



Technical Note

Project No: ITB16357
Project Title: Land South of A259, Angmering
Title: Additional Information – A/168/21
Ref: DS/ITB16357-008
Date: 11 October 2021

SECTION 1 Introduction

1.1.1 Redrow Homes has appointed i-Transport LLP to provide highways and transport advice in relation to a full planning application (planning ref: A/168/21) that has been submitted to Arun District Council (ADC) for the proposed residential development of 76 dwellings with associated car parking and landscaping, on land south of the A259 in Angmering.

1.1.2 West Sussex County Council (WSCC), in their capacity as the local highway authority, has responded to the application requesting further information as summarised below:

- Design Audit identifying standards used in the design and any departures;
- Further assessment regarding the retention of the arm onto the A259 Roundstone By-pass Roundabout;
- Validation of the 2015 traffic surveys;
- Extent of the cycle way widening; and
- Amendments to the Travel Plan.

1.1.3 This Technical Note (TN) has been prepared to respond to the matters raised by WSCC. The remainder of this TN is structured as follows:

- Section 2 – Access;
- Section 3 – Pedestrian/Cycle Way and Travel Plan;
- Section 4 – Traffic Flow Validation; and
- Section 5 – Summary and Conclusions.

SECTION 2 Access

2.1 Bus Stop

- 2.2 The design of the site access arrangement has been modified in order to remove the existing bus stop located on the live nearside lane of the A259 carriageway, as requested in the WSCC response. The amendment is shown in **Drawing ITB16357-GA-003 Rev E**.

2.3 Retention of Existing Left In, Left Out Access

- 2.3.1 The existing left in, left out junction that serves Roundstone Farm and the existing commercial and residential properties is outside of both the application and blue line boundaries. The access is not under the control of the Applicant and access rights exist for the uses served by the access. As such, it is not possible to close the access as part of the development proposals.
- 2.3.2 The access is lightly used, serving 4 residential properties and commercial uses that do not generate significant volumes of traffic. Access to Roundstone Farm itself is to be encouraged to use the new site access, with the access road connecting through from the development set to be improved, including resurfacing, through permitted development rights.

2.4 Design Audit

- 2.4.1 A full Design Audit (ref: ITB16357-010 Design Audit) has been prepared and submitted as part of the additional information.
- 2.4.2 The Design Audit identifies two departures, relating to the hard strips and carriageway widths. The third departure previously identified, related to the bus stop location, has been designed out of the scheme as set out in Section 2.1 of this TN.
- 2.4.3 Upon agreement of the access design, a Stage 1 Road Safety Audit will be undertaken.

2.5 Roundabout Exit

- 2.5.1 Consideration has been given to alternative arrangements to provide access into the site for eastbound vehicles, including relocation of the access to the south from the B2140. The retention of agricultural access rights requires an access that is suitable to accommodate the manoeuvring of permitted 'abnormal vehicle' movements. The alignment of the access from the roundabout, coupled with the space available on the roundabout itself, enables this manoeuvre to be undertaken appropriately. Relocation of the access will require either a wide sweeping manoeuvre that crosses the centre line of the carriage (potentially obstructing vehicles exiting the roundabout should there be queuing traffic on the northbound approach to the roundabout) or an oversized access contrary to good design.

2.5.2 Consideration has also been given to the provision of a second access on the B2140 providing only for access to the residential development, with the exit from the roundabout retained only for the use of agricultural vehicles and gated. This has been discounted as an option because:

- The potential for confusion for visitors unfamiliar with the site mistaking the agricultural exit for entrance to the development, and unable to proceed beyond the gated access, set back within the access, requiring either a reversing manoeuvre onto the roundabout or a multi-point turn within the constrained access width;
- The visual impact of multiple points of access along the north-eastern boundary of the site;
- Further interruption to the pedestrian/cycle route adjacent to the carriageway; and
- The impact on the internal site layout and the ability to provide a landscaped boundary.

2.5.3 It should be noted that the access from the roundabout will only be used by vehicles approaching the site from the west. As identified in the Traffic Flow Diagrams accompanying the Transport Assessment, this equates to a total of 4 movements during the morning peak period (equivalent to 1 movement every 15 minutes) and 15 movements during the afternoon peak period (equivalent to 1 movement every 4 minutes). The access from the roundabout will be lightly used.

2.5.4 On the basis of the above, it is proposed that the access from the roundabout is to be retained. It is recognised that a Traffic Regulation Order will be required to enable enforcement against manoeuvres from the access onto the roundabout, and the Applicant is willing to enter into a Section 106 Agreement that requires funding of the promotion and advertisement associated with the making of an Order. It is understood that the current cost of this is circa £7,500.

2.5.5 To prevent unreasonable levels of enforcement being necessary (e.g., regular attendance at the site), it is understood that WSCC utilise Automatic Number Plate Recognition (ANPR) cameras as a means of enforcing bus gates, as per the adopted WSCC Bus Gate Enforcement Developers Pack. Given the similarities between the enforcement of bus gates and the enforcement of entering the roundabout from the exit (i.e. a vehicle has to cross a certain point as defined in the Traffic Regulation Order), the deployment of ANPR cameras would be a means of enabling enforcement at this location. The Applicant is willing to enter into a Section 106 Agreement to deploy the ANPR cameras and to pay a commuted sum for their maintenance, as set out in the Bus Gate Enforcement Developers Pack. There are lamp columns on either side of the access that could be used to site and power the cameras.

2.5.6 It should also be noted that the means of self-enforcement within the site (e.g., the location of buildouts, signage and kerb alignment) were subject to consultation and agreement with WSCC as part of the pre-application engagement and found to be acceptable by the responding officer. Notwithstanding, measures of removable obstructions, barriers and gates have been avoided within the design since this would preclude the internal roads being offered for adoption. The proposed measures look to utilise permanent features that can be adopted as part of the highway.

SECTION 3 Pedestrian and Cycle Way & Travel Plan

3.1 Pedestrian and Cycle Way

- 3.1.1 Services and facilities that will be accessed by bicycle are primarily located to the west of the development, including Angmering Station, local neighbourhood centres and a range of retail opportunities located to the south of the A259. Residents may also choose to cycle to the east, where an Asda is located a short distance from the site in addition to being able to access other services and facilities, although slightly more removed than those to the west. Goring Station is less attractive as a cycle destination, as Angmering Station is both closer and provides access to a greater number of services.
- 3.1.2 WSCC has requested that the cycle route adjacent to the A259 is improved between A259/A280/B2140 roundabout and to at least the access with Asda. It is understood that this section of the A259, including improvement of the cycleway, was identified as part of the original WSCC-led proposals to improve the A259 but had subsequently been removed from the scope of the project.
- 3.1.3 While the Applicant is willing to undertake some improvement of this route, any S106 Obligation placed upon the consent is required to meet the three tests set out in CIL Regulation 122 in order for it to be lawful. These tests requires that obligations be:
- Necessary to make the development acceptable in planning terms;
 - Directly related to the development; and
 - Fairly and reasonably related in scale and kind to the development.
- 3.1.4 Residents of the proposed development will primarily enter the cycle network on the western boundary of the site, with cycle journeys accommodated on-carriageway within the development itself. Such an arrangement is consistent with the recommendations of Figure 4.1 in LTN 01/20. WSCC has noted that there is limited cycle infrastructure beyond that adjacent to the A259, however, the development is required to pay Community Infrastructure Levy contributions, and which can be used to deliver such infrastructure if deemed to be a priority by ADC.
- 3.1.5 The Trip Rate Information Computer System (TRICS) has been used to identify multi-modal surveys in order to quantify the number of cyclists that would be generated by the development. This assessment demonstrates that a development of 76 dwellings would generate approximately 12 cycle movements across the 12-hour daily period, ranging between 1-3 movements per hour; the outputs of the TRICS assessment are provided at **Appendix B**.

- 3.1.6 It is recognised that the objective of the Travel Plan is to increase journeys undertaken by sustainable modes of transport, and therefore the number of cyclists generated by the site would likely increase beyond this average. Assuming a robust 50% increase in cycle journeys, this would equate to circa 18 cycle movements per 12-hour period, with the number of movements per hour ranging between 1 and 4.
- 3.1.7 Even if all of the cycle movements generated by the proposed development access the existing path adjacent to the A259, it is evident that the impact would be barely perceptible; during the busiest hour, it would equate to 1 additional movement every 15 minutes. From observation of the route, it does not appear to be as extensively used that it would be approaching 'capacity', nor does the PIA data indicate any accident history that would be exacerbated by the development. There would be limited benefit of the infrastructure towards increasing the number of cycle movements generated by the proposed development, given that most cyclists would not use the route if travelling west as movements could be suitably retained within the site. Therefore, the request would not satisfy the 'necessary' test.
- 3.1.8 It is understood that WSCC typically use the rate of £500,000 per 1km to estimate the cost of off-carriageway cycle improvements. While the scheme would involve the widening of the existing route, it is likely that full reconstruction would be required in order for the path to tie in effectively and to prevent future path breakup/maintenance issues. The length of the link requested from improvement extends some 750m, equivalent to a cost of £375,000 and a rate of £4,900 per dwelling. By way of comparison, Highways England (now National Highways) has requested a contribution of £554.00 per dwelling – the cost of the works would be some 9 times greater than the contribution required towards strategic infrastructure, a contribution which itself is based assessments that have been through several adoption and approval processes. As such, the works request would not satisfy the test of being 'fairly and reasonably related in scale and kind', particularly when the volume of cyclists generated by the proposed development is taken into consideration.
- 3.1.9 Notwithstanding, the Applicant is willing to deliver some improvement of the cycle route that can be incorporated into, and constructed alongside, the site access works. A scheme of widening has been identified extending from the A259/A280/B2140 roundabout to the eastern boundary of the blue line plan. This includes the area in the vicinity of the TPO trees which will allow for hand dug construction techniques to be used, and the scope of the works in this area defined through the Section 278 Agreement. The works have been incorporated into **Drawing ITB16357-GA-003 Rev E**.

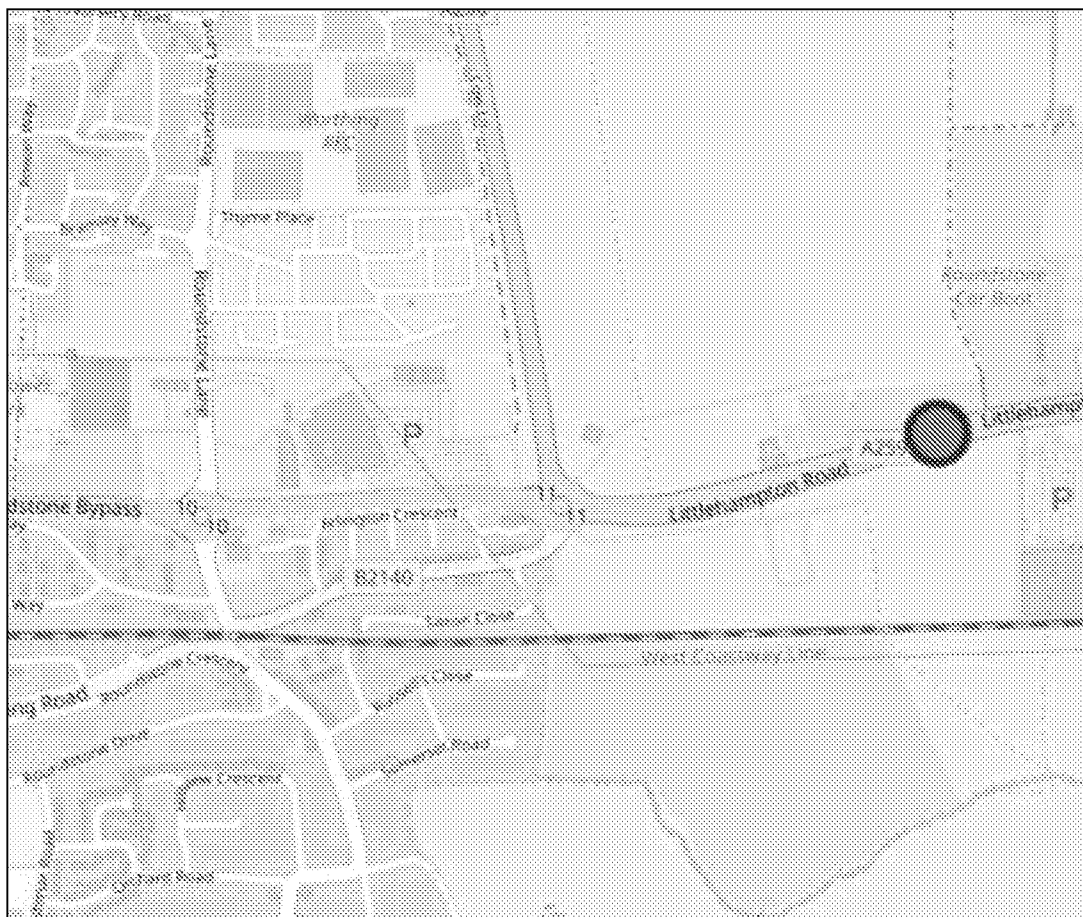
3.2 Travel Plan

- 3.2.1 The Travel Plan has been amended as requested by WSCC, with monitoring to commence upon full occupation of the development. A revised version of the document (ref: *ITB16357-003A*) is provided alongside the additional information submission that enables to the document to be condition for implementation prior to first occupation of the site.
- 3.2.2 The requirement for a Travel Plan Monitoring fee is noted and the Applicant is willing to accept a S106 obligation requiring the payment of the £1,500 fee.

SECTION 4 Traffic Flow Validation

- 4.1.1 WSCC has requested validation of the 2015 base flows that have been used to inform the capacity assessment of the proposed development, to which growth values have been applied as derived from the National Transport Model (NTM).
- 4.1.2 The WSCC Traffic County Database has been used to identify permanent counts in the vicinity of the site. A single count location (site number: 00003133), the location of which is shown in **Image 4.1**, has been identified on the approach to the A259/A280/B2140 roundabout that can be used for validation purposes.

Image 4.1: Permanent Count Location – A259



Source: WSCC Traffic Count Database

- 4.1.3 The traffic data collected to inform the Transport Assessment associated with planning application A/99/17 was obtained in November 2015. It is not possible to do a like-for-like assessment against a corresponding time period in November 2020, due to the impact that Covid measures were having on traffic flows at this time. Therefore, westbound traffic flows on the A259 for both November 2019 and February 2020 have been obtained for comparison purposes.

- 4.1.4 In order to growth the 2015 baseline data to obtain a 2020 value for comparison purposes, a further Temprow growth rate has been obtained for the period 2015-2020 using the same parameters as those used to obtain to the 2015-2021 and 2015-2026 growth rates. The morning and evening peak period growth rates are summarised in Table 4.2 and the calculations are provided at Appendix A.

Table 4.1: TEMPro Growth Rate

Period	Morning Peak	Evening Peak
2015-2020	1.0593	1.0601

- 4.1.5 The comparison of the 2015 westbound traffic flows plus Temprow growth to 2020, November 2019 and February 2020 flows during the morning and evening peak hours is shown in Table 4.2.

Table 4.2: A259 Traffic Flow Comparison

	AM Peak (08:00 – 09:00)		PM Peak (17:00-18:00)	
	Eastbound	Westbound	Eastbound	Westbound
2020 Baseline (2015 + Temprow)	1641	900	1311	1378
November 2019	1517	1097	1323	1309
February 2020	1534	1090	1321	1293

Source: WSCC Traffic Data and consultants' calculations

- 4.1.6 As identified in Table 4.2, all traffic flows calculated via the application of a Temprow growth factor are higher than the actual observed traffic flows on the A259 in both 2019 and 2020 (with the exception of the westbound section of the A259 during the AM peak). As such, those flows are considered to be robust.
- 4.1.7 The westbound flows on the A259 during the AM peak were recorded as being higher in both 2019 and 2020 than those derived by applying Temprow growth to the 2015 data by approximately 20%. As this would have a direct impact on both the modelling of the site access junction and the A259/A280/B2140 roundabout, a sensitivity test has been undertaken. A 20% uplift has been applied to both the westbound movements travelling past the site access junction and the westbound entry movements onto the A259/A280/B2140 roundabout in the AM peak. The revised 2021 and 2026 baseline flows are provided at **TFD 1A** and **2A**, and the 2026 plus development traffic flows are provided at **TFD 3A**.
- 4.1.8 These flows have been used to rerun the traffic modelling for the both the site access and A259/A280/B2140 roundabout. The outputs are summarised in **Tables 4.3** and **4.4** and a copy of the modelling outputs are provided at **Appendix C**.

Table 4.3: Site Access Sensitivity Test

Approach	Morning Peak Period		
	RFC	Queue (veh)	Delay (s/veh)
2026 with Development			
Site Access	0.06	<1	7

Source: Junctions 9

Table 4.4: A259 / Old Worthing Road Roundabout

Approach	Morning Peak Period		
	RFC	Queue (veh)	Delay (s/veh)
2021			
A280	0.35	1	5
A259 (East)	0.52	1	3
Old Worthing Road	0.60	2	9
Roundstone By-pass Road	0.65	2	5
2026 with Committed Development			
A280	0.38	1	5
A259 (East)	0.55	1	4
Old Worthing Road	0.65	2	10
Roundstone By-pass Road	0.69	2	6
2026 with Committed Development plus Development			
A280	0.39	1	6
A259 (East)	0.57	1	4
Old Worthing Road	0.66	2	10
Roundstone By-pass Road	0.69	2	6

Source: Junctions 9

- 4.1.9 The revised modelling verifies that the proposed development will have no discernible capacity impact upon the operation of the local highway network.

SECTION 5 Summary and Conclusions

- 5.1.1 Redrow Homes has appointed i-Transport LLP to provide highways and transport advice in relation to a full planning application (planning ref: A/168/21) that has been submitted to Arun District Council (ADC) for the proposed residential development of 76 dwellings with associated car parking and landscaping, on land south of the A259 in Angmering.
- 5.1.2 West Sussex County Council (WSCC), in their capacity as the local highway authority, has responded to the application requesting further information as summarised below:
- Design Audit identifying standards used in the design and any departures;
 - Further assessment regarding the retention of the arm onto the A259 Roundstone By-pass Roundabout;
 - Validation of the 2015 traffic surveys;
 - Extent of the cycle way widening; and
 - Amendments to the Travel Plan.
- 5.1.3 As requested by WSCC, the existing bus stop is to be removed as part of the implementation of the access arrangements, however, it is not possible to close the existing left in, left out junction to the east of the site as this is located outside of the site boundary and extent of the land within the blue line, with residents of the existing residential dwellings and users of the commercial buildings having access rights.
- 5.1.4 The existing access from the A259/A280 roundabout is to be retained. The Applicant is willing to fund a Traffic Regulation Order and associated ANPR enforcement cameras at the access.
- 5.1.5 A full Design Audit of the proposed left in left turn junction has been provided. A Stage 1 Road Safety Audit will be undertaken following approval of the outstanding design matters.
- 5.1.6 Widening of the existing footway/cycleway adjacent to the A259 is proposed, from its junction with the B2140 in the west to the eastern extent of the blue line boundary. Improvement of the route beyond this point does not satisfy the CIL Reg 122 tests for the use of planning obligations.
- 5.1.7 The Travel Plan has been amended in accordance with WSCC's comments and is submitted alongside this additional information.

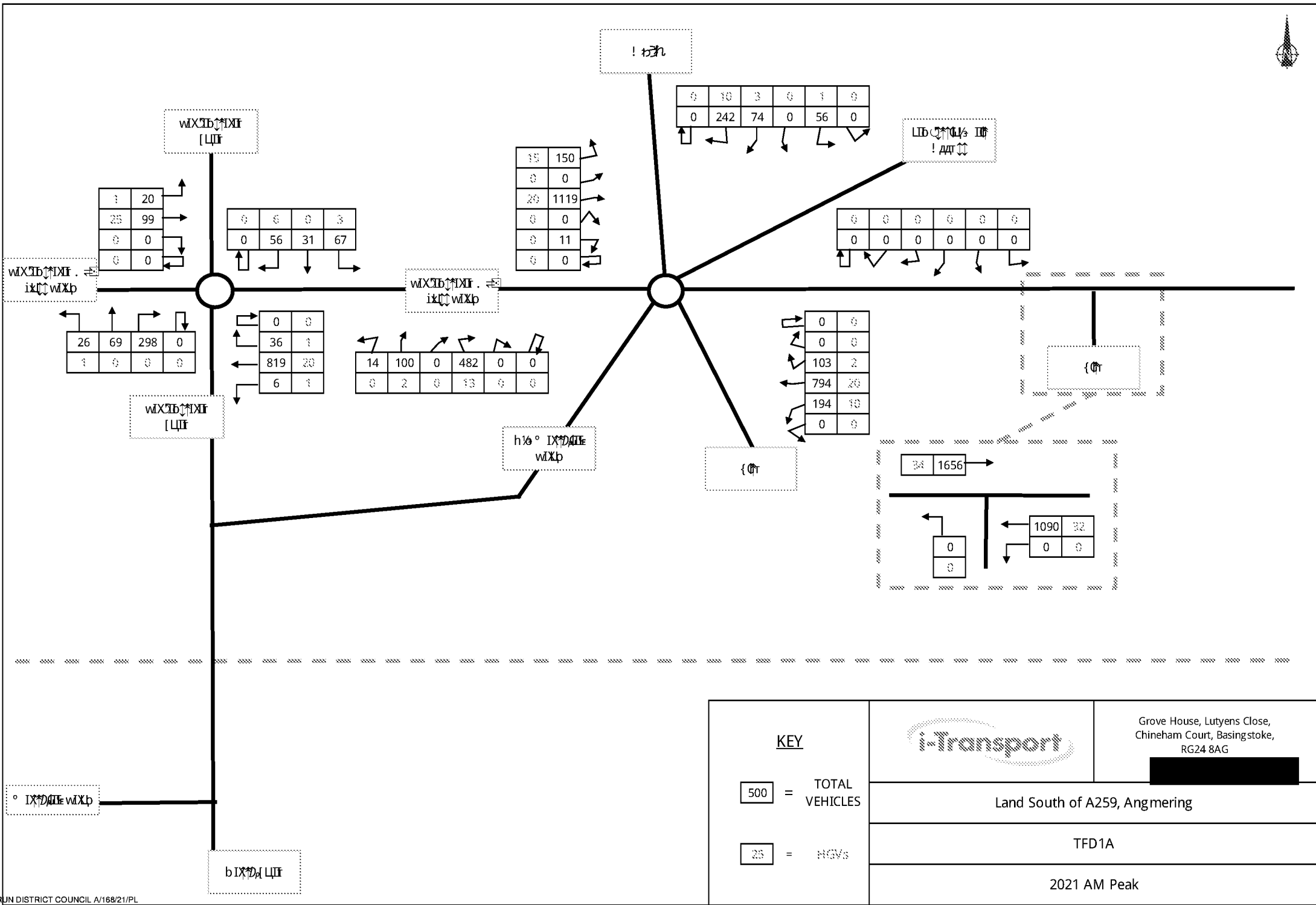
- 5.1.8 Further analysis of the traffic data has been undertaken and an uplift of 20% applied to the AM peak period westbound flows to ensure a robust assessment of the development impact. The capacity modelling has been revised to reflect the adjusted baseline data and which demonstrates that the development will have an imperceptible impact upon the operation of the highway network.

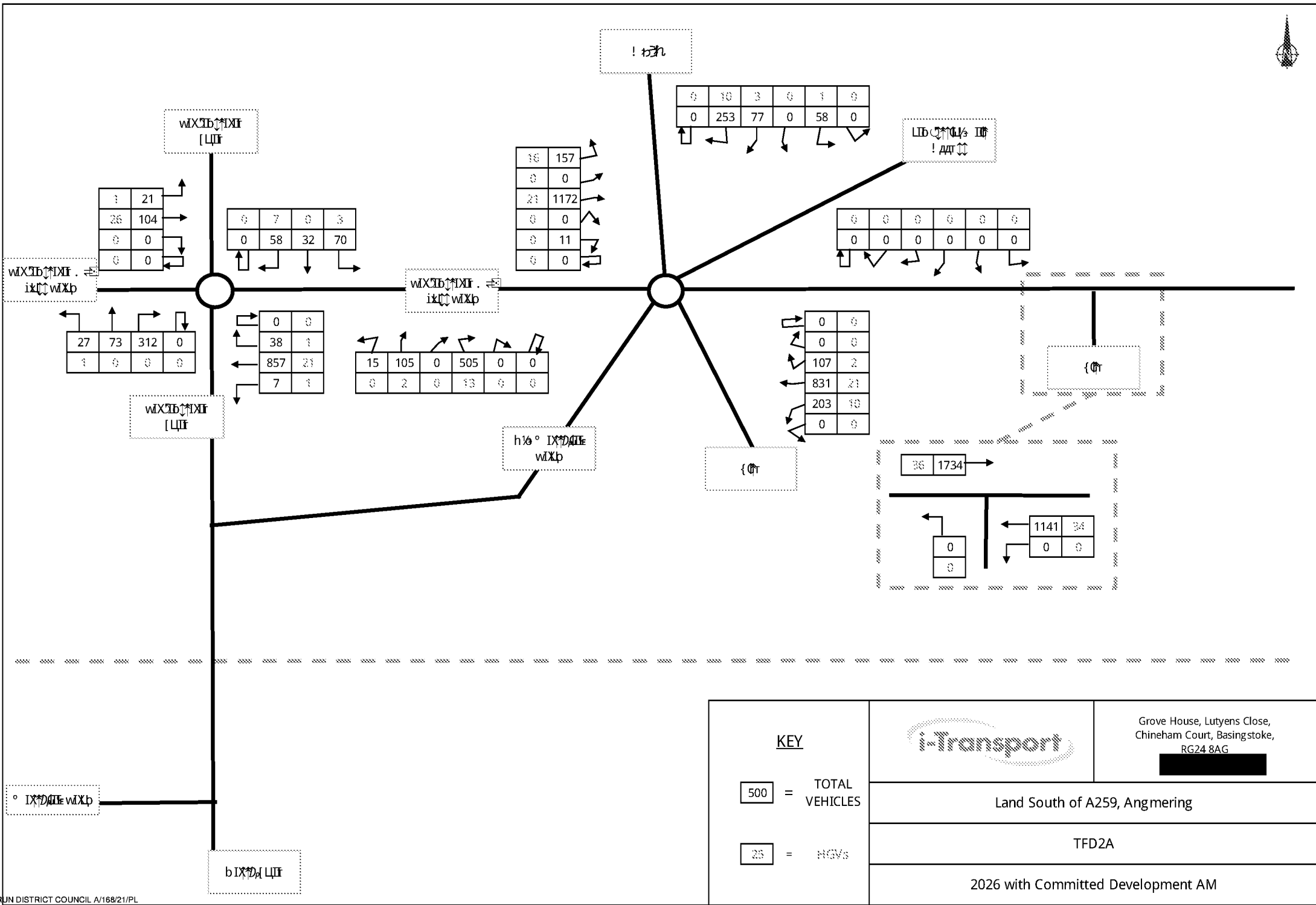
5.2 **Conclusion**

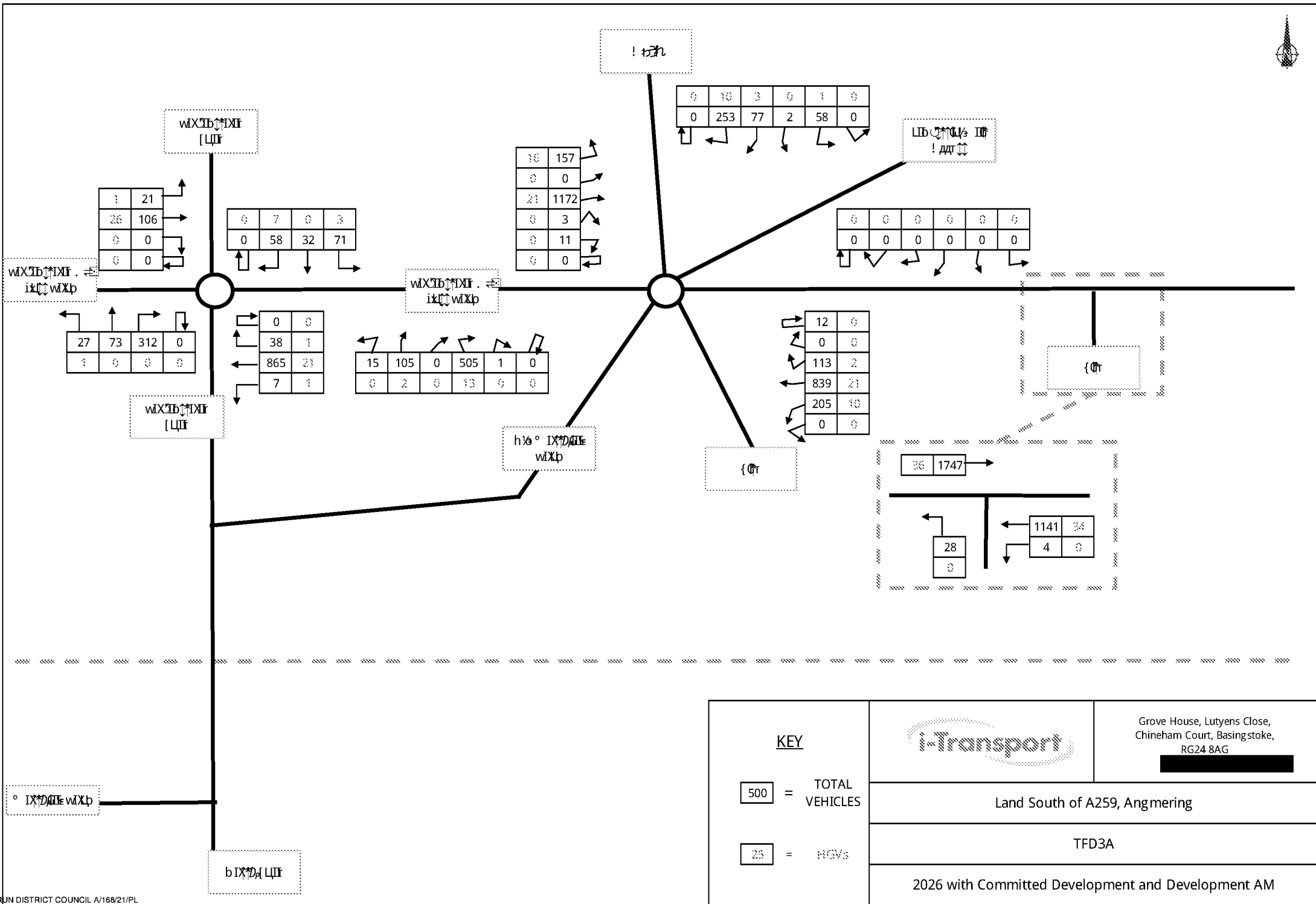
- 5.2.1 On that basis, the matters raised by WSCC in their response to planning application A/168/21 have been addressed, and a Stage 1 RSA will be undertaken upon resolution of the Departure from Standards applications.

DRAWING

ARUN DISTRICT COUNCIL A/168/21/PL







Appendix A – Tempro Calculations

Appendix B – TRICS Outputs

Calculation Reference: AUDIT-236601-210923-0931

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
 Category : A - HOUSES PRIVATELY OWNED

MULTI-MODAL CYCLISTSSelected regions and areas:

02 SOUTH EAST	
ES EAST SUSSEX	2 days
KC KENT	1 days
SC SURREY	1 days
WS WEST SUSSEX	1 days
04 EAST ANGLIA	
NF NORFOLK	1 days
06 WEST MIDLANDS	
SH SHROPSHIRE	1 days
07 YORKSHIRE & NORTH LINCOLNSHIRE	
NY NORTH YORKSHIRE	1 days
09 NORTH	
DH DURHAM	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: No of Dwellings
 Actual Range: 54 to 134 (units:)
 Range Selected by User: 50 to 150 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/13 to 08/10/20

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:

Tuesday	1 days
Wednesday	3 days
Thursday	2 days
Friday	3 days

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

Selected survey types:

Manual count	9 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 undertaken using machines.

Selected Locations:

Edge of Town	9
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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:

Residential Zone	8
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.

Secondary Filtering selection:

Use Class:

C3 9 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

All Surveys Included

Population within 1 mile:

1,000 or Less	1 days
5,001 to 10,000	3 days
10,001 to 15,000	2 days
15,001 to 20,000	3 days

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

Population within 5 miles:

5,001 to 25,000	1 days
25,001 to 50,000	2 days
75,001 to 100,000	2 days
100,001 to 125,000	1 days
125,001 to 250,000	3 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
1.1 to 1.5	8 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:

Yes	2 days
No	7 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	9 days
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This data displays the number of selected surveys with PTAL Ratings.

i-Transport Grove House Basingstoke

Licence No: 236601

LIST OF SITES relevant to selection parameters

1	DH-03-A-03	SEMI -DETACHED & TERRACED	DURHAM
	PILGRIMS WAY DURHAM		
	Edge of Town Residential Zone		
	Total No of Dwellings:	57	
	Survey date: FRIDAY	19/10/18	Survey Type: MANUAL
2	ES-03-A-04	MIXED HOUSES & FLATS	EAST SUSSEX
	NEW LYDD ROAD CAMBER		
	Edge of Town Residential Zone		
	Total No of Dwellings:	134	
	Survey date: FRIDAY	15/07/16	Survey Type: MANUAL
3	ES-03-A-05	MIXED HOUSES & FLATS	EAST SUSSEX
	RATTLE ROAD NEAR EASTBOURNE STONE CROSS		
	Edge of Town Residential Zone		
	Total No of Dwellings:	99	
	Survey date: WEDNESDAY	05/06/19	Survey Type: MANUAL
4	KC-03-A-04	SEMI -DETACHED & TERRACED	KENT
	KILN BARN ROAD AYLESFORD DITTON		
	Edge of Town Residential Zone		
	Total No of Dwellings:	110	
	Survey date: FRIDAY	22/09/17	Survey Type: MANUAL
5	NF-03-A-04	MIXED HOUSES	NORFOLK
	NORTH WALSHAM ROAD NORTH WALSHAM		
	Edge of Town Residential Zone		
	Total No of Dwellings:	70	
	Survey date: WEDNESDAY	18/09/19	Survey Type: MANUAL
6	NY-03-A-10	HOUSES AND FLATS	NORTH YORKSHIRE
	BOROUGHBRIDGE ROAD RIPON		
	Edge of Town No Sub Category		
	Total No of Dwellings:	71	
	Survey date: TUESDAY	17/09/13	Survey Type: MANUAL
7	SC-03-A-04	DETACHED & TERRACED	SURREY
	HIGH ROAD BYFLEET		
	Edge of Town Residential Zone		
	Total No of Dwellings:	71	
	Survey date: THURSDAY	23/01/14	Survey Type: MANUAL
8	SH-03-A-05	SEMI -DETACHED/ TERRACED	SHROPSHIRE
	SANDCROFT TELFORD SUTTON HILL		
	Edge of Town Residential Zone		
	Total No of Dwellings:	54	
	Survey date: THURSDAY	24/10/13	Survey Type: MANUAL

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LIST OF SITES relevant to selection parameters (Cont.)

9	WS-03-A-10	MIXED HOUSES	WEST SUSSEX
	TODDINGTON LANE		
	LITTLEHAMPTON		
	WICK		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	79	
	Survey date: WEDNESDAY	07/11/18	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.

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TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL CYCLISTS**Calculation factor: 1 DWELLS****Estimated TRIP rate value per 76 DWELLS shown in shaded columns****BOLD print indicates peak (busiest) period**

Time Range	ARRIVALS				DEPARTURES				TOTALS			
	No Days	Ave DWELLS	Trip Rate	Estimated Trip Rate	No Days	Ave DWELLS	Trip Rate	Estimated Trip Rate	No Days	Ave DWELLS	Trip Rate	Estimated Trip Rate
00:00 - 01:00												
01:00 - 02:00												
02:00 - 03:00												
03:00 - 04:00												
04:00 - 05:00												
05:00 - 06:00												
06:00 - 07:00												
07:00 - 08:00	9	83	0.011	0.816	9	83	0.003	0.204	9	83	0.014	1.020
08:00 - 09:00	9	83	0.012	0.918	9	83	0.019	1.428	9	83	0.031	2.346
09:00 - 10:00	9	83	0.001	0.102	9	83	0.004	0.306	9	83	0.005	0.408
10:00 - 11:00	9	83	0.000	0.000	9	83	0.008	0.612	9	83	0.008	0.612
11:00 - 12:00	9	83	0.004	0.306	9	83	0.007	0.510	9	83	0.011	0.816
12:00 - 13:00	9	83	0.003	0.204	9	83	0.005	0.408	9	83	0.008	0.612
13:00 - 14:00	9	83	0.007	0.510	9	83	0.001	0.102	9	83	0.008	0.612
14:00 - 15:00	9	83	0.005	0.408	9	83	0.001	0.102	9	83	0.006	0.510
15:00 - 16:00	9	83	0.001	0.102	9	83	0.009	0.714	9	83	0.010	0.816
16:00 - 17:00	9	83	0.011	0.816	9	83	0.007	0.510	9	83	0.018	1.326
17:00 - 18:00	9	83	0.011	0.816	9	83	0.005	0.408	9	83	0.016	1.224
18:00 - 19:00	9	83	0.008	0.612	9	83	0.005	0.408	9	83	0.013	1.020
19:00 - 20:00												
20:00 - 21:00												
21:00 - 22:00												
22:00 - 23:00												
23:00 - 24:00												
Total Rates			0.074	5.610			0.074	5.712			0.148	11.322

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 C – Capacity Modelling

	AM			
	Queue (PCU)	Delay (s)	RFC	LOS
2021 20% Uplift				
1 - A280	0.6	4.96	0.35	A
2 - A259 E	1.1	3.42	0.52	A
4 - Old Worthing Road	1.5	8.57	0.60	A
5 - Roundstone By-pass Road	1.9	4.90	0.65	A
2026 + CD 20% Uplift				
1 - A280	0.6	5.45	0.38	A
2 - A259 E	1.3	3.64	0.55	A
4 - Old Worthing Road	1.9	9.99	0.65	A
5 - Roundstone By-pass Road	2.3	5.55	0.69	A
2026 + CD + D 20% Uplift				
1 - A280	0.7	5.55	0.39	A
2 - A259 E	1.3	3.76	0.57	A
4 - Old Worthing Road	2.0	10.45	0.66	B
5 - Roundstone By-pass Road	2.3	5.70	0.69	A

There are warnings associated with one or more model runs - see the [Task List](#) for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

Junctions 9
PICADY 9 - Priority Intersection Module
Version: 9.5.0.6896 © Copyright TRL Limited, 2018
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Filename: Site Access.j9

Path: T:\Projects\16000 Series\16357\T B Land South of A259, Angmering\Tech\Junction

Assessments\Picady

Report generation date: 24/09/2021 08:18:57

62026 + D, AM

62026 + D, PM

62026 + D 20% Uplift, AM

62026 + D 20% Uplift, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2026 + D							
Stream B-AC	0.1	6.78	0.05	A	0.0	9.98	0.04	A
Stream C-AB	0.0	0.00	0.00	A	0.0	0.00	0.00	A
	2026 + D 20% Uplift							
Stream B-AC	0.1	7.80	0.06	A	0.0	9.98	0.04	A
Stream C-AB	0.0	0.00	0.00	A	0.0	0.00	0.00	A

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	
Location	
Site number	
Date	23/04/2021
Version	
Status	(new file)
Identifier	
Client	
Job number	
Enumerator	I-TRANSPORT\basingstoke.hotdesk
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2026 + D	AM	ONE HOUR	07:45	09:15	15
D2	2026 + D	PM	ONE HOUR	16:45	18:15	15
D4	2026 + D 20% Uplift	AM	ONE HOUR	07:45	09:15	15
D5	2026 + D 20% Uplift	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2026 + D, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.07	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	A259 E		Major
B	Site Access		Minor
C	A259 W		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - A259 W	7.30			250.0	V	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - Site Access	One lane	4.66	50	250

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	721	0.124	0.313	0.197	0.447
1	B-C	911	0.132	0.333	-	-
1	C-B	719	0.263	0.263	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2026 + D	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A259 E		V	955	100.000
B - Site Access		V	28	100.000
C - A259 W		V	1747	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - A259 E	B - Site Access	C - A259 W
From	A - A259 E	0	4	951
	B - Site Access	0	0	28
	C - A259 W	1747	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - A259 E	B - Site Access	C - A259 W
From	A - A259 E	0	0	4
	B - Site Access	0	0	0
	C - A259 W	2	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.05	6.78	0.1	A
C-AB	0.00	0.00	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	672	0.031	21	0.0	5.525	A
C-AB	0	530	0.000	0	0.0	0.000	A
C-A	1315			1315			
A-B	3			3			
A-C	716			716			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	25	626	0.040	25	0.0	5.991	A
C-AB	0	493	0.000	0	0.0	0.000	A
C-A	1571			1571			

A-B	4			4			
A-C	855			855			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	31	562	0.055	31	0.1	6.778	A
C-AB	0	442	0.000	0	0.0	0.000	A
C-A	1923			1923			
A-B	4			4			
A-C	1047			1047			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	31	562	0.055	31	0.1	6.778	A
C-AB	0	442	0.000	0	0.0	0.000	A
C-A	1923			1923			
A-B	4			4			
A-C	1047			1047			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	25	626	0.040	25	0.0	5.992	A
C-AB	0	493	0.000	0	0.0	0.000	A
C-A	1571			1571			
A-B	4			4			
A-C	855			855			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	672	0.031	21	0.0	5.528	A
C-AB	0	530	0.000	0	0.0	0.000	A
C-A	1315			1315			
A-B	3			3			
A-C	716			716			

2026 + D, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.05	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2026 + D	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A259 E		V	1469	100.000
B - Site Access		V	13	100.000
C - A259 W		V	1392	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
From		A - A259 E	B - Site Access	C - A259 W
	A - A259 E	0	12	1457
	B - Site Access	0	0	13
	C - A259 W	1392	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
From		A - A259 E	B - Site Access	C - A259 W
	A - A259 E	0	0	2
	B - Site Access	0	0	0
	C - A259 W	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.04	9.98	0.0	A
C-AB	0.00	0.00	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	10	545	0.018	10	0.0	6.730	A
C-AB	0	428	0.000	0	0.0	0.000	A
C-A	1048			1048			
A-B	9			9			
A-C	1097			1097			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	12	473	0.025	12	0.0	7.795	A
C-AB	0	372	0.000	0	0.0	0.000	A
C-A	1251			1251			
A-B	11			11			
A-C	1310			1310			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	14	375	0.038	14	0.0	9.975	A
C-AB	0	294	0.000	0	0.0	0.000	A
C-A	1533			1533			
A-B	13			13			
A-C	1604			1604			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	14	375	0.038	14	0.0	9.977	A
C-AB	0	294	0.000	0	0.0	0.000	A
C-A	1533			1533			
A-B	13			13			
A-C	1604			1604			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	12	473	0.025	12	0.0	7.798	A
C-AB	0	372	0.000	0	0.0	0.000	A
C-A	1251			1251			
A-B	11			11			
A-C	1310			1310			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	10	545	0.018	10	0.0	6.733	A

C-AB	0	428	0.000	0	0.0	0.000	A
C-A	1048			1048			
A-B	9			9			
A-C	1097			1097			

2026 + D 20% Uplift, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.07	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2026 + D 20% Uplift	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A259 E		V	1145	100.000
B - Site Access		V	28	100.000
C - A259 W		V	1747	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
From		A - A259 E	B - Site Access	C - A259 W
	A - A259 E	0	4	1141
	B - Site Access	0	0	28
	C - A259 W	1747	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
From		A - A259 E	B - Site Access	C - A259 W
	A - A259 E	0	0	4
	B - Site Access	0	0	0
	C - A259 W	2	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.06	7.80	0.1	A
C-AB	0.00	0.00	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	625	0.034	21	0.0	5.961	A
C-AB	0	492	0.000	0	0.0	0.000	A
C-A	1315			1315			
A-B	3			3			
A-C	859			859			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	25	569	0.044	25	0.0	6.618	A
C-AB	0	448	0.000	0	0.0	0.000	A
C-A	1571			1571			
A-B	4			4			
A-C	1026			1026			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	31	492	0.063	31	0.1	7.801	A
C-AB	0	388	0.000	0	0.0	0.000	A
C-A	1923			1923			
A-B	4			4			
A-C	1256			1256			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	31	492	0.063	31	0.1	7.803	A
C-AB	0	388	0.000	0	0.0	0.000	A
C-A	1923			1923			
A-B	4			4			
A-C	1256			1256			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	25	569	0.044	25	0.0	6.620	A
C-AB	0	448	0.000	0	0.0	0.000	A
C-A	1571			1571			
A-B	4			4			
A-C	1026			1026			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	625	0.034	21	0.0	5.964	A

C-AB	0	492	0.000	0	0.0	0.000	A
C-A	1315			1315			
A-B	3			3			
A-C	859			859			

2026 + D 20% Uplift, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.05	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2026 + D 20% Uplift	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A259 E		V	1469	100.000
B - Site Access		V	13	100.000
C - A259 W		V	1392	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
From		A - A259 E	B - Site Access	C - A259 W
	A - A259 E	0	12	1457
	B - Site Access	0	0	13
	C - A259 W	1392	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
From		A - A259 E	B - Site Access	C - A259 W
	A - A259 E	0	0	2
	B - Site Access	0	0	0
	C - A259 W	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.04	9.98	0.0	A
C-AB	0.00	0.00	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	10	545	0.018	10	0.0	6.730	A
C-AB	0	428	0.000	0	0.0	0.000	A
C-A	1048			1048			
A-B	9			9			
A-C	1097			1097			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	12	473	0.025	12	0.0	7.795	A
C-AB	0	372	0.000	0	0.0	0.000	A
C-A	1251			1251			
A-B	11			11			
A-C	1310			1310			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	14	375	0.038	14	0.0	9.975	A
C-AB	0	294	0.000	0	0.0	0.000	A
C-A	1533			1533			
A-B	13			13			
A-C	1604			1604			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	14	375	0.038	14	0.0	9.977	A
C-AB	0	294	0.000	0	0.0	0.000	A
C-A	1533			1533			
A-B	13			13			
A-C	1604			1604			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	12	473	0.025	12	0.0	7.798	A
C-AB	0	372	0.000	0	0.0	0.000	A
C-A	1251			1251			
A-B	11			11			
A-C	1310			1310			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	10	545	0.018	10	0.0	6.733	A

C-AB	0	428	0.000	0	0.0	0.000	A
C-A	1048			1048			
A-B	9			9			
A-C	1097			1097			