North: Pound Road															
1	L2	All MCs	90	12.2	90	12.2	0.085	12.2	LOS B	1.1	8.2	0.43	0.64	0.43	41.0
2	R2	All MCs	635	6.5	635	6.5	* 0.881	36.4	LOS D	22.8	168.1	0.99	1.06	1.33	30.1
Approach			725	7.2	725	7.2	0.881	33.4	LOS C	22.8	168.1	0.92	1.01	1.22	30.3
West: Main South West															
3	L2	All MCs	459	9.4	459	9.4	0.377	8.6	LOS A	5.5	41.5	0.44	0.68	0.44	41.7
4	T1	All MCs	500	9.8	500	9.8	* 0.858	30.7	LOS C	10.0	75.8	0.99	0.99	1.27	35.3
Approach			959	9.6	959	9.6	0.858	20.1	LOS C	10.0	75.8	0.72	0.84	0.87	37.6
All Vehicles			2659	8.2	2659	8.2	0.887	24.3	LOS C	22.8	168.1	0.83	0.88	1.02	35.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:50:54 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 1 [A17b. Main South/Pound (2028 CAST PM With 9% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 70 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	833	4.9	833	4.9	0.693	19.9	LOS B	14.8	107.9	0.86	0.75	0.86	39.7
6	R2	All MCs	154	22.1	154	22.1	* 0.840	45.5	LOS D	6.1	50.9	1.00	1.06	1.47	26.5
Approach			987	7.6	987	7.6	0.840	23.9	LOS C	14.8	107.9	0.88	0.80	0.96	37.5
North: Pound Road															
1	L2	All MCs	105	12.4	105	12.4	0.096	14.6	LOS B	1.4	10.5	0.40	0.64	0.40	40.9
2	R2	All MCs	650	6.6	650	6.6	* 0.871	39.3	LOS D	25.5	188.6	0.98	1.02	1.23	29.9
Approach			755	7.4	755	7.4	0.871	35.8	LOS D	25.5	188.6	0.90	0.96	1.12	29.4
West: Main South West															
3	L2	All MCs	459	9.4	459	9.4	0.369	8.8	LOS A	6.1	45.8	0.42	0.68	0.42	41.6
4	T1	All MCs	500	9.8	500	9.8	* 0.847	34.3	LOS C	11.3	85.5	0.99	0.96	1.20	34.1
Approach			959	9.6	959	9.6	0.847	22.1	LOS C	11.3	85.5	0.71	0.83	0.83	36.7
All Vehicles			2701	8.3	2701	8.3	0.871	26.6	LOS C	25.5	188.6	0.82	0.85	0.95	35.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:50:56 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 1 [A18. Main South/Pound (2029 CAST PM With 18% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 70 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	836	4.7	836	4.7	0.694	20.0	LOS B	14.9	108.2	0.86	0.75	0.86	39.7
6	R2	All MCs	164	21.3	164	21.3	* 0.890	49.6	LOS D	6.9	57.2	1.00	1.16	1.67	25.5
Approach			1000	7.4	1000	7.4	0.890	24.8	LOS C	14.9	108.2	0.88	0.82	1.00	37.1
North: Pound Road															
1	L2	All MCs	118	11.9	118	11.9	0.107	15.0	LOS B	1.5	11.8	0.40	0.64	0.40	40.9
2	R2	All MCs	658	6.5	658	6.5	* 0.889	42.7	LOS D	27.3	201.8	0.99	1.05	1.30	28.9
Approach			776	7.3	776	7.3	0.889	38.5	LOS D	27.3	201.8	0.90	0.99	1.16	28.6
West: Main South West															
3	L2	All MCs	465	8.6	465	8.6	0.372	8.8	LOS A	6.1	46.2	0.42	0.68	0.42	41.6
4	T1	All MCs	499	9.8	499	9.8	* 0.846	34.2	LOS C	11.2	85.2	0.99	0.96	1.20	34.1
Approach			964	9.2	964	9.2	0.846	22.0	LOS C	11.2	85.2	0.71	0.82	0.82	36.8
All Vehicles			2740	8.0	2740	8.0	0.890	27.7	LOS C	27.3	201.8	0.83	0.87	0.98	34.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:50:57 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 1 [A19. Main South/Pound (2030 CAST PM With 27% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 70 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	840	4.5	840	4.5	0.697	20.0	LOS C	15.0	108.9	0.86	0.75	0.86	39.7
6	R2	All MCs	174	20.1	174	20.1	* 0.833	44.4	LOS D	6.8	56.2	1.00	1.04	1.42	26.8
Approach			1014	7.2	1014	7.2	0.833	24.2	LOS C	15.0	108.9	0.88	0.80	0.96	37.3
North: Pound Road															
1	L2	All MCs	132	11.4	132	11.4	0.117	14.9	LOS B	1.7	12.7	0.39	0.64	0.39	41.2
2	R2	All MCs	666	6.5	666	6.5	* 0.909	47.4	LOS D	29.7	219.1	1.00	1.10	1.39	27.6
Approach			798	7.3	798	7.3	0.909	42.1	LOS D	29.7	219.1	0.90	1.02	1.22	27.6
West: Main South West															
3	L2	All MCs	470	7.9	470	7.9	0.382	9.2	LOS A	6.5	48.9	0.44	0.68	0.44	41.3
4	T1	All MCs	497	9.9	497	9.9	* 0.913	39.8	LOS D	12.6	95.5	0.99	1.08	1.39	32.4
Approach			967	8.9	967	8.9	0.913	24.9	LOS C	12.6	95.5	0.72	0.89	0.93	35.5
All Vehicles			2779	7.8	2779	7.8	0.913	29.6	LOS C	29.7	219.1	0.83	0.89	1.03	33.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:50:59 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 1 [A20. Main South/Pound (2031 CAST PM With 36% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	843	4.3	843	4.3	0.719	23.6	LOS C	17.5	126.9	0.87	0.77	0.88	38.2
6	R2	All MCs	183	19.1	183	19.1	* 0.896	55.2	LOS E	8.7	71.3	1.00	1.15	1.61	24.2
Approach			1026	6.9	1026	6.9	0.896	29.3	LOS C	17.5	126.9	0.90	0.84	1.01	35.4
North: Pound Road															
1	L2	All MCs	145	10.3	145	10.3	0.124	16.4	LOS B	2.0	15.1	0.38	0.64	0.38	41.1
2	R2	All MCs	675	6.4	675	6.4	* 0.875	43.3	LOS D	29.6	218.6	0.97	1.00	1.19	29.3
Approach			820	7.1	820	7.1	0.875	38.5	LOS D	29.6	218.6	0.86	0.94	1.05	28.6
West: Main South West															
3	L2	All MCs	475	7.2	475	7.2	0.371	9.0	LOS A	6.9	51.3	0.40	0.67	0.40	41.5
4	T1	All MCs	495	9.9	495	9.9	* 0.891	42.0	LOS D	13.4	101.9	0.99	1.02	1.28	31.8
Approach			970	8.6	970	8.6	0.891	25.9	LOS C	13.4	101.9	0.70	0.85	0.85	35.2
All Vehicles			2816	7.5	2816	7.5	0.896	30.8	LOS C	29.6	218.6	0.82	0.87	0.97	33.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:51:00 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 1 [A21. Main South/Pound (2032 CAST PM With 45% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	846	4.0	846	4.0	0.696	22.4	LOS C	17.0	122.8	0.86	0.75	0.86	38.7
6	R2	All MCs	194	18.6	194	18.6	* 0.860	50.7	LOS D	8.8	71.6	1.00	1.06	1.44	25.2
Approach			1040	6.7	1040	6.7	0.860	27.6	LOS C	17.0	122.8	0.88	0.81	0.97	35.9
North: Pound Road															
1	L2	All MCs	158	10.1	158	10.1	0.135	17.5	LOS B	2.2	16.6	0.38	0.64	0.38	41.1
2	R2	All MCs	683	6.3	683	6.3	* 0.923	56.4	LOS E	35.5	262.2	1.00	1.11	1.39	25.9
Approach			841	7.0	841	7.0	0.923	49.1	LOS D	35.5	262.2	0.88	1.02	1.20	25.7
West: Main South West															
3	L2	All MCs	481	6.4	481	6.4	0.380	9.5	LOS A	7.3	54.2	0.42	0.68	0.42	41.2
4	T1	All MCs	493	9.9	493	9.9	* 0.887	41.7	LOS D	13.3	100.9	0.99	1.02	1.27	31.9
Approach			974	8.2	974	8.2	0.887	25.8	LOS C	13.3	100.9	0.71	0.85	0.85	35.2
All Vehicles			2855	7.3	2855	7.3	0.923	33.3	LOS C	35.5	262.2	0.82	0.88	1.00	32.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:51:02 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 1 [A22. Main South/Pound (2033 CAST PM No Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	849	3.8	849	3.8	0.705	17.7	LOS B	13.4	96.7	0.86	0.76	0.88	40.6
6	R2	All MCs	124	14.5	124	14.5	* 0.737	37.5	LOS D	4.0	31.8	1.00	0.92	1.28	28.8
Approach			973	5.1	973	5.1	0.737	20.2	LOS C	13.4	96.7	0.88	0.78	0.93	39.1
North: Pound Road															
1	L2	All MCs	87	8.0	87	8.0	0.080	11.0	LOS B	1.0	7.6	0.42	0.64	0.42	41.1
2	R2	All MCs	606	5.8	606	5.8	* 0.827	29.0	LOS C	18.9	138.6	0.95	0.97	1.15	32.4
Approach			693	6.1	693	6.1	0.827	26.7	LOS C	18.9	138.6	0.89	0.93	1.06	32.7
West: Main South West															
3	L2	All MCs	485	5.8	485	5.8	0.388	8.6	LOS A	5.9	43.0	0.44	0.68	0.44	41.7
4	T1	All MCs	491	10.0	491	10.0	* 0.844	30.0	LOS C	9.6	73.1	0.99	0.97	1.23	35.5
Approach			976	7.9	976	7.9	0.844	19.4	LOS B	9.6	73.1	0.72	0.83	0.84	37.9
All Vehicles			2642	6.4	2642	6.4	0.844	21.6	LOS C	18.9	138.6	0.82	0.84	0.93	37.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:51:04 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 1 [A23. Main South/Pound (2033 CAST PM With 55% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	849	3.8	849	3.8	0.698	22.4	LOS C	17.0	123.0	0.86	0.75	0.86	38.7
6	R2	All MCs	203	17.7	203	17.7	* 0.895	54.5	LOS D	9.7	78.2	1.00	1.14	1.58	24.3
Approach			1052	6.5	1052	6.5	0.895	28.6	LOS C	17.0	123.0	0.88	0.82	1.00	35.6
North: Pound Road															
1	L2	All MCs	172	9.9	172	9.9	0.147	17.9	LOS B	2.4	18.2	0.38	0.64	0.38	41.0
2	R2	All MCs	691	6.2	691	6.2	* 0.944	65.2	LOS E	39.5	291.4	1.00	1.19	1.51	23.9
Approach			863	7.0	863	7.0	0.944	55.8	LOS E	39.5	291.4	0.88	1.08	1.28	24.2
West: Main South West															
3	L2	All MCs	486	5.8	486	5.8	0.382	9.5	LOS A	7.4	54.5	0.42	0.68	0.42	41.2
4	T1	All MCs	491	10.0	491	10.0	* 0.884	41.4	LOS D	13.2	100.0	0.99	1.01	1.26	31.9
Approach			977	7.9	977	7.9	0.884	25.5	LOS C	13.2	100.0	0.71	0.85	0.85	35.3
All Vehicles			2892	7.1	2892	7.1	0.944	35.7	LOS D	39.5	291.4	0.82	0.91	1.03	31.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:51:05 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 1 [A24. Main South/Pound (2034 CAST PM With 64% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	851	3.5	851	3.5	0.723	23.8	LOS C	17.7	127.8	0.87	0.77	0.89	38.2
6	R2	All MCs	213	16.9	213	16.9	* 0.935	62.5	LOS E	11.1	89.0	1.00	1.25	1.79	22.7
Approach			1064	6.2	1064	6.2	0.935	31.6	LOS C	17.7	127.8	0.90	0.87	1.07	34.5
North: Pound Road															
1	L2	All MCs	185	9.7	185	9.7	0.155	17.2	LOS B	2.5	18.9	0.37	0.64	0.37	41.3
2	R2	All MCs	699	6.2	699	6.2	* 0.936	61.3	LOS E	38.7	284.9	1.00	1.15	1.46	24.7
Approach			884	6.9	884	6.9	0.936	52.1	LOS D	38.7	284.9	0.87	1.05	1.23	25.0
West: Main South West															
3	L2	All MCs	492	5.1	492	5.1	0.385	9.5	LOS A	7.5	55.1	0.43	0.68	0.43	41.2
4	T1	All MCs	490	10.2	490	10.2	* 0.951	51.3	LOS D	15.5	118.4	1.00	1.16	1.51	29.4
Approach			982	7.6	982	7.6	0.951	30.3	LOS C	15.5	118.4	0.71	0.92	0.97	33.5
All Vehicles			2930	6.9	2930	6.9	0.951	37.3	LOS D	38.7	284.9	0.83	0.94	1.08	31.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:51:07 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model \SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 1 [A25. Main South/Pound (2035 CAST PM With 73% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 90 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	854	3.3	854	3.3	0.737	27.8	LOS C	19.7	142.0	0.88	0.78	0.89	37.1
6	R2	All MCs	223	16.6	223	16.6	* 0.930	68.5	LOS E	12.7	101.5	1.00	1.20	1.68	22.0
Approach			1077	6.0	1077	6.0	0.930	36.2	LOS D	19.7	142.0	0.90	0.86	1.05	32.9
North: Pound Road															
1	L2	All MCs	199	9.5	199	9.5	0.163	19.5	LOS B	2.9	22.0	0.36	0.64	0.36	41.1
2	R2	All MCs	707	6.1	707	6.1	* 0.941	67.9	LOS E	43.4	320.0	1.00	1.14	1.43	23.7
Approach			906	6.8	906	6.8	0.941	57.3	LOS E	43.4	320.0	0.86	1.03	1.19	23.8
West: Main South West															
3	L2	All MCs	497	4.4	497	4.4	0.382	9.7	LOS A	8.3	60.0	0.41	0.68	0.41	41.1
4	T1	All MCs	489	10.2	489	10.2	* 0.926	51.0	LOS D	15.8	120.4	1.00	1.09	1.36	29.5
Approach			986	7.3	986	7.3	0.926	30.2	LOS C	15.8	120.4	0.70	0.88	0.88	33.5
All Vehicles			2969	6.7	2969	6.7	0.941	40.6	LOS D	43.4	320.0	0.82	0.92	1.04	30.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:51:09 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 1 [A26. Main South/Pound (2036 CAST PM With 82% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 90 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	858	3.1	858	3.1	0.741	28.0	LOS C	19.9	143.0	0.88	0.78	0.89	37.1
6	R2	All MCs	233	15.9	233	15.9	* 0.967	83.0	LOS F	15.0	119.3	1.00	1.33	1.92	19.7
Approach			1091	5.9	1091	5.9	0.967	39.8	LOS D	19.9	143.0	0.91	0.90	1.11	31.9
North: Pound Road															
1	L2	All MCs	212	9.0	212	9.0	0.173	20.0	LOS B	3.1	23.6	0.36	0.64	0.36	41.1
2	R2	All MCs	716	6.0	716	6.0	* 0.962	80.0	LOS F	48.8	358.9	1.00	1.23	1.56	21.5
Approach			928	6.7	928	6.7	0.962	66.3	LOS E	48.8	358.9	0.85	1.09	1.29	22.1
West: Main South West															
3	L2	All MCs	502	3.8	502	3.8	0.384	9.7	LOS A	8.4	60.4	0.41	0.68	0.41	41.1
4	T1	All MCs	487	10.3	487	10.3	* 0.922	50.5	LOS D	15.6	118.9	1.00	1.08	1.35	29.6
Approach			989	7.0	989	7.0	0.922	29.8	LOS C	15.6	118.9	0.70	0.87	0.87	33.6
All Vehicles			3008	6.5	3008	6.5	0.967	44.7	LOS D	48.8	358.9	0.82	0.95	1.09	29.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:51:10 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 1 [A27. Main South/Pound (2037 CAST PM With 91% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	861	2.9	861	2.9	0.777	33.9	LOS C	22.7	163.1	0.90	0.81	0.93	35.5
6	R2	All MCs	242	15.3	242	15.3	* 0.963	89.3	LOS F	16.7	132.6	1.00	1.28	1.81	19.2
Approach			1103	5.6	1103	5.6	0.963	46.1	LOS D	22.7	163.1	0.92	0.91	1.12	30.1
North: Pound Road															
1	L2	All MCs	225	8.9	225	8.9	0.179	21.3	LOS C	3.5	26.1	0.34	0.64	0.34	41.2
2	R2	All MCs	724	5.9	724	5.9	* 0.950	76.3	LOS E	49.9	367.4	1.00	1.15	1.42	22.4
Approach			949	6.6	949	6.6	0.950	63.3	LOS E	49.9	367.4	0.84	1.03	1.17	22.6
West: Main South West															
3	L2	All MCs	508	3.1	508	3.1	0.383	9.9	LOS A	9.1	65.7	0.40	0.68	0.40	40.9
4	T1	All MCs	485	10.3	485	10.3	* 0.957	62.5	LOS E	18.8	143.2	1.00	1.15	1.44	27.0
Approach			993	6.6	993	6.6	0.957	35.6	LOS D	18.8	143.2	0.69	0.91	0.91	31.6
All Vehicles			3045	6.3	3045	6.3	0.963	48.0	LOS D	49.9	367.4	0.82	0.95	1.07	28.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:51:12 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 1 [A28. Main South/Pound (2038 CAST PM No Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	864	2.7	864	2.7	0.683	16.5	LOS B	13.0	93.4	0.84	0.74	0.85	41.2
6	R2	All MCs	108	4.6	108	4.6	* 0.601	35.3	LOS D	3.3	24.3	1.00	0.82	1.09	29.5
Approach			972	2.9	972	2.9	0.683	18.6	LOS B	13.0	93.4	0.86	0.75	0.88	39.8
North: Pound Road															
1	L2	All MCs	83	3.6	83	3.6	0.076	10.6	LOS B	1.0	7.3	0.44	0.64	0.44	40.9
2	R2	All MCs	577	5.0	577	5.0	* 0.809	27.4	LOS C	17.4	127.3	0.95	0.95	1.12	32.7
Approach			660	4.8	660	4.8	0.809	25.3	LOS C	17.4	127.3	0.89	0.91	1.03	33.3
West: Main South West															
3	L2	All MCs	511	2.5	511	2.5	0.400	8.6	LOS A	6.2	44.6	0.45	0.69	0.45	41.8
4	T1	All MCs	483	10.4	483	10.4	* 0.763	26.7	LOS C	8.7	66.0	0.98	0.88	1.09	36.7
Approach			994	6.3	994	6.3	0.763	17.4	LOS B	8.7	66.0	0.71	0.78	0.76	38.7
All Vehicles			2626	4.7	2626	4.7	0.809	19.8	LOS B	17.4	127.3	0.81	0.80	0.87	37.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:51:14 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 1 [A29. Main South/Pound (2038 CAST PM With Dev (100%) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	864	2.7	864	2.7	0.757	32.2	LOS C	22.1	158.0	0.88	0.79	0.90	36.1
6	R2	All MCs	253	15.0	253	15.0	* 0.943	79.6	LOS E	16.4	129.4	1.00	1.20	1.66	20.5
Approach			1117	5.5	1117	5.5	0.943	42.9	LOS D	22.1	158.0	0.91	0.88	1.07	30.9
North: Pound Road															
1	L2	All MCs	239	8.8	239	8.8	0.190	22.5	LOS C	3.7	27.9	0.35	0.64	0.35	41.2
2	R2	All MCs	732	5.9	732	5.9	* 0.987	104.3	LOS F	60.7	446.7	1.00	1.31	1.68	18.3
Approach			971	6.6	971	6.6	0.987	84.2	LOS F	60.7	446.7	0.84	1.15	1.35	19.2
West: Main South West															
3	L2	All MCs	513	2.5	513	2.5	0.391	10.4	LOS B	9.6	68.6	0.42	0.68	0.42	40.7
4	T1	All MCs	483	10.4	483	10.4	* 0.953	61.5	LOS E	18.5	140.8	1.00	1.14	1.43	27.2
Approach			996	6.3	996	6.3	0.953	35.2	LOS D	18.5	140.8	0.70	0.91	0.91	31.8
All Vehicles			3084	6.1	3084	6.1	0.987	53.4	LOS D	60.7	446.7	0.82	0.97	1.11	26.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:51:16 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 1 [A30. Main South/Pound Improved Layout Schematic (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Main South/Pound: Additional Pound RT Lane
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	864	2.7	864	2.7	0.541	15.3	LOS B	13.9	99.3	0.70	0.62	0.70	41.9
6	R2	All MCs	253	15.0	253	15.0	* 0.710	38.7	LOS D	9.8	77.6	0.98	0.88	1.07	28.5
Approach			1117	5.5	1117	5.5	0.710	20.6	LOS C	13.9	99.3	0.77	0.67	0.79	38.7
North: Pound Road															
1	L2	All MCs	239	8.8	239	8.8	0.215	11.2	LOS B	3.9	29.2	0.45	0.67	0.45	40.1
2	R2	All MCs	732	5.9	732	5.9	* 0.701	29.6	LOS C	15.1	111.2	0.88	0.83	0.89	32.0
Approach			971	6.6	971	6.6	0.701	25.0	LOS C	15.1	111.2	0.78	0.79	0.78	33.7
West: Main South West															
3	L2	All MCs	513	2.5	513	2.5	0.441	12.4	LOS B	10.0	71.8	0.54	0.72	0.54	39.4
4	T1	All MCs	483	10.4	483	10.4	* 0.711	32.7	LOS C	10.6	81.0	0.96	0.83	1.01	34.6
Approach			996	6.3	996	6.3	0.711	22.3	LOS C	10.6	81.0	0.75	0.78	0.77	36.6
All Vehicles			3084	6.1	3084	6.1	0.711	22.5	LOS C	15.1	111.2	0.76	0.74	0.78	36.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:51:17 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model \SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 1 [A31. Main South/Pound (2038 CAST PM with 100% Dev - Improved) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Main South/Pound
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Main South East															
5	T1	All MCs	864	2.7	864	2.7	0.541	15.3	LOS B	13.9	99.3	0.70	0.62	0.70	41.9
6	R2	All MCs	253	15.0	253	15.0	* 0.710	38.7	LOS D	9.8	77.6	0.98	0.88	1.07	28.5
Approach			1117	5.5	1117	5.5	0.710	20.6	LOS C	13.9	99.3	0.77	0.67	0.79	38.7
North: Pound Road															
1	L2	All MCs	239	8.8	239	8.8	0.215	11.2	LOS B	3.9	29.2	0.45	0.67	0.45	40.1
2	R2	All MCs	732	5.9	732	5.9	* 0.701	29.6	LOS C	15.1	111.2	0.88	0.83	0.89	32.0
Approach			971	6.6	971	6.6	0.701	25.0	LOS C	15.1	111.2	0.78	0.79	0.78	33.7
West: Main South West															
3	L2	All MCs	513	2.5	513	2.5	0.441	12.4	LOS B	10.0	71.8	0.54	0.72	0.54	39.4
4	T1	All MCs	483	10.4	483	10.4	* 0.711	32.7	LOS C	10.6	81.0	0.96	0.83	1.01	34.6
Approach			996	6.3	996	6.3	0.711	22.3	LOS C	10.6	81.0	0.75	0.78	0.77	36.6
All Vehicles			3084	6.1	3084	6.1	0.711	22.5	LOS C	15.1	111.2	0.76	0.74	0.78	36.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:51:19 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model \SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 101 [B1. Pound/Waterloo (2024 Observed AM 0730-0830) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Pound/Waterloo
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 40 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	28	22.2	28	22.2	0.737	19.0	LOS B	10.6	81.0	0.88	0.86	1.00	41.7
2	T1	All MCs	553	9.7	553	9.7	* 0.737	14.2	LOS B	10.6	81.0	0.88	0.86	1.00	42.8
3	R2	All MCs	62	13.6	62	13.6	0.171	18.8	LOS B	1.0	7.5	0.77	0.72	0.77	39.9
Approach			643	10.6	643	10.6	0.737	14.9	LOS B	10.6	81.0	0.87	0.84	0.98	41.4
East: Waterloo E															
4	L2	All MCs	48	39.1	48	39.1	0.245	18.6	LOS B	1.6	14.0	0.84	0.70	0.84	39.9
5	T1	All MCs	49	14.9	49	14.9	0.245	13.7	LOS B	1.6	14.0	0.84	0.70	0.84	41.2
6	R2	All MCs	18	35.3	18	35.3	0.093	24.0	LOS C	0.3	3.1	0.94	0.68	0.94	36.7
Approach			116	28.2	116	28.2	0.245	17.4	LOS B	1.6	14.0	0.85	0.70	0.85	39.9
North: Pound N															
7	L2	All MCs	8	12.5	8	12.5	0.495	13.4	LOS B	5.5	45.1	0.75	0.65	0.75	43.5
8	T1	All MCs	376	19.9	376	19.9	0.495	8.7	LOS A	5.5	45.1	0.75	0.65	0.75	44.6
9	R2	All MCs	36	11.8	36	11.8	0.142	20.0	LOS C	0.6	4.8	0.85	0.71	0.85	38.4
Approach			420	19.0	420	19.0	0.495	9.8	LOS A	5.5	45.1	0.76	0.65	0.76	44.0
West: Waterloo W															
10	L2	All MCs	178	1.2	178	1.2	0.695	21.4	LOS C	6.4	46.3	0.96	0.89	1.10	38.7
11	T1	All MCs	143	8.1	143	8.1	* 0.695	16.8	LOS B	6.4	46.3	0.96	0.89	1.10	39.5
12	R2	All MCs	94	7.9	94	7.9	0.273	19.4	LOS B	1.6	12.1	0.86	0.75	0.86	38.7
Approach			415	5.1	415	5.1	0.695	19.3	LOS B	6.4	46.3	0.94	0.86	1.05	39.0
All Vehicles			1594	12.7	1594	12.7	0.737	14.9	LOS B	10.6	81.0	0.86	0.79	0.93	41.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:51:22 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 101 [B2a. Pound/Waterloo (2028 CAST AM No Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Pound/Waterloo
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 40 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	45	15.6	45	15.6	0.733	18.7	LOS B	10.5	79.2	0.88	0.86	0.99	41.7
2	T1	All MCs	532	8.6	532	8.6	* 0.733	14.0	LOS B	10.5	79.2	0.88	0.86	0.99	42.8
3	R2	All MCs	81	7.4	81	7.4	0.211	18.7	LOS B	1.3	9.4	0.78	0.73	0.78	39.9
Approach			658	9.0	658	9.0	0.733	14.9	LOS B	10.5	79.2	0.87	0.84	0.97	41.4
East: Waterloo E															
4	L2	All MCs	46	30.4	46	30.4	0.246	18.5	LOS B	1.7	13.9	0.84	0.70	0.84	40.1
5	T1	All MCs	58	8.6	58	8.6	0.246	13.7	LOS B	1.7	13.9	0.84	0.70	0.84	41.3
6	R2	All MCs	14	35.7	14	35.7	0.077	24.0	LOS C	0.3	2.5	0.93	0.67	0.93	36.7
Approach			118	20.3	118	20.3	0.246	16.8	LOS B	1.7	13.9	0.85	0.69	0.85	40.3
North: Pound N															
7	L2	All MCs	7	14.3	7	14.3	0.479	13.3	LOS B	5.4	42.9	0.75	0.64	0.75	43.5
8	T1	All MCs	373	16.1	373	16.1	0.479	8.6	LOS A	5.4	42.9	0.75	0.64	0.75	44.7
9	R2	All MCs	55	16.4	55	16.4	0.220	20.4	LOS C	1.0	7.8	0.87	0.73	0.87	38.2
Approach			435	16.1	435	16.1	0.479	10.2	LOS B	5.4	42.9	0.76	0.65	0.76	43.7
West: Waterloo W															
10	L2	All MCs	186	3.2	186	3.2	0.739	22.4	LOS C	7.0	51.3	0.97	0.94	1.18	38.3
11	T1	All MCs	152	8.6	152	8.6	* 0.739	17.8	LOS B	7.0	51.3	0.97	0.94	1.18	39.1
12	R2	All MCs	133	6.8	133	6.8	0.386	19.9	LOS B	2.4	17.6	0.89	0.77	0.89	38.5
Approach			471	5.9	471	5.9	0.739	20.2	LOS C	7.0	51.3	0.95	0.89	1.10	38.6
All Vehicles			1682	10.8	1682	10.8	0.739	15.3	LOS B	10.5	79.2	0.86	0.80	0.94	41.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:51:24 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 101 [B2b. Pound/Waterloo (2028 CAST AM With 9% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Pound/Waterloo
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 40 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	45	15.6	45	15.6	0.772	20.6	LOS C	11.8	88.8	0.90	0.92	1.08	41.1
2	T1	All MCs	557	8.8	557	8.8	*0.772	15.9	LOS B	11.8	88.8	0.90	0.92	1.08	42.1
3	R2	All MCs	81	7.4	81	7.4	0.220	19.3	LOS B	1.3	9.4	0.78	0.73	0.78	39.9
Approach			683	9.1	683	9.1	0.772	16.6	LOS B	11.8	88.8	0.89	0.90	1.04	40.6
East: Waterloo E															
4	L2	All MCs	46	30.4	46	30.4	0.246	18.5	LOS B	1.7	13.9	0.84	0.70	0.84	40.1
5	T1	All MCs	58	8.6	58	8.6	0.246	13.7	LOS B	1.7	13.9	0.84	0.70	0.84	41.3
6	R2	All MCs	14	35.7	14	35.7	0.077	24.0	LOS C	0.3	2.5	0.93	0.67	0.93	36.7
Approach			118	20.3	118	20.3	0.246	16.8	LOS B	1.7	13.9	0.85	0.69	0.85	40.3
North: Pound N															
7	L2	All MCs	7	14.3	7	14.3	0.506	13.4	LOS B	5.8	46.2	0.76	0.65	0.76	43.4
8	T1	All MCs	394	16.5	394	16.5	0.506	8.7	LOS A	5.8	46.2	0.76	0.65	0.76	44.6
9	R2	All MCs	55	16.4	55	16.4	0.235	21.5	LOS C	1.0	8.1	0.90	0.73	0.90	37.8
Approach			456	16.4	456	16.4	0.506	10.4	LOS B	5.8	46.2	0.77	0.66	0.77	43.6
West: Waterloo W															
10	L2	All MCs	186	3.2	186	3.2	0.739	22.4	LOS C	7.0	51.3	0.97	0.94	1.18	38.3
11	T1	All MCs	152	8.6	152	8.6	*0.739	17.8	LOS B	7.0	51.3	0.97	0.94	1.18	39.1
12	R2	All MCs	133	6.8	133	6.8	0.386	19.9	LOS B	2.4	17.6	0.89	0.77	0.89	38.5
Approach			471	5.9	471	5.9	0.739	20.2	LOS C	7.0	51.3	0.95	0.89	1.10	38.6
All Vehicles			1728	10.9	1728	10.9	0.772	16.0	LOS B	11.8	88.8	0.87	0.82	0.97	40.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:51:26 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model \SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 101 [B3. Pound/Waterloo (2029 CAST AM With 18% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Pound/Waterloo
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 40 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	48	14.6	48	14.6	0.812	23.2	LOS C	13.3	100.3	0.93	1.00	1.18	40.1
2	T1	All MCs	577	8.8	577	8.8	* 0.812	18.5	LOS B	13.3	100.3	0.93	1.00	1.18	41.1
3	R2	All MCs	87	6.9	87	6.9	0.244	19.8	LOS B	1.4	10.2	0.79	0.74	0.79	39.8
Approach			712	9.0	712	9.0	0.812	18.9	LOS B	13.3	100.3	0.91	0.96	1.14	39.6
East: Waterloo E															
4	L2	All MCs	46	28.3	46	28.3	0.249	18.5	LOS B	1.8	14.0	0.84	0.70	0.84	40.2
5	T1	All MCs	60	8.3	60	8.3	0.249	13.7	LOS B	1.8	14.0	0.84	0.70	0.84	41.3
6	R2	All MCs	12	33.3	12	33.3	0.066	23.9	LOS C	0.2	2.1	0.93	0.66	0.93	36.8
Approach			118	18.6	118	18.6	0.249	16.6	LOS B	1.8	14.0	0.85	0.69	0.85	40.4
North: Pound N															
7	L2	All MCs	6	16.7	6	16.7	0.530	13.6	LOS B	6.2	49.0	0.77	0.67	0.77	43.4
8	T1	All MCs	415	15.9	415	15.9	0.530	8.9	LOS A	6.2	49.0	0.77	0.67	0.77	44.6
9	R2	All MCs	60	16.7	60	16.7	0.274	22.6	LOS C	1.1	9.2	0.92	0.74	0.92	37.4
Approach			481	16.0	481	16.0	0.530	10.6	LOS B	6.2	49.0	0.79	0.67	0.79	43.5
West: Waterloo W															
10	L2	All MCs	187	3.7	187	3.7	0.745	22.5	LOS C	7.1	52.0	0.98	0.95	1.19	38.3
11	T1	All MCs	153	8.5	153	8.5	* 0.745	17.9	LOS B	7.1	52.0	0.98	0.95	1.19	39.1
12	R2	All MCs	143	6.3	143	6.3	0.415	20.0	LOS C	2.6	19.0	0.90	0.77	0.90	38.5
Approach			483	6.0	483	6.0	0.745	20.3	LOS C	7.1	52.0	0.95	0.89	1.11	38.6
All Vehicles			1794	10.7	1794	10.7	0.812	16.9	LOS B	13.3	100.3	0.89	0.85	1.02	40.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:51:28 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 101 [B4. Pound/Waterloo (2030 CAST AM With 27% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Pound/Waterloo
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 40 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	52	13.5	52	13.5	0.800	21.7	LOS C	13.2	100.0	0.91	0.96	1.13	40.7
2	T1	All MCs	596	8.7	596	8.7	* 0.800	17.0	LOS B	13.2	100.0	0.91	0.96	1.13	41.7
3	R2	All MCs	91	5.5	91	5.5	0.244	18.9	LOS B	1.4	10.2	0.77	0.73	0.77	40.2
Approach			739	8.7	739	8.7	0.800	17.6	LOS B	13.2	100.0	0.89	0.93	1.08	40.2
East: Waterloo E															
4	L2	All MCs	46	26.1	46	26.1	0.278	19.5	LOS B	1.9	14.6	0.87	0.71	0.87	39.7
5	T1	All MCs	62	6.5	62	6.5	0.278	14.7	LOS B	1.9	14.6	0.87	0.71	0.87	40.9
6	R2	All MCs	12	33.3	12	33.3	0.077	26.1	LOS C	0.2	2.2	0.98	0.65	0.98	36.0
Approach			120	16.7	120	16.7	0.278	17.7	LOS B	1.9	14.6	0.88	0.70	0.88	39.9
North: Pound N															
7	L2	All MCs	6	16.7	6	16.7	0.524	12.9	LOS B	6.2	49.3	0.75	0.65	0.75	43.7
8	T1	All MCs	435	15.4	435	15.4	0.524	8.2	LOS A	6.2	49.3	0.75	0.65	0.75	44.9
9	R2	All MCs	65	16.9	65	16.9	0.285	21.7	LOS C	1.2	9.7	0.90	0.74	0.90	37.7
Approach			506	15.6	506	15.6	0.524	10.0	LOS A	6.2	49.3	0.77	0.66	0.77	43.8
West: Waterloo W															
10	L2	All MCs	189	4.2	189	4.2	0.838	26.8	LOS C	8.1	59.5	1.00	1.09	1.47	36.6
11	T1	All MCs	155	8.4	155	8.4	* 0.838	22.2	LOS C	8.1	59.5	1.00	1.09	1.47	37.3
12	R2	All MCs	152	5.9	152	5.9	0.487	22.0	LOS C	2.9	21.4	0.95	0.78	0.95	37.7
Approach			496	6.0	496	6.0	0.838	23.9	LOS C	8.1	59.5	0.98	1.00	1.31	37.2
All Vehicles			1861	10.4	1861	10.4	0.838	17.2	LOS B	13.2	100.0	0.88	0.86	1.04	40.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:51:30 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 101 [B5. Pound/Waterloo (2031 CAST AM With 36% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Pound/Waterloo
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 40 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	56	12.5	56	12.5	0.833	24.3	LOS C	14.9	112.5	0.93	1.04	1.23	39.7
2	T1	All MCs	616	8.6	616	8.6	*0.833	19.6	LOS B	14.9	112.5	0.93	1.04	1.23	40.7
3	R2	All MCs	96	5.2	96	5.2	0.266	20.2	LOS C	1.5	11.2	0.80	0.74	0.80	39.8
Approach			768	8.5	768	8.5	0.833	20.0	LOS C	14.9	112.5	0.91	1.00	1.18	39.1
East: Waterloo E															
4	L2	All MCs	44	22.7	44	22.7	0.276	19.4	LOS B	1.9	14.5	0.86	0.71	0.86	39.8
5	T1	All MCs	65	6.2	65	6.2	0.276	14.7	LOS B	1.9	14.5	0.86	0.71	0.86	40.9
6	R2	All MCs	10	30.0	10	30.0	0.065	26.1	LOS C	0.2	1.8	0.98	0.64	0.98	36.0
Approach			119	14.3	119	14.3	0.276	17.4	LOS B	1.9	14.5	0.87	0.70	0.87	40.0
North: Pound N															
7	L2	All MCs	5	20.0	5	20.0	0.545	13.0	LOS B	6.6	52.0	0.76	0.66	0.76	43.6
8	T1	All MCs	455	14.9	455	14.9	0.545	8.3	LOS A	6.6	52.0	0.76	0.66	0.76	44.9
9	R2	All MCs	70	18.6	70	18.6	0.327	22.8	LOS C	1.4	11.0	0.93	0.75	0.93	37.3
Approach			530	15.5	530	15.5	0.545	10.3	LOS B	6.6	52.0	0.78	0.67	0.78	43.7
West: Waterloo W															
10	L2	All MCs	192	5.2	192	5.2	0.857	28.1	LOS C	8.5	63.0	1.00	1.14	1.55	36.2
11	T1	All MCs	158	8.9	158	8.9	*0.857	23.5	LOS C	8.5	63.0	1.00	1.14	1.55	36.9
12	R2	All MCs	163	6.1	163	6.1	0.522	22.2	LOS C	3.1	23.1	0.95	0.79	0.96	37.6
Approach			513	6.6	513	6.6	0.857	24.8	LOS C	8.5	63.0	0.98	1.03	1.36	36.8
All Vehicles			1930	10.3	1930	10.3	0.857	18.4	LOS B	14.9	112.5	0.89	0.90	1.10	39.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:51:32 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 101 [B6. Pound/Waterloo (2032 CAST AM With 45% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Pound/Waterloo
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 50 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	60	11.7	60	11.7	0.824	26.3	LOS C	17.8	133.9	0.90	0.97	1.11	39.5
2	T1	All MCs	636	8.6	636	8.6	* 0.824	21.7	LOS C	17.8	133.9	0.90	0.97	1.11	40.4
3	R2	All MCs	101	4.0	101	4.0	0.272	22.2	LOS C	1.9	13.4	0.75	0.74	0.75	39.5
Approach			797	8.3	797	8.3	0.824	22.1	LOS C	17.8	133.9	0.88	0.94	1.06	38.2
East: Waterloo E															
4	L2	All MCs	44	20.5	44	20.5	0.258	22.1	LOS C	2.3	17.4	0.85	0.70	0.85	38.7
5	T1	All MCs	66	4.5	66	4.5	0.258	17.3	LOS B	2.3	17.4	0.85	0.70	0.85	39.7
6	R2	All MCs	9	33.3	9	33.3	0.064	30.7	LOS C	0.2	2.0	0.97	0.65	0.97	34.5
Approach			119	12.6	119	12.6	0.258	20.1	LOS C	2.3	17.4	0.86	0.70	0.86	38.9
North: Pound N															
7	L2	All MCs	4	0.0	4	0.0	0.517	13.2	LOS B	7.8	61.5	0.70	0.62	0.70	43.7
8	T1	All MCs	475	14.5	475	14.5	0.517	8.6	LOS A	7.8	61.5	0.70	0.62	0.70	44.7
9	R2	All MCs	75	18.7	75	18.7	0.383	26.1	LOS C	1.8	14.4	0.92	0.76	0.92	36.1
Approach			554	15.0	554	15.0	0.517	11.0	LOS B	7.8	61.5	0.73	0.64	0.73	43.3
West: Waterloo W															
10	L2	All MCs	194	5.7	194	5.7	0.814	29.4	LOS C	9.7	72.3	1.00	1.03	1.31	35.7
11	T1	All MCs	160	8.8	160	8.8	* 0.814	24.8	LOS C	9.7	72.3	1.00	1.03	1.31	36.4
12	R2	All MCs	173	5.8	173	5.8	0.555	25.5	LOS C	4.1	30.0	0.95	0.80	0.96	36.4
Approach			527	6.6	527	6.6	0.814	26.7	LOS C	9.7	72.3	0.98	0.96	1.20	36.1
All Vehicles			1997	10.0	1997	10.0	0.824	20.1	LOS C	17.8	133.9	0.87	0.85	1.00	38.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:51:34 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model \SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 101 [B7. Pound/Waterloo (2033 AM No Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Pound/Waterloo
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 40 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	64	10.9	64	10.9	0.778	21.3	LOS C	11.4	85.3	0.92	0.94	1.11	40.6
2	T1	All MCs	507	7.3	507	7.3	*0.778	16.7	LOS B	11.4	85.3	0.92	0.94	1.11	41.6
3	R2	All MCs	106	3.8	106	3.8	0.283	19.3	LOS B	1.7	12.3	0.80	0.74	0.80	39.8
Approach			677	7.1	677	7.1	0.778	17.5	LOS B	11.4	85.3	0.90	0.91	1.07	40.1
East: Waterloo E															
4	L2	All MCs	44	18.2	44	18.2	0.230	17.4	LOS B	1.8	13.6	0.81	0.68	0.81	40.8
5	T1	All MCs	69	4.3	69	4.3	0.230	12.7	LOS B	1.8	13.6	0.81	0.68	0.81	41.8
6	R2	All MCs	7	28.6	7	28.6	0.035	23.6	LOS C	0.1	1.2	0.93	0.64	0.93	37.0
Approach			120	10.8	120	10.8	0.230	15.0	LOS B	1.8	13.6	0.82	0.68	0.82	41.1
North: Pound N															
7	L2	All MCs	3	0.0	3	0.0	0.484	13.9	LOS B	5.5	42.1	0.77	0.66	0.77	43.4
8	T1	All MCs	371	11.3	371	11.3	0.484	9.3	LOS A	5.5	42.1	0.77	0.66	0.77	44.3
9	R2	All MCs	80	18.8	80	18.8	0.355	22.9	LOS C	1.5	12.6	0.94	0.75	0.94	37.3
Approach			454	12.6	454	12.6	0.484	11.7	LOS B	5.5	42.1	0.80	0.68	0.80	42.9
West: Waterloo W															
10	L2	All MCs	196	6.1	196	6.1	0.718	21.1	LOS C	7.1	53.1	0.96	0.91	1.12	38.8
11	T1	All MCs	161	8.7	161	8.7	*0.718	16.5	LOS B	7.1	53.1	0.96	0.91	1.12	39.7
12	R2	All MCs	182	5.5	182	5.5	0.484	19.4	LOS B	3.3	23.9	0.90	0.79	0.90	38.7
Approach			539	6.7	539	6.7	0.718	19.2	LOS B	7.1	53.1	0.94	0.87	1.05	39.0
All Vehicles			1790	8.6	1790	8.6	0.778	16.4	LOS B	11.4	85.3	0.88	0.82	0.98	40.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:51:36 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 101 [B8. Pound/Waterloo (2033 CAST AM With 55% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Pound/Waterloo
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 50 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	64	10.9	64	10.9	0.851	29.3	LOS C	19.8	149.0	0.93	1.04	1.20	38.4
2	T1	All MCs	653	8.3	653	8.3	*0.851	24.7	LOS C	19.8	149.0	0.93	1.04	1.20	39.3
3	R2	All MCs	106	3.8	106	3.8	0.296	23.5	LOS C	2.0	14.6	0.77	0.74	0.77	39.1
Approach			823	7.9	823	7.9	0.851	24.9	LOS C	19.8	149.0	0.91	1.00	1.14	37.2
East: Waterloo E															
4	L2	All MCs	44	18.2	44	18.2	0.263	22.1	LOS C	2.3	17.7	0.85	0.70	0.85	38.7
5	T1	All MCs	69	4.3	69	4.3	0.263	17.3	LOS B	2.3	17.7	0.85	0.70	0.85	39.7
6	R2	All MCs	8	25.0	8	25.0	0.057	30.5	LOS C	0.2	1.7	0.97	0.64	0.97	34.5
Approach			121	10.7	121	10.7	0.263	19.9	LOS B	2.3	17.7	0.86	0.70	0.86	39.0
North: Pound N															
7	L2	All MCs	3	0.0	3	0.0	0.537	13.3	LOS B	8.3	64.9	0.71	0.63	0.71	43.6
8	T1	All MCs	496	14.1	496	14.1	0.537	8.8	LOS A	8.3	64.9	0.71	0.63	0.71	44.6
9	R2	All MCs	80	18.8	80	18.8	0.434	28.1	LOS C	2.0	16.0	0.96	0.76	0.96	35.4
Approach			579	14.7	579	14.7	0.537	11.5	LOS B	8.3	64.9	0.75	0.65	0.75	43.1
West: Waterloo W															
10	L2	All MCs	196	6.1	196	6.1	0.822	29.8	LOS C	9.9	73.9	1.00	1.05	1.34	35.5
11	T1	All MCs	161	8.7	161	8.7	*0.822	25.2	LOS C	9.9	73.9	1.00	1.05	1.34	36.2
12	R2	All MCs	182	5.5	182	5.5	0.586	25.8	LOS C	4.4	32.0	0.95	0.82	1.00	36.3
Approach			539	6.7	539	6.7	0.822	27.1	LOS C	9.9	73.9	0.98	0.97	1.22	36.0
All Vehicles			2062	9.7	2062	9.7	0.851	21.4	LOS C	19.8	149.0	0.88	0.88	1.04	38.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:51:38 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model \SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 101 [B9. Pound/Waterloo (2034 CAST AM With 64% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Pound/Waterloo
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 50 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	69	11.6	69	11.6	0.895	36.6	LOS D	24.2	182.1	0.97	1.20	1.40	35.9
2	T1	All MCs	675	8.4	675	8.4	* 0.895	31.9	LOS C	24.2	182.1	0.97	1.20	1.40	36.6
3	R2	All MCs	110	2.7	110	2.7	0.317	24.2	LOS C	2.1	15.1	0.78	0.75	0.78	39.1
Approach			854	8.0	854	8.0	0.895	31.3	LOS C	24.2	182.1	0.94	1.14	1.32	34.9
East: Waterloo E															
4	L2	All MCs	43	16.3	43	16.3	0.260	22.0	LOS C	2.3	17.4	0.85	0.70	0.85	38.8
5	T1	All MCs	70	2.9	70	2.9	0.260	17.3	LOS B	2.3	17.4	0.85	0.70	0.85	39.7
6	R2	All MCs	7	28.6	7	28.6	0.051	30.6	LOS C	0.2	1.5	0.97	0.64	0.97	34.5
Approach			120	9.2	120	9.2	0.260	19.8	LOS B	2.3	17.4	0.86	0.70	0.86	39.0
North: Pound N															
7	L2	All MCs	3	0.0	3	0.0	0.557	13.5	LOS B	8.7	68.3	0.72	0.64	0.72	43.6
8	T1	All MCs	516	13.8	516	13.8	0.557	8.9	LOS A	8.7	68.3	0.72	0.64	0.72	44.6
9	R2	All MCs	84	19.0	84	19.0	0.504	29.5	LOS C	2.1	17.5	0.98	0.78	1.01	34.9
Approach			603	14.4	603	14.4	0.557	11.8	LOS B	8.7	68.3	0.76	0.66	0.76	42.9
West: Waterloo W															
10	L2	All MCs	198	6.6	198	6.6	0.836	30.7	LOS C	10.3	76.8	1.00	1.07	1.38	35.2
11	T1	All MCs	164	9.1	164	9.1	* 0.836	26.1	LOS C	10.3	76.8	1.00	1.07	1.38	35.9
12	R2	All MCs	193	5.7	193	5.7	0.621	26.3	LOS C	4.7	34.6	0.96	0.84	1.04	36.1
Approach			555	7.0	555	7.0	0.836	27.8	LOS C	10.3	76.8	0.99	0.99	1.26	35.7
All Vehicles			2132	9.6	2132	9.6	0.895	24.2	LOS C	24.2	182.1	0.90	0.94	1.12	37.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:51:40 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model \SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 101 [B10. Pound/Waterloo (2035 CAST AM With 73% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Pound/Waterloo
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 50 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	72	11.1	72	11.1	0.897	36.4	LOS D	25.2	189.3	0.96	1.20	1.40	35.8
2	T1	All MCs	695	8.5	695	8.5	* 0.897	31.8	LOS C	25.2	189.3	0.96	1.20	1.40	36.6
3	R2	All MCs	116	2.6	116	2.6	0.327	23.3	LOS C	2.2	15.6	0.76	0.75	0.76	39.4
Approach			883	7.9	883	7.9	0.897	31.0	LOS C	25.2	189.3	0.93	1.14	1.31	35.0
East: Waterloo E															
4	L2	All MCs	43	14.0	43	14.0	0.289	23.0	LOS C	2.5	18.3	0.87	0.71	0.87	38.4
5	T1	All MCs	73	2.7	73	2.7	0.289	18.3	LOS B	2.5	18.3	0.87	0.71	0.87	39.3
6	R2	All MCs	6	16.7	6	16.7	0.051	31.7	LOS C	0.2	1.2	0.98	0.62	0.98	34.2
Approach			122	7.4	122	7.4	0.289	20.6	LOS C	2.5	18.3	0.88	0.71	0.88	38.7
North: Pound N															
7	L2	All MCs	2	0.0	2	0.0	0.555	12.8	LOS B	8.8	68.6	0.70	0.62	0.70	43.9
8	T1	All MCs	536	13.4	536	13.4	0.555	8.3	LOS A	8.8	68.6	0.70	0.62	0.70	44.9
9	R2	All MCs	89	19.1	89	19.1	0.530	29.7	LOS C	2.3	18.6	0.98	0.79	1.04	34.9
Approach			627	14.2	627	14.2	0.555	11.3	LOS B	8.8	68.6	0.74	0.65	0.75	43.1
West: Waterloo W															
10	L2	All MCs	200	7.0	200	7.0	0.924	41.7	LOS D	12.7	95.0	1.00	1.35	1.83	31.9
11	T1	All MCs	166	9.0	166	9.0	* 0.924	37.0	LOS D	12.7	95.0	1.00	1.35	1.83	32.4
12	R2	All MCs	202	5.4	202	5.4	0.711	28.6	LOS C	5.3	38.6	0.99	0.91	1.19	35.3
Approach			568	7.0	568	7.0	0.924	35.7	LOS D	12.7	95.0	1.00	1.19	1.60	33.2
All Vehicles			2200	9.5	2200	9.5	0.924	26.0	LOS C	25.2	189.3	0.89	0.99	1.20	36.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:51:42 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 101 [B11. Pound/Waterloo (2036 CAST AM With 82% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Pound/Waterloo
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 50 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	76	10.5	76	10.5	0.926	44.3	LOS D	29.7	223.6	0.99	1.35	1.59	33.4
2	T1	All MCs	714	8.4	714	8.4	* 0.926	39.7	LOS D	29.7	223.6	0.99	1.35	1.59	34.0
3	R2	All MCs	120	1.7	120	1.7	0.349	24.6	LOS C	2.3	16.6	0.79	0.76	0.79	39.0
Approach			910	7.7	910	7.7	0.926	38.1	LOS D	29.7	223.6	0.96	1.27	1.48	32.8
East: Waterloo E															
4	L2	All MCs	42	9.5	42	9.5	0.286	22.9	LOS C	2.5	18.1	0.87	0.71	0.87	38.5
5	T1	All MCs	75	1.3	75	1.3	0.286	18.3	LOS B	2.5	18.1	0.87	0.71	0.87	39.3
6	R2	All MCs	5	20.0	5	20.0	0.034	30.2	LOS C	0.1	1.0	0.96	0.63	0.96	34.7
Approach			122	4.9	122	4.9	0.286	20.4	LOS C	2.5	18.1	0.88	0.71	0.88	38.8
North: Pound N															
7	L2	All MCs	2	0.0	2	0.0	0.576	13.0	LOS B	9.3	72.1	0.72	0.63	0.72	43.8
8	T1	All MCs	556	13.1	556	13.1	0.576	8.5	LOS A	9.3	72.1	0.72	0.63	0.72	44.8
9	R2	All MCs	95	20.0	95	20.0	0.609	31.9	LOS C	2.5	20.8	1.00	0.82	1.14	34.1
Approach			653	14.1	653	14.1	0.609	11.9	LOS B	9.3	72.1	0.76	0.66	0.78	42.8
West: Waterloo W															
10	L2	All MCs	202	7.4	202	7.4	0.935	44.4	LOS D	13.4	100.4	1.00	1.40	1.93	31.1
11	T1	All MCs	168	8.9	168	8.9	* 0.935	39.8	LOS D	13.4	100.4	1.00	1.40	1.93	31.7
12	R2	All MCs	212	5.2	212	5.2	0.744	29.4	LOS C	5.6	41.3	1.00	0.94	1.25	35.0
Approach			582	7.0	582	7.0	0.935	37.6	LOS D	13.4	100.4	1.00	1.23	1.68	32.6
All Vehicles			2267	9.2	2267	9.2	0.935	29.5	LOS C	29.7	223.6	0.91	1.06	1.30	35.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:51:44 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model \SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 101 [B12. Pound/Waterloo (2037 CAST AM With 91% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Pound/Waterloo
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 50 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	80	10.0	80	10.0	0.958	58.3	LOS E	36.9	277.4	1.00	1.60	1.88	29.7
2	T1	All MCs	733	8.3	733	8.3	* 0.958	53.7	LOS D	36.9	277.4	1.00	1.60	1.88	30.2
3	R2	All MCs	126	1.6	126	1.6	0.383	26.0	LOS C	2.5	18.1	0.82	0.76	0.82	38.6
Approach			939	7.6	939	7.6	0.958	50.4	LOS D	36.9	277.4	0.98	1.48	1.74	29.5
East: Waterloo E															
4	L2	All MCs	41	7.3	41	7.3	0.287	22.9	LOS C	2.5	18.1	0.87	0.71	0.87	38.5
5	T1	All MCs	77	1.3	77	1.3	0.287	18.3	LOS B	2.5	18.1	0.87	0.71	0.87	39.3
6	R2	All MCs	4	0.0	4	0.0	0.025	29.8	LOS C	0.1	0.7	0.96	0.62	0.96	34.9
Approach			122	3.3	122	3.3	0.287	20.2	LOS C	2.5	18.1	0.88	0.71	0.88	38.9
North: Pound N															
7	L2	All MCs	1	0.0	1	0.0	0.600	13.6	LOS B	9.8	76.2	0.73	0.65	0.73	43.7
8	T1	All MCs	578	13.0	578	13.0	0.600	9.0	LOS A	9.8	76.2	0.73	0.65	0.73	44.7
9	R2	All MCs	99	20.2	99	20.2	0.689	33.7	LOS C	2.7	22.2	1.00	0.86	1.25	33.7
Approach			678	14.0	678	14.0	0.689	12.6	LOS B	9.8	76.2	0.77	0.68	0.81	42.5
West: Waterloo W															
10	L2	All MCs	204	7.8	204	7.8	0.948	48.4	LOS D	14.4	107.8	1.00	1.48	2.05	30.1
11	T1	All MCs	170	9.4	170	9.4	* 0.948	43.8	LOS D	14.4	107.8	1.00	1.48	2.05	30.6
12	R2	All MCs	222	5.4	222	5.4	0.780	30.5	LOS C	6.1	44.6	1.00	0.98	1.32	34.7
Approach			596	7.4	596	7.4	0.948	40.4	LOS D	14.4	107.8	1.00	1.29	1.78	31.8
All Vehicles			2335	9.2	2335	9.2	0.958	35.3	LOS D	36.9	277.4	0.92	1.16	1.43	33.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:51:46 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model \SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 101 [B13. Pound/Waterloo (2038 AM No Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Pound/Waterloo
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 40 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	84	9.5	84	9.5	0.768	20.6	LOS C	11.1	81.8	0.91	0.92	1.09	40.7
2	T1	All MCs	481	5.6	481	5.6	* 0.768	16.0	LOS B	11.1	81.8	0.91	0.92	1.09	41.7
3	R2	All MCs	130	0.8	130	0.8	0.333	19.2	LOS B	2.1	14.9	0.82	0.76	0.82	39.7
Approach			695	5.2	695	5.2	0.768	17.2	LOS B	11.1	81.8	0.89	0.89	1.04	40.2
East: Waterloo E															
4	L2	All MCs	41	4.9	41	4.9	0.230	17.2	LOS B	1.9	13.5	0.81	0.68	0.81	41.0
5	T1	All MCs	79	0.0	79	0.0	0.230	12.6	LOS B	1.9	13.5	0.81	0.68	0.81	41.9
6	R2	All MCs	1	0.0	1	0.0	0.005	22.8	LOS C	0.0	0.1	0.92	0.57	0.92	37.4
Approach			121	1.7	121	1.7	0.230	14.3	LOS B	1.9	13.5	0.81	0.67	0.81	41.5
North: Pound N															
7	L2	All MCs	1	0.0	1	0.0	0.464	13.7	LOS B	5.3	39.5	0.76	0.65	0.76	43.4
8	T1	All MCs	368	6.5	368	6.5	0.464	9.2	LOS A	5.3	39.5	0.76	0.65	0.76	44.4
9	R2	All MCs	104	20.2	104	20.2	0.456	23.2	LOS C	2.1	16.8	0.95	0.77	0.95	37.1
Approach			473	9.5	473	9.5	0.464	12.3	LOS B	5.3	39.5	0.80	0.68	0.80	42.6
West: Waterloo W															
10	L2	All MCs	206	8.3	206	8.3	0.767	22.5	LOS C	8.0	60.0	0.97	0.97	1.22	38.2
11	T1	All MCs	172	9.3	172	9.3	* 0.767	17.9	LOS B	8.0	60.0	0.97	0.97	1.22	39.1
12	R2	All MCs	231	5.2	231	5.2	0.615	20.6	LOS C	4.4	32.3	0.94	0.85	1.01	38.3
Approach			609	7.4	609	7.4	0.767	20.5	LOS C	8.0	60.0	0.96	0.92	1.14	38.5
All Vehicles			1898	6.7	1898	6.7	0.768	16.8	LOS B	11.1	81.8	0.89	0.83	1.00	40.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:51:48 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 101 [B14. Pound/Waterloo (2038 CAST AM With Dev (100%) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Pound/Waterloo
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 50 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	84	9.5	84	9.5	1.000	90.8	LOS F	51.0	383.0	1.00	2.10	2.47	23.6
2	T1	All MCs	754	8.4	754	8.4	* 1.000	86.2	LOS F	51.0	383.0	1.00	2.10	2.47	23.9
3	R2	All MCs	130	0.8	130	0.8	0.409	26.8	LOS C	2.7	18.8	0.82	0.77	0.82	38.5
Approach			968	7.4	968	7.4	1.000	78.6	LOS E	51.0	383.0	0.98	1.92	2.25	24.0
East: Waterloo E															
4	L2	All MCs	41	4.9	41	4.9	0.288	22.9	LOS C	2.6	18.1	0.87	0.71	0.87	38.5
5	T1	All MCs	79	0.0	79	0.0	0.288	18.3	LOS B	2.6	18.1	0.87	0.71	0.87	39.3
6	R2	All MCs	3	0.0	3	0.0	0.019	29.7	LOS C	0.1	0.5	0.96	0.61	0.96	34.9
Approach			123	1.6	123	1.6	0.288	20.1	LOS C	2.6	18.1	0.87	0.71	0.87	39.0
North: Pound N															
7	L2	All MCs	1	0.0	1	0.0	0.623	14.1	LOS B	10.3	80.1	0.74	0.66	0.74	43.7
8	T1	All MCs	598	12.7	598	12.7	0.623	9.6	LOS A	10.3	80.1	0.74	0.66	0.74	44.7
9	R2	All MCs	104	20.2	104	20.2	0.701	34.1	LOS C	2.8	23.3	1.00	0.87	1.26	33.7
Approach			703	13.8	703	13.8	0.701	13.2	LOS B	10.3	80.1	0.78	0.69	0.82	42.2
West: Waterloo W															
10	L2	All MCs	206	8.3	206	8.3	0.959	52.9	LOS D	15.4	115.7	1.00	1.55	2.18	29.0
11	T1	All MCs	172	9.3	172	9.3	* 0.959	48.2	LOS D	15.4	115.7	1.00	1.55	2.18	29.5
12	R2	All MCs	232	5.2	232	5.2	0.815	32.0	LOS C	6.6	48.1	1.00	1.03	1.42	34.2
Approach			610	7.4	610	7.4	0.959	43.6	LOS D	15.4	115.7	1.00	1.36	1.89	30.9
All Vehicles			2404	9.0	2404	9.0	1.000	47.6	LOS D	51.0	383.0	0.92	1.36	1.67	30.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:51:50 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model \SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 101 [B15. Pound/Waterloo (2038 CAST AM with 100% Dev - Improved 1Ln NB) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Improved Pound/Waterloo (1 Ln NBbnd)
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	84	9.5	84	9.5	0.984	82.1	LOS F	51.0	382.7	1.00	1.74	2.02	25.2
2	T1	All MCs	754	8.4	754	8.4	* 0.984	77.5	LOS E	51.0	382.7	1.00	1.74	2.02	25.6
3	R2	All MCs	130	0.8	130	0.8	0.299	23.2	LOS C	2.4	16.9	0.64	0.72	0.64	40.7
Approach			968	7.4	968	7.4	0.984	70.6	LOS E	51.0	382.7	0.95	1.60	1.84	25.4
East: Waterloo E															
4	L2	All MCs	41	4.9	41	4.9	0.272	25.5	LOS C	3.0	21.1	0.86	0.71	0.86	37.5
5	T1	All MCs	79	0.0	79	0.0	0.272	20.9	LOS C	3.0	21.1	0.86	0.71	0.86	38.3
6	R2	All MCs	3	0.0	3	0.0	0.023	35.4	LOS D	0.1	0.6	0.97	0.61	0.97	33.2
Approach			123	1.6	123	1.6	0.272	22.8	LOS C	3.0	21.1	0.86	0.71	0.86	37.9
North: Pound N															
7	L2	All MCs	1	0.0	1	0.0	0.293	11.9	LOS B	4.6	35.5	0.55	0.47	0.55	44.4
8	T1	All MCs	598	12.7	598	12.7	0.293	7.3	LOS A	4.6	35.5	0.55	0.47	0.55	45.5
9	R2	All MCs	104	20.2	104	20.2	0.914	44.0	LOS D	3.7	30.0	1.00	1.12	1.95	30.7
Approach			703	13.8	703	13.8	0.914	12.7	LOS B	4.6	35.5	0.62	0.57	0.76	42.4
West: Waterloo W															
10	L2	All MCs	206	8.3	206	8.3	0.993	85.8	LOS F	22.0	165.5	1.00	1.77	2.45	23.5
11	T1	All MCs	172	9.3	172	9.3	* 0.993	81.1	LOS F	22.0	165.5	1.00	1.77	2.45	23.8
12	R2	All MCs	232	5.2	232	5.2	0.806	39.0	LOS D	7.7	56.1	1.00	1.00	1.33	33.0
Approach			610	7.4	610	7.4	0.993	66.7	LOS E	22.0	165.5	1.00	1.48	2.02	25.9
All Vehicles			2404	9.0	2404	9.0	0.993	50.2	LOS D	51.0	382.7	0.86	1.22	1.52	29.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:51:52 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 101 [B15b. Pound/Waterloo (2038 CAST AM with 100% Dev - Improved 2Ln NB) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Improved Pound/Waterloo (1 Ln NBbnd)
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 40 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	84	9.5	84	9.5	0.397	13.5	LOS B	4.3	32.3	0.73	0.66	0.73	42.9
2	T1	All MCs	754	8.4	754	8.4	* 0.723	12.6	LOS B	9.7	72.7	0.84	0.79	0.92	43.1
3	R2	All MCs	130	0.8	130	0.8	0.358	18.0	LOS B	2.1	14.7	0.80	0.75	0.80	40.0
Approach			968	7.4	968	7.4	0.723	13.4	LOS B	9.7	72.7	0.83	0.78	0.89	42.1
East: Waterloo E															
4	L2	All MCs	41	4.9	41	4.9	0.230	17.2	LOS B	1.9	13.5	0.81	0.68	0.81	41.0
5	T1	All MCs	79	0.0	79	0.0	0.230	12.6	LOS B	1.9	13.5	0.81	0.68	0.81	41.9
6	R2	All MCs	3	0.0	3	0.0	0.015	23.2	LOS C	0.1	0.4	0.92	0.61	0.92	37.4
Approach			123	1.6	123	1.6	0.230	14.4	LOS B	1.9	13.5	0.81	0.67	0.81	41.5
North: Pound N															
7	L2	All MCs	1	0.0	1	0.0	0.391	13.4	LOS B	4.2	32.4	0.73	0.62	0.73	43.6
8	T1	All MCs	598	12.7	598	12.7	0.391	8.8	LOS A	4.2	32.4	0.73	0.62	0.73	44.6
9	R2	All MCs	104	20.2	104	20.2	0.464	22.5	LOS C	2.0	16.6	0.94	0.77	0.94	37.5
Approach			703	13.8	703	13.8	0.464	10.9	LOS B	4.2	32.4	0.76	0.64	0.76	43.4
West: Waterloo W															
10	L2	All MCs	206	8.3	206	8.3	0.767	22.8	LOS C	8.0	60.0	0.97	0.97	1.22	38.3
11	T1	All MCs	172	9.3	172	9.3	* 0.767	17.9	LOS B	8.0	60.0	0.97	0.97	1.22	39.1
12	R2	All MCs	232	5.2	232	5.2	0.617	20.6	LOS C	4.4	32.5	0.94	0.85	1.02	38.3
Approach			610	7.4	610	7.4	0.767	20.6	LOS C	8.0	60.0	0.96	0.93	1.14	38.5
All Vehicles			2404	9.0	2404	9.0	0.767	14.5	LOS B	9.7	72.7	0.84	0.77	0.91	41.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:51:54 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model \SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 101 [B16. Pound/Waterloo (2024 Observed PM 1630-1730) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Pound/Waterloo
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 40 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	81	0.0	81	0.0	0.587	12.7	LOS B	7.9	56.9	0.76	0.68	0.76	43.8
2	T1	All MCs	471	4.9	471	4.9	* 0.587	8.2	LOS A	7.9	56.9	0.76	0.68	0.76	44.8
3	R2	All MCs	20	10.5	20	10.5	0.057	15.5	LOS B	0.3	2.2	0.71	0.67	0.71	40.5
Approach			572	4.4	572	4.4	0.587	9.1	LOS A	7.9	56.9	0.76	0.68	0.76	44.3
East: Waterloo E															
4	L2	All MCs	116	2.7	116	2.7	0.595	21.7	LOS C	4.3	30.8	0.96	0.82	1.01	38.7
5	T1	All MCs	105	4.0	105	4.0	* 0.595	17.1	LOS B	4.3	30.8	0.96	0.82	1.01	39.5
6	R2	All MCs	32	6.7	32	6.7	0.112	21.5	LOS C	0.6	4.2	0.89	0.70	0.89	37.9
Approach			253	3.8	253	3.8	0.595	19.8	LOS B	4.3	30.8	0.95	0.80	1.00	38.9
North: Pound N															
7	L2	All MCs	1	0.0	1	0.0	0.563	12.3	LOS B	7.4	54.3	0.74	0.65	0.74	44.2
8	T1	All MCs	531	5.0	531	5.0	0.563	7.7	LOS A	7.4	54.3	0.74	0.65	0.74	45.2
9	R2	All MCs	106	2.0	106	2.0	0.302	17.1	LOS B	1.7	12.2	0.81	0.75	0.81	39.7
Approach			638	4.5	638	4.5	0.563	9.3	LOS A	7.4	54.3	0.75	0.67	0.75	44.2
West: Waterloo W															
10	L2	All MCs	77	2.7	77	2.7	0.307	20.3	LOS C	2.0	14.6	0.89	0.74	0.89	38.9
11	T1	All MCs	35	12.1	35	12.1	0.307	15.7	LOS B	2.0	14.6	0.89	0.74	0.89	39.7
12	R2	All MCs	33	3.2	33	3.2	0.152	23.8	LOS C	0.6	4.6	0.94	0.70	0.94	37.0
Approach			144	5.1	144	5.1	0.307	20.0	LOS B	2.0	14.6	0.90	0.73	0.90	38.6
All Vehicles			1606	4.4	1606	4.4	0.595	11.8	LOS B	7.9	56.9	0.80	0.70	0.81	42.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:51:56 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 101 [B17a. Pound/Waterloo (2028 CAST PM No Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Pound/Waterloo
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 40 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	90	2.2	90	2.2	0.634	14.3	LOS B	8.6	61.9	0.80	0.72	0.80	43.2
2	T1	All MCs	474	4.2	474	4.2	0.634	9.7	LOS A	8.6	61.9	0.80	0.72	0.80	44.2
3	R2	All MCs	22	9.1	22	9.1	0.066	17.8	LOS B	0.3	2.5	0.76	0.68	0.76	39.8
Approach			586	4.1	586	4.1	0.634	10.7	LOS B	8.6	61.9	0.80	0.72	0.80	43.4
East: Waterloo E															
4	L2	All MCs	114	2.6	114	2.6	0.584	20.7	LOS C	4.6	33.2	0.94	0.81	0.98	39.2
5	T1	All MCs	131	3.8	131	3.8	* 0.584	16.1	LOS B	4.6	33.2	0.94	0.81	0.98	40.0
6	R2	All MCs	23	8.7	23	8.7	0.079	20.4	LOS C	0.4	3.0	0.86	0.69	0.86	38.3
Approach			268	3.7	268	3.7	0.584	18.4	LOS B	4.6	33.2	0.93	0.80	0.97	39.5
North: Pound N															
7	L2	All MCs	1	0.0	1	0.0	0.583	13.0	LOS B	7.7	55.9	0.78	0.68	0.78	43.8
8	T1	All MCs	522	5.0	522	5.0	0.583	8.5	LOS A	7.7	55.9	0.78	0.68	0.78	44.8
9	R2	All MCs	137	5.1	137	5.1	* 0.437	19.4	LOS B	2.5	17.9	0.88	0.78	0.88	38.7
Approach			660	5.0	660	5.0	0.583	10.7	LOS B	7.7	55.9	0.80	0.70	0.80	43.4
West: Waterloo W															
10	L2	All MCs	94	5.3	94	5.3	0.337	19.5	LOS B	2.4	17.6	0.88	0.74	0.88	39.2
11	T1	All MCs	42	11.9	42	11.9	0.337	14.9	LOS B	2.4	17.6	0.88	0.74	0.88	40.1
12	R2	All MCs	38	2.6	38	2.6	0.164	22.9	LOS C	0.7	5.2	0.92	0.71	0.92	37.4
Approach			174	6.3	174	6.3	0.337	19.1	LOS B	2.4	17.6	0.89	0.74	0.89	39.0
All Vehicles			1688	4.6	1688	4.6	0.634	12.8	LOS B	8.6	61.9	0.83	0.72	0.84	42.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:51:59 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 101 [B17b. Pound/Waterloo (2028 CAST PM With 9% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Pound/Waterloo
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 40 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	90	2.2	90	2.2	0.653	14.9	LOS B	9.0	65.4	0.81	0.74	0.83	43.1
2	T1	All MCs	488	4.7	488	4.7	0.653	10.3	LOS B	9.0	65.4	0.81	0.74	0.83	44.1
3	R2	All MCs	22	9.1	22	9.1	0.070	18.1	LOS B	0.3	2.5	0.77	0.68	0.77	39.8
Approach			600	4.5	600	4.5	0.653	11.3	LOS B	9.0	65.4	0.81	0.74	0.83	43.1
East: Waterloo E															
4	L2	All MCs	114	2.6	114	2.6	0.584	20.7	LOS C	4.6	33.2	0.94	0.81	0.98	39.2
5	T1	All MCs	131	3.8	131	3.8	* 0.584	16.1	LOS B	4.6	33.2	0.94	0.81	0.98	40.0
6	R2	All MCs	23	8.7	23	8.7	0.079	20.4	LOS C	0.4	3.0	0.86	0.69	0.86	38.3
Approach			268	3.7	268	3.7	0.584	18.4	LOS B	4.6	33.2	0.93	0.80	0.97	39.5
North: Pound N															
7	L2	All MCs	1	0.0	1	0.0	0.615	13.2	LOS B	8.2	60.3	0.79	0.69	0.79	43.7
8	T1	All MCs	550	5.3	550	5.3	0.615	8.7	LOS A	8.2	60.3	0.79	0.69	0.79	44.7
9	R2	All MCs	137	5.1	137	5.1	* 0.450	19.5	LOS B	2.5	18.0	0.89	0.78	0.89	38.7
Approach			688	5.2	688	5.2	0.615	10.8	LOS B	8.2	60.3	0.81	0.71	0.81	43.4
West: Waterloo W															
10	L2	All MCs	94	5.3	94	5.3	0.337	19.5	LOS B	2.4	17.6	0.88	0.74	0.88	39.2
11	T1	All MCs	42	11.9	42	11.9	0.337	14.9	LOS B	2.4	17.6	0.88	0.74	0.88	40.1
12	R2	All MCs	38	2.6	38	2.6	0.164	22.9	LOS C	0.7	5.2	0.92	0.71	0.92	37.4
Approach			174	6.3	174	6.3	0.337	19.1	LOS B	2.4	17.6	0.89	0.74	0.89	39.0
All Vehicles			1730	4.9	1730	4.9	0.653	13.0	LOS B	9.0	65.4	0.84	0.74	0.85	42.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:52:01 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model \SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 101 [B18. Pound/Waterloo (2029 CAST PM With 18% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Pound/Waterloo
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 40 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	92	2.2	92	2.2	0.672	15.6	LOS B	9.5	69.3	0.83	0.77	0.86	42.9
2	T1	All MCs	502	5.0	502	5.0	0.672	11.0	LOS B	9.5	69.3	0.83	0.77	0.86	43.9
3	R2	All MCs	22	4.5	22	4.5	0.071	19.2	LOS B	0.3	2.5	0.79	0.68	0.79	39.4
Approach			616	4.5	616	4.5	0.672	12.0	LOS B	9.5	69.3	0.82	0.76	0.86	42.8
East: Waterloo E															
4	L2	All MCs	114	2.6	114	2.6	0.598	20.8	LOS C	4.8	34.2	0.94	0.82	0.99	39.2
5	T1	All MCs	137	3.6	137	3.6	* 0.598	16.2	LOS B	4.8	34.2	0.94	0.82	0.99	40.0
6	R2	All MCs	20	5.0	20	5.0	0.068	20.3	LOS C	0.3	2.5	0.86	0.68	0.86	38.3
Approach			271	3.3	271	3.3	0.598	18.5	LOS B	4.8	34.2	0.94	0.81	0.98	39.5
North: Pound N															
7	L2	All MCs	1	0.0	1	0.0	0.644	13.5	LOS B	8.9	64.8	0.81	0.72	0.82	43.6
8	T1	All MCs	575	5.4	575	5.4	0.644	8.9	LOS A	8.9	64.8	0.81	0.72	0.82	44.5
9	R2	All MCs	145	5.5	145	5.5	* 0.493	19.7	LOS B	2.7	19.5	0.90	0.78	0.90	38.6
Approach			721	5.4	721	5.4	0.644	11.1	LOS B	8.9	64.8	0.83	0.73	0.83	43.2
West: Waterloo W															
10	L2	All MCs	99	6.1	99	6.1	0.353	19.6	LOS B	2.5	18.6	0.88	0.75	0.88	39.2
11	T1	All MCs	43	11.6	43	11.6	0.353	15.0	LOS B	2.5	18.6	0.88	0.75	0.88	40.0
12	R2	All MCs	40	2.5	40	2.5	0.176	22.9	LOS C	0.8	5.4	0.93	0.71	0.93	37.4
Approach			182	6.6	182	6.6	0.353	19.2	LOS B	2.5	18.6	0.89	0.74	0.89	39.0
All Vehicles			1790	4.9	1790	4.9	0.672	13.4	LOS B	9.5	69.3	0.85	0.75	0.87	42.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:52:03 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model \SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 101 [B19. Pound/Waterloo (2030 CAST PM With 27% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Pound/Waterloo
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 40 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	93	2.2	93	2.2	0.656	14.4	LOS B	9.2	67.4	0.80	0.73	0.81	43.4
2	T1	All MCs	516	5.2	516	5.2	0.656	9.8	LOS A	9.2	67.4	0.80	0.73	0.81	44.4
3	R2	All MCs	22	4.5	22	4.5	0.070	18.2	LOS B	0.3	2.5	0.77	0.68	0.77	39.8
Approach			631	4.8	631	4.8	0.656	10.8	LOS B	9.2	67.4	0.80	0.73	0.81	43.4
East: Waterloo E															
4	L2	All MCs	114	2.6	114	2.6	0.690	22.9	LOS C	5.3	37.9	0.98	0.89	1.14	38.3
5	T1	All MCs	144	3.5	144	3.5	* 0.690	18.3	LOS B	5.3	37.9	0.98	0.89	1.14	39.1
6	R2	All MCs	18	5.6	18	5.6	0.071	21.4	LOS C	0.3	2.4	0.89	0.68	0.89	37.9
Approach			276	3.3	276	3.3	0.690	20.4	LOS C	5.3	37.9	0.97	0.88	1.13	38.7
North: Pound N															
7	L2	All MCs	1	0.0	1	0.0	0.641	12.8	LOS B	8.9	65.6	0.79	0.70	0.79	44.0
8	T1	All MCs	602	5.6	602	5.6	0.641	8.2	LOS A	8.9	65.6	0.79	0.70	0.79	45.0
9	R2	All MCs	154	6.5	154	6.5	* 0.502	19.0	LOS B	2.8	20.4	0.89	0.79	0.89	38.9
Approach			757	5.8	757	5.8	0.641	10.4	LOS B	8.9	65.6	0.81	0.71	0.81	43.6
West: Waterloo W															
10	L2	All MCs	104	6.7	104	6.7	0.417	20.8	LOS C	2.7	20.4	0.92	0.76	0.92	38.7
11	T1	All MCs	45	11.1	45	11.1	0.417	16.2	LOS B	2.7	20.4	0.92	0.76	0.92	39.5
12	R2	All MCs	41	2.4	41	2.4	0.212	25.1	LOS C	0.8	5.9	0.97	0.71	0.97	36.5
Approach			190	6.8	190	6.8	0.417	20.6	LOS C	2.7	20.4	0.93	0.75	0.93	38.4
All Vehicles			1854	5.2	1854	5.2	0.690	13.1	LOS B	9.2	67.4	0.84	0.75	0.87	42.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:52:05 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model \SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 101 [B20. Pound/Waterloo (2031 CAST PM With 36% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Pound/Waterloo
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 40 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	96	3.1	96	3.1	0.677	15.1	LOS B	9.8	71.8	0.81	0.76	0.84	43.2
2	T1	All MCs	530	5.5	530	5.5	0.677	10.5	LOS B	9.8	71.8	0.81	0.76	0.84	44.2
3	R2	All MCs	23	4.3	23	4.3	0.076	19.4	LOS B	0.4	2.7	0.79	0.68	0.79	39.4
Approach			649	5.1	649	5.1	0.677	11.5	LOS B	9.8	71.8	0.81	0.75	0.84	43.0
East: Waterloo E															
4	L2	All MCs	113	2.7	113	2.7	0.703	23.1	LOS C	5.4	38.9	0.98	0.90	1.16	38.3
5	T1	All MCs	150	3.3	150	3.3	* 0.703	18.5	LOS B	5.4	38.9	0.98	0.90	1.16	39.0
6	R2	All MCs	16	6.3	16	6.3	0.064	22.3	LOS C	0.3	2.2	0.91	0.67	0.91	37.6
Approach			279	3.2	279	3.2	0.703	20.6	LOS C	5.4	38.9	0.98	0.89	1.15	38.6
North: Pound N															
7	L2	All MCs	1	0.0	1	0.0	0.670	13.3	LOS B	9.8	71.7	0.81	0.73	0.83	43.7
8	T1	All MCs	628	5.9	628	5.9	0.670	8.7	LOS A	9.8	71.7	0.81	0.73	0.83	44.7
9	R2	All MCs	161	6.8	161	6.8	* 0.544	20.2	LOS C	3.0	22.4	0.91	0.81	0.95	38.4
Approach			790	6.1	790	6.1	0.670	11.1	LOS B	9.8	71.7	0.83	0.75	0.86	43.2
West: Waterloo W															
10	L2	All MCs	108	7.4	108	7.4	0.432	20.8	LOS C	2.8	21.2	0.92	0.76	0.92	38.6
11	T1	All MCs	46	10.9	46	10.9	0.432	16.2	LOS B	2.8	21.2	0.92	0.76	0.92	39.5
12	R2	All MCs	43	4.7	43	4.7	0.228	25.2	LOS C	0.9	6.3	0.97	0.71	0.97	36.5
Approach			197	7.6	197	7.6	0.432	20.7	LOS C	2.8	21.2	0.93	0.75	0.93	38.3
All Vehicles			1915	5.5	1915	5.5	0.703	13.6	LOS B	9.8	71.8	0.85	0.77	0.90	41.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:52:07 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model \SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 101 [B21. Pound/Waterloo (2032 CAST PM With 45% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Pound/Waterloo
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 40 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	98	3.1	98	3.1	0.699	15.9	LOS B	10.5	76.7	0.82	0.78	0.88	42.9
2	T1	All MCs	545	5.9	545	5.9	0.699	11.3	LOS B	10.5	76.7	0.82	0.78	0.88	43.9
3	R2	All MCs	24	4.2	24	4.2	0.084	19.8	LOS B	0.4	2.8	0.79	0.69	0.79	39.4
Approach			667	5.4	667	5.4	0.699	12.3	LOS B	10.5	76.7	0.82	0.78	0.88	42.6
East: Waterloo E															
4	L2	All MCs	113	2.7	113	2.7	0.718	23.4	LOS C	5.6	40.2	0.99	0.92	1.19	38.2
5	T1	All MCs	156	3.2	156	3.2	* 0.718	18.8	LOS B	5.6	40.2	0.99	0.92	1.19	39.0
6	R2	All MCs	14	7.1	14	7.1	0.057	22.3	LOS C	0.3	1.9	0.91	0.67	0.91	37.5
Approach			283	3.2	283	3.2	0.718	20.8	LOS C	5.6	40.2	0.98	0.90	1.18	38.6
North: Pound N															
7	L2	All MCs	1	0.0	1	0.0	0.708	14.4	LOS B	10.8	79.7	0.83	0.78	0.89	43.2
8	T1	All MCs	654	6.1	654	6.1	0.708	9.9	LOS A	10.8	79.7	0.83	0.78	0.89	44.2
9	R2	All MCs	169	7.1	169	7.1	* 0.593	21.0	LOS C	3.3	24.4	0.93	0.84	1.02	38.1
Approach			824	6.3	824	6.3	0.708	12.2	LOS B	10.8	79.7	0.85	0.79	0.92	42.7
West: Waterloo W															
10	L2	All MCs	113	8.0	113	8.0	0.457	21.0	LOS C	3.0	22.6	0.92	0.77	0.92	38.6
11	T1	All MCs	49	12.2	49	12.2	0.457	16.3	LOS B	3.0	22.6	0.92	0.77	0.92	39.5
12	R2	All MCs	45	4.4	45	4.4	0.243	25.3	LOS C	0.9	6.6	0.97	0.71	0.97	36.5
Approach			207	8.2	207	8.2	0.457	20.8	LOS C	3.0	22.6	0.94	0.76	0.94	38.3
All Vehicles			1981	5.8	1981	5.8	0.718	14.3	LOS B	10.8	79.7	0.87	0.80	0.94	41.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:52:09 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model \SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 101 [B22. Pound/Waterloo (2033 PM No Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Pound/Waterloo
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 40 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	100	4.0	100	4.0	0.651	14.8	LOS B	9.0	64.8	0.81	0.74	0.83	43.0
2	T1	All MCs	479	3.3	479	3.3	0.651	10.2	LOS B	9.0	64.8	0.81	0.74	0.83	44.1
3	R2	All MCs	24	4.2	24	4.2	0.069	17.1	LOS B	0.4	2.6	0.74	0.68	0.74	40.2
Approach			603	3.5	603	3.5	0.651	11.3	LOS B	9.0	64.8	0.81	0.74	0.83	43.1
East: Waterloo E															
4	L2	All MCs	113	2.7	113	2.7	0.654	21.5	LOS C	5.4	38.8	0.96	0.86	1.06	39.0
5	T1	All MCs	163	3.1	163	3.1	* 0.654	16.9	LOS B	5.4	38.8	0.96	0.86	1.06	39.8
6	R2	All MCs	12	8.3	12	8.3	0.044	21.2	LOS C	0.2	1.6	0.88	0.66	0.88	38.0
Approach			288	3.1	288	3.1	0.654	18.9	LOS B	5.4	38.8	0.96	0.85	1.06	39.4
North: Pound N															
7	L2	All MCs	1	0.0	1	0.0	0.569	13.0	LOS B	7.4	54.0	0.77	0.67	0.77	43.8
8	T1	All MCs	510	4.9	510	4.9	0.569	8.4	LOS A	7.4	54.0	0.77	0.67	0.77	44.8
9	R2	All MCs	177	7.9	177	7.9	* 0.589	20.7	LOS C	3.4	25.5	0.93	0.84	1.01	38.2
Approach			688	5.7	688	5.7	0.589	11.6	LOS B	7.4	54.0	0.81	0.71	0.83	42.9
West: Waterloo W															
10	L2	All MCs	117	7.7	117	7.7	0.418	19.9	LOS B	3.0	22.5	0.90	0.76	0.90	39.0
11	T1	All MCs	50	12.0	50	12.0	0.418	15.2	LOS B	3.0	22.5	0.90	0.76	0.90	39.9
12	R2	All MCs	46	4.3	46	4.3	0.217	24.1	LOS C	0.9	6.6	0.95	0.72	0.95	36.9
Approach			213	8.0	213	8.0	0.418	19.7	LOS B	3.0	22.5	0.91	0.75	0.91	38.8
All Vehicles			1792	4.8	1792	4.8	0.654	13.6	LOS B	9.0	64.8	0.85	0.75	0.87	41.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:52:11 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 101 [B23. Pound/Waterloo (2033 CAST PM With 55% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Pound/Waterloo
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 40 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	100	4.0	100	4.0	0.717	16.7	LOS B	11.1	81.4	0.84	0.81	0.91	42.7
2	T1	All MCs	559	6.1	559	6.1	0.717	12.1	LOS B	11.1	81.4	0.84	0.81	0.91	43.7
3	R2	All MCs	24	4.2	24	4.2	0.090	21.8	LOS C	0.4	3.0	0.84	0.69	0.84	38.6
Approach			683	5.7	683	5.7	0.717	13.1	LOS B	11.1	81.4	0.84	0.80	0.91	42.2
East: Waterloo E															
4	L2	All MCs	113	2.7	113	2.7	0.736	23.8	LOS C	5.8	41.8	0.99	0.94	1.22	38.0
5	T1	All MCs	163	3.1	163	3.1	* 0.736	19.2	LOS B	5.8	41.8	0.99	0.94	1.22	38.8
6	R2	All MCs	12	8.3	12	8.3	0.050	22.3	LOS C	0.2	1.6	0.91	0.66	0.91	37.5
Approach			288	3.1	288	3.1	0.736	21.1	LOS C	5.8	41.8	0.99	0.92	1.21	38.5
North: Pound N															
7	L2	All MCs	1	0.0	1	0.0	0.751	16.3	LOS B	12.2	89.9	0.86	0.85	0.98	42.5
8	T1	All MCs	679	6.2	679	6.2	0.751	11.7	LOS B	12.2	89.9	0.86	0.85	0.98	43.4
9	R2	All MCs	177	7.9	177	7.9	* 0.644	23.0	LOS C	3.6	26.9	0.95	0.88	1.11	37.6
Approach			857	6.5	857	6.5	0.751	14.0	LOS B	12.2	89.9	0.88	0.85	1.00	41.8
West: Waterloo W															
10	L2	All MCs	117	7.7	117	7.7	0.470	21.0	LOS C	3.1	23.4	0.93	0.77	0.93	38.6
11	T1	All MCs	50	12.0	50	12.0	0.470	16.4	LOS B	3.1	23.4	0.93	0.77	0.93	39.4
12	R2	All MCs	46	4.3	46	4.3	0.253	25.3	LOS C	0.9	6.8	0.97	0.71	0.97	36.4
Approach			213	8.0	213	8.0	0.470	20.9	LOS C	3.1	23.4	0.94	0.76	0.94	38.3
All Vehicles			2041	5.9	2041	5.9	0.751	15.4	LOS B	12.2	89.9	0.89	0.84	0.99	41.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:52:13 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 101 [B24. Pound/Waterloo (2034 CAST PM With 64% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Pound/Waterloo
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 40 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	102	3.9	102	3.9	0.736	17.5	LOS B	11.7	86.4	0.85	0.83	0.94	42.4
2	T1	All MCs	573	6.3	573	6.3	0.736	12.9	LOS B	11.7	86.4	0.85	0.83	0.94	43.4
3	R2	All MCs	25	4.0	25	4.0	0.103	23.1	LOS C	0.4	3.2	0.87	0.70	0.87	38.2
Approach			700	5.9	700	5.9	0.736	13.9	LOS B	11.7	86.4	0.85	0.83	0.94	41.8
East: Waterloo E															
4	L2	All MCs	112	2.7	112	2.7	0.749	24.1	LOS C	6.0	42.9	0.99	0.95	1.25	38.0
5	T1	All MCs	169	3.0	169	3.0	* 0.749	19.5	LOS B	6.0	42.9	0.99	0.95	1.25	38.7
6	R2	All MCs	9	11.1	9	11.1	0.039	22.3	LOS C	0.2	1.3	0.90	0.65	0.90	37.5
Approach			290	3.1	290	3.1	0.749	21.3	LOS C	6.0	42.9	0.99	0.94	1.24	38.4
North: Pound N															
7	L2	All MCs	1	0.0	1	0.0	0.801	19.2	LOS B	14.2	104.9	0.89	0.94	1.10	41.4
8	T1	All MCs	706	6.4	706	6.4	0.801	14.6	LOS B	14.2	104.9	0.89	0.94	1.10	42.2
9	R2	All MCs	185	8.1	185	8.1	* 0.696	24.5	LOS C	3.9	29.3	0.97	0.92	1.21	37.2
Approach			892	6.7	892	6.7	0.801	16.7	LOS B	14.2	104.9	0.91	0.94	1.12	40.5
West: Waterloo W															
10	L2	All MCs	121	8.3	121	8.3	0.488	21.1	LOS C	3.2	24.4	0.93	0.77	0.93	38.5
11	T1	All MCs	52	11.5	52	11.5	0.488	16.5	LOS B	3.2	24.4	0.93	0.77	0.93	39.4
12	R2	All MCs	47	4.3	47	4.3	0.263	25.4	LOS C	1.0	7.0	0.98	0.72	0.98	36.4
Approach			220	8.2	220	8.2	0.488	20.9	LOS C	3.2	24.4	0.94	0.76	0.94	38.3
All Vehicles			2102	6.1	2102	6.1	0.801	16.8	LOS B	14.2	104.9	0.90	0.88	1.06	40.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:52:16 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model \SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 101 [B25. Pound/Waterloo (2035 CAST PM With 73% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Pound/Waterloo
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 40 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	104	3.8	104	3.8	0.753	18.3	LOS B	12.4	91.6	0.86	0.86	0.98	42.1
2	T1	All MCs	587	6.5	587	6.5	0.753	13.7	LOS B	12.4	91.6	0.86	0.86	0.98	43.1
3	R2	All MCs	24	0.0	24	0.0	0.104	24.3	LOS C	0.4	3.1	0.89	0.69	0.89	37.9
Approach			715	5.9	715	5.9	0.753	14.8	LOS B	12.4	91.6	0.86	0.86	0.98	41.4
East: Waterloo E															
4	L2	All MCs	112	2.7	112	2.7	0.769	24.6	LOS C	6.2	44.9	1.00	0.97	1.29	37.8
5	T1	All MCs	176	3.4	176	3.4	* 0.769	20.0	LOS B	6.2	44.9	1.00	0.97	1.29	38.5
6	R2	All MCs	6	0.0	6	0.0	0.025	22.0	LOS C	0.1	0.8	0.90	0.64	0.90	37.7
Approach			294	3.1	294	3.1	0.769	21.8	LOS C	6.2	44.9	1.00	0.97	1.29	38.2
North: Pound N															
7	L2	All MCs	1	0.0	1	0.0	0.842	22.6	LOS C	16.4	121.6	0.93	1.04	1.23	40.0
8	T1	All MCs	732	6.6	732	6.6	* 0.842	18.0	LOS B	16.4	121.6	0.93	1.04	1.23	40.9
9	R2	All MCs	192	8.3	192	8.3	0.745	26.7	LOS C	4.2	31.9	0.99	0.96	1.33	36.5
Approach			925	6.9	925	6.9	0.842	19.8	LOS B	16.4	121.6	0.94	1.03	1.25	39.2
West: Waterloo W															
10	L2	All MCs	126	8.7	126	8.7	0.506	21.2	LOS C	3.4	25.4	0.94	0.78	0.94	38.5
11	T1	All MCs	53	11.3	53	11.3	0.506	16.5	LOS B	3.4	25.4	0.94	0.78	0.94	39.4
12	R2	All MCs	49	4.1	49	4.1	0.280	25.5	LOS C	1.0	7.3	0.98	0.72	0.98	36.4
Approach			228	8.3	228	8.3	0.506	21.0	LOS C	3.4	25.4	0.94	0.77	0.94	38.2
All Vehicles			2162	6.2	2162	6.2	0.842	18.5	LOS B	16.4	121.6	0.92	0.93	1.13	39.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:52:19 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 101 [B26. Pound/Waterloo (2036 CAST PM With 82% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Pound/Waterloo
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 50 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	107	4.7	107	4.7	0.695	16.9	LOS B	12.9	94.9	0.77	0.72	0.79	43.1
2	T1	All MCs	601	6.7	601	6.7	0.695	12.3	LOS B	12.9	94.9	0.77	0.72	0.79	44.2
3	R2	All MCs	25	0.0	25	0.0	0.121	28.7	LOS C	0.6	3.9	0.89	0.70	0.89	36.4
Approach			733	6.1	733	6.1	0.695	13.5	LOS B	12.9	94.9	0.78	0.72	0.79	42.0
East: Waterloo E															
4	L2	All MCs	112	2.7	112	2.7	0.785	31.3	LOS C	7.9	56.7	1.00	0.98	1.28	36.0
5	T1	All MCs	182	3.3	182	3.3	* 0.785	26.7	LOS C	7.9	56.7	1.00	0.98	1.28	36.7
6	R2	All MCs	4	0.0	4	0.0	0.019	28.4	LOS C	0.1	0.6	0.90	0.63	0.90	36.1
Approach			298	3.0	298	3.0	0.785	28.4	LOS C	7.9	56.7	1.00	0.98	1.27	35.7
North: Pound N															
7	L2	All MCs	1	0.0	1	0.0	0.856	26.5	LOS C	21.0	155.7	0.91	1.03	1.19	38.9
8	T1	All MCs	758	6.7	758	6.7	* 0.856	22.0	LOS C	21.0	155.7	0.91	1.03	1.19	39.6
9	R2	All MCs	200	8.5	200	8.5	0.752	30.7	LOS C	5.4	40.8	0.97	0.98	1.27	35.5
Approach			959	7.1	959	7.1	0.856	23.8	LOS C	21.0	155.7	0.92	1.02	1.20	37.6
West: Waterloo W															
10	L2	All MCs	131	9.2	131	9.2	0.527	25.1	LOS C	4.3	32.7	0.94	0.79	0.94	37.0
11	T1	All MCs	55	10.9	55	10.9	0.527	20.5	LOS C	4.3	32.7	0.94	0.79	0.94	37.8
12	R2	All MCs	50	4.0	50	4.0	0.340	31.4	LOS C	1.3	9.4	0.99	0.72	0.99	34.4
Approach			236	8.5	236	8.5	0.527	25.4	LOS C	4.3	32.7	0.95	0.77	0.95	36.6
All Vehicles			2226	6.4	2226	6.4	0.856	21.2	LOS C	21.0	155.7	0.89	0.89	1.05	38.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:52:22 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model \SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 101 [B27. Pound/Waterloo (2037 CAST PM With 91% Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Pound/Waterloo
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 50 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	108	4.6	108	4.6	0.685	15.6	LOS B	12.5	92.5	0.75	0.69	0.75	43.6
2	T1	All MCs	616	6.8	616	6.8	0.685	11.0	LOS B	12.5	92.5	0.75	0.69	0.75	44.7
3	R2	All MCs	25	0.0	25	0.0	0.128	29.5	LOS C	0.6	4.0	0.91	0.70	0.91	36.1
Approach			749	6.3	749	6.3	0.685	12.3	LOS B	12.5	92.5	0.76	0.69	0.76	42.6
East: Waterloo E															
4	L2	All MCs	111	2.7	111	2.7	0.889	39.3	LOS D	9.3	66.9	1.00	1.19	1.65	33.7
5	T1	All MCs	189	3.2	189	3.2	* 0.889	34.7	LOS C	9.3	66.9	1.00	1.19	1.65	34.3
6	R2	All MCs	2	0.0	2	0.0	0.011	30.3	LOS C	0.0	0.3	0.92	0.60	0.92	35.7
Approach			302	3.0	302	3.0	0.889	36.4	LOS D	9.3	66.9	1.00	1.19	1.65	33.2
North: Pound N															
7	L2	All MCs	1	0.0	1	0.0	0.884	30.4	LOS C	24.2	179.1	0.93	1.13	1.30	37.3
8	T1	All MCs	784	6.8	784	6.8	* 0.884	25.9	LOS C	24.2	179.1	0.93	1.13	1.30	38.0
9	R2	All MCs	208	9.1	208	9.1	0.762	30.2	LOS C	5.7	43.1	0.95	0.99	1.28	35.7
Approach			993	7.3	993	7.3	0.884	26.8	LOS C	24.2	179.1	0.93	1.10	1.30	36.4
West: Waterloo W															
10	L2	All MCs	135	9.6	135	9.6	0.602	26.7	LOS C	4.6	35.3	0.97	0.83	1.02	36.4
11	T1	All MCs	56	10.7	56	10.7	0.602	22.1	LOS C	4.6	35.3	0.97	0.83	1.02	37.1
12	R2	All MCs	52	3.8	52	3.8	0.432	32.9	LOS C	1.4	10.0	1.00	0.72	1.00	33.9
Approach			243	8.6	243	8.6	0.602	27.0	LOS C	4.6	35.3	0.97	0.80	1.02	36.0
All Vehicles			2287	6.5	2287	6.5	0.889	23.3	LOS C	24.2	179.1	0.89	0.95	1.14	37.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:52:24 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 101 [B28. Pound/Waterloo (2038 No Dev) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Pound/Waterloo
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 40 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	111	5.4	111	5.4	0.670	15.5	LOS B	9.5	68.2	0.82	0.76	0.86	42.8
2	T1	All MCs	484	2.5	484	2.5	0.670	10.8	LOS B	9.5	68.2	0.82	0.76	0.86	43.8
3	R2	All MCs	26	0.0	26	0.0	0.072	17.3	LOS B	0.4	2.7	0.74	0.68	0.74	40.2
Approach			621	2.9	621	2.9	0.670	11.9	LOS B	9.5	68.2	0.82	0.76	0.85	42.8
East: Waterloo E															
4	L2	All MCs	112	3.6	112	3.6	0.728	22.8	LOS C	6.3	45.7	0.98	0.92	1.18	38.5
5	T1	All MCs	195	3.1	195	3.1	* 0.728	18.2	LOS B	6.3	45.7	0.98	0.92	1.18	39.3
6	R2	All MCs	1	0.0	1	0.0	0.004	20.6	LOS C	0.0	0.1	0.87	0.58	0.87	38.3
Approach			308	3.2	308	3.2	0.728	19.9	LOS B	6.3	45.7	0.98	0.92	1.18	39.0
North: Pound N															
7	L2	All MCs	1	0.0	1	0.0	0.557	12.9	LOS B	7.2	52.5	0.76	0.66	0.76	43.9
8	T1	All MCs	499	5.0	499	5.0	0.557	8.3	LOS A	7.2	52.5	0.76	0.66	0.76	44.9
9	R2	All MCs	216	9.3	216	9.3	* 0.745	23.9	LOS C	4.7	35.8	0.97	0.97	1.30	36.9
Approach			716	6.3	716	6.3	0.745	13.0	LOS B	7.2	52.5	0.83	0.76	0.92	42.1
West: Waterloo W															
10	L2	All MCs	140	10.0	140	10.0	0.504	20.3	LOS C	3.6	27.8	0.92	0.78	0.92	38.9
11	T1	All MCs	59	11.9	59	11.9	0.504	15.6	LOS B	3.6	27.8	0.92	0.78	0.92	39.7
12	R2	All MCs	53	3.8	53	3.8	0.274	25.3	LOS C	1.1	7.8	0.98	0.72	0.98	36.5
Approach			252	9.1	252	9.1	0.504	20.2	LOS C	3.6	27.8	0.93	0.77	0.93	38.5
All Vehicles			1897	5.1	1897	5.1	0.745	14.8	LOS B	9.5	68.2	0.86	0.79	0.94	41.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:52:27 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model\SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 101 [B29. Pound/Waterloo (2038 CAST PM With Dev (100%) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing Pound/Waterloo
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 50 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	111	5.4	111	5.4	0.702	16.4	LOS B	13.3	98.4	0.76	0.72	0.78	43.4
2	T1	All MCs	631	7.1	631	7.1	0.702	11.7	LOS B	13.3	98.4	0.76	0.72	0.78	44.4
3	R2	All MCs	26	0.0	26	0.0	0.151	31.9	LOS C	0.6	4.4	0.94	0.70	0.94	35.3
Approach			768	6.6	768	6.6	0.702	13.1	LOS B	13.3	98.4	0.77	0.72	0.78	42.2
East: Waterloo E															
4	L2	All MCs	112	3.6	112	3.6	0.911	42.7	LOS D	10.1	72.3	1.00	1.27	1.78	32.8
5	T1	All MCs	195	3.1	195	3.1	* 0.911	38.1	LOS D	10.1	72.3	1.00	1.27	1.78	33.4
6	R2	All MCs	1	0.0	1	0.0	0.006	31.6	LOS C	0.0	0.2	0.94	0.57	0.94	35.4
Approach			308	3.2	308	3.2	0.911	39.8	LOS D	10.1	72.3	1.00	1.27	1.78	32.2
North: Pound N															
7	L2	All MCs	1	0.0	1	0.0	0.927	42.0	LOS D	30.9	229.5	0.98	1.36	1.58	33.5
8	T1	All MCs	810	6.9	810	6.9	* 0.927	37.4	LOS D	30.9	229.5	0.98	1.36	1.58	34.1
9	R2	All MCs	216	9.3	216	9.3	0.822	35.3	LOS D	6.5	49.3	0.98	1.08	1.49	34.2
Approach			1027	7.4	1027	7.4	0.927	37.0	LOS D	30.9	229.5	0.98	1.30	1.56	33.1
West: Waterloo W															
10	L2	All MCs	140	10.0	140	10.0	0.630	27.1	LOS C	4.9	37.5	0.97	0.84	1.06	36.3
11	T1	All MCs	59	11.9	59	11.9	0.630	22.4	LOS C	4.9	37.5	0.97	0.84	1.06	37.0
12	R2	All MCs	53	3.8	53	3.8	0.339	31.3	LOS C	1.4	9.9	0.99	0.72	0.99	34.4
Approach			252	9.1	252	9.1	0.630	26.9	LOS C	4.9	37.5	0.98	0.82	1.04	36.0
All Vehicles			2355	6.8	2355	6.8	0.927	28.5	LOS C	30.9	229.5	0.91	1.05	1.28	35.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:52:29 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model \SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 101 [B30. Pound/Waterloo (2038 CAST PM with 100% Dev - Improved 1Ln NB) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Improved Pound/Waterloo (1 Ln NBbnd)
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 50 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	111	5.4	111	5.4	0.742	19.0	LOS B	14.9	110.2	0.81	0.79	0.87	42.3
2	T1	All MCs	631	7.1	631	7.1	0.742	14.4	LOS B	14.9	110.2	0.81	0.79	0.87	43.3
3	R2	All MCs	26	0.0	26	0.0	0.071	17.5	LOS B	0.4	2.7	0.60	0.66	0.60	41.3
Approach			768	6.6	768	6.6	0.742	15.2	LOS B	14.9	110.2	0.80	0.78	0.86	41.2
East: Waterloo E															
4	L2	All MCs	112	3.6	112	3.6	0.820	33.6	LOS C	8.6	61.5	1.00	1.04	1.36	35.5
5	T1	All MCs	195	3.1	195	3.1	* 0.820	29.0	LOS C	8.6	61.5	1.00	1.04	1.36	36.2
6	R2	All MCs	1	0.0	1	0.0	0.005	29.9	LOS C	0.0	0.2	0.92	0.58	0.92	35.9
Approach			308	3.2	308	3.2	0.820	30.7	LOS C	8.6	61.5	1.00	1.04	1.36	35.0
North: Pound N															
7	L2	All MCs	1	0.0	1	0.0	0.388	11.3	LOS B	5.6	41.8	0.60	0.52	0.60	44.7
8	T1	All MCs	810	6.9	810	6.9	0.388	6.7	LOS A	5.6	41.8	0.60	0.52	0.60	45.8
9	R2	All MCs	216	9.3	216	9.3	* 0.893	41.1	LOS D	7.6	57.3	1.00	1.26	1.87	31.5
Approach			1027	7.4	1027	7.4	0.893	14.0	LOS B	7.6	57.3	0.68	0.68	0.87	41.8
West: Waterloo W															
10	L2	All MCs	140	10.0	140	10.0	0.567	25.4	LOS C	4.7	35.7	0.95	0.80	0.96	36.9
11	T1	All MCs	59	11.9	59	11.9	0.567	20.8	LOS C	4.7	35.7	0.95	0.80	0.96	37.7
12	R2	All MCs	53	3.8	53	3.8	0.379	31.6	LOS C	1.4	10.0	1.00	0.73	1.00	34.3
Approach			252	9.1	252	9.1	0.567	25.6	LOS C	4.7	35.7	0.96	0.79	0.97	36.5
All Vehicles			2355	6.8	2355	6.8	0.893	17.8	LOS B	14.9	110.2	0.79	0.77	0.94	40.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:52:31 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model \SIDRA\Barters - Staging 9%pa.sip9

MOVEMENT SUMMARY

Site: 101 [B30b. Pound/Waterloo (2038 CAST PM with 100% Dev - Improved 2Ln NB) (Site Folder: Barters Staging-GONZO demands)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Improved Pound/Waterloo (1 Ln NBbnd)
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 40 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Pound S															
1	L2	All MCs	111	5.4	111	5.4	0.299	11.7	LOS B	3.2	23.6	0.65	0.62	0.65	43.4
2	T1	All MCs	631	7.1	631	7.1	0.544	8.1	LOS A	6.9	51.1	0.73	0.65	0.73	44.8
3	R2	All MCs	26	0.0	26	0.0	0.077	14.5	LOS B	0.4	2.5	0.69	0.67	0.69	41.0
Approach			768	6.6	768	6.6	0.544	8.8	LOS A	6.9	51.1	0.72	0.65	0.72	44.5
East: Waterloo E															
4	L2	All MCs	112	3.6	112	3.6	0.728	22.8	LOS C	6.3	45.7	0.98	0.92	1.18	38.5
5	T1	All MCs	195	3.1	195	3.1	* 0.728	18.2	LOS B	6.3	45.7	0.98	0.92	1.18	39.3
6	R2	All MCs	1	0.0	1	0.0	0.004	20.7	LOS C	0.0	0.1	0.87	0.58	0.87	38.4
Approach			308	3.2	308	3.2	0.728	19.9	LOS B	6.3	45.7	0.98	0.92	1.18	39.0
North: Pound N															
7	L2	All MCs	1	0.0	1	0.0	0.457	12.4	LOS B	5.5	40.6	0.71	0.61	0.71	44.2
8	T1	All MCs	810	6.9	810	6.9	0.457	7.8	LOS A	5.5	40.6	0.71	0.61	0.71	45.2
9	R2	All MCs	216	9.3	216	9.3	* 0.702	21.5	LOS C	4.5	33.8	0.94	0.93	1.18	37.9
Approach			1027	7.4	1027	7.4	0.702	10.7	LOS B	5.5	40.6	0.76	0.68	0.81	43.4
West: Waterloo W															
10	L2	All MCs	140	10.0	140	10.0	0.504	20.4	LOS C	3.6	27.8	0.92	0.78	0.92	38.9
11	T1	All MCs	59	11.9	59	11.9	0.504	15.6	LOS B	3.6	27.8	0.92	0.78	0.92	39.8
12	R2	All MCs	53	3.8	53	3.8	0.274	25.3	LOS C	1.1	7.8	0.98	0.72	0.98	36.6
Approach			252	9.1	252	9.1	0.504	20.3	LOS C	3.6	27.8	0.93	0.77	0.93	38.6
All Vehicles			2355	6.8	2355	6.8	0.728	12.3	LOS B	6.9	51.1	0.79	0.71	0.84	42.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Organisation: QTP LTD | Licence: PLUS / 1PC | Processed: Wednesday, 9 July 2025 3:52:33 pm
Project: C:\Users\paul.roberts\QTP Limited\QTP Files - Documents\Projects\2024\2024-017 - Novo Barters Rd Industrial PPC\Technical\Model \SIDRA\Barters - Staging 9%pa.sip9

This page is deliberately blank for printing