i-Transport LLP
Princes Exchange, Leeds, LS1 2PY

Tel: 0113 280 5805

Land West of Kellington Lane, Eggborough: Response to National Highway Comments (September 2024)

Application Ref: ZG2023/1037/EIA
Ref: GJ/JW/ITY16146-015A TN
Date: 2 January 2025

SECTION 1 Introduction

1.1 This technical note has been produced in response to comments made in JSJV's Technical Memorandum (*ref. DevNY0162/TM03*), dated 17th September 2024, produced on behalf of National Highways (NH). JSJV's Technical Memorandum is reproduced at **Appendix A** for ease of reference.

1.2 This response has been held in abeyance whilst discussions with the Local Highway Authority have been progressing through the Autumn/Winter, to ensure that it is comprehensive.

1.3 For the record it is noted that JSJV has confirmed that the following matters are agreed / accepted:

- The 2011 Census is an appropriate source of data to inform the Vision for the proposed development.
- The inclusion of the local centre within the Vision for the proposed development, which has the ability to retain trips internally within the Site.
- A more definitive housing mix is not needed at this stage, as the application is submitted in Outline.
- The measures set out in the Residential Travel Plan.
- The monitoring strategy of the Residential Travel Plan.
- The on-site primary school trip generation.
- The residential and education trip distributions.
- The calculated growth factors for the Sensitivity Test, using of TEMPro version 7.2c.

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1.4 The technical note provides our responses to those matters where JSJV has requested additional information. Using the points set out in JSJV's 'Technical Summary', we take each point in turn below.

SECTION 2 Response to Comments

JSJV Comment 1: The modal share targets for car driver are overly ambitious and inconsistent with mode share targets used to derive the Business as Usual and Vision-Based trip generation.

and

JSJV Comment 2: While we recognise that the Applicant is proposing a range of measures within the Travel Plan [TP], National Highways would suggest that a revised baseline and targeted modal share is presented that is representative of the scale and location of the Site, rather than Selby District as a whole. We would expect this to be accompanied by a clear methodology for how the modal share figures have been derived.

2.1 JSJV Comments 1 and 2 have been combined in this response, as both relate to the baseline modal share and the target modal share applied in the submitted Travel Plan and traffic assessment.

2.2 JSJV has questioned the validity of the baseline modal split assumed by i-Transport. In doing so, JSJV has presented an alternative modal split, derived from 2011 Census journey-to-work data relating solely to Selby 010 MSOA, within which the application site is located. Table 2 of JSJV's Technical Memorandum is reproduced below; it suggests a higher car-borne modal split of 84% should be the starting point for assessing the impacts of the proposed development.

Table 1: JSJV Baseline Modal Share – 2011 Census Journey to Work

Mode of Travel	Multi Modal Split (%)
Rail	2%
Bus	2%
Car Driver	**84%**
Car Passenger	6%
Cycle	2%
Walk	4%
Work From Home	0%
Internal to the Site	0%
Total	**100%**

Source: Table 2 of the JSJV Note DevNY0162/TM03

2.3 i-Transport **does not** agree that it is correct to establish the baseline car borne modal split for the purposes of assessment based on data which only relates to journeys to work. Doing so assumes that **every** trip generated by the proposed development in the peak hours is a work trip. That is self-evidently not the case; people make peak hour and peak period journeys for various purposes, some of which are typically more localised than work trips and are not necessarily reliant on use of the car.

2.4 To evidence the point, TEMPro data for the Selby Local Authority Area demonstrates that commuting trips ('Work' and 'Employers Business' journey purposes combined) only represent a proportion (c.40-45%) of all trips undertaken in the peak periods, as set out in the table below. As a comparison the TEMPro data for Selby 010 MSOA is also presented below and shows that commuting trips are similar at c.45-55%.

Table 2: Journey Purpose by All Modes (Baseline)

Journey Purpose	Selby Local Authority		Selby 010 MSOA	
	AM Peak Period	PM Peak Period	AM Peak Period	PM Peak Period
Work	**39.0%**	**34.0%**	**48.1%**	**41.1%**
Employers Business	**4.7%**	**4.7%**	**6.1%**	**6.0%**
Education	33.4%	9.4%	26.4%	7.7%
Shopping	10.9%	17.1%	8.4%	13.8%
Personal Business	6.6%	8.3%	6.1%	7.6%
Recreation/Social	2.2%	9.8%	1.8%	7.9%
Visiting Friends and Relatives	1.7%	12.9%	1.6%	12.3%
Holiday/Day Trip	1.5%	3.7%	1.5%	3.6%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Source: TEMPro 7.2c (included in **Appendix B**)

2.5 To articulate the point further, the table below presents journey to work data from TEMPro using Selby 010 MSOA. This shows that the TEMPRo mode split (for journeys to work) is comparable with that JSJV has derived from the Census for the same geographical area. It follows that there is no material disconnect between the Census and TEMPRo, the data sources are aligned.

Table 3: Baseline Modal Share – TEMPro Journey to Work (Selby 010 MSOA)

Mode of Travel	Multi Modal Split (%)	
	AM Peak Period	PM Peak Period
Rail	1.9%	1.5%
Bus	1.4%	1.5%
Car Driver	**81.4%**	**79.5%**
Car Passenger	12.1%	13.5%
Cycle	1.1%	1.2%
Walk	2.1%	2.8%
Work From Home	0.0%	0.0%
Internal to the Site	0.0%	0.0%
Total	**100.0%**	**100.0%**

Source: TEMPro 7.2c (Included in **Appendix B**)

2.6 JSJV has suggested the Selby 010 MSOA and not the Local Authority area should be used to derive the baseline modal split. Our rationale for using the Local Authority area is that the MSOA is not representative of what Eggborough will be with the proposed development in place. The existing area that makes Selby 010 MSO is made up of villages (including Eggborough) and rural areas. Given the scale of the proposed development the population within Eggborough will significantly increase:

- Eggborough currently has a population of c.2,440, as of the 2021 Census.
- Using TEMPro planning data for Selby District (included in **Appendix B**), the average number of people per household is 2.3. With the addition of 1,430 dwellings and 70-bedroom care home facility on the site the population of Eggborough would be c.5,800 people.
- The area formerly making up Selby District is a rural area made up predominately of villages, with only three relatively small towns (Selby, Sherburn-in-Elmet and Tadcaster). The 2021 Census shows that Selby district has a population of c.92.,500 people, with Selby (17,200 people), Sherburn-in-Elmet (8,570 people) and Tadcaster (6,340 people) making up c.35% located in these three towns with 65% living in villages across the rest of Selby District.
- Given the potential future population of Eggborough it will potentially become the fourth highest population area within Selby District, just behind Tadcaster.

2.7 The use of Selby District as a whole rather than only Selby 010 MSOA is appropriate for the assessment of the future year SRN operational assessments, given the change in population, as well as the proposed infrastructure being provided by the development, including on-site facilities.

2.8 Taking account of **all** journey purposes (as listed in Table 2 above), the existing mode share for car driver is significantly lower than if only journeys to work ('Work' and 'Employers Business') are considered. For comparison the mode share for Selby 001 MSOA, which includes Tadcaster (a similar size conurbation to Eggborough following the proposed development), is also presented in the table below and shows similar mode share, demonstrating that the use of the Selby Local Authority is representative.

Table 4: Mode Share for All Journey Purposes for Selby District

Mode	Selby Local Authority (Base)		Selby 001 MSOA	
	AM Peak	PM Peak	AM Peak	PM Peak
Walk	14.6%	11.8%	15.5%	12.0%
Cycle	1.6%	1.9%	1.6%	1.9%
Car Driver	**50.9%**	**56.7%**	**53.9%**	**58.6%**
Car Passenger	25.9%	25.0%	22.0%	22.7%
Bus/Coach	5.6%	3.4%	5.8%	3.6%
Rail	1.4%	1.3%	1.3%	1.2%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Source: TEMPro (Table 9.10 of the TA)

2.9 No adjustments have been made to the existing Selby District proportions to calculate the Business-as-Usual trip rates, calculated from the person trip rates provided by NYC. Nor has the agreed modal share targets in the applications Travel Plan been applied to the proposed development trip generation. Therefore modal share calculated from all journey purposes forms an appropriate baseline position for our assessments.

2.10 Based on the above, a revised baseline is not necessary, as the approach adopted by i-Transport is representative of the current position.

2.11 The alternative trip rates scenarios are carried out as follows:

- The 'Projected Trend' trip rates are calculated using the TRICS Guidance Note *'On the Practical Implementation of the Decide & Provide Approach'* (February 2021) methodology, based on the historic data available within the TRICS database. In other words, we have used a nationally recognised method.

- The 'Vision Based' trip rates have been considered given the public transport and active travel measures proposed as part of the development and the potential internalisation of trips associated with the proposed on-site facilities. A c.5% reduction has been applied to the projected trend trip rates for the internalisation, as well as reducing the modal split by c.5-7% in the peak hours for single occupancy car drivers.

2.12 The remainder of this note only considers the BAU trip rates in the operational assessments, based on current person trip rate position and existing mode share proportions and are therefore appropriate and robust.

2.13 Additionally, no changes are needed in the modal split targets identified in the Travel Plan which has already been agreed by NYC, noting:

- The baseline position reported in the Travel Plan applies the current modal split derived from TEMPRo for all journey purposes.
- The Travel Plan seeks to achieve a 15% reduction in daily single occupancy car trips (across all journey purposes) compared to the baseline over its lifetime. Over recent years, Travel Plans have often sought to achieve a reduction of at least c.10%. Consequently, the Travel Plan target, which is already agreed with NYC, is 'suitably challenging' and not 'overly ambitious'.
- NYC is satisfied that the site is suitably sustainable for the intended uses.
- NYC has agreed the Travel Plan in full.

2.14 For clarity, the Travel Plan modal share target is not applied to the operational assessments of the M62 J34 presented in this note.

JSJV Comment 3: Written evidence needs to be submitted to demonstrate that both NYC and Wakefield District Council [WDC] have accepted the list of committed development.

2.15 Wakefield District Council is a consultee on the planning application which has been registered since December 2023. No committed developments have been identified by this consultee since the application has been live.

2.16 NYC commented on the committed developments included in the assessments within the Transport Assessment as part of the draft response to the submission, dated 10th October 2024 (included in **Appendix C**). NYC agree with the list provided within the TA and requested that the following additional committed developments be considered as part of the assessments:

- Portholme Road, Selby (2020/0776/FUL)
- Gascoigne Wood Interchange (2021/1531/EIA)

2.17 i-Transport's response to the NYC draft comments is included in **Appendix D**. It sets out the potential traffic flows associated with each of these sites under LHA Comment 13. Based on our review of the traffic flows associated with each of these sites, it is not necessary to add either committed development to the assessments at M62 J34.

2.18 Following a meeting between i-Transport and JSJV/NH on 15th August 2024, NH provided a list of other committed developments and allocated Wakefield Local Plan sites, via email dated 22nd August 2024, to be included in the assessment of M62 J34:

- Former Coal Yard at Ferrybridge – 23/00100/HYB
- Axiom Site M62 J32 – 22/02485/HYB
- Local Plan sites ES05, ES06, ES08 & ES09

2.19 These sites have been reviewed and the associated traffic flows are set out below. An updated assessment of the M62 J34 has been carried out including traffic flows associated with all of these sites.

Former Coal Yard at Ferrybridge

2.20 A Transport Assessment was produced by Markides Associates, dated December 2022, to support the planning application at the Former Coal Yard at Ferrybridge. The assessment of the development included the use of Wakefield Metropolitan District Council's (WMDC's) Local Plan Highway Model to estimate the changes in traffic flow resulting from the development proposals.

2.21 The development traffic flows have been taken from the net difference traffic flows presented in Appendix J (Figure 0-17 presents the AM peak hour and Figure 0-18 the PM peak hour). The traffic flow diagrams present the change in traffic flows on the M62 mainline east of M62 J33, as summarised below.

Table 5: Former Coal Yard at Ferrybridge Traffic Flows on M62 East of Junction 33

Direction	AM Peak Hour	PM Peak Hour
Eastbound	-23	+27
Westbound	+6	+19

2.22 To determine the potential proportion of these trips that may turn to leave or join the M62 mainline at Junction 34, 2023 annual traffic flows on the west facing slip road and on the M62 mainline were extracted from WebTris. The 2023 annual traffic flows are included in **Appendix E**, with the resulting turning proportion presented below.

Table 6: 2023 Annual Traffic Flow M62 Junction 34

Count Location	2023 Annual Traffic Flows
Eastbound - West of the Junction	27,750
Eastbound - Through the Junction	22,479
Eastbound Off-Slip	5,271
Westbound - West of the Junction	30,487
Westbound - Through the Junction	22,994
Westbound Off-Slip	7,493
Two-way Turning Proportion to/from M62 J34	(5,271+7,493) / (27,750+30,487) = 22%

2.23 Using the above proportions the additional traffic flows at the M62 J34 are presented below.

Table 7: Former Coal Yard at Ferrybridge Traffic Flows at M62 Junction 34

Direction	AM Peak Hour	PM Peak Hour
Eastbound Off-slip	-5	+6
Westbound On-slip	+1	+4

Axiom Site M62 J32

2.24 A Transport Assessment was produced by Fore Consulting, dated November 2022, to support the planning application at the Axiom Site. The site is located to the west of the A1(M), north of M62 Junction 32 (M62 J32) and the planning application seeks consent for up to 141,085 sqm of floorspace for a flexible mix of industrial or warehousing uses.

2.25 Two assessment scenarios were considered within the Transport Assessment, including 100% Warehousing and 50% Warehousing / 50% Industrial Use. The option including Industrial Use generates a higher level of trips and has been included in the review below.

2.26 The development traffic flows have been taken from the traffic flows presented in Figures 12 and 13. The traffic flow diagrams show turning movements at M62 J32. The traffic flows on the M62 east of the junction are summarised below.

Table 8: Axiom Site Traffic Flows on M62 East of Junction 32

Direction	AM Peak Hour	PM Peak Hour
Eastbound	+36	+94
Westbound	+112	+31

2.27 With the site located west of the A1(M), a proportion of this traffic would likely turn north or south on the A1(M). The proportion of trips to each of the A1(M) North, A1(M) South and M62 East of the A1(M) have been calculated using the 2023 annual traffic flows extracted from WebTris. The 2023 annual traffic flows are included in **Appendix E**, with the resulting turning proportion presented below.

Table 9: 2023 Annual Traffic Flow M62 Junction 34

Count Location	2023 Annual Traffic Flows
M62 (West) to A1(M) (North)	6,503
M62 (West) to A1(M) (South)	8,033
M62 (West) to M62 (East)	26,504
A1(M) (North) to M62 (West)	6,377
A1(M) (South) to M62 (West)	9,820
M62 (East) to M62 (West)	24,988
Two-way Turning Proportion to/from A1(M) North	16%
Two-way Turning Proportion to/from A1(M) South	22%
Two-way Turning Proportion to/from M62 East of A1(M)	(26,504+24,988) / (6,503 + 8,033+26,504+6,377+9,820+24,988) = 63%

2.28 Based on the above, 63% of trips continue on the M62 towards M62 J34. For the purposes of the assessment that follows, these trips have subsequently been split as per Table 6 above at the M62 J34. The resulting additional traffic flows at M62 J34 are presented below.

Table 10: Axiom Site Traffic Flows at M62 Junction 34

Direction	AM Peak Hour	PM Peak Hour
Eastbound Off-slip	+5	+13
Westbound On-slip	+16	+4

Local Plan Site ES08 – Land at Shilling Hill, Knottingley

2.29 This employment site, located north-west of M62 J33, is allocated as a 21.7ha mixed employment, including E(g)(ii) Research and Development, E(g)(iii) industrial processes, B2 general industrial and B8 warehousing.

2.30 A planning application has been submitted for this site (planning ref. 21/02728/FUL), referred to as Canmoor Site, Knottingley, comprising c.52,000 sqm mixed use employment land uses. A Transport Assessment was produced by Fore Consulting in November 2021 to support the planning application.

2.31 The development AM peak hour and PM peak hour traffic flows have been taken from Figures 5 and 6, respectively. The traffic flow diagrams present the traffic flows east of the M62 J33 as summarised below.

Table 11: Canmoor Site, Knottingley Traffic Flows on M62 East of Junction 33

Direction	AM Peak Hour	PM Peak Hour
Eastbound	+9	+22
Westbound	+23	+10

2.32 Using the turning proportion presented in Table 6 above, the additional traffic flows at M62 J34 are presented below.

Table 12: Canmoor Site, Knottingley Traffic Flows at M62 Junction 34

Direction	AM Peak Hour	PM Peak Hour
Eastbound Off-slip	+2	+5
Westbound On-slip	+5	+2

Local Plan Site ES05 – Land to the North-East of Former A1-M62 Interchange (North Side)

2.33 This employment site, located north of M62 J33 on the A162, is allocated as a 4.42ha mixed employment, including E(g)(ii) Research and Development, E(g)(iii) industrial processes, B2 general industrial and B8 warehousing. There is no publicly available Local Plan transport evidence from which to take traffic flows from for this site and therefore we have estimated the flows based on the similar provision at the ES08 allocated site. The number of trips has been estimated based on the site area (i.e. 20.3% of the Canmoor Site).

2.34 The ES05 allocated site traffic flows at the M62 J34 are presented below.

Table 13: ES05 Former A1-M62 Interchange Traffic Flows at M62 Junction 34

Direction	AM Peak Hour	PM Peak Hour
Eastbound Off-slip	0	+1
Westbound On-slip	+1	+0

Local Plan Site ES06 – Shilling Hill Extension

2.35 This employment site, located north of M62 J33 on the A162 and immediately north of ES08 allocated site, is allocated as a 2.17ha mixed employment, including E(g)(ii) Research and Development, E(g)(iii) industrial processes, B2 general industrial and B8 warehousing. Again, no transport evidence is publicly available for this site, therefore we have estimated the flows based on the similar provision at the ES08 allocated site, with this site forming an extension to the ES08 allocation. Therefore, the number of trips has been estimated based on the relative site area compared to the Canmoor Site (i.e. 10.0% of the Canmoor Site).

2.36 In this context, the estimated ES06 allocated site traffic flows at M62 J34 are presented below.

Table 14: ES06 Shilling Hill Extension Traffic Flows at M62 Junction 34

Direction	AM Peak Hour	PM Peak Hour
Eastbound Off-slip	0	+1
Westbound On-slip	0	+0

Local Plan Site ES09 – Land South of Knottingley

2.37 This employment site, located south of M62 J33, is an allocated site with a total area of 156.39ha. The allocation allows for a 136.68ha employment capacity, comprising a mixed employment land use on the site, including E(g)(ii) Research and Development, E(g)(iii) industrial processes, B2 general industrial and B8 warehousing.

2.38 Given the scale of the development, the proportion of B8 land use can be expected to be significant and therefore the number of trips likely to be generated has been estimated assuming a 50% B2 / 50% B8 land use split using the trip rates presented in Table 5 of the Fore Consulting Transport Assessment produced for the Canmoor Site. The resulting development trips are summarised below.

Table 15: ES08 Land South of Knottingley - Potential Trip Generation

Land Use	AM Peak Hour		PM Peak Hour	
	Arrivals	Departures	Arrivals	Departures
Employment (50% B2 / 50% B8)	775	353	290	788

2.39 The trip distribution set out in Table 8 the Fore Consulting Transport Assessment has 13% of development traveling to/from the east of the site on the M62. Applying this and the turning proportion set out in Table 6, the resulting turning movements attributable to the ES08 allocated site traffic flows at M62 J34 are presented below.

Table 16: ES08 Land South of Knottingley Traffic Flows at M62 Junction 34

Direction	AM Peak Hour	PM Peak Hour
Eastbound Off-slip	+10	+23
Westbound On-slip	+22	+8

Updated Junction Assessment

2.40 Using the tables above the total additional traffic flows at M62 J34 resulting from the Former Coal Yard site, Axiom site and four allocated sites within Wakefield are shown below.

Table 17: ES08 Land South of Knottingley Traffic Flows at M62 Junction 34

Direction	AM Peak Hour	PM Peak Hour
Eastbound Off-slip	+12	+49
Westbound On-slip	+45	+18

2.41 All trips on the slips are assumed to be to/from the A19 north of the motorway junction.

2.42 The Primary Assessment (i.e. Base plus Committed Development) has been rerun with these additional committed development flows included. The operational assessments are included in **Appendix F** and are summarised in the table below .

Table 18: M62 J34 – Existing Junction Capacity Analysis Results – Primary Assessment

Approach	Base + Committed Development			
	AM Peak Hour		PM Peak Hour	
	RFC*	Max Q* (PCU)	RFC	Max Q (PCU)
M62 (WB Off-Slip)	0.34	1	0.22	0
A19 (South)	0.49	1	0.31	0
M62 (EB Off-Slip)	1.11	112	0.74	3
Selby Road	0.17	0	0.10	0
A19 (North)	0.55	1	0.67	2

*RFC = Ratio of Flow to Capacity Max Q = maximum average queue PCUs = Passenger Car Units

2.43 The results show that the existing junction arrangement would operate beyond its capacity in the AM peak hour, but within its capacity during the PM peak hour before the proposed development traffic is added. The model forecasts long queues on the M62 eastbound off-slip in the AM peak hour, which would extend back onto the M62 mainline.

2.44 The results of the Sensitivity Test 3 scenario, which includes background traffic growth to 2025, including the traffic flows generated by the Former Coal Yard site, Axiom site and four Wakefield allocated sites, without the proposed development in place are included in **Appendix F** and summarised in the table below .

Table 19: M62 J34 – Existing Junction Capacity Analysis Results – Sensitivity Test 3

Approach	2025 Base + Committed Development			
	AM Peak Hour		PM Peak Hour	
	RFC*	Max Q* (PCU)	RFC	Max Q (PCU)
M62 (WB Off-Slip)	0.35	1	0.23	0
A19 (South)	0.50	1	0.31	1
M62 (EB Off-Slip)	1.13	128	0.76	3
Selby Road	0.18	0	0.11	0
A19 (North)	0.55	1	0.68	2

*RFC = Ratio of Flow to Capacity Max Q = maximum average queue PCUs = Passenger Car Units

2.45 These results show that the existing roundabout would operate above its capacity in the AM peak hour with long queues on the M62 eastbound off-slip.

2.46 The proposed mitigation scheme put forward in the Transport Assessment for the proposed development includes the partial signalisation of the motorway junction, with traffic signals introduced on the M62 eastbound off-slip approach and associated circulatory section on the northbound (western) bridge over the motorway. This mitigation scheme has been re-assessed with the Primary Assessment, including the traffic flows generated by the Former Coal Yard site, Axiom site and four Wakefield allocated sites. The results of the mitigation scheme capacity assessment, based on the agreed LinSig model (as set out in NH Comment 5 below) are included in **Appendix G** and summarised below.

Table 20: M62 J34 – Mitigation Junction Capacity Analysis Results – Primary Assessment

Approach	Base + Committed + Proposed Development			
	AM Peak Hour		PM Peak Hour	
	Dos*	MMQ*	Dos	MMQ
M62 (WB Off-Slip)	64.3%	1	39.2%	1
A19 (South)	59.3%	1	40.6%	0
M62 (EB Off-Slip)	107.8%	78	92.3%	30
Selby Road	44.9%	1	26.1%	0
A19 (North)	80.9%	4	83.7%	6
PRC*	-19.8%		-4.3%	

*DoS = Degree of Saturation MMQ = Mean Maximum Queue PRC = Practical Reserve Capacity

2.47 The results show that the proposed mitigation scheme would off-set the impact of the proposed development traffic, with reduced queuing on the M62 eastbound off-slip in the AM peak hour compared to the existing junction layout with the Base + Committed traffic flows (Table 19 above). The mitigation scheme continues to be a betterment to the existing arrangement. As noted in the Transport Assessment, it is also possible that appropriate queuing sensors can be installed on this approach to call the slip road signals earlier to avoid queuing onto the motorway.

2.48 For completeness, the exercise has been repeated for Sensitivity Test 3 (again assuming the worst-case BAU residential trip rates and the additional committed development and Wakefield Local Plan sites), with results included in **Appendix G** and summarised below.

Table 21: M62 J34 – Mitigation Junction Capacity Analysis Results – Sensitivity Test 3

Approach	Base + Committed + Proposed Development			
	AM Peak Hour		PM Peak Hour	
	Dos*	MMQ*	Dos	MMQ
M62 (WB Off-Slip)	66.0%	1	40.4%	1
A19 (South)	61.1%	1	41.8%	0
M62 (EB Off-Slip)	111.0%	93	94.8%	33
Selby Road	45.2%	1	26.9%	0
A19 (North)	81.0%	4	85.1%	6
PRC*	-23.3%		-5.4%	

*DoS = Degree of Saturation MMQ = Mean Maximum Queue PRC = Practical Reserve Capacity

2.49 The results show that the proposed mitigation scheme would off-set the impact of the proposed development traffic, with reduced queuing on the M62 eastbound off-slip.

2.50 It is therefore determined that the mitigation scheme is a betterment to the existing arrangement, as well as achieving 'nil detriment' to the Base + Committed traffic flow scenarios.

JSJV Comment 4: Once a revised modal split is agreed between the Applicant and National Highways, the baseline modal split should be used to derive the Business-as-Usual trip rates, using the agreed person trip rates.

2.51 As set out in the response to JSJV Comment 2, the BAU position uses the existing modal splits, with no adjustments applied to the agreed person trip rates. The BAU trip rates are therefore appropriate.

LHA Comment 5: No major issues detected with the modelling work undertaken.

2.52 The existing arrangement and proposed mitigation scheme models were submitted to NH.

2.53 JSJV has suggested that movement on A19 south to north is an issue, in that previously, this movement was in the inside lane of the NB circulatory and the change to partial signals would require the exit to the A19 northbound movement to become the outside lane. As a result, it would be necessary to modify the exit for the A19 northbound to account for the introduction of the signals becoming a 2 lane to 1 exit merge.

2.54 There is currently no lane assignments associated with the existing layout requiring traffic to the A19 north to use the nearside lane. The proposed mitigation scheme has been amended to assign the northbound movement on the A19 to the outside lane only on the northbound circulatory lane, with the nearside only used for movements to Selby Road. The amended mitigation scheme is shown in i-Transport drawing ITY16146-GA-013A in **Appendix H**. The revised mitigation scheme does not require two lanes on the exit to A19 north, as demonstrated in the LinSig modelling and therefore no further changes are necessary to the amended mitigation scheme layout.

SECTION 3 Conclusions

3.1 This technical note provides full and detailed responses to each of the comments raised by the NH, which we trust will enable NH to support the application and the proposed M62 J34 mitigation scheme.

APPENDIX A. NH RESPONSE (DATED 17.09.2024)

Technical Memorandum

Land to the Western Boundary of Eggborough

Case ref:	DevNY0162	Document ref:	TM03	Date issued:	17/09/2024
Prepared for:	[redacted]	Prepared by:	[redacted]	Reviewed / approved by:	[redacted]

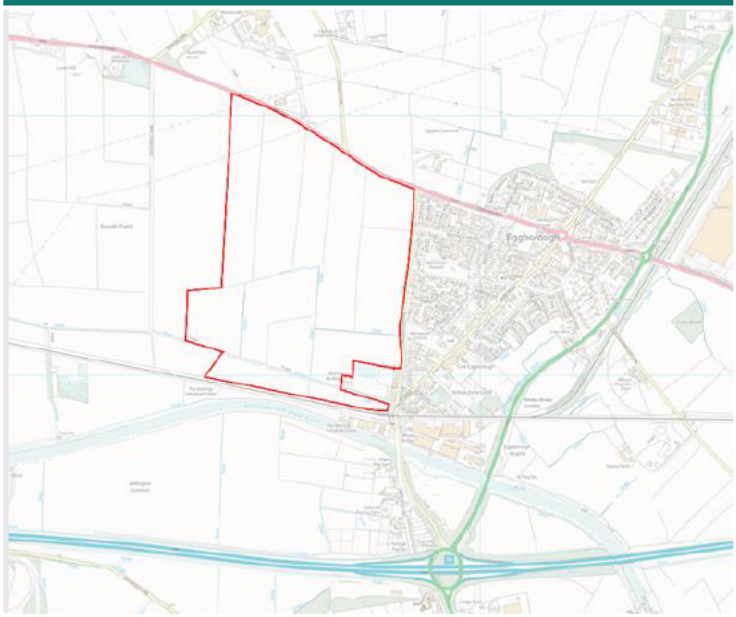
Limitation: This technical memorandum [TM] has been prepared on behalf of, and for the exclusive use of National Highways, and is subject to, and issued in accordance with, the provisions of the National Spatial Planning Contract. We accept no liability or responsibility whatsoever for, or in respect of, any use of, or reliance upon, this document by any third party.

Headline summary

Planning outcome

*The recommendation to National Highways is **Holding recommendation**. Further information is required (as identified below).*

Site location



Technical summary

- The modal share targets for car driver are overly ambitious and inconsistent with mode share targets used to derive the Business as Usual and Vision-Based trip generation;
- While we recognise that the Applicant is proposing a range of measures within the Travel Plan [TP], National Highways would suggest that a revised baseline and targeted modal share is presented that is representative of the scale and location of the Site, rather than Selby District as a whole. We would expect this to be accompanied by a clear methodology for how the modal share figures have been derived;
- Written evidence needs to be submitted to demonstrate that both NYC and Wakefield District Council [WDC] have accepted the list of committed development;
- Once a revised modal split is agreed between the Applicant and National Highways, the baseline modal split should be used to derive the Business-as-Usual trip rates, using the agreed person trip rates; and,
- Once a revised target split is agreed between the Applicant and National Highways, the baseline modal split should be used to derive the Business-as-Usual trip rates, using the agreed person trip rates.
- No major issues detected with the modelling work undertaken.

1 Overview

1.1 On behalf of National Highways, the Jacobs Systra Joint Venture [JSJV] has undertaken a review of planning application reference ZG2023/1037/EIA. The following information has been provided and is the subject of this review:

- Response to National Highways Comments;
- Notes of Meeting; and,
- Residential travel Plan.

1.2 On the basis of this review, this JSJV Technical Memorandum [TM] comments on the suitability of the information with discussion provided in relation to the details relevant to understanding the impacts of the proposals at the Strategic Road Network [SRN].

2 Development proposals and site location

2.1 The development proposal comprises of the following:

- 1,500 new residential units to be delivered in phases by 2048, with approximately 945 within the Local Plan Period to 2040, with a minimum of 20% affordable units and inclusive of 14 independent living units for older people or those with learning disabilities and 70 extra care units;
- A two-form entry (2FE) primary school plus nursery (although the option also exists for a three-form entry (3FE primary school on an existing site);
- A local centre to include community and local shopping facilities, comprising:
- 4,000 sqft (c.370 sqm) food shop;
- 4,000 sqft (c.370 sqm) non-food retail likely to be split into 2 or 3 separate units;
- Accessible green space; and
- Enhancement to the Whitley Bridge Railway Station, including a new station gateway.

2.2 The site lies approximately 0.6km north of M62 Junction 34 and this can be seen in the figure on page 1.

3 Previous Reviews

3.1 A meeting took place between i-Transport [iTP], JSJV, National Highways and Banks Group [the Applicant] in August 2024 to re-establish discussions regarding the live planning application (ref: ZG2023/1037/EIA), and discuss matters raised in JSJV's previous review [TM02], issued to the Applicant and i-Transport on 24 July 2024. The subsequent 'Response to National Highways' submitted by iTP and the Applicant will form the basis of this review.

4 Vision

4.1 JSJV previously suggested that it should be clarified whether data contained with the Vision Development Note is from the 2011 or 2021 Census. iTP state that the various data included within the development vision is drawn from 2011 census including the journey purpose, modal split and age profile of the existing resident population within the Selby 010 MSOA.

4.2 As was agreed at the meeting in August 2024, the use of 2011 Census data is an appropriate approach for this case.

4.3 Furthermore, based on the evidence that has been submitted JSJV would consider point 13 of the response to National Highways, regarding the inclusion of the local centre within the vision for the proposed development to be agreed.

5 Travel Plan

5.1 Within JSJV's previous review, a number of matters were highlighted within the Travel Plan [TP] that required further information. iTP has since submitted an updated TP and Public Transport Strategy [PTS], which JSJV would note has been accepted by North Yorkshire Council [NYC].

5.2 JSJV previously suggested that further Local Plan [LP] evidence should be submitted to illustrate how the Site is or can be made sustainable, how the proposed development is likely to follow the preferred housing mix set out in the LP and illustrating how Whitley Bridge Train Station can be made more sustainable.

5.3 iTP state that as the live planning application for the proposed development is in Outline, the housing mix need not have any bearing on the trip generation for the proposed development, however, the Applicant will provide a LP policy compliant housing mix. JSJV would suggest this approach is appropriate.

5.4 iTP state that the Applicant is in conversation with NYC's rail delivery team regarding the *'emerging business case to introduce enhances passenger transport services at Whitley Bridge Station".* As part of the development proposals, the Applicant proposes to support the future enhancement of Whitley Bridge Station through the *"dedication of land that will enable Network Rail to provide an enhanced gateway to the station, envisaged in the Local Plan site requirements".*

5.5 National Highways are supportive of this approach although acknowledging iTP state that the TP and Transport Assessment [TA] do not rely on enhanced rail services.

6 Measures

6.1 JSJV previously suggested that the measures proposed within the TP, that focussed on improving footway / cycleways within the site's boundaries and 'in filling' bus timetables, did not sufficiently address concerns regarding the accessibility of the Site.

6.2 The revised TP details a number of off-site active travel and public transport improvements in order to address this:

- Dedicate land to Network Rail in order to support the future enhancement of Whitley Bridge Station (as above);
- Development of a public transport strategy;
- Footway / Cycleway improvements to Whitley Bridge Station;
- Footway / Cycleway improvements along A645 Weeland Road;
- Footway improvements to Kellington Lane / Westfield Avenue bus stops; and
- Pedestrian/cycle crossing improvements at Kellington Lane, including zebra crossing south of the Kellington Lane access and a raised table crossing immediately south of A645 Weeland Road.

6.3 In addition to the above and in light of recent discussions with NYC, potential pedestrian improvements are also being considered at the A645 Weeland Road / Selby Road roundabout on the northern arm.

6.4 JSJV welcomes the measures proposed, however, we would suggest that these are not likely to be sufficient to achieve the significant shift in modal share from the 2011 Census data for Selby MSOA 010 (as has been proposed).

7 Monitoring

7.1 JSJV previously suggested that monitoring requirements should only cease when there is sufficient evidence for all parties to be sure that the travel patterns of the development are in line with the objectives of the TP.

7.2 The monitoring strategy within the revised TP has been updated as follows:

"Additional travel surveys will then be undertaken by the TPC every second year from the anniversary of the baseline survey (i.e. Years 3, 5 and 7 etc.) to assess the success of the Travel Plan measures…

The Residential Travel Plan is a continuous process requiring monitoring, review and revision to ensure that it remains relevant. This section sets out the strategy for monitoring and review over a seven-year period."

7.3 Considering previous discussions with the Applicant and NYC, JSJV would suggest that the revised monitoring strategy is appropriate.

8 Mode Share

8.1 JSJV previously requested that a revised baseline and target modal share should be presented that is reflective of the proposed measures alongside a clear methodological explanation.

8.2 A revised baseline and target modal share have been proposed within the TP's revision and is presented below.

Table 1 – Proposed Baseline and Target Modal Share

Mode of Travel	Multi Modal Split (%)		
	Baseline	Target	Difference
Walk	13%	16%	+3%
Cycle	2%	3%	+1%
Car Driver	54%	39%	-15%
Car Passenger	25%	26%	+1%
Bus	5%	8%	+3%
Rail	1%	1%	0%
Work from Home	-	5%	+5%
Internal to Site	-	2%	+2%
Total	100%	100%	0%

8.3 JSJV would reiterate their previous concerns regarding the significant variance between the proposed baseline modal share compared with the 2011 Census data for Selby MSOA 010.

Table 2 – Baseline and Target Modal Share

Mode of Travel	Multi Modal Split (%)		
	Baseline	MSOA Selby 010	Difference
Rail	1%	2%	-1%
Bus	5%	2%	+3%
Car Driver	54%	84%	-30%

Car Passenger	25%	6%	+19%
Cycle	2%	2%	0%
Walk	13%	4%	+9%
Work from home	0%	0%	0%
Internal to Site	0%	0%	0%
Total	100%	100%	0%

8.4 Having analysed the journey to work data, JSJV would suggest that there are significant material differences between the Census 2011 Journey to work data and the proposed baseline modal shift. JSJV would suggest that the large shift in modal split for car drivers is not reflected within the proposed measures. JSJV would note that private car trips will only reduce if suitable and practical sustainable travel measures are provided as part of the development. JSJV would also note that DfT Circular 01/2022 requires that:

- Developments in the right places and served by the right sustainable infrastructure delivered alongside or ahead of occupancy must be a key consideration when planning for growth in all local authority areas; and
- The company expects development promoters to enable a reduction in the need to travel by private car and prioritise sustainable transport opportunities ahead of capacity enhancements and new connections on the SRN. For residential-led developments, due consideration should be given to home and street layouts, broadband infrastructure, safe and secure cycle parking, and access to local amenities and open space in support of these aims, while mobility or micromobility hubs should be provided in larger schemes. In addition, high-powered and open-access EV chargepoints should be installed where developments include on-street or communal parking to support the government's objective to end the sale of new conventional petrol and diesel cars/vans by 2030 and HGVs by 2040, and its commitment to decarbonise transport by 2050.

8.5 Consequently, JSJV would reiterate that a revised baseline and target modal share is required, that is reflective of the scale and location of the development in addition to the measures proposed and is accompanied by a clear explanation of the methodology used.

9 Committed Developments

9.1 JSJV previously suggested that the committed development list should be agreed with NYC and Wakefield District Council [WDC].

9.2 iTP state that both WDC and NYC have been consulted regarding the planning application and neither council has queried the list provided and hence, iTP and the Applicant consider that they consequently understand the list to be accepted.

9.3 During the meeting in August 2024, National Highways advised three further sites that may need to be considered and provided information on these planning applications for iTP to review in consideration with M62 Junction 34:

- The former coal yard at Ferrybridge (23/00100/HYB);
- An updated consent at Knottingley Power Station – previous consent (13/03079/DCO) currently included; and,
- The Axiom development at M62 J32 (22/02485/HYB).

9.4 JSJV would suggest that written evidence needs to be submitted to National Highways to demonstrate that both LPA's have accepted the list of committed development.

10 Trip Rates and Trip Generation

10.1 iTP has proposed three separate trip rates within their assessment considering different scenarios:

- Business as Usual – taken directly from TRICS and accepted by NYC;
- Projected – calculated based on TRICS Guidance Note *'On the Practical Implementation of the Decide & Provide Approach'*, setting out a methodology for projecting potential future trip rates, based on historical data within TRICS;
- Vision Based – based on the effectiveness of the interventions and assess what their expected impacts would be on achieving the vision

Residential - Business as Usual (BAU)

10.2 JSJV previously suggested within the scoping review that iTP should combine the NYC person trip rates with Selby MOSA 010 mode share data to derive the multi-modal trip generation of the residential element of the proposed development.

10.3 In order to derive the BAU trip rates, iTP have applied multi modal split that has been estimated as a total of all journey purposes within the Selby District, obtained from TEMPro, to the agreed person trip rates proposed by NYC.

Table 3: NYC agreed person trip rates

	AM Peak Period (08:00 – 09:00)			PM Peak Period (17:00-18:00)		
	Arr.	Dep.	Two-way	Dep.	Arr.	Two-way
Business as Usual (agreed)	0.183	0.754	0.937	0.635	0.260	0.895

10.4 iTP has applied multimodal splits that have been estimated of all journey purposes within the Selby District obtained from TEMPro.

Table 3: NYC agreed person trip rates

Mode	Selby Local Authority (Base)	
	AM Peak	PM Peak
Walk	14.6%	11.8%
Cycle	1.6%	1.9%
Car Driver	50.9%	56.7%
Car Passenger	25.9%	25.0%
Bus / Coach	5.6%	3.4%
Rail	1.4%	1.3%
Total	100.0%	100.0%

10.5 The above modal split figures don't appear to be supported by sufficient evidence to demonstrate how they could be achieved in reality, compared to the modal split figures for the MSOA in which the site is located.

Residential - Projected Trend Trip Rates

10.6 JSJV would reiterate our previous analysis regarding the proposed projected trend trip-rates, although we acknowledge the analysis of projected trend trip rates and the evidence provided, JSJV would suggest that this approach does not consider multi-modal trip generation. Therefore, JSJV would consider this approach to be backward-looking rather than forward-thinking, and not consistent with the required vision-based approach to transport assessments set out in paragraph 48 of Circular 01/2022. The approach makes it difficult to incorporate sustainable travel targets as required within an accompanying Travel Plan.

10.7 JSJV would suggest that this scenario is not appropriate for the assessment and the two scenarios of business as usual and vision based.

Residential – Vision-Based Trip Generation

10.8 Paragraph 9.7.24 of the TA states that

> *"Based on the content of the strategy articulated in Section 7.0 it is considered reasonable to assume that it will be possible to achieve further reductions in the number of trips generated by the site by c.5%, compared to the current trends in trip rates, as well as reducing the modal split by c.5-7% in the peak hours for single occupancy car drivers…*
>
> *The predicted development generated car trips in 2040 have been determined using all journey purposes within TEMPro for Selby 010 MSOA, which results in 62% car trips in the AM peak and 65% in the PM peak. An analysis of the vision-based trip rates therefore considers a car trip proportion of 55% in the AM Peak and 60% in the PM peak".*

10.9 JSJV would query the material differences between the 'vision-based' modal share predictions for car drivers being 55% in the AM and 60% in the PM, in comparison to the proposed modal share targets discussed above (Table 2).

10.10 A vision based assessment is supported in principle but the Applicant must ensure that sufficient evidence is submitted to demonstrate that the vision can be realistically achieved.

10.11 JSJV would subsequently reiterate their request that the modal share targets are revised and made consistent with the trip generation assessment. We would then expect the revised modal shift targets to be applied to the total person trip rates forecasted to derive the 'vision-based' trip rates.

Primary School Trip Generation

10.12 JSJV suggested that a decision concerning the potential for the existing Whitley and Eggborough Community Primary School to be expanded should be confirmed before any trip rates and trip generation for the primary school can be agreed upon.

10.13 Following the meeting in August, it was agreed by all parties that alternative assessment of on-site school provision is not warranted at this stage and that therefore JSJV considers the primary school trip rates presented in Table 4 below to be appropriate.

Table 4: Primary School trip generation

	AM Peak Period (08:00 – 09:00)			PM Peak Period (17:00-18:00)		
	Arr.	Dep.	Two-way	Dep.	Arr.	Two-way
Primary School	21	17	38	8	11	19

11 Trip Distribution

11.1 As per the previous review, both the residential and education trip distributions presented in the TA are considered appropriate.

12 Assessments

12.1 JSJV would withhold detailed commentary on the results of the assessment until the deficiencies regarding the vision based and business as usual trip generation are addressed.

13 Background Traffic Growth

13.1 JSJV previously suggested that the Applicant should confirm which version of TEMPro has been used to calculate the background traffic growth, with JSJV recommending that the latest TEMPro dataset 8.1 should be used to obtain the growth factor for the impact at the SRN.

13.2 Within the response to National Highways, iTP has completed an analysis comparing various TEMPro datasets, including version 8.1 scenarios in order to assess the appropriateness of the background traffic growth data used in the assessment.

Figure 2: Traffic Growth Comparisons

Dataset and Scenario	AM Peak Period	PM Peak Period
Dataset 72 – TEMPro Version 7.2c (Table 9.5 of TA)	**1.0096**	**1.0080**
Dataset 80 – TEMPro Version 8.1 – Core Scenario	0.9968	0.9956
Dataset 80 – TEMPro Version 8.1 – Behavioural Scenario	0.9440	0.9435
Dataset 80 – TEMPro Version 8.1 – High Economic Scenario	0.9988	0.9973
Dataset 80 – TEMPro Version 8.1 – Low Economic Scenario	0.9973	0.9896
Dataset 80 – TEMPro Version 8.1 – Regional Scenario	0.9952	0.9940
Dataset 80 – TEMPro Version 8.1 – Technology Scenario	0.9959	0.9947

13.3 JSJV would agree with iTP's analysis and subsequent conclusion that the use of the Dataset 72 – TEMPro version 7.2c (Table 9.5 of TA) presents a robust scenario for assessment.

13.4 Within the previous review, it was suggested that the NTM dataset for the NTM Traffic Growth Calculations should be stated. iTP have stated that the NTM dataset used within the TA is RTF 2018 Scenario 1 – Reference 2015 – 2050, which was the latest version when the TA was carried out. JSJV would suggest that this is appropriate.

13.5 JSJV also previously suggested that the Applicant should explicitly state how many jobs and households were subtracted form the Future Year assumptions. iTP has presented the land-use related growth that has been excluded from the assessment to account for committed developments at M62 Junction 34.

Figure 3: Land-Use Related Growth – Selby Local Authority (2022-2025)

	Base HH[1]	Future HH	HH Subtraction	Base Jobs	Future Jobs	Job Subtraction
2022-2025	38,533	39,482	-949	39,350	39,699	-349

[1] HH = Households

13.6 JSJV would withhold detailed commentary on the appropriateness of the reduction until the list of committed developments is confirmed by NYC and WDC.

14 Modelling Review

14.1 An audit has been carried out on the following model:

M62J34 - Mitigation EB Slip Signalised Rev A.lsg3x

14.2 This review follows on from a previous review completed on 7th Feb 2024.

14.3 The accompanying model checking sheet contains more detailed information on the technical components of the model, however, the review has highlighted no major concerns.

14.4 There is a slight issue in that the roundabout layout is a concentric layout and this means that it is difficult to represent lane changes within the roundabout, therefore while its ok at the moment, any change to the lane marking should be accompanied with a review of the connectors in any future modelling.

14.5 The results suggest that the lane utilisation through the roundabout for the A19 south to north is an issue, in that previously, this was in the inside lane of the NB circulatory, and because the signals don't change the concentric line marking layout, the exit to the A19 northbound becomes the outside lane.

14.6 The solution to this is to modify the exit for the A19 northbound to account for the introduction of the signals becoming a 2 lane to 1 exit merge. This is what the modelling results are suggesting is required to make the signals an effective capacity intervention.

APPENDIX B. TEMPRO DATA

Dataset Version:	72
Result Type:	Trip ends by time period
Base Year:	2021
Future Year:	2040
Trip Purpose Group:	All purposes - individually
Time Period:	Weekday AM peak period (0700 - 0959)
Trip End Type:	Origin/Destination
Alternative Assumptions Applied:	No

Combined Modes - AM Peak Period

Growth Factor

Area Description		HB Work		HB Employers Business		HB Education		HB Shopping		HB Personal Business		HB Recreation/Social		Visiting Friends and Rela		HB Holiday/Day Trip	
Level	Name	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination
Authority	Selby	1.0851	1.0516	1.1162	1.0813	1.0357	1.0147	1.1117	1.0907	1.1401	1.1040	1.1201	1.0847	1.0888	1.0991	1.1255	1.1123

Future Year - Base Year

Area Description		HB Work		HB Employers Business		HB Education		HB Shopping		HB Personal Business		HB Recreation/Social		Visiting Friends and Rela		HB Holiday/Day Trip	
Level	Name	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination
Authority	Selby	1,392	742	236	139	510	178	536	343	438	217	148	45	59	66	89	50

Base Year

Area Description		HB Work		HB Employers Business		HB Education		HB Shopping		HB Personal Business		HB Recreation/Social		Visiting Friends and Rela		HB Holiday/Day Trip	
Level	Name	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination
Authority	Selby	16,358	14,387	2,028	1,706	14,289	12,041	4,796	3,778	3,127	2,086	1,236	531	661	664	705	442

Future Year

Area Description		HB Work		HB Employers Business		HB Education		HB Shopping		HB Personal Business		HB Recreation/Social		Visiting Friends and Rela		HB Holiday/Day Trip	
Level	Name	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination
Authority	Selby	17,750	15,130	2,264	1,845	14,799	12,219	5,332	4,120	3,565	2,303	1,384	576	720	730	794	491

Purpose	Selby Local Authority (Base)			
	O	D	O+D	%
Work	16,358	14,387	30,745	39.0%
EB	2,028	1,706	3,734	4.7%
Education	14,289	12,041	26,330	33.4%
Shopping	4,796	3,778	8,574	10.9%
PB	3,127	2,086	5,213	6.6%
Recreation	1,236	531	1,767	2.2%
Visting	661	664	1,325	1.7%
Holiday	705	442	1,147	1.5%
Total	43,200	35,635	78,835	100.0%

Modal Split - AM Peak

Mode	Selby Local Authority (Base)	
	O+D	% Mode
Walk	11,507	14.6%
Cycle	1,229	1.6%
Car Driver	40,147	50.9%
Car Passenger	20,443	25.9%
Bus/Coach	4,380	5.6%
Rail	1,131	1.4%
Total	78,837	100.0%

Dataset Version:	72
Result Type:	Trip ends by time period
Base Year:	2021
Future Year:	2040
Trip Purpose Group:	All purposes - individually
Time Period:	Weekday PM peak period (1600 - 1859)
Trip End Type:	Origin/Destination
Alternative Assumptions Applied:	No

Combined Modes - PM Peak Period

Growth Factor

Area Description		HB Work		HB Employers Business		HB Education		HB Shopping		HB Personal Business		HB Recreation/Social		Visiting Friends and Rela		HB Holiday/Day Trip	
Level	Name	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination
Authority	Selby	1.0424	1.0755	1.0756	1.1044	1.0232	1.0493	1.0696	1.0854	1.1038	1.1168	1.1021	1.0938	1.0915	1.0991	1.1010	1.1040

Future Year - Base Year

Area Description		HB Work		HB Employers Business		HB Education		HB Shopping		HB Personal Business		HB Recreation/Social		Visiting Friends and Rela		HB Holiday/Day Trip	
Level	Name	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination
Authority	Selby	494	1,008	121	196	72	189	404	573	292	381	411	299	417	490	122	153

Base Year

Area Description		HB Work		HB Employers Business		HB Education		HB Shopping		HB Personal Business		HB Recreation/Social		Visiting Friends and Rela		HB Holiday/Day Trip	
Level	Name	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination
Authority	Selby	11,632	13,344	1,602	1,878	3,101	3,828	5,802	6,709	2,814	3,260	4,023	3,184	4,556	4,942	1,210	1,472

Future Year

Area Description		HB Work		HB Employers Business		HB Education		HB Shopping		HB Personal Business		HB Recreation/Social		Visiting Friends and Rela		HB Holiday/Day Trip	
Level	Name	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination
Authority	Selby	12,126	14,351	1,723	2,074	3,173	4,017	6,206	7,282	3,106	3,640	4,434	3,483	4,972	5,432	1,332	1,625

Purpose	Selby Local Authority (Base)			
	O	D	O+D	%
Work	11,632	13,344	24,976	34.0%
EB	1,602	1,878	3,480	4.7%
Education	3,101	3,828	6,929	9.4%
Shopping	5,802	6,709	12,511	17.1%
PB	2,814	3,260	6,074	8.3%
Recreation	4,023	3,184	7,207	9.8%
Visting	4,556	4,942	9,498	12.9%
Holiday	1,210	1,472	2,682	3.7%
Total	34,740	38,617	73,357	100.0%

Modal Split - PM Peak

Mode	Selby Local Authority (Base)	
	O+D	% Mode
Walk	8,661	11.8%
Cycle	1,384	1.9%
Car Driver	41,562	56.7%
Car Passenger	18,369	25.0%
Bus/Coach	2,458	3.4%
Rail	921	1.3%
Total	73,355	100.0%

Modal Split (Work) - AM Peak

Mode	Selby 010 MSOA (Base)	
	O+D	% Mode
Walk	91	2.1%
Cycle	48	1.1%
Car Driver	3,482	81.4%
Car Passenger	517	12.1%
Bus/Coach	59	1.4%
Rail	80	1.9%
Total	4,277	100.0%

Modal Split (Work) - PM Peak

Mode	Selby 010 MSOA (Base)	
	O+D	% Mode
Walk	98	2.8%
Cycle	40	1.2%
Car Driver	2,739	79.5%
Car Passenger	464	13.5%
Bus/Coach	50	1.5%
Rail	53	1.5%
Total	3,444	100.0%

Growth Factor

Area Description	Name	< 16	16 to 74	75+	Total	HHs	Jobs	Workers
Authority	Selby	1.0195	1.0536	1.6535	1.1032	1.1575	1.0555	1.0920

Future Year - Base Year

Area Description	Name	< 16	16 to 74	75+	Total	HHs	Jobs	Workers
Authority	Selby	322	3,402	5,390	9,115	6,018	2,176	4,021

Base Year

Area Description	Name	< 16	16 to 74	75+	Total	HHs	Jobs	Workers
Authority	Selby	16,524	63,514	8,247	88,285	38,216	39,233	43,680

Future Year

Area Description	Name	< 16	16 to 74	75+	Total	HHs	Jobs	Workers
Authority	Selby	16,846	66,916	13,637	97,400	44,234	41,409	47,701

APPENDIX C. NYC COMMENTS

Your ref: ZG2023/1037/EIA

Our ref:

Contact: [redacted]

Highways and Transportation
Development Management Team
County Hall
Northallerton
DL7 8AH
Tel: 0300 [redacted]
e-mail: development.control@northyorks.gov.uk
www.northyorks.gov.uk

10 October 2024

Dear Sir,

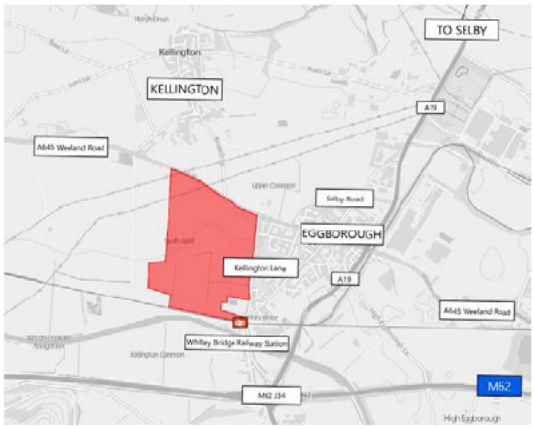
Proposed: Outline application (some matters reserved) for residential development, extracare facility, local centre, primary school and associated infrastructure and landscaping

Location: Land To Western Boundary Of Eggborough, Weeland Road, Eggborough
Applicant: BANKS PROPERTY LTD

Documents Considered:

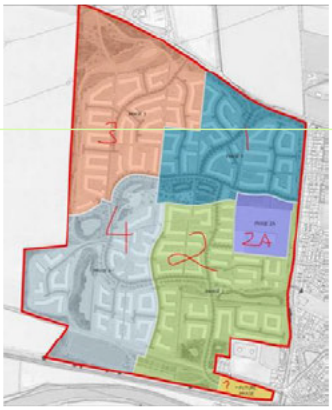
- PA Site Location Plan, Drawing no. HJB/4124/73
- PA Site Boundary Plan, Drawing no. HJB/4124/81
- Planning Application Form
- Planning Statement, BANKS Property
- Design and Access Statement, August 2023
- Environmental Statement, Volume 1 – Non Technical Summary, September 2023
- Environmental Statement, Volume 2
- Environmental Statement, Volume 3
- Transport Assessment dated 14 August 2023 Ref: GJ/JW/DM/lh/ITY16146-005D R by i-Transport
- Response to WSP Comments to NYC Note Ref: GJ/JW/ITY16146-010B TN of 10 July 2024 by i-Transport
- Residential Travel Plan, ITY16146-006D R / 04 July 2024
- Public Transport Strategy File Note LP/N/4124/ENG-01
- PA Aerial Photograph, HJB/ 4124/ 82
- Other Land within Applicants Control, HJB/ 4124/ 74
- Parameters Plan Land Use, HJB/ 4124/ 76
- Parameters Plan Access Plan, HJB/ 4124/ 77

PURPOSE



Since the application was submitted North Yorkshire Council (NYC), Banks Property Limited and their Transport Consultant I-Transport have been in discussions regarding the information submitted and the implications of the development on the highway. As a result of these discussions a Transport Addendum has been produced to address the LHA's concerns. A meeting has since taken place on the 24 September 2024 to discuss the remaining issues. This document advises on the LHA's latest position on Banks Property's Planning Application ZG2023/1037/EIA for 1500 dwellings, a 70-bed extra-care facility, 14 independent living units, a local centre, a two form entry primary school and associated infrastructure and landscaping at land south of Weeland Road, west of Kellington Lane, and east of Southfield Lane on the edge of Eggborough, as shown above. Concerns are highlighted in red. The impacts on the road network under the management responsibility of both National Highways and Wakefield Borough Council are not a consideration for NYC.

1. Introduction



The proposal is by a sole developer on a site that is an emerging allocation in the emerging Selby Local Plan Publication Version 2024 forming a Strategic Urban Extension for the village. The Application is in outline with all matters reserved except for access and EIA development whereby scoping has been undertake with NYC's LHA.

The information suggests that it is anticipated that 950 dwellings will be complete by 2040, the rest by 2048 as per the phasing plan, right. There are no timescales for the other land uses proposed.

Land to the north of Whitley Bridge Station will be ceded to support Network Rail improvements; below are potential concepts for new parking and platforms to demonstrate what could be achieved with the land available. Other off-site mitigations via S106 Agreements for enhancing public transport, a combined use path between the site and the centre of Eggborough along Weeland Road, and a direct link into the new improved station to remove the need to use Kellington Lane are proposed.

Commented [DH1]: What does this mean?

Commented [VD2R1]: Strategic Urban Extension



2. Planning Context

Reference is taken from the emerging Selby Local Plan, Publication Version (2024) and the Knottingley Sustainable Transport Package by Wakefield Council that includes the Knottingley Link Road.

3. Development Vision

There is an overarching vision for the site when complete to embrace low carbon transport and healthier lifestyles through providing a sustainable development with “liveable streets” where people want to be.

The site is between ¾ and 1.75kilometre’s away from the centre of Eggborough and its limited facilities. There is willingness to improve public transport services and infrastructure, active travel corridors and provide a car club.

4. Policy Context

Reference to the NPPF, Circular 01/2022, the Emerging Selby Local Plan, and the North Yorkshire Local Transport Plan 4 is made.

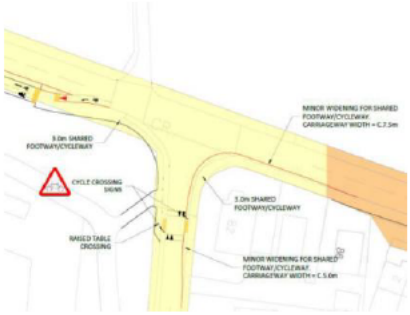
5. Development Proposals

The mixed-use development will have two vehicle accesses and a combined use path along Weeland Road (right) between the site and village. The main access is a 3-arm roundabout west of Kellington Lane, and further west is a priority junction for just 350 dwellings.



LHA Comment 1: The priority junction requires a refuge island in accordance with NYC standards, irrespective of footway or not, this junction acts as a gateway to slow eastbound traffic. A RSA1 is required to assess both junction design and the route as a whole alongside the site.

To facilitate active travel the uncontrolled crossing across Kellington Lane, drawing ITY16146-GA-029 shows a raised table crossing south of the junction (below).



LHA Comment 2: Routing for all vulnerable road users should be as direct as possible, however there may be opportunity to relocate the raised table and link to the internal site combined use path further north to the junction to act as a traffic calming feature to vehicles entering Kellington Lane. The RSA1 for Kellington Lane should consider this as well as the whole route strategy.

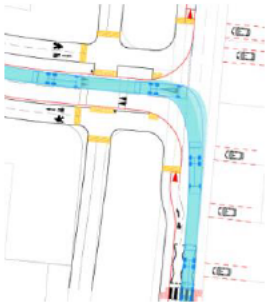
LHA Comment 3: NYC's preferred single vehicle access solution in the interests of highway safety, a 4-arm roundabout with Broach Lane, is discounted. NYC will await the RSA1 review before support for the access proposal can be given. Whilst land is required from the site, any dwellings displaced could be relocated elsewhere across such a large site.



LHA Comment 4: It was noted that the swept paths provided do show some overrunning of the roundabout by Articulate Vehicles.

New street lighting along the site frontage as proposed in drawing ITY16146-GA-025 is noted, which will be subject to detailed design approval that can be secured by Condition.

From Kellington Lane a priority junction vehicle site access and two combined use path accesses (circled red right) are proposed as well as a new primary school. A zebra crossing is proposed just south of the junction and the school with new bus stops. Combined use paths are proposed north/south within the site with an access north of the school.

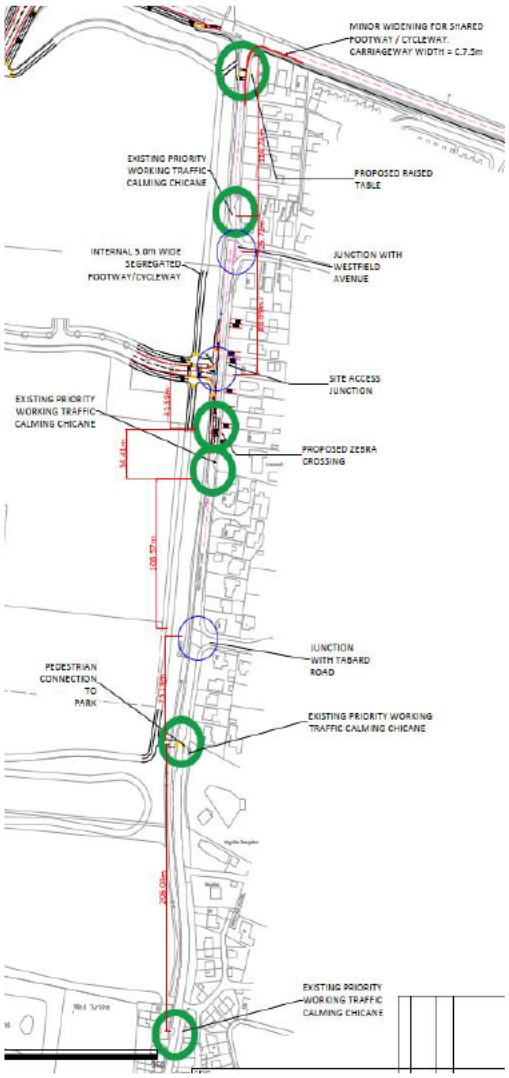


LHA Comment 5: Can the zebra crossing provide a link directly to the internal site combined use path for walkers and cyclists? (Extract left as per drawing ITY16146-GA-028).

Commented [WP3]: H[redacted] - it was here you asked for a 2m footway on west side of Kell Lane if not already provided, however, given the internal NEW path, providing links to / from the existing resi area are quality, should be no need to alter that existing provision

With new residential, rail commuter and school trips, new traffic calming and vehicle and non-vehicle access points along Kellington Lane, its feel will change including becoming a more urban context.

LHA Comment 6: As shown below, the resultant mix of vertical and horizontal traffic calming with new access points, junctions and a zebra will leave an inconsistent message to road users, and a holistic approach to this road to serve the best interests of all prioritising vulnerable road users should be taken covering between Weeland Road and the canal. This will facilitate the Applicant's vision for the site, namely a liveable, sustainable area. This should be subject of a RSA1 review.



It is noted that the Applicant is aware of the need to manage school travel by appropriate layout, infrastructure provision on-site, and a Travel Plan which can be secured via Condition later in the process.

LHA Informative: For the Reserved Matters Application, a well designed layout and resourced Travel Plan will avoid the need for any enforcement measures such as TRO's. A proactive approach to implementing the Travel Plan will be far more effective in achieving the Applicant's own sustainable development concept as well. A School Travel Plan will be required to be agreed pre-commencement, implemented within 3months of the first school survey to be undertaken 3months after first occupation.

LHA Comment 7: A connectivity plan to demonstrate seamless connections to / from the existing public recreation spaces, village hall, both rail station platforms and GP surgery on Selby Road is requested. A contribution to provide a direct walking route to the village hall across the recreation area is desirable, subject to Parish support.

Commented [WP4]: Parish council anti-engagement hence happy to contrubute to path over field for PC to do it [redacted] to investigate

After discussions with NYC's Public Transport Team, a site Bus Strategy including two new stops on Kellington Lane south of the Village Hall recreation area is agreed. There is also support from Arriva to divert services along the spine road through the site. The proposed stops see all dwellings within 400metes.

All accesses, roads, cycle routes and parking will be designed to comply with MfS and NYC standards for vehicles and cycles.

LHA INFORMATIVE: The internal layout and landscaping are to be determined through a Reserved Matters application. However, it should be noted that no trees should be located within 2.5m of the carriageway or 1.2 metres from any footway, and on all junctions, forward visibility must be demonstrated and safeguarded. This requirement is likely to result in the need for wide private verge areas. Please also ensure that any trees at the access are set back as stated above. Any planting should be at least 0.5 metres from the highway boundary. Given this may mean changes to the masterplan layout, this should be dealt with in the Outline Planning Application.

Discussions with NYC regards rail station improvements and reference to a NYC / Northern Outline LEP Business Case to enhance both infrastructure and services is made.

Commented [WP5]: What is the mitigation req'd at rail station to make dev acceptable? [redacted] to chase [redacted] % of uplift of hourly service on unit values

LHA INFORMATIVE: The timescale for any bid is unknown, however NYC welcome continued joint working critical to match funding external Government grants. Improved rail services and a station will be a benefit for the Applicant, delivering their "vision" as and making the site more accessible and attractive to major local conurbations such as Leeds.

The proposed sustainable travel elements of this application have been sent to NYC's Transport Planning Team to advise further on the suitability of the proposed facilities. Comments are as follows: -

The LHA would expect to see an internal site arrangement of 3m cycleway/2m footway that aligns well with the latest cycle design guidance in terms of compliance. It is recommended that this arrangement flows throughout the main routes of the site. From the Parameters Plan for accesses there are three proposed vehicle and ped/cycle access points and five indicative ped/cycle access points.

Primary site access, Weeland Road

The primary site access on Weeland Road shows a 4m segregated footway/cycle way with 1.5m buffer/verge. On a 60mph road, the desirable buffer/verge should be 2.5m or 2m absolute minimum. This is to provide protection from motor vehicles and helps protect peds and cyclists from the air turbulence created by passing motor traffic and from debris thrown up from the carriageway. The cycle tracks become one way at the roundabout which means the widths (2m cycle way/2m footway) are compliant with small sections of shared use at the crossing arms of the roundabout. The taper transition from cycle path to carriageway looks to be compliant from the drawings, it's disappointing that the off road provision eastbound can't be provided until the speed limit changes to 30mph, which would be a slightly less hostile location to join the carriageway. At the roundabout, one

way cycle tracks do increase the distance cyclists need to travel when making right turns, however given the internal site cycleway layout I think it works at this primary access point.

The Cycle crossing shown on the plan just within the site should be a priority crossing (this may already be the case).

The shared use path on the southern side of Weeland Road does provide a safe off carriageway route east to Hut Green Roundabout (looks compliant given most recent traffic count). A priority crossing should be provided over Green Acres and the Puffin crossing upgraded to a Toucan crossing. Extension of the route to amenities on Selby Road does make sense. It would be positive to secure cycle parking being provided at the shops?

LHA Comment 8: Whilst the proposed off-site shared use path on Weeland Road towards the village centre is welcomed, in the interests of promoting more cycling as encouraged by LTN1/20 and connecting to recent new improvements from the Power Station, the proposals should be extended through the roundabout using carriageway as required to enable safe, continuous access to the shops etc. located on Selby Road. Viability of a crossing improvement (upgrading the pelican crossing on Weeland Road to a toucan crossing) and a continuous raised table across Green Acres to provide priority and safety to those walking and cycling are to be assessed. It is noted that the Applicant is already open to possible minor pedestrian improvements at the main roundabout.

LHA Comment 8a: The following sustainable provisions should be amended/investigated further: The verge buffer widths on Weeland Road will need increasing, incorporating off road shared provisions eastbound of the site should be investigated, the cycle crossing within the site needs to be a priority crossing and secure cycle parking should be provided at the shops.

Secondary site access, Weeland Road

The cycle crossing should be a priority crossing within the site. The ped/cycle provision looks good, one way cycle ways on the main spine road at 2m width and 0.5m buffer provided. Internal footway (2m)/cycleway (3m) east to west is compliant and welcomed.

LHA Comment 9: Please ensure the cycle crossing within the site is a priority crossing.

Secondary site access, Kellington Lane

The internal site arrangements with regard to segregated facilities provide a better north/south route than trying to provide infrastructure next to the carriageway along the length of Kellington Lane. That being said, improvements to the existing traffic calming chicanes to potentially provide cycle bypasses should be considered. LTN 1/20 pg 77 provides the relevant details. Please note that this will depend on whether or not the

chicanes remain in place, as mentioned in NYC response 6 the RSA1 needs to cover traffic calming on Kellington Lane. The shared use sections near to the junction need to be 3m in width, as although cyclists will generally be travelling at slow speed here the minimum widths should be followed to lower the risk of ped/cycle/wheeling conflict.

Kellington Lane would benefit from raised kerb at the existing bus stops.

LHA Comment 10: Further consideration should be given to providing cycle bypasses at the chicanes, securing 3 metres width shared use sections near the junction, and providing raised kassel kerbs at the existing bus stops on Kellington Lane.

Ped/Cycle access to Kellington Lane

The Access control barriers to the park need to be re-considered as the barriers reduce the usability of a route for everyone and may exclude people riding nonstandard cycles and cargo bikes. I can see there is no path in the park currently, but people may arrive on bicycle/wheelchair/pushchair etc so access controls need to be suitable. This links in with LHA Comment 7.

General comments

This issue has already been mentioned in my report but was also highlighted by the Transport Planning team. The illustrative masterplan indicates improvements will be made to Whitley Bridge Rail station and it is important a contribution is secured for public transport to provide a revenue contribution to pump prime a better rail service. The station has 2 services a day currently, but this could be increased offering a much better service to Leeds, Goole and possibly Hull. A meeting has taken place regarding such contributions, and discussions are ongoing.

The Canal Towpath immediately south of the site and next to the rail station could provide a safe active travel route to Knottingley if improved. I understand preliminary discussions with Canal and River Trust have already taken place, but widening and surface improvements would attract more active travel journeys from the site east to key trip attractors. A sustainable transport contribution should be sought to facilitate this link.

The proposed school location on the illustrative map shows good active travel connections as the proposed shared use on Weeland Road provides a link from the east and internal site arrangements allow peds/cycles safe access to the school (previously mentioned priority crossings are important to facilitate this).

Cycle parking in general should be well thought out for the school and retail uses. Secure, sheltered and overlooked provision should be provided to ensure cyclists arriving to and around the site have the facilities to park with confidence.

LHA Comment 11: As previously mentioned in the report a contribution to enhancing the rail service is sort, along with a contribution to providing a link between the site and Knottingley along the Canal Towpath. A Walking, Cycling and Horse-Riding Assessment will be required.

6. Site Accessibility

The site is within walking distance of the village centre however the range of amenities, facilities and employment is limited locally and not as stated *"significant"*, meaning travel further afield will be inevitable. To improve connectivity the Applicant is agreeable to a S106 Agreement for dropped kerbs at:

- A645 Weeland Road / Selby Road roundabout (northern arm);
- Kellington Lane / Westfield Avenue;
- Selby Road / Stuart Grove; and
- Access to the Maltings Industrial Estate.

LHA Comment 12: More significant works at the A645/Selby Road roundabout as per LHA Comment 8 are required.

The nearest bus stops will be within 400metres of all dwellings and Arriva have confirmed they could divert services along the new spine road. The 2-hourly (no evenings or Sunday's) 476 service between Selby and Yorkshire Outlet Shopping Park (Junction 32) via Ferrybridge and Pontefract can be taken currently a kilometre away.

From Whitley Bridge Rail station except on Sunday's there are just two services departing daily between Goole and Leeds, with a morning peak-period commuter service and a mid-evening returning train. The station is unstaffed with no ticketing facilities and parking for just 5 cars. The need for improvements to the station and services is clear.

7. Sustainable Movement Strategy

To achieve the sustainable development envisaged, an effective site Travel Plan (TP) will be implemented supported by a site layout encouraging active travel, facilities such as electric vehicle charging points (EVCP) for each dwelling, and bus / rail / cycle vouchers. The Applicant is agreeable to securing this, a School TP, and a Care Home TP by Conditions.

Public Transport Initiatives

To maximise public transport use, working with Operators and via S106 Agreements, they propose to:

- Provide land for the rail station's enhancement and improve its infrastructure with waiting facilities, cycle parking and information as well as improve daily services there with financial support as yet to be agreed;
- Secure an hourly bus service with Arriva doubling its existing daytime provision after the 50th dwelling is occupied and maintaining that financial support for 5 years;
- New bus shelters will be provided within the site at all new stops connected internally via a quality shared use path network and two on Kellington Lane; and
- Provide smart tickets / travel vouchers as part of the Residential Travel Plan.

Walking

The site will have quality connectivity supplemented by waymarking within the site and also off-site via a S106 Agreement.

Soft Measures

Via the Travel Plan process and Travel Plan Co-ordinator (TPC), healthy lifestyles and active travel will be encouraged on the site with incentives, promotions and initiatives including personalised travel planning. This will extend into the new school too.

Walking, Cycling and Horse-Riding Assessment and Reviews will be dealt with at the Reserved Matters stage as required under GG 142 (A645).

The Applicant is agreeable to a Condition to provide a car club on site.

8. Existing Highway Conditions

A detailed review of the surrounding highway is provided and helps set out the spatial travel context for the site with the M62 Junction 34 south of site for east/west travel and connections north/south via the A1(M) west of the site at Junction 33.

To the east along Weeland Road which is 30mph east of Kellington Lane via a roundabout is Selby Road, the main north/south link through the village. Just east of this is the Weeland Road / A19 roundabout, the north/south bypass of the village.

NYC RTC data for an extended period as far back as 2012 has been reviewed and there are no relevant incidents to the proposal reported within the NYC area.

LHA INFORMATIVE: The requirements of Wakefield Borough Council have not been considered in terms of traffic collision analysis.

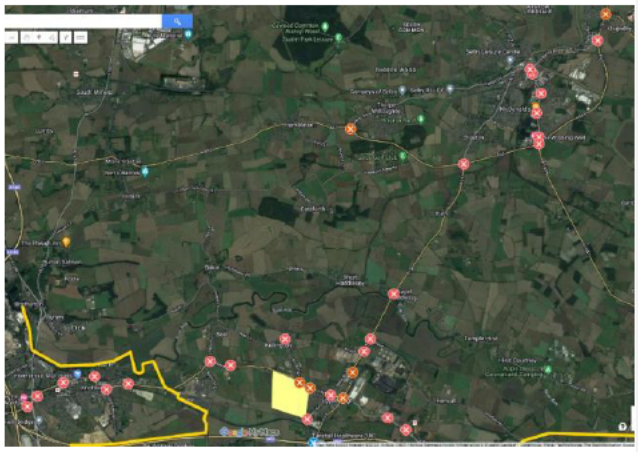
9. Traffic Assessment Methodology

To assess impact of the proposal on the surrounding network, four assessment scenarios have been tested including future years of 2025, 2028 and 2033.

LHA Informative: NYC only assess the results of the "Business as Usual" 2028 and 2033 assessment scenarios, being more robust and less theoretical. Whilst NYC note the Applicant's ambitions to promote active travel, given the location, facilities available locally, and the reluctance of the public to engage proactively with travel planning measures historically, NYC must assume a more robust approach.

Section 8 outlines the baseline data collected from manual classified counts (MCC) on Thursday 20th October 2022 and Wednesday 17th May 2023 between 07:00 – 10:00 and 16:00 – 19:00 at an extended number of junctions including within the area of Wakefield BC as shown below located towards and in Ferrybridge west of the County border.

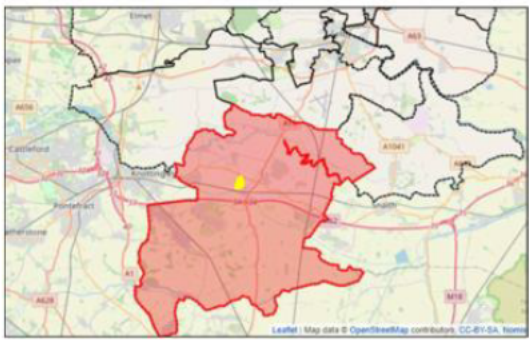
Automatic traffic counts (ATC) were undertaken in October 2022 on Weeland Road from Kellington Lane to west of Broach Lane, and on Kellington Lane south of Westfield Avenue to validate the forecast models (right).



Peak periods were identified from 07:45 and 16:45.

Section 6 gives local Census data from Selby 010 MSOA (below) with journey purpose (Table 6.1 below) and average mode share (Table 6.2 below left).

Figure 6.1: Selby 010 MSOA Plan



Weekday Purpose (T6.1)	Proportion
Work	33.2%
Shopping	16.7%
Education	13.7%
Visiting Friends and Relatives	10.4%
Personal Business	9.2%
Recreation / Social	8.0%
Employer's Business	5.4%
Holiday / Day Trips	3.4%
Total	100.0%

Over 86% rely on car travel and typically, a third of all journeys are commutes whilst shopping and education combined amount to around another third.

Mode T6.2	%	
Car Driver	60.3%	
Car pax	26%	
Walk	8.2%	
Bus	3.1%	
Cycle	1.3%	
Rail	1%	
Total	100%	

Table 3.1 of the TA states over 62% of the local population were working age, 16.6% over 65, 8.7% secondary school age and 8.2% primary school age.

A comprehensive list of committed developments has been included, though several that were requested during NYC scoping have been discounted for either being unlikely to emerge within 3-years or are insignificant in terms of new trips as below:

Not within 3 years	Less than 30trips each
Site 14 - Burn Airfield/Church Fenton Site 29 - Burn – New Settlement Option Site 35 - Olympia Park, Barlby Road Site 36 - Land at Eggborough Power Station Site 37 - Gascoigne Wood Interchange	• Site 19 - Land East of Flaxley Road, Selby • Site 23 - Land rear of The Poplars, Brayton • Site 24 - The Laurels, York Road, Barlby • Site 25 - Land West of The Green, North Duffield • Site 26 - A19 Caravan Storage Limited, Hensall • Site 27 - Former Kellingley Colliery, Knottingley • Site 30/31 - Sedalcol UK Ltd, Denison Road • Site 32 and Site 33 - St Gobain Glass UK Ltd

LHA Comment 13: Site 37 - Gascoigne Wood Interchange and Site 20 - Portholme Road should be included.

Commented [WP6]: [redacted] - is that right?

Commented [VD7R6]: Portholme Road

To consider network background growth, NTM data for the Selby local authority area excluding all land-use related growth to account for the committed developments is used, which is acceptable.

To identify future residential trips, TRICs rates agreed previously with NYC (below) are used which is acceptable:

Table 9.9: NYCC Vehicular Trip Rates (Business as Usual) – Residential (per dwelli

Type	AM Peak			PM Peak		
	Arr.	Dep.	2-Way	Arr.	Dep.	2-Way
HPO	0.183	0.754	0.937	0.635	0.260	0.895

Combining these rates with mode split from TEMPro as per Table 9.10 (below left), the residential multi-mode trip forecast can be derived as per Table 9.12 below right:

Mode T9.10	AM peak	PM Peak
Walk	14.6%	11.8%
Cyc	1.6%	1.9%
Car driver	50.9%	56.7%
Car pax	25.9%	25%
Bus	5.6%	3.4%
Rail	1.4%	1.3%
Total	100%	100%

Table 9.12: Residential Multi Modal Trips (Current) – 1,500 units

Type	AM Peak			PM Peak		
	Arr.	Dep.	2-Way	Arr.	Dep.	2-Way
Walk	40	165	205	112	46	158
Cycle	4	18	22	18	7	25
Car Driver	**140**	**576**	**716**	**540**	**221**	**761**
Car Passenger	71	293	364	238	97	335
Bus/Coach	15	63	79	32	13	46
Rail	4	16	20	12	5	17
Total	274	1132	1406	952	389	1341

To consider the new school impacts, TRICs has been used based on a 2 class per year primary school. This was confirmed the accepted position by the LEA in July, though could be a consideration factor in the School TP.

LHA Comment Informative: The vehicle trip generation in Table 9.19 fails to provide a fair representation when compared to a practical first principals approach. With 14 classes and at least 2 teachers per class except Reception that has 3 each, a Head, Deputy, caretaker, 3 administration staff, 1 SEN teacher, and 2 others for robustness, the total staff could be 38. It would not be unreasonable to expect only 4 would live within non-driving distance leaving 34 driving in during the morning peak. This is in addition to the estimated 20% of external pupils being driven to school and some of the estimated 80% of internal ones too.

To consider the new local centre impacts accessed externally from Kellington Lane, TRICs is used. It is assumed that 80% are internalised,

Table 9.24: Summary of Work and Employer's Business Trip Distribution

Origin/Destination	AM Peak
A19 (North)	18.5%
A645 Weeland Road (East)	5.1%
M62 (East)	7.4%
A19 (South)	4.3%
M62 (West)	45.7%
A645 Weeland Road (West)	12.6%
Within Eggborough (A645 E)	1.6%
Within Eggborough (Selby Rd N)	1.6%
Within Eggborough (Selby Rd S)	1.6%
Within Eggborough (Selby Rd C)	1.6%
Total	**100.0%**

Table 9.31: Summary of New Local Centre Trip Distribution

Approach Route	% Distribution
Within Eggborough (Selby Rd N)	20%
Within Eggborough (Selby Rd S)	10%
Within Eggborough (Selby Rd C)	60%
Within Eggborough (A645 (W))	10%
Total	**100.0%**

10% are pass-by trips, and 10% are new which is acceptable. Distribution as per Table 9.3.1 (above) is noted.

Using the census and usual place of work, the distribution for the residential element is provided in Table 9.24 (left) which is acceptable.

The nearest 3 primary schools and 5 secondary schools have been assumed as destination for students and proportions applied. There is no other science to this than distance. Census data indicates under 10% of staff will live local.

Even though NYC consider that the food shopping trip distribution as per Table 9.27 gives too much weight to the local Londis at the expense of the larger offerings in Selby and Pontefract, and the non-food shopping as shown in Table 9.28 potentially under-estimates trips to Selby and Pontefract compared to Eggborough, the number of trips and their times are unlikely to impact roads at peak times managed by NYC significantly.

10. Trip Generation (Local Roads)

NYC agreed the study area and identified 8 junctions of interest however many more are assessed as below in a summary of results:

MCC with Queue survey sites as per Apx 8C		T11.1 Summary of TIA						T11.2 JCA			
		DM		Site trips		% change		DM		DS	
Ref T8.14	Name	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
5	A19 / A645 Weeland Road *(JCA inc power station mits)*	3199	3123	346	337	10.8%	10.8%	0.88	0.8	0.92	0.87
2	A645 Weeland Road / Selby Road	1051	1167	531	555	50.6%	47.6%	0.28	0.41	0.64	0.55
1	A645 Weeland Road / Kellington Lane	746	834	568	594	75.9%	71.2%	0.17	0.16	0.39	0.31
13	A645 Weeland Road / Broach Lane	412	482	269	255	65.1%	52.9%	split in two but <1%			
3	Kellington Lane / Selby Road	349	318	107	98	30.7%	30.8%	0.16	0.11	0.3	0.17
15	A645 Weeland Road / Lunn Lane	325	429	104	121	32.0%	28.2%	0.08	0.08	0.08	0.09
16	A645 Weeland Road / Common Lane	325	469	104	121	32.0%	25.8%	0.07	0.06	0.08	0.06
17	A645 Weeland Road / Fernley Green Road	410	513	104	121	25.4%	23.6%	0.06	0.09	0.08	0.1
14	Roall Lane / Broach Lane			<30 extra with lane la		18.4%	9.6%	0.06	0.07	0.09	0.09
8	A19 / Wand Lane	high flow / small rise comapritively				10.30%	9.10%	0.14	0.08	0.14	0.09
11	A63 / Leeds Road			<30	<30						
18	A645 Weeland Road / Hazel Old Lane			<30 extra pm, 36 am							
19	A645 Broach Lane / Church Lane / Station Road (sigs)			<30 extra pm, 36 am							
20	A1041 Bawtry Road / Oakney Wood Road / Lidl Access			62	84	2.6%	3.2%				
21	A1041 Bawtry Road / Abbot's Road / Three Lakes Retail Park			59	78	3.4%	3.5%				
22	A1041 Bawtry Road / Canal Road / Canal View			42	57	3.2%	3.6%				
23	A1041 Bawtry Road / Park Street / Station Road			39	51	3.2%	3.4%				
24	A19 The Crescent / A1041 Park Street (sigs)			37	50	2.7%	3.3%				
25	A19 / A63 / Local Access			46	38	1.5%	1.3%				
26	A19 / A63 Hull Road / Highfield View			46	38	1.4%	1.2%				
29	A645 Weeland Rd / B6136 Ferrybridge Rd / Headlands La (sigs)			76	86	4.2%	4.3%	80.50%	90.20%	85.40%	95.00%
30	A645 Pontefract Road / A162 Link Road (Sbnd slips) (sigs)			47	57	2.6%	3.0%	0.49	0.82	0.67	0.86
31	A645 Knottingley Road / A162 Link Road (Nbnd slips)			45	45	2.4%	2.1%	72.30%	88.80%	73.50%	91.20%
6	A19 / Selby Road	high flow / small rise comapritively									
7	A19 / Roll Lane	high flow / small rise comapritively									
9	A19 / Millfield Road	high flow / small rise comapritively									
10	A19 / A63	high flow / small rise comapritively									
12	A63 / A1041 Bawtry Road / Bawtry Road	high flow / small rise comapritively									
27	A645 Weeland Road / Womersley Road	high flow / small rise comapritively									
28	A645 Weeland Road / Chapel Street	high flow / small rise comapritively									
4	M62 Junction 34										
1	(Additional SRN) M62 Junction 35										
2	(Additional SRN) M62 Junction 36										
3	(Additional SRN) M62 Junction 32A										
4	(Additional SRN) A1(M) Junction 42										
5	(Additional SRN) M1 Junction 48										
6	(Additional SRN) A64 / A1237										
7	(Additional SRN) A64 / A19										

High real no. increase
High % increase, low flow rd to start
% rise of interest but low nos
Low Real No. increase
Others rises 35-150 in nos but very low %impact as very high to start

capacity worsens
capacity worsening

LHA Comment 14: Junction capacity assessment identifies impacts with the proposal at the A19/A645 Weeland Road roundabout, which even with the proposed mitigations from the Power Station Application, increases in the AM peak from .88 to .92 RFC with nearly a 11% increase in the traffic flows. There are also three junctions with performance decreasing beyond standard thresholds NYC work to, but being in Wakefield BC's area, they are a matter for that Highway Authority. Measuring severity of impact when an arm exceeds 90% operating performance is hampered by the ability of models to be able to reflect the on the ground situation accurately. Further, with school traffic (Table 9.19) undercounted as highlighted above, two committed developments omitted, and HGV actual percentages not accounted for in the input assumptions accurately, NYC are concerned with the performance ability of that major junction and request mitigation is provided with testing to demonstrate nil detriment.

Vehicular traffic at the level crossing on Selby Road has been considered and does not cause a concern in the future.

Conclusion

Summary
NYC has provided comments on the Transport Assessment highlighted in red that should be addressed by the Applicant. Where no comments are provided, the Applicant may assume that NYC accept the position provided. Scoping advice is always without prejudice and based on the information available at that time.

There are concerns especially that require Road Safety Audits regards the Weeland Road site accesses proposed instead of the preferred single roundabout with Broach Lane and the treatment of Kellington Lane.

It remains unclear where the care home trip generation was included in the assessment.

Nil detriment at the A19/A645 junction must be achieved.

The ambitions to deliver a sustainable development for both living and traveling are welcomed by NYC who note that S106 Agreements for bus and rail services enhancement, off-road shared use links, informal crossing improvements, way marking off-site, and rail station infrastructure including waiting and cycle shelters, and information are proposed.

The views of Wakefield Borough Council and National Highways should be taken and addressed.

I therefore await further information, amended drawings and documents before making any further comments and recommendations on this planning application.

Section 278 Agreements

Section 278 of the Highways Act 1980, in effect gives a Local Authority the right of first refusal to undertake the design and/or construction of works associated with a S278 Agreement. This in practice requires any Developers, where a S278 Agreement is needed, to enter into discussions with the Local Highway Authority for the provision of S278 design and construction works. Please contact Marketa Kocianova highwaydevelopmentservice@northyorks.gov.uk at your earliest opportunity to ascertain whether the LHA will undertake the S278 design on this scheme.

Yours faithfully

[redacted]
Development Management Team

APPENDIX D. NYC RESPONSE

i-Transport LLP
Princes Exchange, Leeds, LS1 2PY

Tel: 0113 280 5805

Land West of Kellington Lane, Eggborough: Response to North Yorkshire Council Comments (November 2024)

Application Ref: ZG2023/1037/EIA
Ref: GJ/JW/ITY16146-014B TN
Date: 28 November 2024

SECTION 1 Introduction

1.1 North Yorkshire Council (NYC) as the Local Highway Authority (LHA) has provided a draft response to Banks Property (the 'Applicant') planning application for a residential led mix-used development at Land West of Kellington Lane.

1.2 The LHA draft consultation response is dated 10 October 2024, although this was only received by the Applicant a month later on 11 November 2024.

1.3 The LHA's consultation response (at **Appendix A**) includes 14 comments in red text, and the purpose of this technical note is to provide additional information and/or respond to the queries that have been raised. For ease of reference, the LHA's comments are shown below in ***bold italics*** and i-Transport's responses are then set out below. Where appropriate, additional responses have also been included.

SECTION 2 Response to Comments

LHA Comment 1: The priority junction requires a refuge island in accordance with NYC standards, irrespective of footway or not, this junction acts as a gateway to slow eastbound traffic. A RSA1 is required to assess both junction design and the route as a whole alongside the site.

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2.1 A refuge island has been added to the proposed priority controlled T-junction site access on the A645 Weeland Road, as shown on i-Transport drawing ITY16146-011 Rev F, included in **Appendix B**. This amended arrangement has been incorporated within an updated Stage 1 Road Safety Audit (RSA1) Brief, which is submitted alongside this technical note for approval by the LHA as the Overseeing Organisation.

2.2 The RSA1 Brief makes explicit that the audit team should consider both the access design and the route along the A645 Weeland between this proposed western access junction and Kellington Lane, with reference to the provision of an internal segregated footway/cycleway running parallel to the A645 Weeland Road along the length of the site frontage.

LHA Comment 2: Routing for all vulnerable road users should be as direct as possible, however there may be opportunity to relocate the raised table and link to the internal site combined use path further north to the junction to act as a traffic calming feature to vehicles entering Kellington Lane. The RSA1 for Kellington Lane should consider this as well as the whole route strategy.

2.3 The raised table crossing on Kellington Lane has been relocated to the junction with the A645 Weeland Road to provide a direct route between the site and pedestrians on the A645 Weeland Road to the proposed shared footway/cycleway through Eggborough. The amended raised table crossing is shown on i-Transport drawing ITY16146-GA-029 Rev A, included in **Appendix C**.

2.4 The updated RSA1 brief, sets out that the audit should include the full length of the route along Kellington Lane between the A645 Weeland Road and Selby Road, including the proposed amendments to the traffic calming features. See responses to LHA Comments 5 and 6 below for additional changes along Kellington Lane which are included in the updated RSA1 brief.

LHA Comment 3: NYC's preferred single vehicle access solution in the interests of highway safety, a 4-arm roundabout with Broach Lane, is discounted. NYC will await the RSA1 review before support for the access proposal can be given. Whilst land is required from the site, any dwellings displaced could be relocated elsewhere across such a large site.

2.5 It was previously agreed that at the meeting held on 24 September 2024 that the proposed access arrangement as submitted would be subjected to an independent RSA1 . The Applicant's position remains that the submitted arrangement provides safe and suitable access for all users in accordance with the National Planning Policy Framework (NPPF) and does not accept that there is any need to relocate proposed dwellings elsewhere on the Site.

2.6 An updated RSA1 Brief has been submitted alongside this response. The LHA is respectfully asked to confirm its agreement to the Brief so that the audits can proceed forthwith.

LHA Comment 4: It was noted that the swept paths provided do show some overrunning of the roundabout by Articulate Vehicles.

2.7 i-Transport drawing ITY16146-GA-023, included in Appendix 5.C of the TA and reproduced in **Appendix D** of this response, presents the tracking of an articulated vehicle at the proposed site access roundabout on the A645 Weeland Road. i-Transport drawing ITY16146-GA-007 Rev E, included in Appendix 5.B and also reproduced in **Appendix D** of this response shows the site access arrangement of the roundabout, including a note stating that the grey area, with dashed outer line is designed as an overrun area.

2.8 DMRB CD119 Paragraph 3.8.1 states that an overrun area, *'may be necessary to provide sufficient entry deflection for vehicles at compact or smaller normal roundabouts while still allowing large vehicles to circulate'*. The standards for an overrun area are set out in DMRB CD119 Table 3.8 and in Note 1 under Paragraph 3.8.1. The proposed design accords the requirements set out for a central island diameter of 16m, with a minimum ICD of 34.6m, a circulating carriageway width of 5.4m and R1 and R2 values of 9.0m and 16.3m, respectively.

2.9 i-Transport drawing ITY16146-GA-023 shows the articulated vehicle utilising the overrun area in a couple of locations, as permitted by the relevant design standards. The design vehicle does not overrun the 1m clearance from the edge of kerbing around the central island nor does it overrun any physical kerbs at any of the entry or exit arms.

2.10 The design of the roundabout access is therefore appropriate.

LHA Comment 5: Can the zebra crossing provide a link directly to the internal site combined use path for walkers and cyclists?

2.11 A direct link between the zebra crossing and the internal segregated footway/cycleway has now been included and is shown on i-Transport drawing ITY16146-GA-017 Rev D, included in **Appendix E**.

LHA Comment 6: As shown below, the resultant mix of vertical and horizontal traffic calming with new access points, junctions and a zebra will leave an inconsistent message to road users, and a holistic approach to this road to serve the best interests of all prioritising vulnerable road users should be taken covering between Weeland Road and the canal. This will facilitate the Applicant's vision for the site, namely a liveable, sustainable area. This should be subject of a RSA1 review.

2.12 A full review of the traffic calming features along Kellington Lane has been carried out and an updated proposed scheme is shown in i-Transport drawing ITY16146-GA-031 Rev A, included in **Appendix F**. The proposed changes provide a more holistic approach to traffic calming measures on Kellington Lane including replacement of existing chicanes with proposed raised tables and provide raised table crossing provisions for pedestrians and cyclists. This approach will provide a cohesive traffic calming scheme along the length of Kellington Lane.

2.13 The changes which have been made, are summarised below working from north to south. Each of the drawings referred to below are included **Appendix F**:

- ITY16146-GA-029 Rev A – Raised table pedestrian crossing relocated north and provided at the junction with the A645 Weeland Road.
- ITY16146-GA-032 – Amended traffic calming feature: existing chicane adjacent to property No. 68 removed and a new raised table provided.
- ITM16146-GA-012 Rev D – The proposed zebra crossing has been amended to provide a raised table crossing point, with the existing chicane adjacent to property No. 48 removed.
- ITM16146-GA-017 Rev D – The proposed uncontrolled pedestrian crossing adjacent to the access to park to the rear of the Eggborough Village Hall has been amended with the chicane removed and replaced with an uncontrolled raised table crossing with tactile paving.
- ITM16146-GA-033 – The build out and associated priority working arrangement adjacent to No.21 property has been removed with a raised table crossing introduced in its place.

2.14 The updated RSA1 Brief submitted alongside this technical note incorporates these proposed changes and includes a requirement to review of the full length of Kellington Lane.

LHA Comment 7: A connectivity plan to demonstrate seamless connections to / from the existing public recreation spaces, village hall, both rail station platforms and GP surgery on Selby Road is requested . A contribution to provide a direct walking route to the village hall across the recreation area is desirable, subject to Parish support.

2.15 Connectivity Plans are included in **Appendix G**. These demonstrate available routes between the Proposed Development and the rest of Eggborough, including existing public recreation spaces; existing shops on Selby Road; Eggborough Village Hall; Whitley Bridge rail station (both internally within the Site and via Kellington Lane); GP surgery on Selby Road; and local employment opportunities on the A645 Weeland Road and Selby Road.

2.16 These plans also consider connections from existing residential areas to the Proposed Development, given the proposals include a new primary school and a local centre/retail space.

2.17 The request for a contribution is acknowledged by the Applicant.

2.18 Please can NYC set out details of the development contribution that is sought and how that is calculated?

LHA Comment 8: Whilst the proposed off-site shared use path on Weeland Road towards the village centre is welcomed, in the interests of promoting more cycling as encouraged by LTN1/20 and connecting to recent new improvements from the Power Station, the proposals should be extended through the roundabout using carriageway as required to enable safe, continuous access to the shops etc. located on Selby Road. Viability of a crossing improvement (upgrading the pelican crossing on Weeland Road to a toucan crossing) and a continuous raised table across Green Acres to provide priority and safety to those walking and cycling are to be assessed. It is noted that the Applicant is already open to possible minor pedestrian improvements at the main roundabout.

2.19 The proposed 3.0m shared footway/cycleway from the site to Eggborough has been revised as shown on i-Transport drawing ITY16146-GA-009 Rev E, included in **Appendix H**. The amended scheme has been extended east of the existing puffin crossing towards the A645 Weeland Road / Selby Road roundabout, to the south of the carriageway. A new toucan crossing has been designed to allow pedestrians and cyclists to cross the A645 Weeland Road, with an additional section of 3.0m shared footway/cycleway provided between the toucan crossing to the existing shops on Selby Road. A small amount of localised widening around the north-west radius of the roundabout outside the pub will be provided to accommodate the 3.0m footway/cycleway round to the shops. As part of the scheme the existing puffin crossing will be removed, as it would no longer be required.

2.20 i-Transport drawing ITY16146-GA-009 Rev E, included in **Appendix H** shows a raised table crossing at the Green Acres junction, with minor realignment to the shared footway/cycleway to that originally proposed to provide a continuous alignment along the A645 Weeland Road.

LHA Comment 8a: The following sustainable provisions should be amended/investigated further: The verge buffer widths on Weeland Road will need increasing, incorporating off road shared provisions eastbound of the site should be investigated, the cycle crossing within the site needs to be a priority crossing and secure cycle parking should be provided at the shops.

2.21 The LHA response suggests that the verge buffer width requires increasing on the A645 Weeland Road from the proposed 1.5m to 2.5m or a minimum of 2.0m. This is, however, based on the current national speed limit (of 60mph) and does not account for the proposed relocation of the 30mph west of the site boundary, which the LHA has previously advised it would support in principle. As such the provision of a 1.5m verge along a 30mph section of road is appropriate.

2.22 In addition, the Proposed Development is providing a segregated footway/cycleway within the site, separated from the A645 Weeland Road, providing a safe provision along the full site frontage.

2.23 The Applicant has proposed to provide an off-carriageway shared footway/cycleway between Kellington Lane and toucan crossing on the A645 Weeland Road, as set out in response to LHA Comment 8.

2.24 The cycle crossing provisions across all access roads are priority crossings, with raised tables and appropriate signage incorporated. These crossing can be seen on i-Transport drawings ITY16146-GA-007 Rev E, 008 Rev D and 011Rev E included in Appendix 5.B of the TA.

2.25 Secure cycle parking in the form of 3 Sheffield type stands are shown on i-Transport drawing ITY16146-GA-009 Rev E, included in **Appendix H** immediately outside of the existing local shops on Selby Road, within the extents of the highway boundary. The precise location of these stands can be amended as part of the detailed design of works.

LHA Comment 9: Please ensure the cycle crossing within the site is a priority crossing.

2.26 As set out above, the cycle crossing provisions across all access roads are priority crossings, with raised tables and appropriate signage incorporated. These crossing can be seen on i-Transport drawings ITY16146-GA-007 Rev E, 008 Rev D and 011Rev E included in Appendix 5.B of the TA.

LHA Comment 10: Further consideration should be given to providing cycle bypasses at the chicanes, securing 3 metres width shared use sections near the junction, and providing raised kassel kerbs at the existing bus stops on Kellington Lane.

2.27 As set out in the response to LHA Comment 6 above, the existing chicanes on Kellington Road are now proposed to be replaced with raised tables as part of the updated proposals, removing any need to provide bypasses at these features.

2.28 The proposed access at Kellington Lane does provide 4.0m wide footway/cycleways on Kellington Lane and around the junction radii in the proximity to the site access which connects to the on-site footway/cycleway provisions. The proposed development is providing a segregated footway/cycleway within the site running parallel to Kellington Lane for the full length of the site frontage and therefore would minimise the number of cyclists on Kellington Lane itself.

2.29 The proposed scheme of works on Kellington Lane will include raised Kassel kerbs at the two existing bus stops on Kellington Lane, which are currently located immediately south of Westfield Avenue.

LHA Comment 11: As previously mentioned in the report a contribution to enhancing the rail service is sort, along with a contribution to providing a link between the site and Knottingley along the Canal Towpath. A Walking, Cycling and Horse-Riding Assessment will be required.

2.30 The Applicant acknowledges that NYC is seeking a developer contribution towards enhancing passenger rail services, in addition to the provision of land and infrastructure identified in the planning application submission. In order to move discussions forward, the Applicant would respectfully ask that NYC considers the following points:-

- We were advised at the meeting held on 8 October 2024 that the DfT was not willing to approve the funding necessary to increase passenger services through Whitley Bridge envisaged by the Combined Authority. We were also advised that the Combined Authority, working with its Partners were preparing a new 'Scoping Document' to consider alternative propositions and the potential for modal shift from road to rail to support a revised Business Case. What progress has been made in the nearly two months since the meeting?
  - What progress has been made by the Combined Authority in preparing the Brief and procuring the study?
  - Please can we have sight of the Brief?
  - Has any party been appointed? If so who and on what basis?
  - What are the timescales for completion of the study? We were advised on 8 October 2024 that reporting would likely be within 3- 6 months which now appears to be very ambitious.
- In the above context, how do NYC and the Combined Authority propose to take discussions forward? What are the key milestones and timescales?
- How do NYC / Combined Authority propose to establish the overall costs of enhanced passenger services?
  - What are the inherent assumptions?
  - When are passenger services assumed to commence?
  - Over what timeframe is subsidy support anticipated to be required and how is this time horizon established?

  - What happens if enhanced services are not turning a (suitable) operating profit at the end of the subsidy period?
  - What costs (if any) are to be excluded?
- Which other developments are being asked to contribute? What is the status of negotiations with those other parties?
- What is the proposed mechanism for fairly and equitably attributing costs between developments and other parties (including the public sector), noting the requirements of the CIL Regulations at Clause 122?
  - Will the DfT be asked to endorse the study?
  - What happens if there is a funding deficit? Is there a realistic prospect of the DfT (or others) bridging any funding gap?
- Future residents of the Proposed Development using passenger train services at Whitley Bridge station will be generating revenue for the Train Operating Company. This is itself an indirect developer contribution. How does NYC and the Combined Authority propose to allow for this in the derivation of any contribution request?
- If the parties could reach an agreement in principle, will NYC / Combined Authority commit now to accepting a claw back clause in the S106 Agreement to return any unspent funds to the developer?

2.31 The Applicant has agreed to provide a contribution for towpath improvements between Whitley Bridge Station and Sudforth Lane, in Knottingley Discussions are ongoing with NYC and the Canal and River Trust to establish an appropriate contribution for towpath improvements between Whitley Bridge Station and Sudforth Lane to tie into improvements further west provided by other developers.

2.32 Given a developer contribution is sought the design of the works will not fall to the Applicant and, consequently, there should be no need for the Applicant to conduct a Walking, Cycling and Horse-Riding Assessment (WCHAR).

LHA Comment 12: More significant works at the A645/Selby Road roundabout as per LHA Comment 8 are required.

2.33 The proposed amendments to the A645 Weeland Road / Selby Road roundabout are set out in the response to LHA Comment 8.

LHA Comment 13: Site 37 - Gascoigne Wood Interchange and Site 20 - Portholme Road should be included.

2.34 NYC have requested that the following additional committed developments be considered as part of the assessments:

- Portholme Road, Selby (2020/0776/FUL)
- Gascoigne Wood Interchange (2021/1531/EIA)

2.35 Below is a review of these two additional committed developments:

Portholme Road, Selby

- Planning permission for 102 dwellings located within Selby.
- Transport Assessment produced by Arup dated 15 July 2020 (document can be provided if needed).
- The site is located 11km from the Proposed Development by Banks Property.
- This is currently under construction (and may now have been completed).
- In September 2022 (around the time of the traffic surveys which inform the submitted Transport Assessment), 67 dwellings were constructed based on aerial images (from Google Maps) from September 2022.
- The Arup Transport Assessment only includes assessment of the A1041 Bawtry Road / Park St / Station Road priority junction in terms of junctions within the study area agreed by NYC for Banks Propery's proposals.
- The operational assessments at this junction in the i-Transport TA for Banks Property's Proposed Development show the junction to be operating well within capacity in all scenarios, with a worst case RFC of 0.55.
- The Portholme Road development is shown to add +26 vehicles to this junction in the AM Peak and +23 vehicle in the PM Peak (Source: Arup TA Appendix E, and p87 - 88).
- Accounting for the fact that c.65% of Portholme Road development was already constructed at the time of the traffic surveys, the additional movements reduce to +9 vehicles in the AM Peak and +8 vehicles in the PM Peak.
- Those traffic movements split relatively evenly north and south, resulting in fewer than +5 additional vehicles at the junction to the north (assessed by i-Transport) or south (towards the A63).

- Following this through to the A19 / A645 Weeland Road Roundabout (the only junction to the reassessed as set out in LHA Comment 14 below) using existing turning proportions, there would only be an additional 1-2 vehicles at this junction.

Gascoigne Wood Interchange

- Planning permission granted for 1,460,000 sqft employment (B2, B8 and E(g)) within Sherburn-in-Elmet.
- Decision on this site was not granted until 18th June 2024, around 10 months after i-Transport's Assessment was submitted.
- The site is located c.15km from the Proposed Development by Banks Property (Kellington Lane, Eggborough site).
- The Transport Assessment produced by Mosodi (dated December 2021) does not include any of the same junctions as our assessments.
- The nearest assessed junction is c.7.5km from any the junctions assessed in i-Transport's TA.
- The development is shown to have 47 vehicles in the AM Peak on the A63 (East) towards Selby, which may send traffic onto our network at the A63 / Leeds Road west of Selby or A645 / Common Lane near Knottingley. In the PM Peak this is shown to be 57 vehicles. These traffic flows only relate to the B2 land use, with no B8 traffic shown at this junction. (Figure 121 and 122 of TA presents the B2 traffic flows).
- Using our JTW distribution as a basis this results in 80% of these trips to use the A63 (East) towards Selby and 20% towards Knottingley.
- There are a number of residential areas between the Gascoigne Wood Interchange Transport Assessment network and either Selby or Knottingley.
- The A63 / Leeds Road roundabout would have a worst case additional 38 vehicles in the AM Peak and 46 vehicles in the PM Peak.
- Following this through to the A19 / A645 Weeland Road Roundabout (the only junction to the reassessed as set out in LHA Comment 14 below) using existing turning proportions, there would only be an additional 2-3 vehicles at this junction.
- This is very much a worst case position and the actual trips are likely to be significantly lower through to Selby and Eggborough.

2.36 Based on the above reviews it is not considered necessary to add either committed development to the assessments, particularly as the assessments already incorporate Sensitivity Tests which include background growth to allow for other developments not specifically identified, with the TA showing that the A19 / A645 Weeland Road Roundabout operates within capacity in all assessment scenarios.

2.37 However, as part of the response to LHA Comment 14 below we have included both of these additional committed developments trips through the A19 / A645 Weeland Road Roundabout as part of the updated capacity assessments, to demonstrate the junction will continue to operate within capacity.

LHA Comment 14: Junction capacity assessment identifies impacts with the proposal at the A19/A645 Weeland Road roundabout, which even with the proposed mitigations from the Power Station Application, increases in the AM peak from .88 to .92 RFC with nearly a 11% increase in the traffic flows. There are also three junctions with performance decreasing beyond standard thresholds NYC work to, but being in Wakefield BC's area, they are a matter for that Highway Authority. Measuring severity of impact when an arm exceeds 90% operating performance is hampered by the ability of models to be able to reflect the on the ground situation accurately. Further, with school traffic (Table 9.19) undercounted as highlighted above, two committed developments omitted, and HGV actual percentages not accounted for in the input assumptions accurately, NYC are concerned with the performance ability of that major junction and request mitigation is provided with testing to demonstrate nil detriment.

Assessment Requirements

Junction Capacity

2.38 An RFC of 0.85 typically represents a junction which operates within capacity, without delays, but starting to approach capacity. However, an RFC between 0.85 and 1.00 continues to represent a junction operating within capacity, only approaching capacity, with some minor delays possible. An RFC greater than 1.00 may represent a junction operating over its theoretical capacity.

2.39 The knowledge base section of the TRL website, who wrote the software, states that:

"Generally values of 0.85 for unsignalled junctions have been used extensively and many modelling products pander to this by setting defaults that, of course, encourage it even more.

Although it is understandable why such values are popular, and genuinely have their place, there may be a tendency for these values to become the ONLY goal, at the expense of evaluating situations in a more thorough and useful way.

There are a number of reasons why you should not rely on just one single acceptable maximum value of RFC. For example:

RFC values vary throughout a peak, and can rise and fall sharply or slowly. The consequences of a high RFC depend on the flow. An RFC value of 1.2 might not matter with a very low flow whereas a value of 0.8 might be disastrous with a high flow.

The important criteria for judging the success of a design (from the point of view of congestion) are the total delay to all vehicles, and the mean delay per vehicle on each of the approaches. The latter is a question of "fairness" and "politics". Is it acceptable for some drivers to suffer twice as much delay as others? How about ten times as much? That is a matter of opinion."

2.40 Based on the above, it is not necessary for a nil detriment scheme to be produced simply because the junction is operating above 90% of its operating performance.

Traffic Impact

2.41 The LHA note that the proposed development would results in an increase in traffic flows of nearly 11%. This is correct, however, to put this into context, the IEMA 'Guidelines for the Assessment of Road Traffic' note, at Paragraph 3.16, that day-to-day variation of traffic on a road is 'frequently at least some + or – 10%'. Hence, the anticipated impact of the Proposed Development is broadly in line with typical daily variation. In that context, the impacts of traffic arising from the development will not result in a significant impact.

National Policy

2.42 The demanding test for preventing development for transport reasons therefore remains from previous versions of the NPPF:

- This is a very high bar for preventing development from coming forward. It is a clear deviation from the previous guidance (set out in the DfT's, 'Guidelines for Transport Assessment' which were formally withdrawn on 22 October 2014) which advised refusal unless there was no net impact upon the network.
- It applies whether the impact is upon the local or the strategic road network.
- It is acceptable for development to have material impacts, e.g. modest increases in existing queue lengths and delays.
- It is only where the impact causes very great difficulty and therefore has severe consequences that development should be prevented from coming forward.

2.43 The assessment of a development and the impact at a junction should be tested against para. 115 of the NPPF which states (with our underlining for emphasis):

'Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.'

2.44 With consideration to para. 114 which includes the point (with our underlining for emphasis):

> ***'In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:***
>
> ***d) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.'***

Junction Assessments

2.45 From the points raised above NYC have accepted that all junctions on the local road network within North Yorkshire continue to operate within capacity with the Proposed Development in place, with the exception – in the view of the LHA - of the A19 / A645 Weeland Road roundabout.

2.46 A committed highway improvement scheme is included as part of the Eggborough Power Station planning permission and this arrangement is included in all future year scenarios presented in the submitted TA.

2.47 The changes to the capacity assessments at the A19 / A645 Weeland Road roundabout below are therefore reviewed in the context of these NPPF requirements.

Changes to Traffic Flows

Addition of %HV

2.48 The %HV has been calculated for all turning movements at the A19 / A645 Weeland Road roundabout based on the 2022 traffic survey turning counts. This includes the OGV1, OGV2 and Bus/Coach turning movements. These %HV have been applied to all traffic flow scenarios.

2.49 For simplicity, only the results of the Primary Assessment and Sensitivity Test 2 (including background traffic growth to 2033) scenarios, using the worst case 'Business as Usual' trip rates have been presented. All models are run with a 'One Hour' traffic flow profile, which includes a synthesised peak period within the peak hour, and the summary results presented are the worst 15-minute period within the peak hour.

2.50 The updated existing junction layout with the 2022 traffic survey flows, with the inclusion of the %HV is included in **Appendix I** and summarised below.

Table 2.1: A645 Weeland Road / Selby Road – 2022 Observed

Arm/Movement	AM Peak Hour			PM Peak Hour		
	Max RFC	Max Q (PCUs)	Delay (s)	Max RFC	Max Q (PCUs)	Delay (s)
A645 (East)	0.45	1	8	0.48	1	9
A19 (South)	0.54	1	6	0.55	1	6
A645 (West)	0.26	0	5	0.23	0	4
A19 (North)	0.74	3	21	0.85	6	32

RFC = Ratio of Flow to Capacity Max Q = maximum average queue PCUs = Passenger Car Units

2.51 The results of the 2022 Observed assessment, compared to the results presented in Appendix 8.J of the TA do not show any meaningful difference, with no change in RFC and only a single pcu queue increase on the A19 (North) approach in the PM Peak Hour.

2.52 The results of the future year capacity assessment with the Eggborough Power Station committed scheme, with the %HV included, are included in **Appendix I** and summarised below.

Table 2.2: A645 Weeland Road / Selby Road (included %HV)

Arm/Movement	AM Peak Hour			PM Peak Hour		
	Max RFC	Max Q (PCUs)	Delay (s)	Max RFC	Max Q (PCUs)	Delay (s)
Base + Committed						
A645 (East)	0.58	2	12	0.74	3	24
A19 (South)	0.88	8	18	0.62	2	5
A645 (West)	0.52	1	9	0.47	1	6
A19 (North)	0.58	1	6	0.80	4	12
Base + Committed + Development ('Business as Usual')						
A645 (East)	0.74	3	23	0.87	6	47
A19 (South)	0.92	11	25	0.75	3	8
A645 (West)	0.87	6	31	0.56	1	7
A19 (North)	0.67	2	9	0.84	5	16
Sensitivity Test 2 – 2033 Base + Committed						
A645 (East)	0.60	2	13	0.74	3	24
A19 (South)	0.89	9	20	0.62	2	5
A645 (West)	0.53	1	10	0.47	1	6
A19 (North)	0.59	2	6	0.81	5	13
Sensitivity Test 2 – 2033 Base + Committed + Development ('Business as Usual')						
A645 (East)	0.76	3	25	0.89	7	55

Arm/Movement	AM Peak Hour			PM Peak Hour		
	Max RFC	Max Q (PCUs)	Delay (s)	Max RFC	Max Q (PCUs)	Delay (s)
A19 (South)	0.93	13	28	0.76	3	9
A645 (West)	0.88	7	35	0.57	1	7
A19 (North)	0.68	2	9	0.85	6	17

RFC = Ratio of Flow to Capacity Max Q = maximum average queue PCUs = Passenger Car Units

2.53 Again comparing these results to those already provided in Appendix 11.A of the TA, the capacity results do not change in any meaningful way, with typically only 1 pcu increase in queues on some approaches, and maximum increase in queue at the A19 (South) approach in the AM Peak Hour which shows a change from 11 pcu to 13 pcu.

2.54 In summary the changes on the A19 (South), worst operating arm, in the AM Peak:

- RFC changes by 0.04 from 0.89 to 0.93 – we conclude this is unlikely to be perceptible and is certainly less than severe.
- Queue length increases from 9 to 13 pcu (or c.52 to 75m) – we conclude this too is less than severe.
- Delay increases by 8 seconds from 20 to 28 seconds – this is at most a minimal increase and we conclude this is similarly less than severe.

2.55 In summary the changes on the A645 (East), worst operating arm, in the PM Peak:

- RFC changes by 0.15 from 0.74 to 0.89 – the arm is shown to operate within capacity and the change is RFC is less than severe.
- Queue length increases from 3 to 7 pcu (or c.17 to 40m) – we conclude this too is less than severe.
- Delay increases by 31 seconds from 24 to 55 seconds – this is at most a modest increase and in the above context and number of vehicles being potential impacted (c.13% of trips through the junction), we conclude is similarly less than severe.

Inclusion of Additional Committed Development

2.56 An additional test has also been carried out with the potential traffic flows associated with the two additional committed development raised on LHA Comment 13 above. The results of this additional assessment is included in **Appendix I** and summarised below.

Table 2.3: A645 Weeland Road / Selby Road (included %HV and Additional Committed Developments)

Arm/Movement	AM Peak Hour			PM Peak Hour		
	Max RFC	Max Q (PCUs)	Delay (s)	Max RFC	Max Q (PCUs)	Delay (s)
Base + Committed						
A645 (East)	0.58	2	12	0.74	3	24
A19 (South)	0.88	8	19	0.62	2	5
A645 (West)	0.52	1	9	0.47	1	6
A19 (North)	0.58	2	6	0.80	4	12
Base + Committed + Development ('Business as Usual')						
A645 (East)	0.74	3	23	0.87	6	48
A19 (South)	0.92	11	26	0.75	3	9
A645 (West)	0.87	6	31	0.56	1	7
A19 (North)	0.67	2	9	0.84	6	16
Sensitivity Test 2 – 2033 Base + Committed						
A645 (East)	0.60	2	13	0.74	3	24
A19 (South)	0.89	9	20	0.62	2	6
A645 (West)	0.53	1	10	0.47	1	6
A19 (North)	0.59	2	6	0.81	5	13
Sensitivity Test 2 – 2033 Base + Committed + Development ('Business as Usual')						
A645 (East)	0.76	3	25	0.90	7	56
A19 (South)	0.93	13	29	0.76	3	9
A645 (West)	0.88	7	35	0.57	1	7
A19 (North)	0.68	2	9	0.85	6	17

RFC = Ratio of Flow to Capacity Max Q = maximum average queue PCUs = Passenger Car Units

2.57 The results of the above assessments show minimal changes on the operation in terms of capacity, queues or delays with the additional two committed development sites included.

Traffic Flow Profile

2.58 Furthermore, as noted above the junction has been assessed using a 'One Hour' traffic flow profile in Junctions 10, which assumes a peak in traffic flows for 30 minutes within the peak hour (i.e. a peak within the peak). This equates to a peak of 27.5% of the hourly traffic flow in each of the middle 15-minute periods. Using the traffic surveys it has been calculated that the observed 15-minute periods in the AM peak hour, are as follows:

Table 2.4: A645 Weeland Road / Selby Road – Observed Junction Inflow Peak Hour Profile (AM Peak Hour)

15-Minute Period	Traffic Inflow (PCU)	% of Peak Hour
07:45-08:00	641	25.5%
08:00-08:15	618	24.6%
08:15-08:30	665	26.4%
08:30-08:45	592	23.5%

2.59 As networks get busier traffic generally spreads across the peak hour / peak period and the 'One Hour' traffic flow profile therefore represents a robust assessment.

2.60 In the future where more peak hour spreading could be expected the traffic flow profile could result in a close to 'flat' traffic flow profile, where all 15-minute periods have similar levels of traffic movements, to reflect such an effect. To represent this, the above junction model of the committed development has been re-run with a 'flat' traffic flow profile, with the results in **Appendix I**.

Table 2.5: A645 Weeland Road / Selby Road (included %HV and Additional Committed Developments) – FLAT PROFILE

Arm/Movement	AM Peak Hour			PM Peak Hour		
	Max RFC	Max Q (PCUs)	Delay (s)	Max RFC	Max Q (PCUs)	Delay (s)
Base + Committed						
A645 (East)	0.49	1	9	0.59	2	14
A19 (South)	0.79	4	11	0.56	1	5
A645 (West)	0.43	1	7	0.40	1	5
A19 (North)	0.52	1	5	0.71	3	8
Base + Committed + Development ('Business as Usual')						
A645 (East)	0.60	2	14	0.68	2	19
A19 (South)	0.83	5	13	0.68	2	6
A645 (West)	0.72	3	14	0.48	1	6
A19 (North)	0.59	2	7	0.74	3	10
Sensitivity Test 2 – 2033 Base + Committed						
A645 (East)	0.50	1	10	0.59	2	14
A19 (South)	0.80	5	11	0.56	1	5
A645 (West)	0.44	1	7	0.41	1	5
A19 (North)	0.52	1	5	0.71	3	8

Arm/Movement	AM Peak Hour			PM Peak Hour		
	Max RFC	Max Q (PCUs)	Delay (s)	Max RFC	Max Q (PCUs)	Delay (s)
Sensitivity Test 2 – 2033 Base + Committed + Development ('Business as Usual')						
A645 (East)	0.62	2	15	0.70	3	20
A19 (South)	0.84	6	14	0.68	2	7
A645 (West)	0.73	3	15	0.49	1	6
A19 (North)	0.60	2	7	0.75	3	10

RFC = Ratio of Flow to Capacity Max Q = maximum average queue PCUs = Passenger Car Units

2.61 The flat profile modelling demonstrates that the junction would operate within capacity with an RFC of below 0.85 and a maximum queue of 6 PCU. The change in delay in the PM Peak on the A645 (East) would be lower with a change of c.5 seconds, which we conclude to be less than severe.

2.62 Overall, based on the above a nil-detriment solution is not required by Policy and the impacts of the Proposed Development are demonstrably less than severe. Therefore, no further mitigation is necessary.

SECTION 3 Additional Points

This section provides responses to various additional points raised by the LHA which are not incorporated in the numbered comments (in red text).

It remains unclear where the care home trip generation was included in the assessment.

3.1 As set out in Paragraph 5.2.2 of the submitted TA, the 70 extra care units have been included within the 1,500 dwellings (i.e. 1,430 residential dwellings, plus 70 extra care units). This therefore results in robust assessment of the development trips insofar as the care home units have been assessed as C3 Residential dwellings rather than C2 Extra Care units, with the former being more traffic intensive per unit. Therefore, no further consideration is needed.

The site is between ¾ and 1.75kilometre's away from the centre of Eggborough and its limited facilities.

3.1.1 NYC has identified this site for allocation within their adopted Local Plan for the proposed uses and consequently has already accepted that it is located in a sustainable location.

3.1.2 In addition, this comment does not account for the on-site provisions which includes a 2 Form Entry Primary School and a local centre comprises Use Class E land uses and is expected to deliver food and non-food facilities. The TA assesses the following land uses at the Local Centre:

- A 4,000 sqft (c.370 sqm) convenience food shop with cash point; and
- A 4,000 sqft (c.370 sqm) non-food retail likely to be split into 2 or 3 separate demises (these could include uses such as café, dog groomers etc.). (E(a), (b), (c/e) land uses)

3.1.3 Connectivity Plans has been produced and included in **Appendix G**, setting out the routes between the site and the rest of Eggborough, showing that the Proposed Development provides good connections to key facilities within Eggborough.

The Access control barriers to the park need to be re-considered as the barriers reduce the usability of a route for everyone and may exclude people riding nonstandard cycles and cargo bikes.

3.2 As noted as part of the response to LHA Comment 7, the Applicant would assume this point can be subsumed into an agreed developer contribution.

To maximise public transport use, working with Operators and via S106 Agreements, they propose to:

- ***Provide land for the rail station's enhancement and improve its infrastructure with waiting facilities, cycle parking and information as well as improve daily services there with financial support as yet to be agreed.***

3.3 Section 5.2 of the TA sets out the proposals by the Applicant in relation to the Whitley Bridge Station Enhancements.

3.4 The Proposed Development supports the future enhancement of Whitley Bridge Station through the dedication of land that will enable Network Rail to provide an enhanced 'gateway' to the station. The site will also provide access to a new station gateway, accessible to all users, in the south-east corner of the site adjacent to Whitley Bridge Railway Station.

3.5 The Applicant is on record as being willing to make a proportionate developer contribution towards provision of additional waiting shelters, secure cycle parking storage and an improved passenger information system through a S106 Agreement. The Applicant is also willing to make a proportionate developer contribution towards bringing forward new passenger services.

3.6 At this stage there is no agreement about financial support towards enhanced passenger services. The Applicant reserves its position on this matter pending receipt of responses to the questions posed at Paragraph 2.29 and further discussions with NYC and York and North Yorkshire Combined Authority.

The Applicant is agreeable to a Condition to provide a car club on site.

3.7 The provision of a car club on the site is included in the signed off Residential Travel Plan for the site, as Travel Plan Measure 12. This states that a car club vehicle(s) will be located on the site. If possible, car club vehicle(s) will be ultra-low emission / electric cars. Provision of high-speed electric charging infrastructure for car club vehicle(s) at a central location, if appropriate.

3.8 The Residential Travel Plan will form its own planning Condition and therefore a separate Condition would not be required for car club on the site.

SECTION 4 Conclusions

4.1 This technical note provides full and detailed responses to each of the comments raised by the LHA, which we trust will enable officers to support the Proposed Development.

4.2 We trust that the RSA1 can now progress - please confirm by signing the authorisation sheet and returning in a timely manner to preclude further delay.

4.3 The Applicant is willing to engage further on S106 obligations once the questions we have posed are answered.

APPENDIX A. NYC RESPONSE (DATED 10.10.2024)

NORTH YORKSHIRE COUNCIL

Your ref: ZG2023/1037/EIA

Our ref:

Contact: [redacted]

Highways and Transportation
Development Management Team
County Hall
Northallerton
DL7 8AH
Tel: 0300 [redacted]
e-mail: development.control@northyorks.gov.uk
www.northyorks.gov.uk

10 October 2024

Dear Sir,

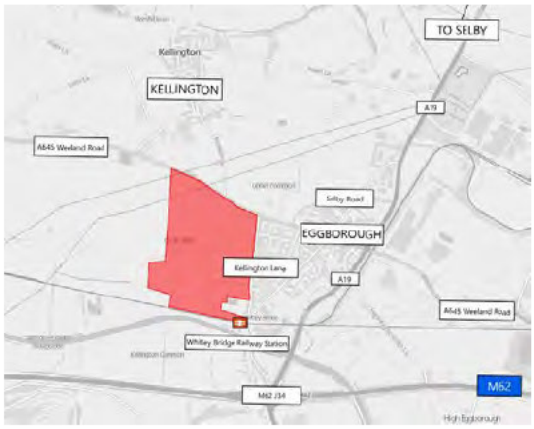
Proposed: Outline application (some matters reserved) for residential development, extracare facility, local centre, primary school and associated infrastructure and landscaping

Location: Land To Western Boundary Of Eggborough, Weeland Road, Eggborough
Applicant: BANKS PROPERTY LTD

Documents Considered:

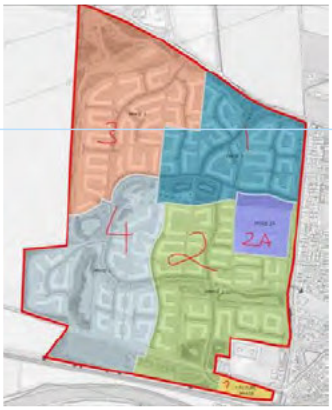
- PA Site Location Plan, Drawing no. HJB/4124/73
- PA Site Boundary Plan, Drawing no. HJB/4124/81
- Planning Application Form
- Planning Statement, BANKS Property
- Design and Access Statement, August 2023
- Environmental Statement, Volume 1 – Non Technical Summary, September 2023
- Environmental Statement, Volume 2
- Environmental Statement, Volume 3
- Transport Assessment dated 14 August 2023 Ref: GJ/JW/DM/lh/ITY16146-005D R by i-Transport
- Response to WSP Comments to NYC Note Ref: GJ/JW/ITY16146-010B TN of 10 July 2024 by i-Transport
- Residential Travel Plan, ITY16146-006D R / 04 July 2024
- Public Transport Strategy File Note LP/N/4124/ENG-01
- PA Aerial Photograph, HJB/ 4124/ 82
- Other Land within Applicants Control, HJB/ 4124/ 74
- Parameters Plan Land Use, HJB/ 4124/ 76
- Parameters Plan Access Plan, HJB/ 4124/ 77

PURPOSE



Since the application was submitted North Yorkshire Council (NYC), Banks Property Limited and their Transport Consultant I-Transport have been in discussions regarding the information submitted and the implications of the development on the highway. As a result of these discussions a Transport Addendum has been produced to address the LHA's concerns. A meeting has since taken place on the 24 September 2024 to discuss the remaining issues. This document advises on the LHA's latest position on Banks Property's Planning Application ZG2023/1037/EIA for 1500 dwellings, a 70-bed extra-care facility, 14 independent living units, a local centre, a two form entry primary school and associated infrastructure and landscaping at land south of Weeland Road, west of Kellington Lane, and east of Southfield Lane on the edge of Eggborough, as shown above. Concerns are highlighted in red. The impacts on the road network under the management responsibility of both National Highways and Wakefield Borough Council are not a consideration for NYC.

1. Introduction



The proposal is by a sole developer on a site that is an emerging allocation in the emerging Selby Local Plan Publication Version 2024 forming a Strategic Urban Extension for the village. The Application is in outline with all matters reserved except for access and EIA development whereby scoping has been undertake with NYC's LHA.

The information suggests that it is anticipated that 950 dwellings will be complete by 2040, the rest by 2048 as per the phasing plan, right. There are no timescales for the other land uses proposed.

Land to the north of Whitley Bridge Station will be ceded to support Network Rail improvements; below are potential concepts for new parking and platforms to demonstrate what could be achieved with the land available. Other off-site mitigations via S106 Agreements for enhancing public transport, a combined use path between the site and the centre of Eggborough along Weeland Road, and a direct link into the new improved station to remove the need to use Kellington Lane are proposed.

Commented [DH1]: What does this mean?

Commented [VD2R1]: Strategic Urban Extension



2. Planning Context

Reference is taken from the emerging Selby Local Plan, Publication Version (2024) and the Knottingley Sustainable Transport Package by Wakefield Council that includes the Knottingley Link Road.

3. Development Vision

There is an overarching vision for the site when complete to embrace low carbon transport and healthier lifestyles through providing a sustainable development with “liveable streets” where people want to be.

The site is between ¾ and 1.75kilometre’s away from the centre of Eggborough and its limited facilities. There is willingness to improve public transport services and infrastructure, active travel corridors and provide a car club.

4. Policy Context

Reference to the NPPF, Circular 01/2022, the Emerging Selby Local Plan, and the North Yorkshire Local Transport Plan 4 is made.

5. Development Proposals

The mixed-use development will have two vehicle accesses and a combined use path along Weeland Road (right) between the site and village. The main access is a 3-arm roundabout west of Kellington Lane, and further west is a priority junction for just 350 dwellings.



LHA Comment 1: The priority junction requires a refuge island in accordance with NYC standards, irrespective of footway or not, this junction acts as a gateway to slow eastbound traffic. A RSA1 is required to assess both junction design and the route as a whole alongside the site.

To facilitate active travel the uncontrolled crossing across Kellington Lane, drawing ITY16146-GA-029 shows a raised table crossing south of the junction (below).



LHA Comment 2: Routing for all vulnerable road users should be as direct as possible, however there may be opportunity to relocate the raised table and link to the internal site combined use path further north to the junction to act as a traffic calming feature to vehicles entering Kellington Lane. The RSA1 for Kellington Lane should consider this as well as the whole route strategy.

LHA Comment 3: NYC's preferred single vehicle access solution in the interests of highway safety, a 4-arm roundabout with Broach Lane, is discounted. NYC will await the RSA1 review before support for the access proposal can be given. Whilst land is required from the site, any dwellings displaced could be relocated elsewhere across such a large site.



LHA Comment 4: It was noted that the swept paths provided do show some overrunning of the roundabout by Articulate Vehicles.

New street lighting along the site frontage as proposed in drawing ITY16146-GA-025 is noted, which will be subject to detailed design approval that can be secured by Condition.

From Kellington Lane a priority junction vehicle site access and two combined use path accesses (circled red right) are proposed as well as a new primary school. A zebra crossing is proposed just south of the junction and the school with new bus stops. Combined use paths are proposed north/south within the site with an access north of the school.

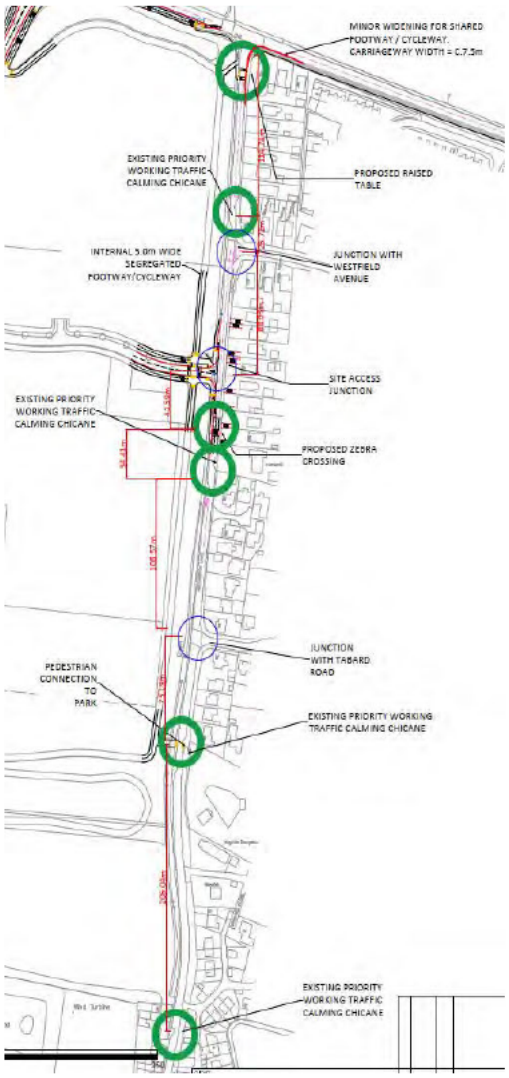


LHA Comment 5: Can the zebra crossing provide a link directly to the internal site combined use path for walkers and cyclists? (Extract left as per drawing ITY16146-GA-028).

Commented [WP3]: Hi [redacted] - it was here you asked for a 2m footway on west side of Kell Lane if not already provided, however, given the internal NEW path, providing links to / from the existing resi area are quality, should be no need to alter that existing provision

With new residential, rail commuter and school trips, new traffic calming and vehicle and non-vehicle access points along Kellington Lane, its feel will change including becoming a more urban context.

LHA Comment 6: As shown below, the resultant mix of vertical and horizontal traffic calming with new access points, junctions and a zebra will leave an inconsistent message to road users, and a holistic approach to this road to serve the best interests of all prioritising vulnerable road users should be taken covering between Weeland Road and the canal. This will facilitate the Applicant's vision for the site, namely a liveable, sustainable area. This should be subject of a RSA1 review.



It is noted that the Applicant is aware of the need to manage school travel by appropriate layout, infrastructure provision on-site, and a Travel Plan which can be secured via Condition later in the process.

LHA Informative: For the Reserved Matters Application, a well designed layout and resourced Travel Plan will avoid the need for any enforcement measures such as TRO's. A proactive approach to implementing the Travel Plan will be far more effective in achieving the Applicant's own sustainable development concept as well. A School Travel Plan will be required to be agreed pre-commencement, implemented within 3months of the first school survey to be undertaken 3months after first occupation.

LHA Comment 7: A connectivity plan to demonstrate seamless connections to / from the existing public recreation spaces, village hall, both rail station platforms and GP surgery on Selby Road is requested. A contribution to provide a direct walking route to the village hall across the recreation area is desirable, subject to Parish support.

Commented [WP4]: Parish council anti-engagement hence happy to contrubute to path over field for PC to do it [redacted] to investigate

After discussions with NYC's Public Transport Team, a site Bus Strategy including two new stops on Kellington Lane south of the Village Hall recreation area is agreed. There is also support from Arriva to divert services along the spine road through the site. The proposed stops see all dwellings within 400metes.

All accesses, roads, cycle routes and parking will be designed to comply with MfS and NYC standards for vehicles and cycles.

LHA INFORMATIVE: The internal layout and landscaping are to be determined through a Reserved Matters application. However, it should be noted that no trees should be located within 2.5m of the carriageway or 1.2 metres from any footway, and on all junctions, forward visibility must be demonstrated and safeguarded. This requirement is likely to result in the need for wide private verge areas. Please also ensure that any trees at the access are set back as stated above. Any planting should be at least 0.5 metres from the highway boundary. Given this may mean changes to the masterplan layout, this should be dealt with in the Outline Planning Application.

Discussions with NYC regards rail station improvements and reference to a NYC / Northern Outline LEP Business Case to enhance both infrastructure and services is made.

Commented [WP5]: What is the mitigation req'd at rail station to make dev acceptable? [redacted] to chase [redacted] % of uplift of hourly service on unit values

LHA INFORMATIVE: The timescale for any bid is unknown, however NYC welcome continued joint working critical to match funding external Government grants. Improved rail services and a station will be a benefit for the Applicant, delivering their "vision" as and making the site more accessible and attractive to major local conurbations such as Leeds.

The proposed sustainable travel elements of this application have been sent to NYC's Transport Planning Team to advise further on the suitability of the proposed facilities. Comments are as follows: -

The LHA would expect to see an internal site arrangement of 3m cycleway/2m footway that aligns well with the latest cycle design guidance in terms of compliance. It is recommended that this arrangement flows throughout the main routes of the site. From the Parameters Plan for accesses there are three proposed vehicle and ped/cycle access points and five indicative ped/cycle access points.

Primary site access, Weeland Road

The primary site access on Weeland Road shows a 4m segregated footway/cycle way with 1.5m buffer/verge. On a 60mph road, the desirable buffer/verge should be 2.5m or 2m absolute minimum. This is to provide protection from motor vehicles and helps protect peds and cyclists from the air turbulence created by passing motor traffic and from debris thrown up from the carriageway. The cycle tracks become one way at the roundabout which means the widths (2m cycle way/2m footway) are compliant with small sections of shared use at the crossing arms of the roundabout. The taper transition from cycle path to carriageway looks to be compliant from the drawings, it's disappointing that the off road provision eastbound can't be provided until the speed limit changes to 30mph, which would be a slightly less hostile location to join the carriageway. At the roundabout, one

way cycle tracks do increase the distance cyclists need to travel when making right turns, however given the internal site cycleway layout I think it works at this primary access point.

The Cycle crossing shown on the plan just within the site should be a priority crossing (this may already be the case).

The shared use path on the southern side of Weeland Road does provide a safe off carriageway route east to Hut Green Roundabout (looks compliant given most recent traffic count). A priority crossing should be provided over Green Acres and the Puffin crossing upgraded to a Toucan crossing. Extension of the route to amenities on Selby Road does make sense. It would be positive to secure cycle parking being provided at the shops?

LHA Comment 8: Whilst the proposed off-site shared use path on Weeland Road towards the village centre is welcomed, in the interests of promoting more cycling as encouraged by LTN1/20 and connecting to recent new improvements from the Power Station, the proposals should be extended through the roundabout using carriageway as required to enable safe, continuous access to the shops etc. located on Selby Road. Viability of a crossing improvement (upgrading the pelican crossing on Weeland Road to a toucan crossing) and a continuous raised table across Green Acres to provide priority and safety to those walking and cycling are to be assessed. It is noted that the Applicant is already open to possible minor pedestrian improvements at the main roundabout.

LHA Comment 8a: The following sustainable provisions should be amended/investigated further: The verge buffer widths on Weeland Road will need increasing, incorporating off road shared provisions eastbound of the site should be investigated, the cycle crossing within the site needs to be a priority crossing and secure cycle parking should be provided at the shops.

Secondary site access, Weeland Road

The cycle crossing should be a priority crossing within the site. The ped/cycle provision looks good, one way cycle ways on the main spine road at 2m width and 0.5m buffer provided. Internal footway (2m)/cycleway (3m) east to west is compliant and welcomed.

LHA Comment 9: Please ensure the cycle crossing within the site is a priority crossing.

Secondary site access, Kellington Lane

The internal site arrangements with regard to segregated facilities provide a better north/south route than trying to provide infrastructure next to the carriageway along the length of Kellington Lane. That being said, improvements to the existing traffic calming chicanes to potentially provide cycle bypasses should be considered. LTN 1/20 pg 77 provides the relevant details. Please note that this will depend on whether or not the

chicanes remain in place, as mentioned in NYC response 6 the RSA1 needs to cover traffic calming on Kellington Lane. The shared use sections near to the junction need to be 3m in width, as although cyclists will generally be travelling at slow speed here the minimum widths should be followed to lower the risk of ped/cycle/wheeling conflict.

Kellington Lane would benefit from raised kerb at the existing bus stops.

LHA Comment 10: Further consideration should be given to providing cycle bypasses at the chicanes, securing 3 metres width shared use sections near the junction, and providing raised kassel kerbs at the existing bus stops on Kellington Lane.

Ped/Cycle access to Kellington Lane

The Access control barriers to the park need to be re-considered as the barriers reduce the usability of a route for everyone and may exclude people riding nonstandard cycles and cargo bikes. I can see there is no path in the park currently, but people may arrive on bicycle/wheelchair/pushchair etc so access controls need to be suitable. This links in with LHA Comment 7.

General comments

This issue has already been mentioned in my report but was also highlighted by the Transport Planning team. The illustrative masterplan indicates improvements will be made to Whitley Bridge Rail station and it is important a contribution is secured for public transport to provide a revenue contribution to pump prime a better rail service. The station has 2 services a day currently, but this could be increased offering a much better service to Leeds, Goole and possibly Hull. A meeting has taken place regarding such contributions, and discussions are ongoing.

The Canal Towpath immediately south of the site and next to the rail station could provide a safe active travel route to Knottingley if improved. I understand preliminary discussions with Canal and River Trust have already taken place, but widening and surface improvements would attract more active travel journeys from the site east to key trip attractors. A sustainable transport contribution should be sought to facilitate this link.

The proposed school location on the illustrative map shows good active travel connections as the proposed shared use on Weeland Road provides a link from the east and internal site arrangements allow peds/cycles safe access to the school (previously mentioned priority crossings are important to facilitate this).

Cycle parking in general should be well thought out for the school and retail uses. Secure, sheltered and overlooked provision should be provided to ensure cyclists arriving to and around the site have the facilities to park with confidence.

LHA Comment 11: As previously mentioned in the report a contribution to enhancing the rail service is sort, along with a contribution to providing a link between the site and Knottingley along the Canal Towpath. A Walking, Cycling and Horse-Riding Assessment will be required.

6. Site Accessibility

The site is within walking distance of the village centre however the range of amenities, facilities and employment is limited locally and not as stated *"significant"*, meaning travel further afield will be inevitable. To improve connectivity the Applicant is agreeable to a S106 Agreement for dropped kerbs at:

- A645 Weeland Road / Selby Road roundabout (northern arm);
- Kellington Lane / Westfield Avenue;
- Selby Road / Stuart Grove; and
- Access to the Maltings Industrial Estate.

LHA Comment 12: More significant works at the A645/Selby Road roundabout as per LHA Comment 8 are required.

The nearest bus stops will be within 400metres of all dwellings and Arriva have confirmed they could divert services along the new spine road. The 2-hourly (no evenings or Sunday's) 476 service between Selby and Yorkshire Outlet Shopping Park (Junction 32) via Ferrybridge and Pontefract can be taken currently a kilometre away.

From Whitley Bridge Rail station except on Sunday's there are just two services departing daily between Goole and Leeds, with a morning peak-period commuter service and a mid-evening returning train. The station is unstaffed with no ticketing facilities and parking for just 5 cars. The need for improvements to the station and services is clear.

7. Sustainable Movement Strategy

To achieve the sustainable development envisaged, an effective site Travel Plan (TP) will be implemented supported by a site layout encouraging active travel, facilities such as electric vehicle charging points (EVCP) for each dwelling, and bus / rail / cycle vouchers. The Applicant is agreeable to securing this, a School TP, and a Care Home TP by Conditions.

Public Transport Initiatives

To maximise public transport use, working with Operators and via S106 Agreements, they propose to:

- Provide land for the rail station's enhancement and improve its infrastructure with waiting facilities, cycle parking and information as well as improve daily services there with financial support as yet to be agreed;
- Secure an hourly bus service with Arriva doubling its existing daytime provision after the 50th dwelling is occupied and maintaining that financial support for 5 years;
- New bus shelters will be provided within the site at all new stops connected internally via a quality shared use path network and two on Kellington Lane; and
- Provide smart tickets / travel vouchers as part of the Residential Travel Plan.

Walking

The site will have quality connectivity supplemented by waymarking within the site and also off-site via a S106 Agreement.

Soft Measures

Via the Travel Plan process and Travel Plan Co-ordinator (TPC), healthy lifestyles and active travel will be encouraged on the site with incentives, promotions and initiatives including personalised travel planning. This will extend into the new school too.

Walking, Cycling and Horse-Riding Assessment and Reviews will be dealt with at the Reserved Matters stage as required under GG 142 (A645).

The Applicant is agreeable to a Condition to provide a car club on site.

8. Existing Highway Conditions

A detailed review of the surrounding highway is provided and helps set out the spatial travel context for the site with the M62 Junction 34 south of site for east/west travel and connections north/south via the A1(M) west of the site at Junction 33.

To the east along Weeland Road which is 30mph east of Kellington Lane via a roundabout is Selby Road, the main north/south link through the village. Just east of this is the Weeland Road / A19 roundabout, the north/south bypass of the village.

NYC RTC data for an extended period as far back as 2012 has been reviewed and there are no relevant incidents to the proposal reported within the NYC area.

LHA INFORMATIVE: The requirements of Wakefield Borough Council have not been considered in terms of traffic collision analysis.

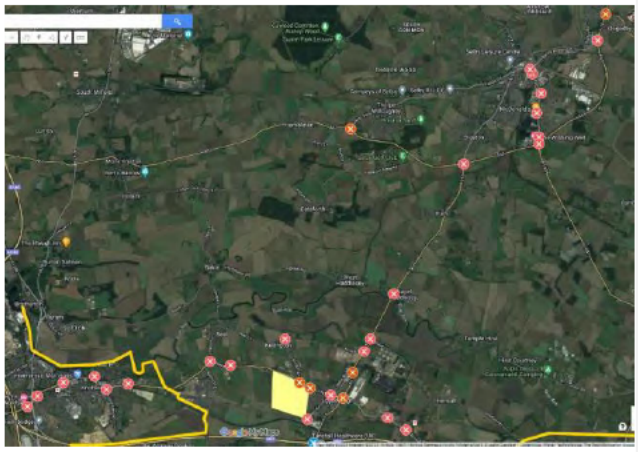
9. Traffic Assessment Methodology

To assess impact of the proposal on the surrounding network, four assessment scenarios have been tested including future years of 2025, 2028 and 2033.

LHA Informative: NYC only assess the results of the "Business as Usual" 2028 and 2033 assessment scenarios, being more robust and less theoretical. Whilst NYC note the Applicant's ambitions to promote active travel, given the location, facilities available locally, and the reluctance of the public to engage proactively with travel planning measures historically, NYC must assume a more robust approach.

Section 8 outlines the baseline data collected from manual classified counts (MCC) on Thursday 20th October 2022 and Wednesday 17th May 2023 between 07:00 – 10:00 and 16:00 – 19:00 at an extended number of junctions including within the area of Wakefield BC as shown below located towards and in Ferrybridge west of the County border.

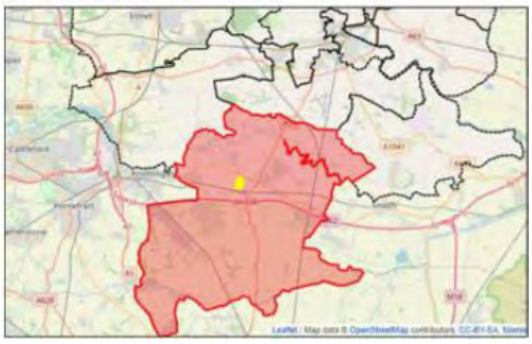
Automatic traffic counts (ATC) were undertaken in October 2022 on Weeland Road from Kellington Lane to west of Broach Lane, and on Kellington Lane south of Westfield Avenue to validate the forecast models (right).



Peak periods were identified from 07:45 and 16:45.

Section 6 gives local Census data from Selby 010 MSOA (below) with journey purpose (Table 6.1 below) and average mode share (Table 6.2 below left).

Figure 6.1: Selby 010 MSOA Plan



Weekday Purpose (T6.1)	Proportion
Work	33.2%
Shopping	16.7%
Education	13.7%
Visiting Friends and Relatives	10.4%
Personal Business	9.2%
Recreation / Social	8.0%
Employer's Business	5.4%
Holiday / Day Trips	3.4%
Total	100.0%

Over 86% rely on car travel and typically, a third of all journeys are commutes whilst shopping and education combined amount to around another third.

Mode T6.2	%	
Car Driver	60.3%	
Car pax	26%	
Walk	8.2%	
Bus	3.1%	
Cycle	1.3%	
Rail	1%	
Total	100%	

Table 3.1 of the TA states over 62% of the local population were working age, 16.6% over 65, 8.7% secondary school age and 8.2% primary school age.

A comprehensive list of committed developments has been included, though several that were requested during NYC scoping have been discounted for either being unlikely to emerge within 3-years or are insignificant in terms of new trips as below:

Not within 3 years	Less than 30trips each
Site 14 - Burn Airfield/Church Fenton Site 29 - Burn – New Settlement Option Site 35 - Olympia Park, Barlby Road Site 36 - Land at Eggborough Power Station Site 37 - Gascoigne Wood Interchange	• Site 19 - Land East of Flaxley Road, Selby • Site 23 - Land rear of The Poplars, Brayton • Site 24 - The Laurels, York Road, Barlby • Site 25 - Land West of The Green, North Duffield • Site 26 - A19 Caravan Storage Limited, Hensall • Site 27 - Former Kellingley Colliery, Knottingley • Site 30/31 - Sedalcol UK Ltd, Denison Road • Site 32 and Site 33 - St Gobain Glass UK Ltd

LHA Comment 13: Site 37 - Gascoigne Wood Interchange and Site 20 - Portholme Road should be included.

Commented [WP6]: [redacted] - is that right?
Commented [VD7R6]: Portholme Road

To consider network background growth, NTM data for the Selby local authority area excluding all land-use related growth to account for the committed developments is used, which is acceptable.

To identify future residential trips, TRICs rates agreed previously with NYC (below) are used which is acceptable:

Table 9.9: NYCC Vehicular Trip Rates (Business as Usual) – Residential (per dwelli

Type	AM Peak			PM Peak		
	Arr.	Dep.	2-Way	Arr.	Dep.	2-Way
HPO	0.183	0.754	0.937	0.635	0.260	0.895

Combining these rates with mode split from TEMPro as per Table 9.10 (below left), the residential multi-mode trip forecast can be derived as per Table 9.12 below right:

Mode T9.10	AM peak	PM Peak
Walk	14.6%	11.8%
Cyc	1.6%	1.9%
Car driver	50.9%	56.7%
Car pax	25.9%	25%
Bus	5.6%	3.4%
Rail	1.4%	1.3%
Total	100%	100%

Table 9.12: Residential Multi Modal Trips (Current) – 1,500 units

Type	AM Peak			PM Peak		
	Arr.	Dep.	2-Way	Arr.	Dep.	2-Way
Walk	40	165	205	112	46	158
Cycle	4	18	22	18	7	25
Car Driver	**140**	**576**	**716**	**540**	**221**	**761**
Car Passenger	71	293	364	238	97	335
Bus/Coach	15	63	79	32	13	46
Rail	4	16	20	12	5	17
Total	274	1132	1406	952	389	1341

To consider the new school impacts, TRICs has been used based on a 2 class per year primary school. This was confirmed the accepted position by the LEA in July, though could be a consideration factor in the School TP.

LHA Comment Informative: The vehicle trip generation in Table 9.19 fails to provide a fair representation when compared to a practical first principals approach. With 14 classes and at least 2 teachers per class except Reception that has 3 each, a Head, Deputy, caretaker, 3 administration staff, 1 SEN teacher, and 2 others for robustness, the total staff could be 38. It would not be unreasonable to expect only 4 would live within non-driving distance leaving 34 driving in during the morning peak. This is in addition to the estimated 20% of external pupils being driven to school and some of the estimated 80% of internal ones too.

To consider the new local centre impacts accessed externally from Kellington Lane, TRICs is used. It is assumed that 80% are internalised,

Table 9.24: Summary of Work and Employer's Business Trip Distribution

Origin/Destination	AM Peak
A19 (North)	18.5%
A645 Weeland Road (East)	5.1%
M62 (East)	7.4%
A19 (South)	4.3%
M62 (West)	45.7%
A645 Weeland Road (West)	12.6%
Within Eggborough (A645 E)	1.6%
Within Eggborough (Selby Rd N)	1.6%
Within Eggborough (Selby Rd S)	1.6%
Within Eggborough (Selby Rd C)	1.6%
Total	**100.0%**

Table 9.31: Summary of New Local Centre Trip Distribution

Approach Route	% Distribution
Within Eggborough (Selby Rd N)	20%
Within Eggborough (Selby Rd S)	10%
Within Eggborough (Selby Rd C)	60%
Within Eggborough (A645 (W))	10%
Total	**100.0%**

10% are pass-by trips, and 10% are new which is acceptable. Distribution as per Table 9.3.1 (above) is noted.

Using the census and usual place of work, the distribution for the residential element is provided in Table 9.24 (left) which is acceptable.

The nearest 3 primary schools and 5 secondary schools have been assumed as destination for students and proportions applied. There is no other science to this than distance. Census data indicates under 10% of staff will live local.

Even though NYC consider that the food shopping trip distribution as per Table 9.27 gives too much weight to the local Londis at the expense of the larger offerings in Selby and Pontefract, and the non-food shopping as shown in Table 9.28 potentially under-estimates trips to Selby and Pontefract compared to Eggborough, the number of trips and their times are unlikely to impact roads at peak times managed by NYC significantly.

10. Trip Generation (Local Roads)

NYC agreed the study area and identified 8 junctions of interest however many more are assessed as below in a summary of results:

MCC with Queue survey sites as per Apx 8C		T11.1 Summary of TIA						T11.2 JCA			
		DM		Site trips		% change		DM		DS	
Ref T8.14	Name	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
5	A19 / A645 Weeland Road (JCA inc power station mitig)	3199	3123	346	337	10.8%	10.8%	0.88	0.8	0.92	0.87
2	A645 Weeland Road / Selby Road	1051	1167	531	555	50.5%	47.6%	0.28	0.41	0.64	0.55
1	A645 Weeland Road / Kellington Lane	746	834	566	594	75.9%	71.2%	0.17	0.16	0.39	0.31
13	A645 Weeland Road / Broach Lane	412	492	269	255	65.1%	52.9%	split in two but <1%			
3	Kellington Lane / Selby Road	349	318	107	98	30.7%	30.8%	0.16	0.11	0.3	0.17
15	A645 Weeland Road / Lunn Lane	325	429	104	121	32.0%	28.2%	0.08	0.08	0.08	0.09
16	A645 Weeland Road / Common Lane	325	469	104	121	32.0%	25.8%	0.07	0.06	0.08	0.06
17	A645 Weeland Road / Fernley Green Road	410	513	104	121	25.4%	23.6%	0.06	0.09	0.06	0.1
14	Roall Lane / Broach Lane			<30 extra with turn ta		18.4%	9.5%	0.06	0.07	0.09	0.09
8	A19 / Wand Lane	high flow / small rise comapritively				10.30%	9.10%	0.14	0.08	0.14	0.09
11	A63 / Leeds Road			<30	<30						
18	A645 Weeland Road / Hazel Old Lane			<30 extra pm, 36 am							
19	A645 Broach Lane / Church Lane / Station Road (sigs)			<30 extra pm, 36 am							
20	A1041 Bawtry Road / Oakney Wood Road / Lidl Access			62	84	2.6%	3.2%				
21	A1041 Bawtry Road / Abbot's Road / Three Lakes Retail Park			59	78	3.4%	3.5%				
22	A1041 Bawtry Road / Canal Road / Canal View			42	57	3.2%	3.6%				
23	A1041 Bawtry Road / Park Street / Station Road			39	51	3.2%	3.4%				
24	A19 The Crescent / A1041 Park Street (sigs)			37	50	2.7%	3.3%				
25	A19 / A63 / Local Access			46	38	1.5%	1.3%				
26	A19 / A63 Hull Road / Highfield View			46	38	1.4%	1.2%				
29	A645 Weeland Rd / B6136 Ferrybridge Rd / Headlands La (sigs)			76	86	4.2%	4.3%	80.50%	90.20%	85.40%	93.00%
30	A645 Pontefract Road / A162 Link Road (Sbnd slips) (sigs)			47	57	2.6%	3.0%	0.49	0.82	0.67	0.86
31	A645 Knottingley Road / A162 Link Road (Nbnd slips)			45	45	2.4%	2.1%	72.30%	88.80%	73.50%	91.20%
6	A19 / Selby Road	high flow / small rise comapritively									
7	A19 / Roll Lane	high flow / small rise comapritively									
9	A19 / Millfield Road	high flow / small rise comapritively									
10	A19 / A63	high flow / small rise comapritively									
12	A63 / A1041 Bawtry Road / Bawtry Road	high flow / small rise comapritively									
27	A645 Weeland Road / Wormersley Road	high flow / small rise comapritively									
28	A645 Weeland Road / Chapel Street	high flow / small rise comapritively									
4	M62 Junction 34										
1	(Additional SRN) M62 Junction 35										
2	(Additional SRN) M62 Junction 36										
3	(Additional SRN) M62 Junction 32A										
4	(Additional SRN) A1(M) Junction 42										
5	(Additional SRN) M1 Junction 46										
6	(Additional SRN) A64 / A1237										
7	(Additional SRN) A64 / A19										

Highest no. increase
High % increase, low flow rd to start
% rise of interest but low nos
Low Real No. increase
Others rises 35-150 in nos but very low %impact as very high to start

capacity worsens
capacity worsening

LHA Comment 14: Junction capacity assessment identifies impacts with the proposal at the A19/A645 Weeland Road roundabout, which even with the proposed mitigations from the Power Station Application, increases in the AM peak from .88 to .92 RFC with nearly a 11% increase in the traffic flows. There are also three junctions with performance decreasing beyond standard thresholds NYC work to, but being in Wakefield BC's area, they are a matter for that Highway Authority. Measuring severity of impact when an arm exceeds 90% operating performance is hampered by the ability of models to be able to reflect the on the ground situation accurately. Further, with school traffic (Table 9.19) undercounted as highlighted above, two committed developments omitted, and HGV actual percentages not accounted for in the input assumptions accurately, NYC are concerned with the performance ability of that major junction and request mitigation is provided with testing to demonstrate nil detriment.

Vehicular traffic at the level crossing on Selby Road has been considered and does not cause a concern in the future.

Conclusion

Summary
NYC has provided comments on the Transport Assessment highlighted in red that should be addressed by the Applicant. Where no comments are provided, the Applicant may assume that NYC accept the position provided. Scoping advice is always without prejudice and based on the information available at that time.

There are concerns especially that require Road Safety Audits regards the Weeland Road site accesses proposed instead of the preferred single roundabout with Broach Lane and the treatment of Kellington Lane.

It remains unclear where the care home trip generation was included in the assessment.

Nil detriment at the A19/A645 junction must be achieved.

The ambitions to deliver a sustainable development for both living and traveling are welcomed by NYC who note that S106 Agreements for bus and rail services enhancement, off-road shared use links, informal crossing improvements, way marking off-site, and rail station infrastructure including waiting and cycle shelters, and information are proposed.

The views of Wakefield Borough Council and National Highways should be taken and addressed.

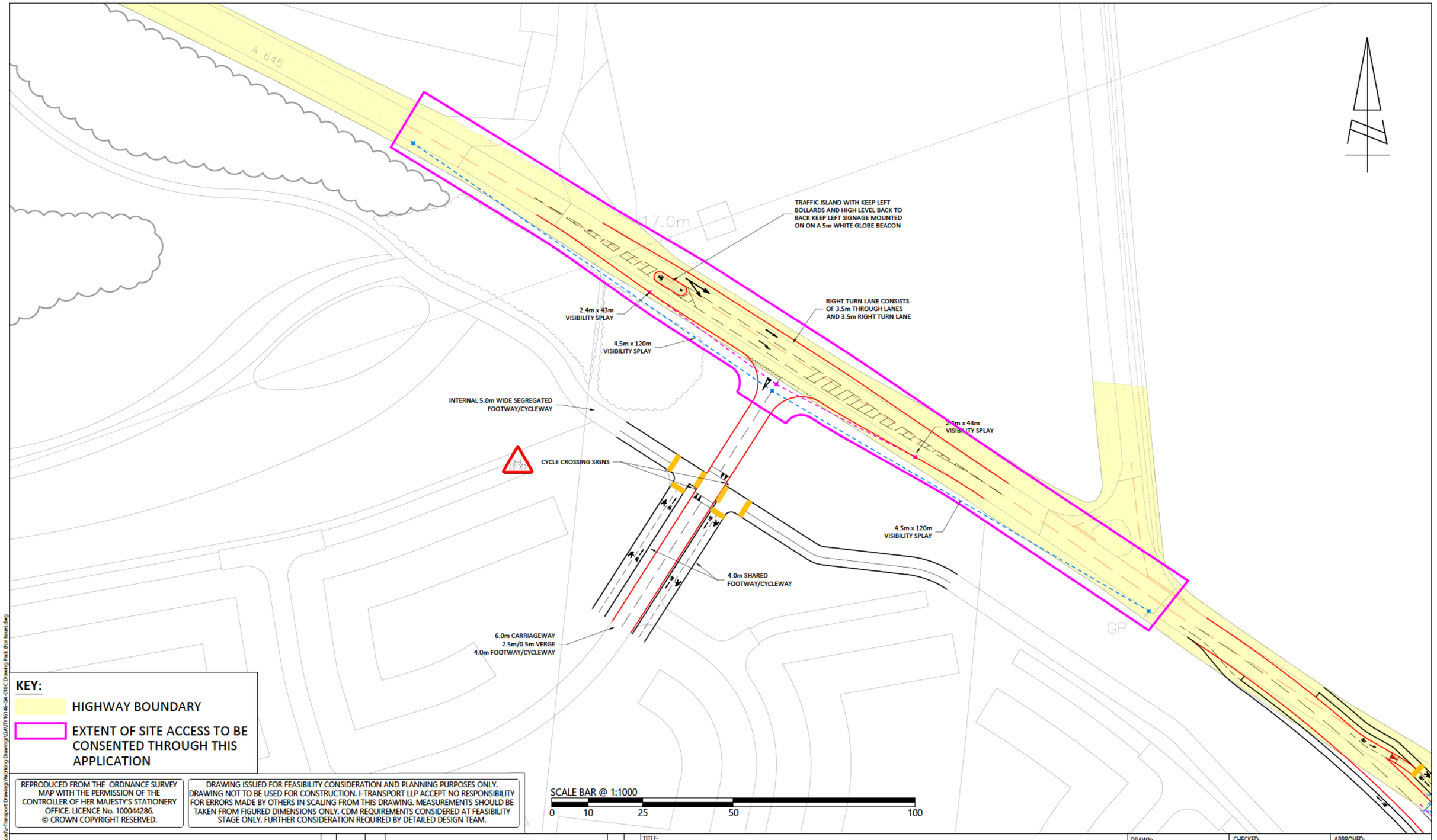
I therefore await further information, amended drawings and documents before making any further comments and recommendations on this planning application.

Section 278 Agreements
Section 278 of the Highways Act 1980, in effect gives a Local Authority the right of first refusal to undertake the design and/or construction of works associated with a S278 Agreement. This in practice requires any Developers, where a S278 Agreement is needed, to enter into discussions with the Local Highway Authority for the provision of S278 design and construction works. Please contact Marketa Kocianova highwaydevelopmentservice@northyorks.gov.uk at your earliest opportunity to ascertain whether the LHA will undertake the S278 design on this scheme.

Yours faithfully

[redacted]
Development Management Team

APPENDIX B. A645 WEELAND ROAD PRIOIRTY T-JUNCTION SITE ACCESS (ITY16146-GA-011 REV F)



KEY:

HIGHWAY BOUNDARY

EXTENT OF SITE ACCESS TO BE CONSENTED THROUGH THIS APPLICATION

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SCALE BAR @ 1:1000

0 10 25 50 100

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REV	DATE	BY	DESCRIPTION	CHK	APD
F	21.11.24	PH	REFUGE ISLAND ADDED TO LAYOUT	JW	JW
E	27.06.23	JB	MINOR UPDATES	JW	JW
D	14.06.23	JB	SITE LAYOUT UPDATED	JW	JW
C	11.05.23	JB	MINOR UPDATES	JW	JW
B	10.05.23	JB	UPDATES FOLLOWING UPDATED SITE LAYOUT	JW	JW
A	28.04.23	JB	MINOR UPDATES	JW	JW

STATUS: FOR INFORMATION

TITLE: PROPOSED DETAILED SITE ACCESS, A645 WEELAND ROAD
SECONDARY SITE ACCESS

PROJECT: LAND WEST OF KELLINGTON LANE, EGGBOROUGH

CLIENT: BANKS PROPERTY

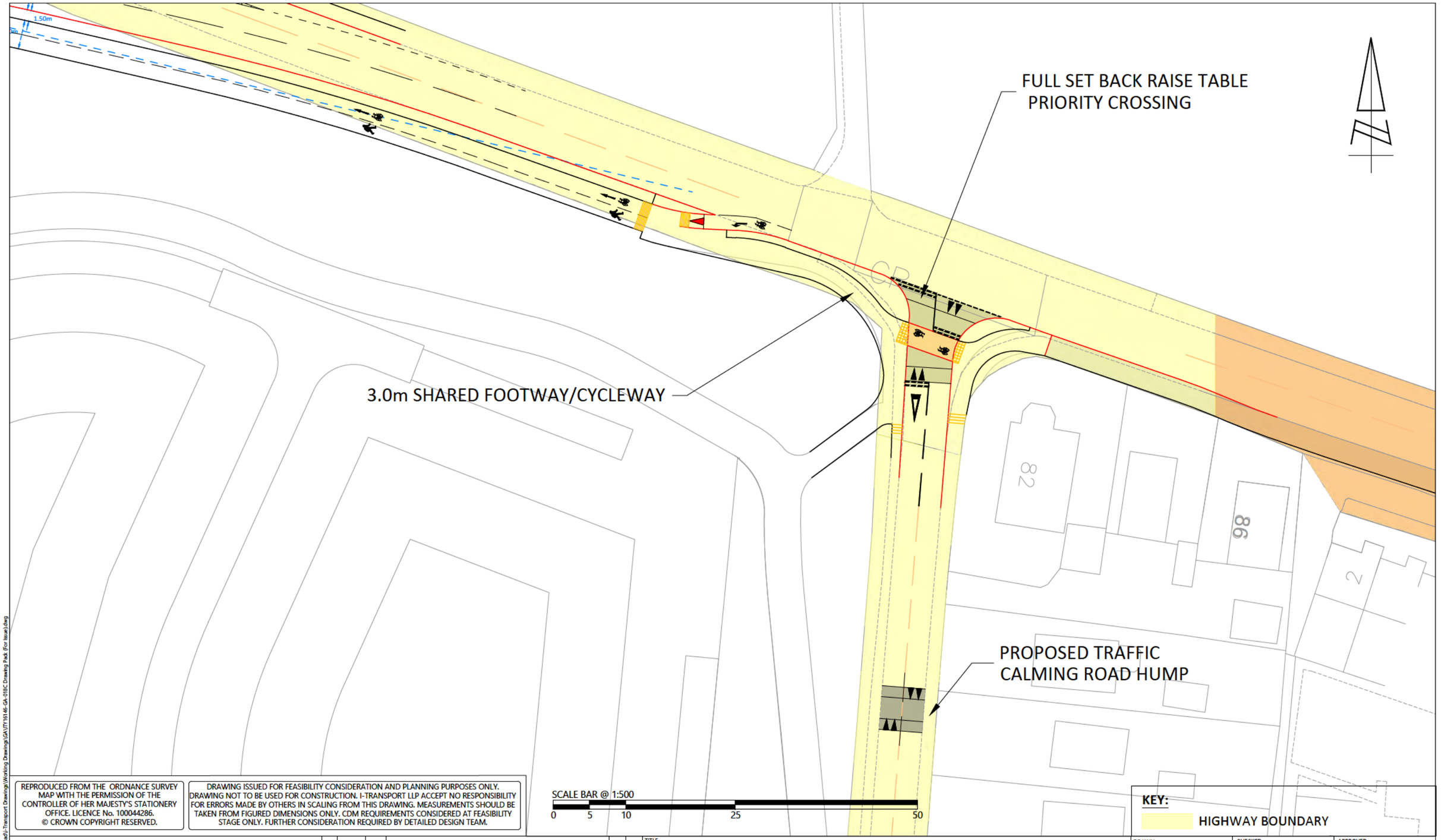
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JB	JW	GJ
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ITY16146	1:1000	30.03.23

DRAWING No: ITY16146 - GA - 011

REV: F

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APPENDIX C. A645 WEELAND ROAD / KELLINGTON LANE JUNCTION CROSSING PROVISION (ITY16146-GA-029 REV A)



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SCALE BAR @ 1:500

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KEY:

HIGHWAY BOUNDARY

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Leeds, LS1 2PW

Tel: 0113 357 1360

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REV	DATE	BY	DESCRIPTION	CHK	APD
A	25.11.24	PH	LAYOUT AMENDED TO INCLUDE RAISED TABLES	JW	JW

STATUS: FOR INFORMATION

TITLE: PROPOSED SHARED FOOTWAY/CYCLEWAY CROSSING

PROJECT: LAND WEST OF KELLINGTON LANE, EGGBOROUGH

CLIENT: BANKS PROPERTY

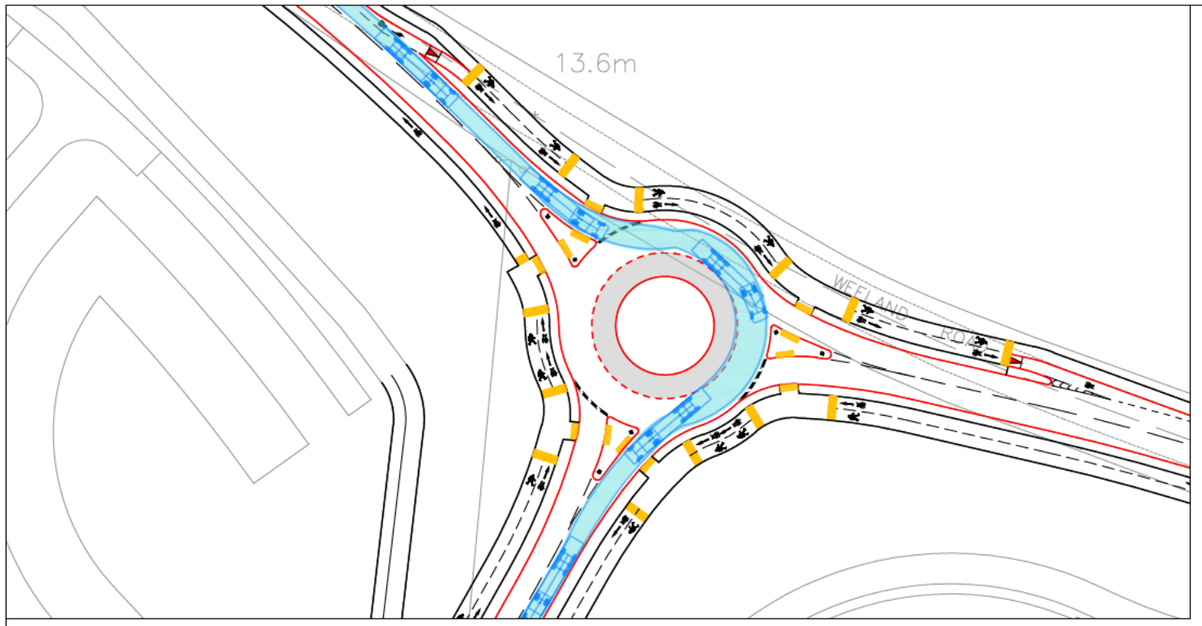
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JB	JW	GJ
PROJECT No:	**SCALE @ A3:**	**DATE:**
ITY16146	1:500	25.04.23

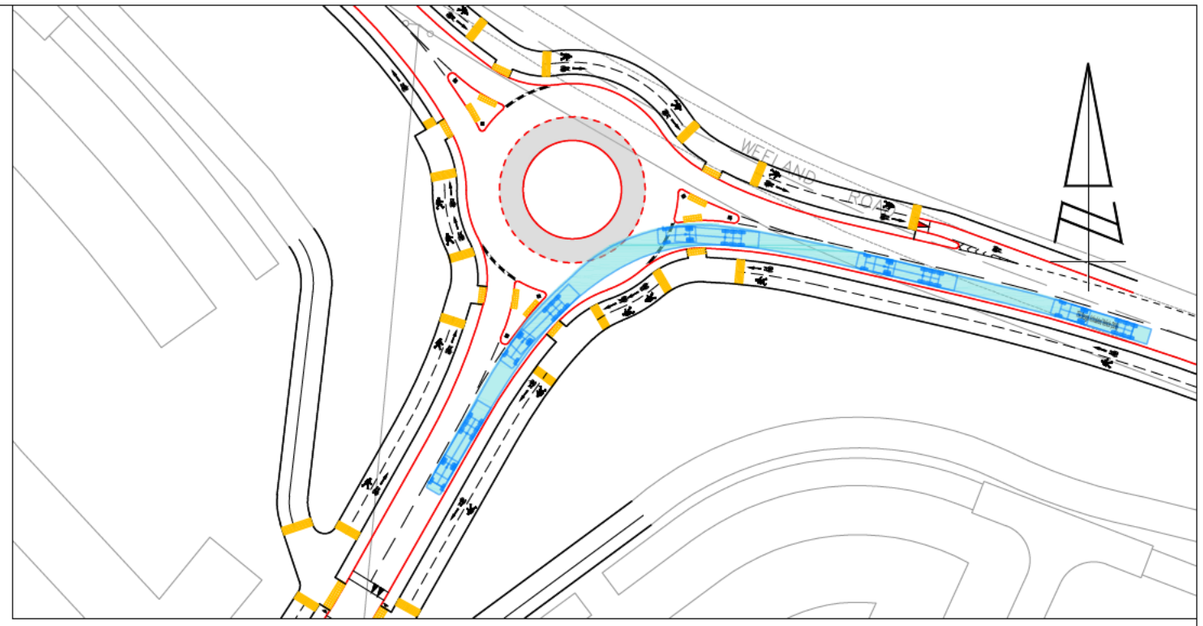
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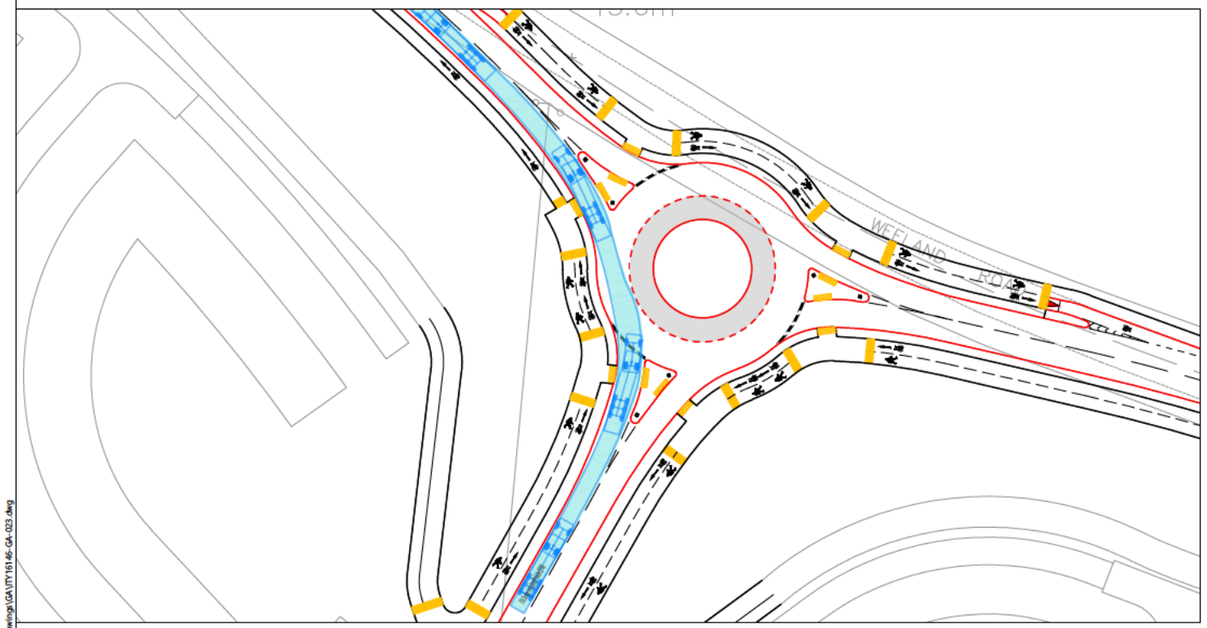
REV: A

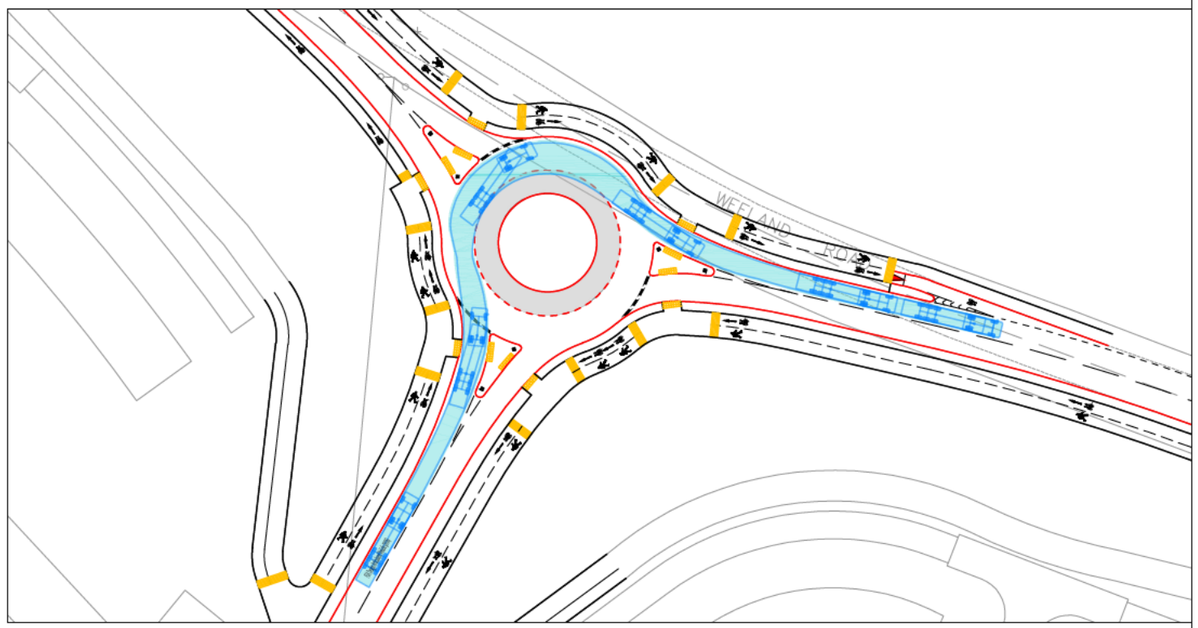
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APPENDIX D. A645 WEELAND ROAD ROUNDABOUT SITE ACCESS LAYOUT (ITY16146-007 REV E) AND TRACKING (ITY16146-023)







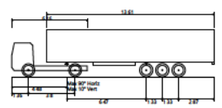


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SCALE BAR @ 1:1000

0 10 25 50 100



FTA Design Articulated Vehicle (2016) - including wing mirrors

Overall Length	16.490m
Overall Width	2.550m
Overall Body Height	3.870m
Min Body Ground Clearance	0.515m
Max Track Width	2.470m
Lock to lock time	3.00s
Kerb to Kerb Turning Radius	6.600m

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Tel: 0113 357 1360

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REV	DATE	BY	DESCRIPTION	CHK	APD

STATUS: FOR INFORMATION

TITLE: SWEPT PATH ANALYSIS - 16.5m ARTICULATED VEHICLE
MAIN SITE ACCESS

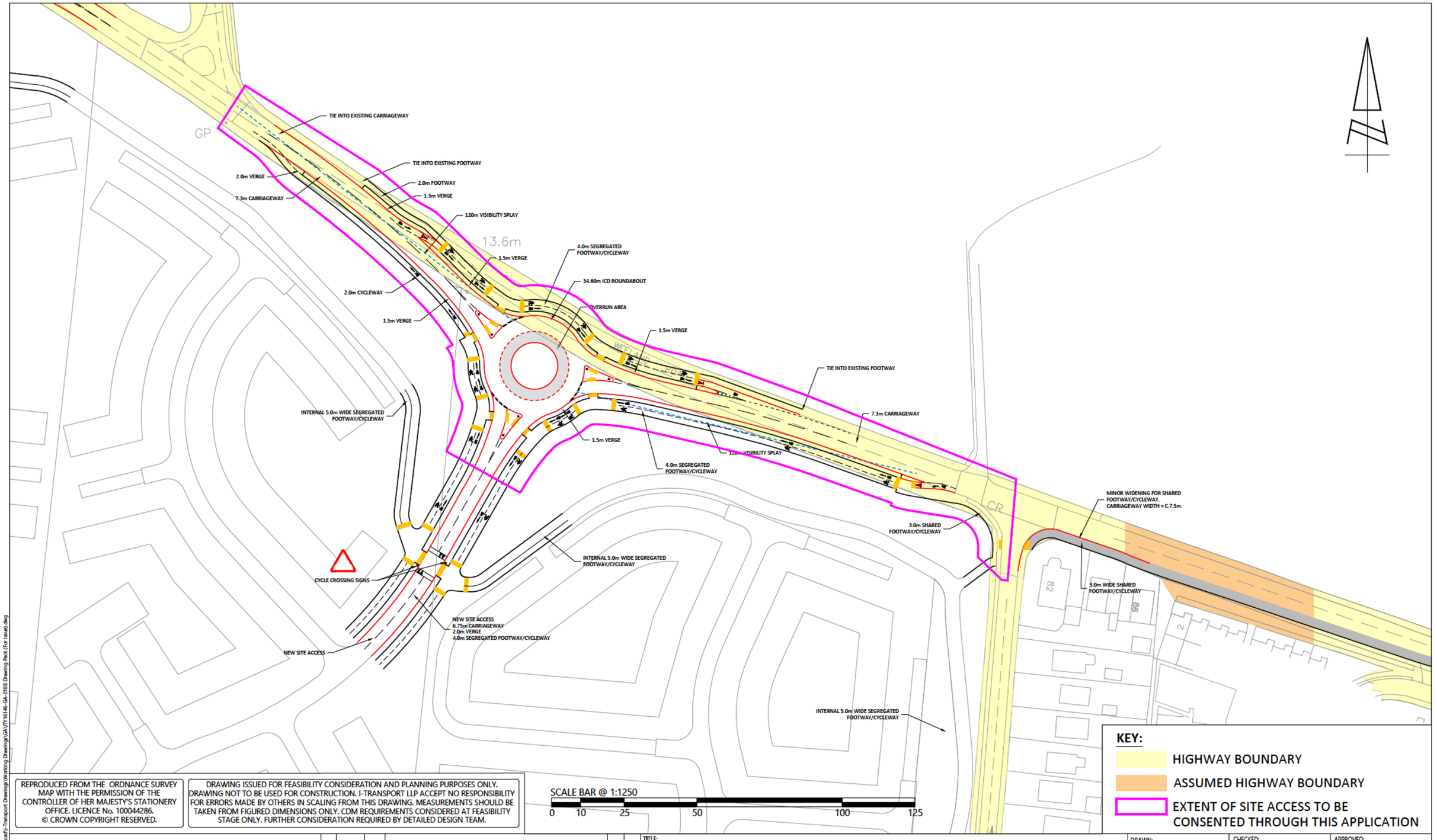
PROJECT: LAND WEST OF KELLINGTON LANE, EGGBOROUGH

CLIENT: BANKS GROUP

DRAWN:	CHECKED:	APPROVED:
JB	JW	JW
PROJECT No:	SCALE @ A3:	DATE:
ITY16146	1:1000	27.06.23

DRAWING No: ITY16146 - GA - 023 REV:

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REV	DATE	BY	DESCRIPTION	CHK	APD
E	27.06.23	JB	MINOR UPDATES	JW	JW
D	14.06.23	JB	SITE LAYOUT UPDATED	JW	JW
C	11.05.23	JB	MINOR UPDATES	JW	JW
B	10.05.23	JB	UPDATED FOLLOWING UPDATED SITE LAYOUT	JW	JW
A	28.04.23	JB	MINOR UPDATES	JW	JW

STATUS: FOR INFORMATION

TITLE: PROPOSED DETAILED SITE ACCESS, A645 WEELAND ROAD
PRIMARY SITE ACCESS

PROJECT: LAND WEST OF KELLINGTON LANE, EGGBOROUGH

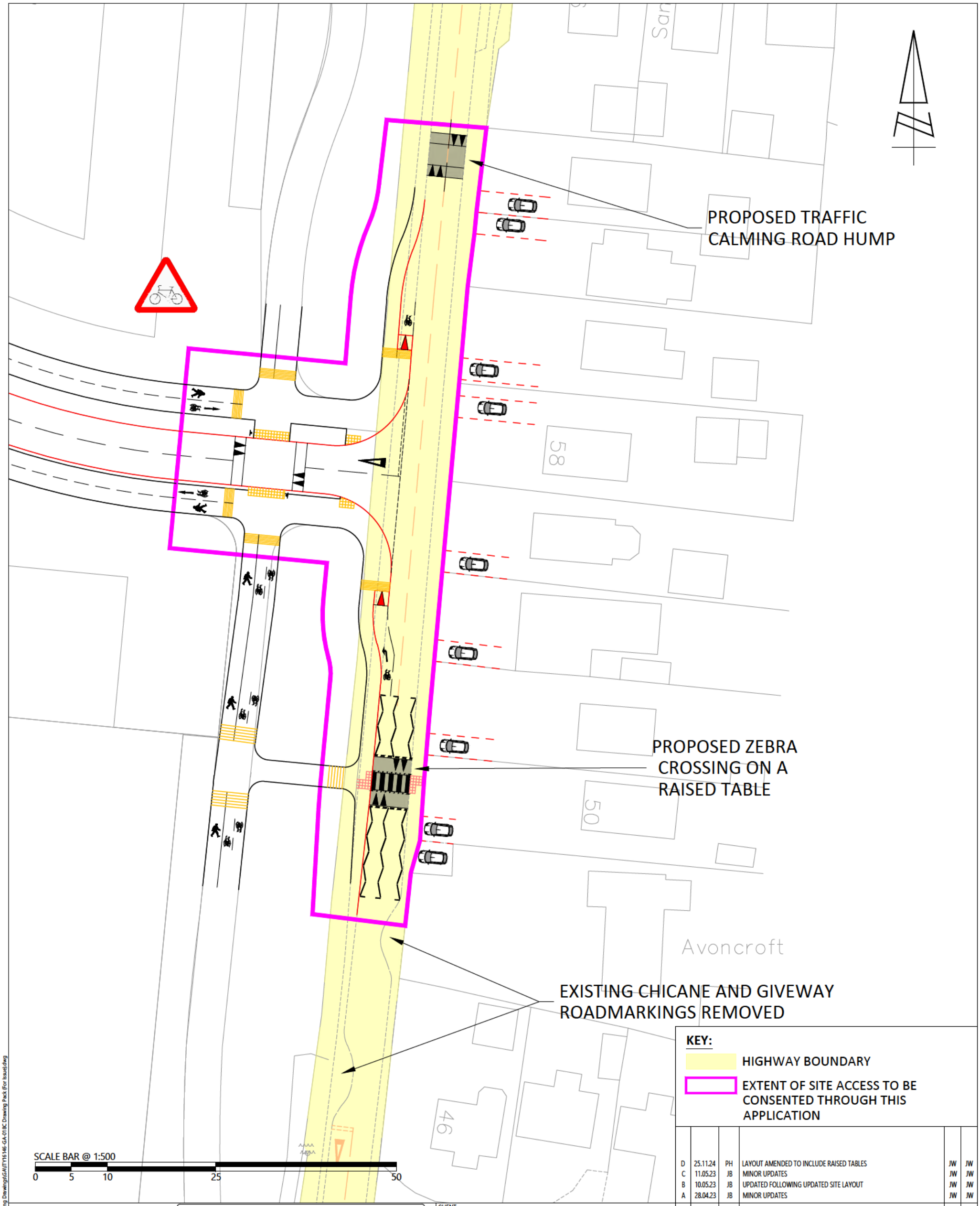
CLIENT: BANKS PROPERTY

DRAWN:	CHECKED:	APPROVED:
JB	JW	GJ
PROJECT No:	SCALE @ A3:	DATE:
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DRAWING No: ITY16146 - GA - 007 REV: E

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APPENDIX E. KELLINGTON LANE ZEBRA CROSSING ARRANGEMENT (ITY16146-GA-017 REV D)



KEY:

- HIGHWAY BOUNDARY
- EXTENT OF SITE ACCESS TO BE CONSENTED THROUGH THIS APPLICATION

REV	DATE	BY	DESCRIPTION	CHK	APD
D	25.11.24	PH	LAYOUT AMENDED TO INCLUDE RAISED TABLES	JW	JW
C	11.05.23	JB	MINOR UPDATES	JW	JW
B	10.05.23	JB	UPDATED FOLLOWING UPDATED SITE LAYOUT	JW	JW
A	28.04.23	JB	MINOR UPDATES	JW	JW

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CLIENT: BANKS PROPERTY

STATUS: FOR INFORMATION

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www.i-transport.co.uk

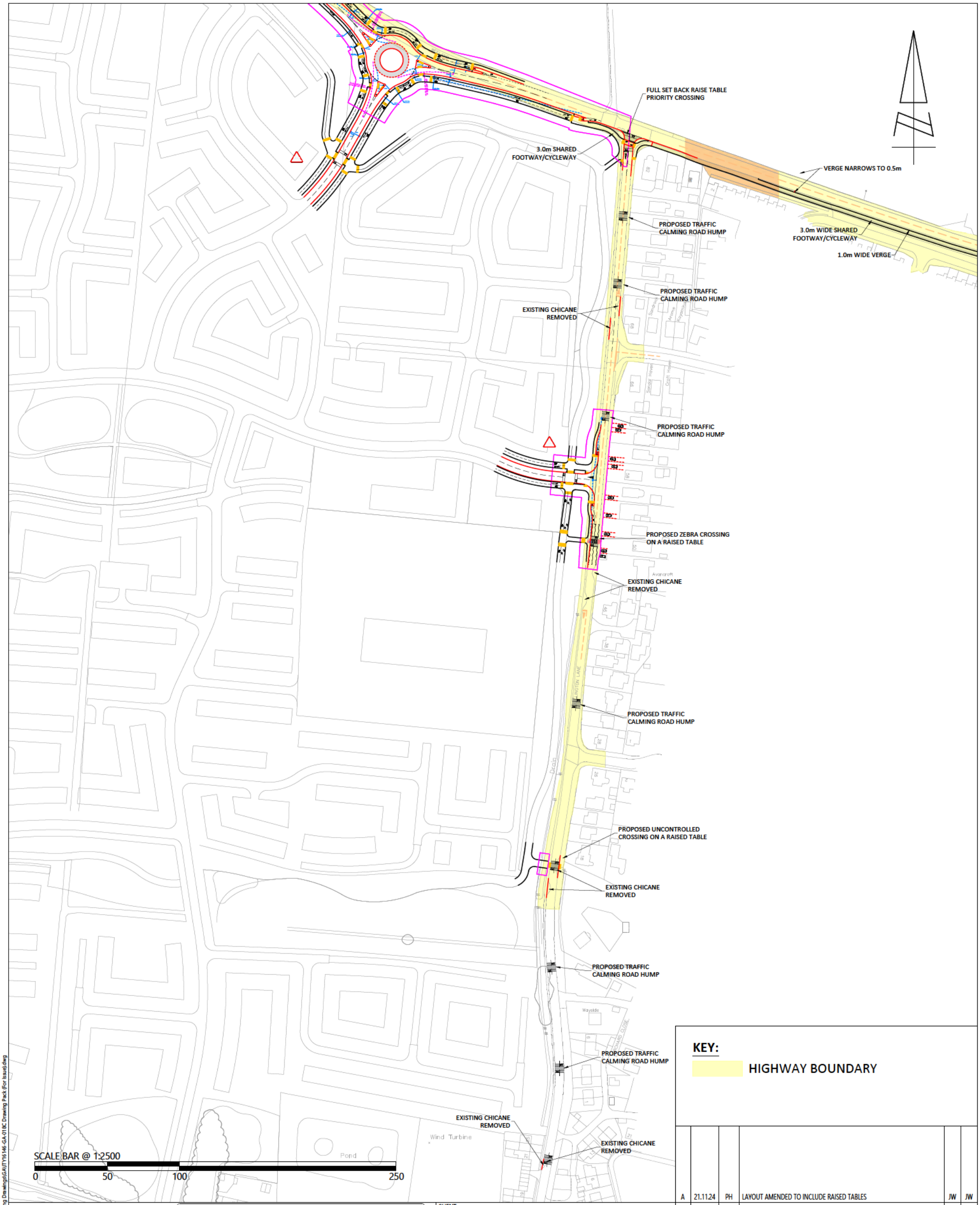
TITLE: PROPOSED HIGHWAY WORKS ON KELLINGTON LANE

PROJECT: LAND WEST OF KELLINGTON LANE, EGGBOROUGH

DRAWN:	CHECKED:	APPROVED:
JB	JW	GJ
PROJECT No:	**SCALE @ A3:**	**DATE:**
ITY16146	1:500	25.11.24
DRAWING No:		**REV:**
ITY16146-GA-012		D

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APPENDIX F. KELLINGTON LANE HIGHAWAY SCHEME



KEY:

HIGHWAY BOUNDARY

REV	DATE	BY	DESCRIPTION	CHK	APD
A	21.11.24	PH	LAYOUT AMENDED TO INCLUDE RAISED TABLES	JW	JW

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CLIENT: BANKS PROPERTY

STATUS: FOR INFORMATION

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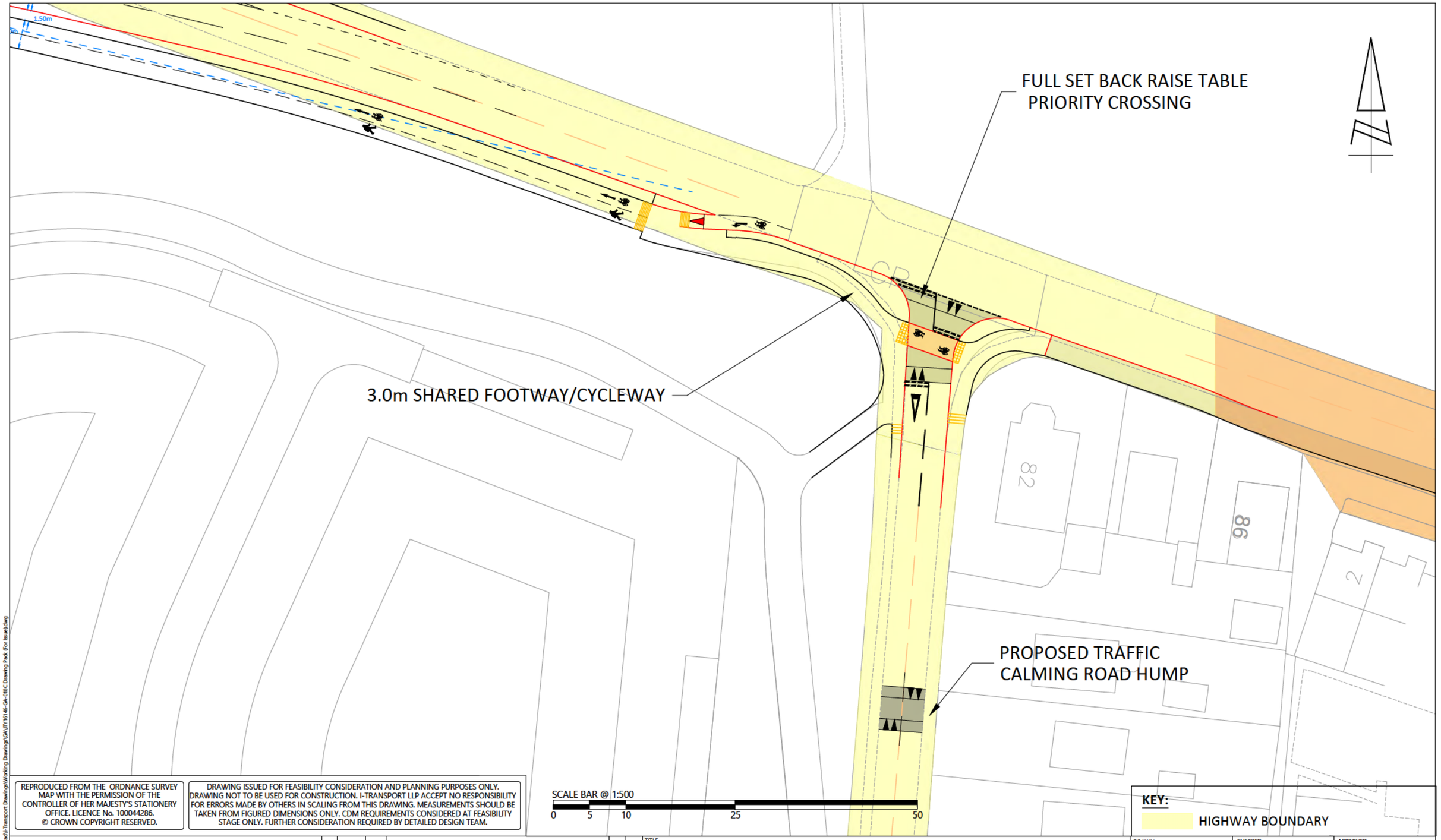
www.i-transport.co.uk

TITLE: PROPOSED HIGHWAY WORKS ON KELLINGTON LANE

PROJECT: LAND WEST OF KELLINGTON LANE, EGGBOROUGH

DRAWN:	CHECKED:	APPROVED:
MS	JW	GJ
PROJECT No:	SCALE @ A3:	DATE:
ITY16146	1:2500	04.10.2024
DRAWING No:		REV:
ITY16146-GA-031		A

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SCALE BAR @ 1:500

0 5 10 25 50

KEY:

HIGHWAY BOUNDARY

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Tel: 0113 357 1360

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REV	DATE	BY	DESCRIPTION	CHK	APD
A	25.11.24	PH	LAYOUT AMENDED TO INCLUDE RAISED TABLES	JW	JW

STATUS: FOR INFORMATION

TITLE: PROPOSED SHARED FOOTWAY/CYCLEWAY CROSSING

PROJECT: LAND WEST OF KELLINGTON LANE, EGGBOROUGH

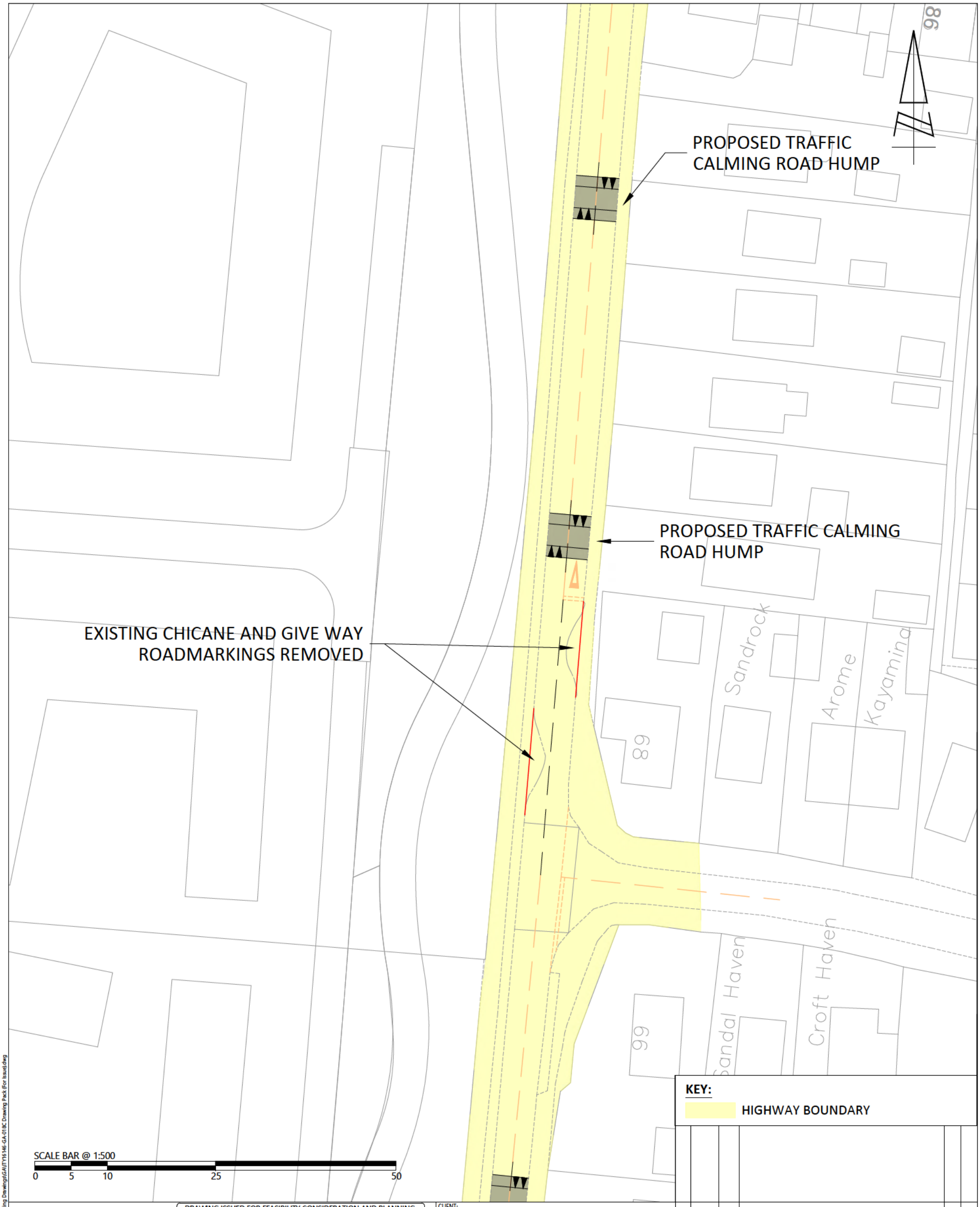
CLIENT: BANKS PROPERTY

DRAWN:	CHECKED:	APPROVED:
JB	JW	GJ
PROJECT No:	**SCALE @ A3:**	**DATE:**
ITY16146	1:500	25.04.23

DRAWING No: ITY16146 - GA - 029

REV: A

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KEY:

HIGHWAY BOUNDARY

REV	DATE	BY	DESCRIPTION	CHK	APD

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CLIENT: BANKS PROPERTY

STATUS: FOR INFORMATION

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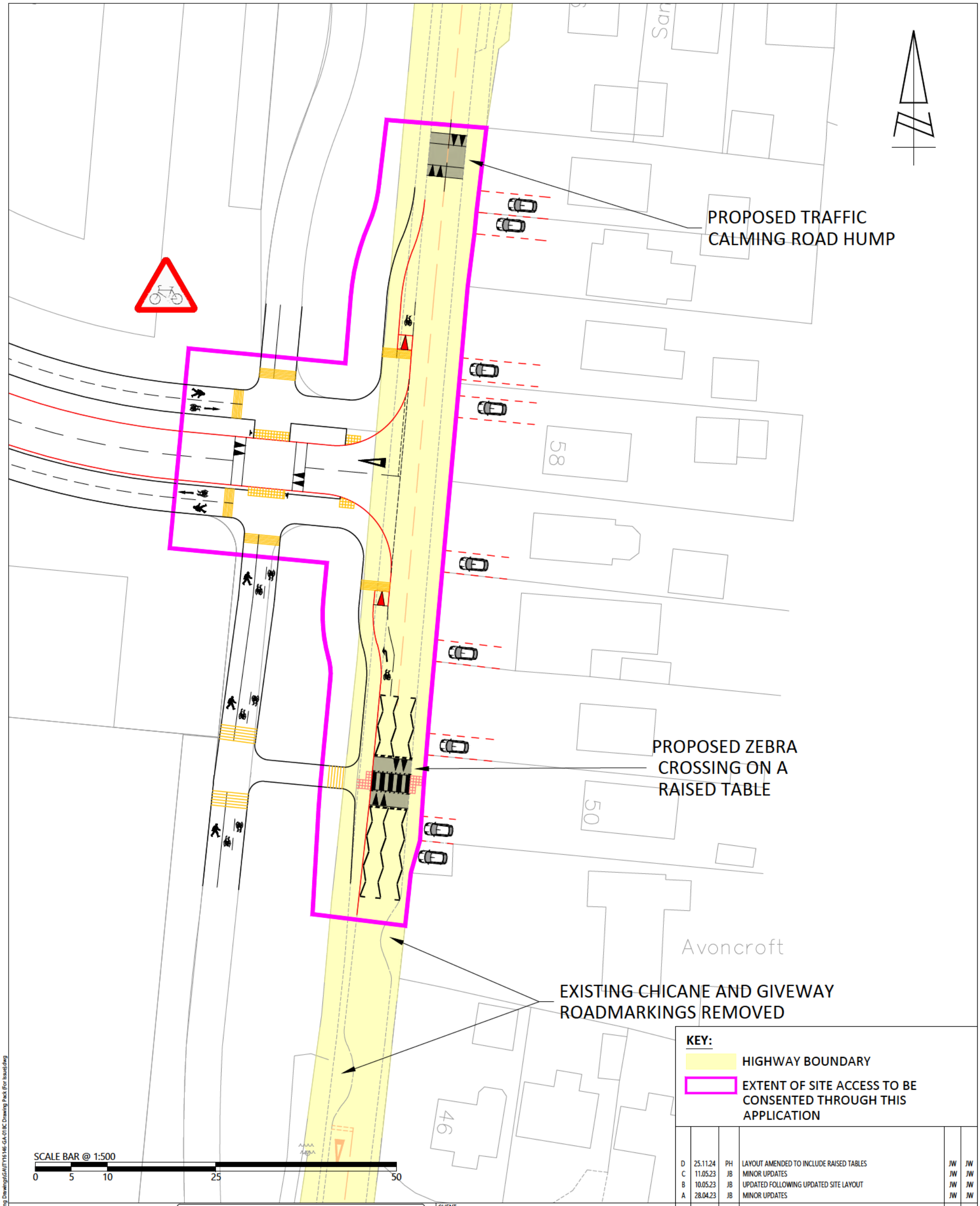
www.i-transport.co.uk

TITLE: PROPOSED HIGHWAY WORKS ON KELLINGTON LANE

PROJECT: LAND WEST OF KELLINGTON LANE, EGGBOROUGH

DRAWN:	CHECKED:	APPROVED:
MS	JW	GJ
PROJECT No:	**SCALE @ A3:**	**DATE:**
ITY16146	1:500	25.11.24
DRAWING No:		**REV:**
ITY16146-GA-032		

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KEY:

- HIGHWAY BOUNDARY
- EXTENT OF SITE ACCESS TO BE CONSENTED THROUGH THIS APPLICATION

REV	DATE	BY	DESCRIPTION	CHK	APD
D	25.11.24	PH	LAYOUT AMENDED TO INCLUDE RAISED TABLES	JW	JW
C	11.05.23	JB	MINOR UPDATES	JW	JW
B	10.05.23	JB	UPDATED FOLLOWING UPDATED SITE LAYOUT	JW	JW
A	28.04.23	JB	MINOR UPDATES	JW	JW

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STATUS: FOR INFORMATION

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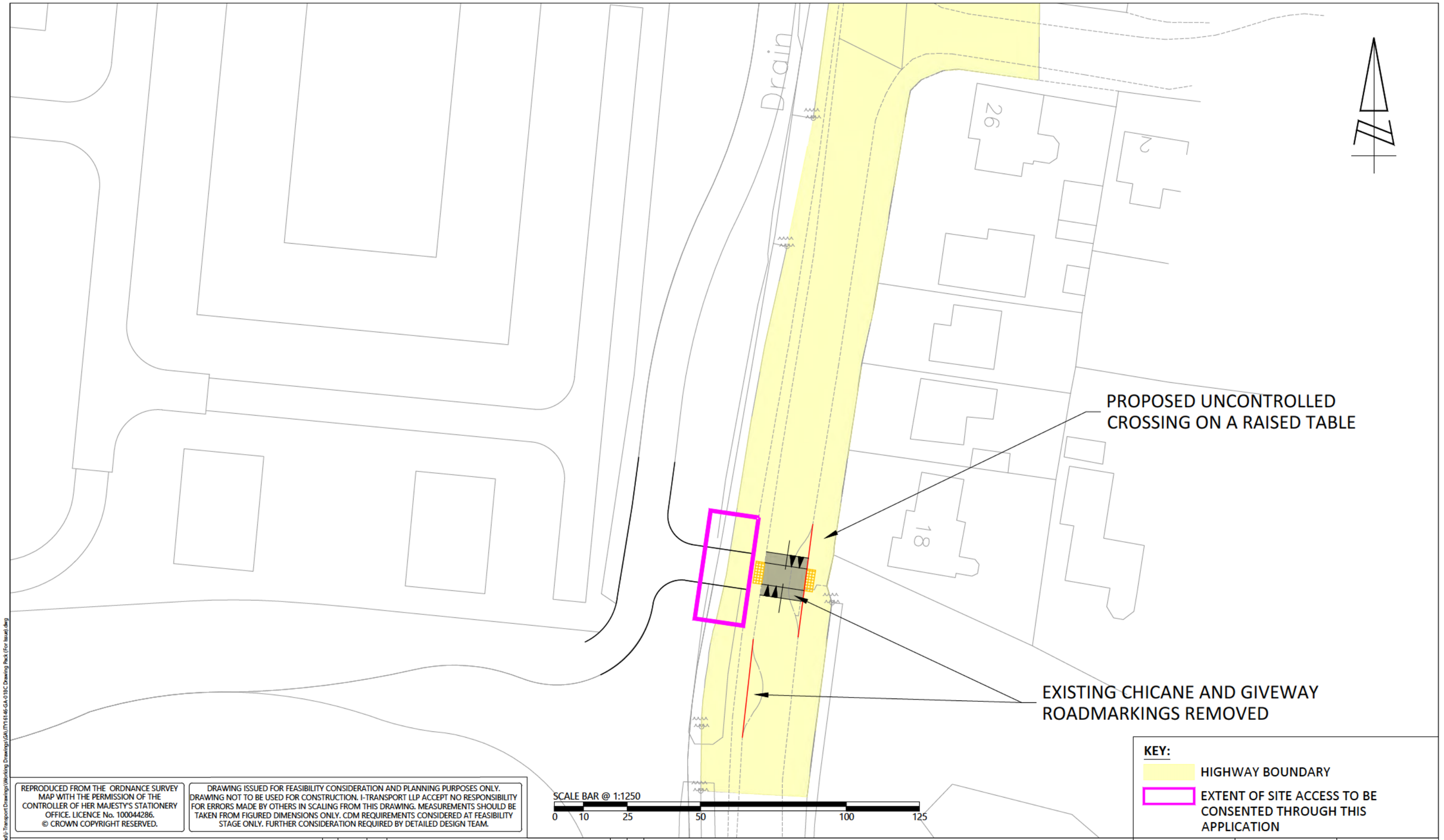
www.i-transport.co.uk

TITLE: PROPOSED HIGHWAY WORKS ON KELLINGTON LANE

PROJECT: LAND WEST OF KELLINGTON LANE, EGGBOROUGH

DRAWN:	CHECKED:	APPROVED:
JB	JW	GJ
PROJECT No:	**SCALE @ A3:**	**DATE:**
ITY16146	1:500	25.11.24
DRAWING No:		**REV:**
ITY16146-GA-012		D

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KEY:

HIGHWAY BOUNDARY

EXTENT OF SITE ACCESS TO BE CONSENTED THROUGH THIS APPLICATION

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REV	DATE	BY	DESCRIPTION	CHK	APD
D	25.11.24	PH	LAYOUT AMENDED TO INCLUDE RAISED TABLES	JW	JW
C	14.06.23	JB	SITE LAYOUT UPDATED	JW	JW
B	11.05.23	JB	MINOR UPDATES	JW	JW
A	10.05.23	JB	UPDATES FOLLOWING UPDATED SITE LAYOUT	JW	JW

STATUS: FOR INFORMATION

TITLE: PROPOSED PEDESTRIAN/CYCLE ACCESS TO KELLINGTON LANE

PROJECT: LAND WEST OF KELLINGTON LANE, EGGBOROUGH

CLIENT: BANKS PROPERTY

DRAWN:	CHECKED:	APPROVED:
JB	JW	GJ
PROJECT No:	**SCALE @ A3:**	**DATE:**
ITY16146	1:1250	30.03.23

DRAWING No: ITY16146 - GA - 017

REV: D

Y:\PROJECTS\16146ITY Land West of Kellington Lane\Tech\Acad\i-Transport Drawings\Working Drawings\GA\ITY16146-GA-018C Drawing Pack (For Issue).dwg

PROPOSED TRAFFIC CALMING ROAD HUMP

EXISTING CHICANE REMOVED

EXISTING CHICANE AND GIVEWAY ROADMARKINGS REMOVED

Wind Turbine

SCALE BAR @ 1:500

0 5 10 25 50

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REV	DATE	BY	DESCRIPTION	CHK	APD

STATUS: FOR INFORMATION

TITLE: PROPOSED PEDESTRIAN/CYCLE ACCESS TO KELLINGTON LANE

PROJECT: LAND WEST OF KELLINGTON LANE, EGGBOROUGH

CLIENT: BANKS PROPERTY

DRAWN:	CHECKED:	APPROVED:
JB	JW	GJ
PROJECT No:	SCALE @ A3:	DATE:
ITY16146	1:500	26/11/24

DRAWING No: ITY16146 - GA - 033

REV:

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APPENDIX G. CONNECTIITY PLANS

i-Transport

Land West of Kellington Lane, Eggborough

Figure 1.2: Connectivity Plan | ITY16146

Proposed Internal Segregated Footway / Cycleway

Footway / Cycleway Connection

Proposed Internal Segregated Footway / Cycleway

Residential Area

Local Shop & Post Office

Pharmacy & Surgery

Proposed Zebra Crossing

Existing Bus Stops

Proposed Bus Stop

Village Hall

Proposed Bus Stop

Residential Area

Potential New Cycle Parking

Existing Bus Stops

Potential Access to Whitley Bridge Railway Station

Existing Whitley Bridge Railway Station

Employment Opportunities

Key

Pedestrian Route

0 0.2 0.4 km

Maxar, Microsoft

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i-Transport | Land West of Kellington Lane, Eggborough

Figure 1.1: Connectivity Plan | ITY16146

Proposed Raised Table and Crossing Point

Proposed Widening for Shared Footway/Cycleway

Proposed Raised Table and Crossing Point

Footway / Cycleway Connection

Proposed Internal Segregated Footway / Cycleway

Existing Bus Stops

All Mode Site Access

Residential Area

Local Shops and Amenities

Proposed Toucan Crossing

Proposed Zebra Crossing

Existing Bus Stops

Existing Bus Stops

Employment Opportunities

Employment Opportunities

Local Shop & Post Office

Pharmacy & Surgery

Proposed Internal Segregated Footway / Cycleway

Residential Area

Footway / Cycleway Connection

Existing Bus Stops

Proposed Raised Table and Crossing Point

Proposed Bus Stops

Key

Pedestrian Route

Footway / Cycleway

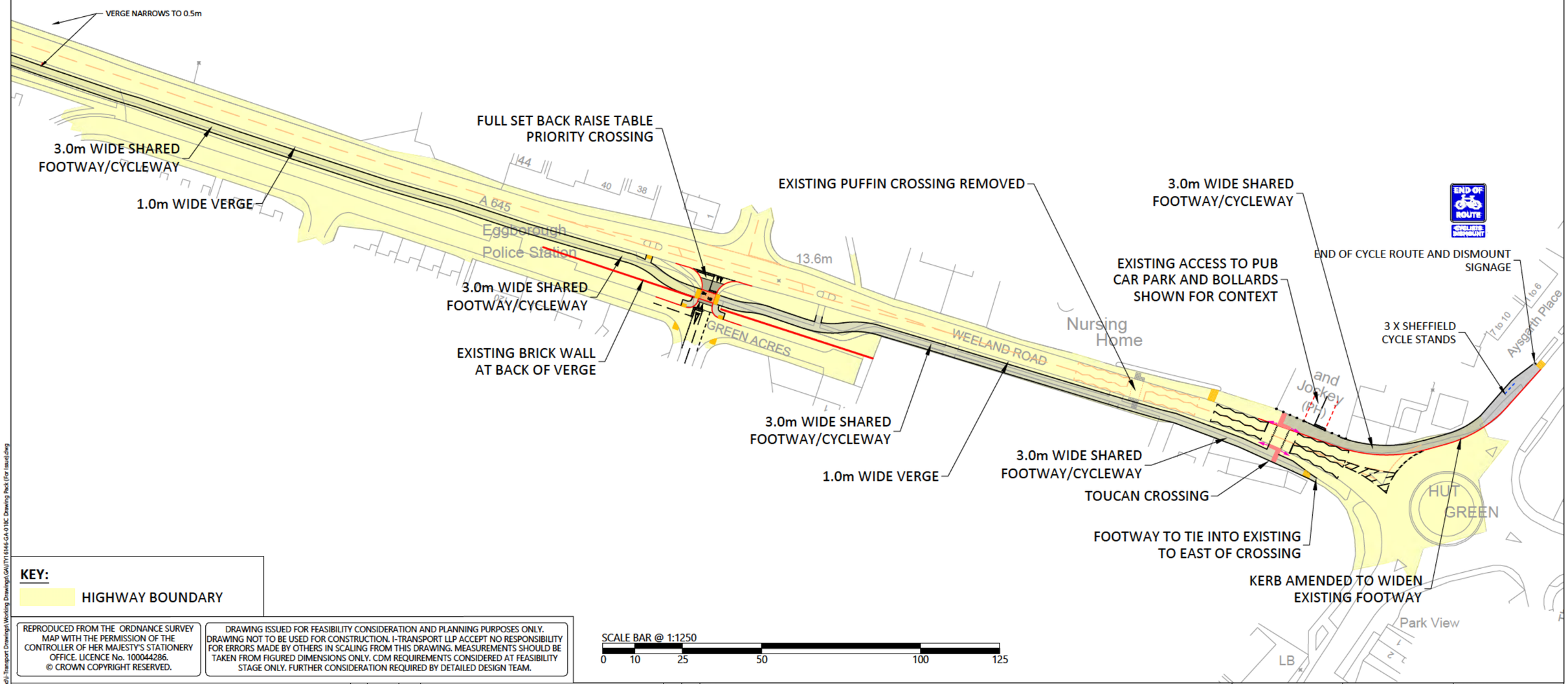
Crossing Provision

0 0.4 0.8 km

Maxar, Microsoft

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APPENDIX H. A645 WEELAND ROAD –SHARED PEDESTRIAN/CYCLE PROVISION (ITY16146-GA-009 REV E)



KEY:

HIGHWAY BOUNDARY

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SCALE BAR @ 1:1250

0 10 25 50 100 125

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REV	DATE	BY	DESCRIPTION	CHK	APD
E	21.11.24	PH	SHARED ROUTE EXTENDED TO SELBY ROAD	JW	JW
D	14.06.23	JB	SITE LAYOUT UPDATED	JW	JW
C	11.05.23	JB	MINOR UPDATES	JW	JW
B	10.05.23	JB	UPDATED FOLLOWING UPDATED SITE LAYOUT	JW	JW
A	28.04.23	JB	MINOR UPDATES	JW	JW

STATUS: FOR INFORMATION

TITLE: PROPOSED SHARED FOOTWAY/CYCLEWAY ON A645 WEELAND ROAD

PROJECT: LAND WEST OF KELLINGTON LANE, EGGBOROUGH

CLIENT: BANKS PROPERTY

DRAWN:	CHECKED:	APPROVED:
JB	JW	GJ
PROJECT No:	**SCALE @ A3:**	**DATE:**
ITY16146	1:1250	30.03.22
DRAWING No:		**REV:**
ITY16146 - GA - 009		E

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APPENDIX I. A19 / A645 WEELAND ROAD ROUNDABOUT CAPACITY ASSESSMENTS

Junctions 10

ARCADY 10 - Roundabout Module

Version: 10.1.0.1820
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+44 (0)1344 379777 software@trl.co.uk trlsoftware.com

The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: A19_A645 - Committed (%HV).j10
Path: Y:\PROJECTS\16146ITY Land West of Kellington Lane\Tech\Junction Assessments\Arcady\A19_A645 Weeland Road
Report generation date: 20/11/2024 14:50:56

»Committed - Base + Committed, AM
»Committed - Base + Committed, PM
»Committed - Base + Committed + Dev (Cont.), AM
»Committed - Base + Committed + Dev (Cont.), PM
»Committed - Base + Committed + Dev (Trend), AM
»Committed - Base + Committed + Dev (Trend), PM
»Committed - Base + Committed + Dev (Vision), AM
»Committed - Base + Committed + Dev (Vision), PM
»Committed - 2028 Base + Committed, AM
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»Committed - 2033 Base + Committed + Dev (Trend), PM
»Committed - 2033 Base + Committed + Dev (Vision), AM
»Committed - 2033 Base + Committed + Dev (Vision), PM

Summary of junction performance

	AM							PM						
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity
	Committed - Base + Committed													
Arm 1	D1	1.6	12.07	0.58	B	13.00	7 % [Arm 2]	D2	2.9	23.70	0.74	C	10.43	4 % [Arm 1]
Arm 2		7.9	18.35	0.88	C				1.7	5.41	0.62	A		
Arm 3		1.2	9.36	0.52	A				0.9	5.94	0.47	A		
Arm 4		1.6	6.04	0.58	A				4.2	12.10	0.80	B		
	Committed - Base + Committed + Dev (Cont.)													
Arm 1	D3	3.1	23.17	0.74	C	22.26	1 % [Arm 3]	D4	6.0	47.31	0.87	E	15.70	-3 % [Arm 1]
Arm 2		11.2	25.44	0.92	D				3.2	8.47	0.75	A		
Arm 3		6.2	31.15	0.87	D				1.3	7.20	0.56	A		
Arm 4		2.3	8.90	0.67	A				5.4	15.74	0.84	C		

	Committed - Base + Committed + Dev (Trend)													
Arm 1	D5	2.7	19.66	0.70	C	20.43	2 % [Arm 2]	D6	4.8	38.63	0.83	E	13.88	-1 % [Arm 1]
Arm 2		12.1	27.33	0.93	D				2.5	7.16	0.71	A		
Arm 3		3.9	20.91	0.79	C				1.2	6.93	0.54	A		
Arm 4		2.1	8.07	0.65	A				5.1	14.92	0.83	B		
	Committed - Base + Committed + Dev (Vision)													
Arm 1	D7	2.5	18.44	0.69	C	19.15	3 % [Arm 2]	D8	4.6	36.74	0.83	E	13.48	-1 % [Arm 1]
Arm 2		11.5	25.98	0.92	D				2.4	6.95	0.70	A		
Arm 3		3.3	18.47	0.76	C				1.2	6.83	0.54	A		
Arm 4		2.0	7.79	0.64	A				5.0	14.63	0.83	B		
	Committed - 2028 Base + Committed													
Arm 1	D9	1.7	12.50	0.59	B	13.62	6 % [Arm 2]	D10	3.1	25.10	0.75	D	10.82	3 % [Arm 1]
Arm 2		8.4	19.43	0.89	C				1.7	5.50	0.62	A		
Arm 3		1.2	9.62	0.53	A				0.9	6.02	0.47	A		
Arm 4		1.6	6.15	0.59	A				4.4	12.49	0.80	B		
	Committed - 2028 Base + Committed + Dev (Cont.)													
Arm 1	D11	3.3	24.61	0.75	C	23.74	0 % [Arm 3]	D12	6.6	51.89	0.89	F	16.63	-3 % [Arm 1]
Arm 2		12.1	27.34	0.93	D				3.3	8.66	0.76	A		
Arm 3		6.7	33.37	0.88	D				1.3	7.33	0.57	A		
Arm 4		2.4	9.11	0.68	A				5.7	16.45	0.84	C		
	Committed - 2028 Base + Committed + Dev (Trend)													
Arm 1	D13	2.9	20.79	0.72	C	21.72	1 % [Arm 2]	D14	5.3	42.34	0.85	E	14.68	-2 % [Arm 1]
Arm 2		13.0	29.27	0.93	D				2.6	7.31	0.71	A		
Arm 3		4.1	22.24	0.80	C				1.2	7.05	0.55	A		
Arm 4		2.2	8.28	0.66	A				5.4	15.56	0.84	C		
	Committed - 2028 Base + Committed + Dev (Vision)													
Arm 1	D15	2.7	19.44	0.70	C	20.38	2 % [Arm 2]	D16	5.0	39.75	0.84	E	14.14	-1 % [Arm 1]
Arm 2		12.4	27.94	0.93	D				2.5	7.08	0.70	A		
Arm 3		3.5	19.52	0.77	C				1.2	6.94	0.54	A		
Arm 4		2.1	7.98	0.65	A				5.3	15.20	0.83	C		
	Committed - 2033 Base + Committed													
Arm 1	D17	1.7	12.68	0.60	B	13.90	6 % [Arm 2]	D18	2.9	24.02	0.74	C	10.70	4 % [Arm 1]
Arm 2		8.6	19.90	0.89	C				1.7	5.47	0.62	A		
Arm 3		1.2	9.75	0.53	A				0.9	5.97	0.47	A		
Arm 4		1.6	6.21	0.59	A				4.5	12.73	0.81	B		
	Committed - 2033 Base + Committed + Dev (Cont.)													
Arm 1	D19	3.4	25.28	0.76	D	24.56	0 % [Arm 3]	D20	7.0	54.62	0.89	F	17.17	-4 % [Arm 1]
Arm 2		12.6	28.33	0.93	D				3.3	8.75	0.76	A		
Arm 3		6.9	34.76	0.88	D				1.3	7.39	0.57	A		
Arm 4		2.4	9.23	0.68	A				5.8	16.85	0.85	C		
	Committed - 2033 Base + Committed + Dev (Trend)													
Arm 1	D21	3.0	21.40	0.72	C	22.47	1 % [Arm 2]	D22	5.5	43.75	0.86	E	14.98	-2 % [Arm 1]
Arm 2		13.7	30.51	0.94	D				2.6	7.34	0.71	A		
Arm 3		4.2	22.77	0.81	C				1.3	7.08	0.55	A		
Arm 4		2.2	8.37	0.66	A				5.5	15.83	0.84	C		
	Committed - 2033 Base + Committed + Dev (Vision)													
Arm 1	D23	2.8	19.88	0.71	C	20.92	1 % [Arm 2]	D24	5.3	41.80	0.85	E	14.59	-2 % [Arm 1]
Arm 2		12.8	28.80	0.93	D				2.5	7.14	0.70	A		
Arm 3		3.6	19.95	0.78	C				1.2	7.00	0.55	A		
Arm 4		2.1	8.06	0.65	A				5.4	15.59	0.84	C		

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables 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. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	Land West of Kellington Lane
Location	A19/A645
Site number	
Date	20/11/2024
Version	
Status	Committed
Identifier	
Client	Banks Group
Jobnumber	ITY16146
Enumerator	JW
Description	%HV

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

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75					✓	Delay	0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Base + Committed	AM	ONE HOUR	07:45	09:15	15	✓
D2	Base + Committed	PM	ONE HOUR	16:45	18:15	15	✓
D3	Base + Committed + Dev (Cont.)	AM	ONE HOUR	07:45	09:15	15	✓
D4	Base + Committed + Dev (Cont.)	PM	ONE HOUR	16:45	18:15	15	✓
D5	Base + Committed + Dev (Trend)	AM	ONE HOUR	07:45	09:15	15	✓
D6	Base + Committed + Dev (Trend)	PM	ONE HOUR	16:45	18:15	15	✓
D7	Base + Committed + Dev (Vision)	AM	ONE HOUR	07:45	09:15	15	✓
D8	Base + Committed + Dev (Vision)	PM	ONE HOUR	16:45	18:15	15	✓
D9	2028 Base + Committed	AM	ONE HOUR	07:45	09:15	15	✓
D10	2028 Base + Committed	PM	ONE HOUR	16:45	18:15	15	✓
D11	2028 Base + Committed + Dev (Cont.)	AM	ONE HOUR	07:45	09:15	15	✓
D12	2028 Base + Committed + Dev (Cont.)	PM	ONE HOUR	16:45	18:15	15	✓
D13	2028 Base + Committed + Dev (Trend)	AM	ONE HOUR	07:45	09:15	15	✓
D14	2028 Base + Committed + Dev (Trend)	PM	ONE HOUR	16:45	18:15	15	✓
D15	2028 Base + Committed + Dev (Vision)	AM	ONE HOUR	07:45	09:15	15	✓
D16	2028 Base + Committed + Dev (Vision)	PM	ONE HOUR	16:45	18:15	15	✓
D17	2033 Base + Committed	AM	ONE HOUR	07:45	09:15	15	✓
D18	2033 Base + Committed	PM	ONE HOUR	16:45	18:15	15	✓
D19	2033 Base + Committed + Dev (Cont.)	AM	ONE HOUR	07:45	09:15	15	✓
D20	2033 Base + Committed + Dev (Cont.)	PM	ONE HOUR	16:45	18:15	15	✓
D21	2033 Base + Committed + Dev (Trend)	AM	ONE HOUR	07:45	09:15	15	✓
D22	2033 Base + Committed + Dev (Trend)	PM	ONE HOUR	16:45	18:15	15	✓
D23	2033 Base + Committed + Dev (Vision)	AM	ONE HOUR	07:45	09:15	15	✓
D24	2033 Base + Committed + Dev (Vision)	PM	ONE HOUR	16:45	18:15	15	✓

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Committed	✓	100.000	100.000

Committed - Base + Committed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	13.00	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	7	Arm 2	13.00	B

Arms

Arms

Arm	Name	Description	No give-way line
1	A645 (East)		
2	A19 (south)		
3	A645 (west)		
4	A19 (north)		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1	3.50	5.90	10.0	14.0	40.6	11.1		
2	3.50	7.80	77.0	15.0	40.6	39.7		
3	3.65	7.00	36.0	20.0	40.6	31.1		
4	3.55	7.80	65.4	18.5	40.6	31.9		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.622	1537
2	0.697	2058
3	0.675	1881
4	0.721	2119

The slope and intercept shown above include any corrections and adjustments.

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)	Run automatically
D1	Base + Committed	AM	ONE HOUR	07:45	09:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	446	100.000
2		ONE HOUR	✓	1479	100.000
3		ONE HOUR	✓	416	100.000
4		ONE HOUR	✓	859	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	295	70	81
	2	294	1	213	971
	3	121	199	9	87
	4	55	691	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.58	12.07	1.6	B	409	614
2	0.88	18.35	7.9	C	1357	2036
3	0.52	9.36	1.2	A	382	573
4	0.58	6.04	1.6	A	788	1182

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	336	84	759	1065	0.315	334	352	0.0	0.5	5.819	A
2	1113	278	204	1915	0.581	1107	889	0.0	1.6	5.109	A
3	313	78	1008	1200	0.261	312	303	0.0	0.4	4.449	A
4	647	162	467	1782	0.363	644	853	0.0	0.6	3.597	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	401	100	909	972	0.412	400	421	0.5	0.8	7.442	A
2	1330	332	245	1887	0.705	1325	1064	1.6	2.7	7.345	A
3	374	93	1207	1066	0.351	373	363	0.4	0.6	5.707	A
4	772	193	559	1716	0.450	771	1021	0.6	0.9	4.336	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	491	123	1112	846	0.580	488	513	0.8	1.6	11.812	B
2	1628	407	299	1849	0.881	1610	1301	2.7	7.4	16.206	C
3	458	115	1466	891	0.514	456	442	0.6	1.1	9.058	A
4	946	236	682	1628	0.581	943	1241	0.9	1.6	5.970	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	491	123	1115	844	0.582	491	517	1.6	1.6	12.072	B
2	1628	407	301	1848	0.881	1626	1306	7.4	7.9	18.347	C
3	458	115	1481	880	0.520	458	446	1.1	1.2	9.362	A
4	946	236	687	1624	0.582	946	1253	1.6	1.6	6.045	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	401	100	914	969	0.414	404	427	1.6	0.8	7.594	A
2	1330	332	247	1886	0.705	1350	1071	7.9	2.8	8.043	A
3	374	93	1229	1051	0.356	376	368	1.2	0.6	5.884	A
4	772	193	567	1711	0.451	775	1038	1.6	0.9	4.394	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	336	84	764	1063	0.316	337	355	0.8	0.6	5.896	A
2	1113	278	206	1914	0.582	1118	895	2.8	1.6	5.258	A
3	313	78	1018	1193	0.263	314	306	0.6	0.4	4.508	A
4	647	162	471	1779	0.363	648	861	0.9	0.7	3.628	A

Committed - Base + Committed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	10.43	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	4	Arm 1	10.43	B

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)	Run automatically
D2	Base + Committed	PM	ONE HOUR	16:45	18:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	416	100.000
2		ONE HOUR	✓	1038	100.000
3		ONE HOUR	✓	501	100.000
4		ONE HOUR	✓	1168	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	250	117	48
	2	255	2	139	642
	3	139	238	3	121
	4	72	1001	95	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.74	23.70	2.9	C	382	573
2	0.62	5.41	1.7	A	952	1429
3	0.47	5.94	0.9	A	460	690
4	0.80	12.10	4.2	B	1072	1608

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	313	78	1003	914	0.343	311	350	0.0	0.6	6.491	A
2	781	195	197	1920	0.407	779	1117	0.0	0.7	3.369	A
3	377	94	711	1401	0.269	376	265	0.0	0.4	3.615	A
4	879	220	478	1774	0.496	875	608	0.0	1.1	4.402	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	374	93	1201	791	0.473	372	419	0.6	1.0	9.345	A
2	933	233	236	1893	0.493	932	1337	0.7	1.0	4.006	A
3	450	113	851	1306	0.345	450	317	0.4	0.5	4.329	A
4	1050	263	573	1706	0.615	1047	728	1.1	1.7	6.012	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	458	115	1465	627	0.730	451	513	1.0	2.7	21.510	C
2	1143	286	287	1858	0.615	1140	1629	1.0	1.7	5.354	A
3	552	138	1041	1178	0.468	550	387	0.5	0.9	5.896	A
4	1286	321	701	1614	0.797	1277	890	1.7	4.1	11.479	B

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	458	115	1474	621	0.737	457	514	2.7	2.9	23.700	C
2	1143	286	290	1855	0.616	1143	1641	1.7	1.7	5.409	A
3	552	138	1044	1176	0.469	552	390	0.9	0.9	5.940	A
4	1286	321	702	1613	0.797	1285	893	4.1	4.2	12.100	B

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	374	93	1213	783	0.477	381	421	2.9	1.0	9.948	A
2	933	233	241	1890	0.494	936	1354	1.7	1.1	4.053	A
3	450	113	855	1303	0.346	452	321	0.9	0.5	4.366	A
4	1050	263	575	1704	0.616	1060	732	4.2	1.8	6.259	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	313	78	1011	909	0.345	315	352	1.0	0.6	6.630	A
2	781	195	200	1919	0.407	783	1126	1.1	0.7	3.397	A
3	377	94	715	1398	0.270	378	267	0.5	0.4	3.638	A
4	879	220	481	1772	0.496	882	612	1.8	1.1	4.483	A

Committed - Base + Committed + Dev (Cont.), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	22.26	C

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	1	Arm 3	22.26	C

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)	Run automatically
D3	Base + Committed + Dev (Cont.)	AM	ONE HOUR	07:45	09:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	458	100.000
2		ONE HOUR	✓	1535	100.000
3		ONE HOUR	✓	694	100.000
4		ONE HOUR	✓	859	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	295	82	81
	2	294	1	269	971
	3	165	433	9	87
	4	55	691	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.74	23.17	3.1	C	420	630
2	0.92	25.44	11.2	D	1409	2113
3	0.87	31.15	6.2	D	637	955
4	0.67	8.90	2.3	A	788	1182

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	345	86	934	957	0.360	342	385	0.0	0.7	6.899	A
2	1156	289	213	1909	0.605	1149	1063	0.0	1.7	5.427	A
3	522	131	1008	1200	0.435	519	354	0.0	0.8	5.793	A
4	647	162	675	1633	0.396	644	852	0.0	0.7	4.135	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	412	103	1118	843	0.489	410	460	0.7	1.1	9.801	A
2	1380	345	255	1880	0.734	1375	1272	1.7	3.1	8.153	A
3	624	156	1206	1066	0.585	621	424	0.8	1.5	8.851	A
4	772	193	807	1537	0.502	771	1020	0.7	1.1	5.341	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	504	126	1359	693	0.728	497	557	1.1	2.9	21.030	C
2	1690	423	310	1841	0.918	1662	1546	3.1	10.0	20.632	C
3	764	191	1459	896	0.853	749	514	1.5	5.4	24.786	C
4	946	236	974	1417	0.668	941	1233	1.1	2.2	8.551	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	504	126	1371	686	0.736	503	564	2.9	3.1	23.169	C
2	1690	423	313	1839	0.919	1685	1561	10.0	11.2	25.442	D
3	764	191	1479	882	0.866	761	520	5.4	6.2	31.154	D
4	946	236	989	1406	0.673	945	1251	2.2	2.3	8.895	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	412	103	1137	831	0.496	419	473	3.1	1.2	10.537	B
2	1380	345	260	1877	0.735	1412	1296	11.2	3.3	9.519	A
3	624	156	1238	1045	0.597	642	433	6.2	1.7	10.268	B
4	772	193	833	1519	0.508	777	1048	2.3	1.2	5.560	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	345	86	942	952	0.362	347	389	1.2	0.7	7.067	A
2	1156	289	216	1907	0.606	1162	1074	3.3	1.8	5.626	A
3	522	131	1019	1192	0.438	526	358	1.7	0.9	5.973	A
4	647	162	683	1627	0.398	648	862	1.2	0.8	4.201	A

Committed - Base + Committed + Dev (Cont.), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	15.70	C

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-3	Arm 1	15.70	C

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)	Run automatically
D4	Base + Committed + Dev (Cont.)	PM	ONE HOUR	16:45	18:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	445	100.000
2		ONE HOUR	✓	1249	100.000
3		ONE HOUR	✓	599	100.000
4		ONE HOUR	✓	1168	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	250	146	48
	2	255	2	350	642
	3	151	324	3	121
	4	72	1001	95	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.87	47.31	6.0	E	408	613
2	0.75	8.47	3.2	A	1146	1719
3	0.56	7.20	1.3	A	550	824
4	0.84	15.74	5.4	C	1072	1608

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	335	84	1067	874	0.383	332	359	0.0	0.7	7.194	A
2	940	235	219	1905	0.494	936	1181	0.0	1.0	4.003	A
3	451	113	710	1401	0.322	449	445	0.0	0.5	3.903	A
4	879	220	552	1721	0.511	875	608	0.0	1.1	4.672	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	400	100	1278	743	0.538	398	430	0.7	1.2	11.254	B
2	1123	281	262	1875	0.599	1121	1413	1.0	1.6	5.149	A
3	538	135	850	1307	0.412	538	532	0.5	0.7	4.835	A
4	1050	263	660	1643	0.639	1047	728	1.1	1.9	6.638	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	490	122	1556	571	0.859	475	525	1.2	5.1	36.234	E
2	1375	344	315	1838	0.748	1369	1715	1.6	3.1	8.195	A
3	660	165	1038	1180	0.559	657	646	0.7	1.3	7.090	A
4	1286	321	807	1537	0.837	1273	888	1.9	5.2	14.398	B

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	490	122	1568	563	0.870	486	527	5.1	6.0	47.307	E
2	1375	344	321	1834	0.750	1375	1733	3.1	3.2	8.468	A
3	660	165	1043	1176	0.561	659	653	1.3	1.3	7.199	A
4	1286	321	810	1535	0.838	1285	892	5.2	5.4	15.738	C

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	400	100	1295	733	0.546	419	433	6.0	1.3	13.168	B
2	1123	281	273	1868	0.601	1129	1441	3.2	1.7	5.314	A
3	538	135	859	1301	0.414	541	543	1.3	0.7	4.911	A
4	1050	263	665	1640	0.640	1064	735	5.4	2.0	7.060	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	335	84	1076	868	0.386	338	362	1.3	0.7	7.413	A
2	940	235	222	1903	0.494	943	1192	1.7	1.1	4.067	A
3	451	113	716	1398	0.323	452	449	0.7	0.5	3.941	A
4	879	220	555	1719	0.512	883	612	2.0	1.2	4.777	A

Committed - Base + Committed + Dev (Trend), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	20.43	C

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	2	Arm 2	20.43	C

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)	Run automatically
D5	Base + Committed + Dev (Trend)	AM	ONE HOUR	07:45	09:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	461	100.000
2		ONE HOUR	✓	1545	100.000
3		ONE HOUR	✓	633	100.000
4		ONE HOUR	✓	859	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	295	85	81
	2	294	1	279	971
	3	159	378	9	87
	4	55	691	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.70	19.66	2.7	C	423	635
2	0.93	27.33	12.1	D	1418	2127
3	0.79	20.91	3.9	C	581	871
4	0.65	8.07	2.1	A	788	1182

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	347	87	893	982	0.353	345	380	0.0	0.6	6.645	A
2	1163	291	215	1908	0.610	1156	1022	0.0	1.8	5.490	A
3	477	119	1008	1200	0.397	474	364	0.0	0.7	5.433	A
4	647	162	629	1666	0.388	644	852	0.0	0.7	4.003	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	414	104	1069	873	0.475	413	455	0.6	1.0	9.215	A
2	1389	347	258	1878	0.740	1383	1224	1.8	3.2	8.324	A
3	569	142	1206	1066	0.534	567	435	0.7	1.2	7.901	A
4	772	193	753	1576	0.490	771	1020	0.7	1.1	5.083	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	508	127	1303	727	0.698	502	551	1.0	2.6	18.368	C
2	1701	425	314	1839	0.925	1671	1490	3.2	10.7	21.718	C
3	697	174	1457	897	0.777	688	528	1.2	3.5	18.226	C
4	946	236	912	1462	0.647	942	1233	1.1	2.0	7.836	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	508	127	1311	722	0.703	507	558	2.6	2.7	19.664	C
2	1701	425	317	1837	0.926	1696	1502	10.7	12.1	27.328	D
3	697	174	1478	882	0.790	696	534	3.5	3.9	20.908	C
4	946	236	924	1453	0.651	946	1250	2.0	2.1	8.072	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	414	104	1081	865	0.479	421	466	2.7	1.1	9.703	A
2	1389	347	262	1875	0.741	1424	1240	12.1	3.4	9.883	A
3	569	142	1241	1043	0.546	579	445	3.9	1.3	8.719	A
4	772	193	771	1563	0.494	776	1048	2.1	1.1	5.238	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	347	87	900	978	0.355	349	384	1.1	0.7	6.785	A
2	1163	291	218	1906	0.610	1169	1032	3.4	1.8	5.700	A
3	477	119	1020	1192	0.400	479	368	1.3	0.7	5.572	A
4	647	162	636	1660	0.389	648	862	1.1	0.7	4.060	A

Committed - Base + Committed + Dev (Trend), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	13.88	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-1	Arm 1	13.88	B

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)	Run automatically
D6	Base + Committed + Dev (Trend)	PM	ONE HOUR	16:45	18:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	435	100.000
2		ONE HOUR	✓	1180	100.000
3		ONE HOUR	✓	581	100.000
4		ONE HOUR	✓	1168	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	250	136	48
	2	255	2	281	642
	3	149	308	3	121
	4	72	1001	95	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.83	38.63	4.8	E	399	599
2	0.71	7.16	2.5	A	1083	1624
3	0.54	6.93	1.2	A	533	800
4	0.83	14.92	5.1	B	1072	1608

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	327	82	1056	881	0.372	325	358	0.0	0.6	7.010	A
2	888	222	212	1910	0.465	885	1169	0.0	0.9	3.772	A
3	437	109	711	1401	0.312	436	386	0.0	0.5	3.847	A
4	879	220	538	1731	0.508	875	608	0.0	1.1	4.621	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	391	98	1263	752	0.520	389	428	0.6	1.2	10.729	B
2	1061	265	253	1881	0.564	1059	1399	0.9	1.4	4.712	A
3	522	131	851	1306	0.400	521	462	0.5	0.7	4.735	A
4	1050	263	644	1655	0.635	1047	728	1.1	1.9	6.513	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	479	120	1539	581	0.824	467	523	1.2	4.2	31.417	D
2	1299	325	305	1845	0.704	1295	1700	1.4	2.5	7.000	A
3	640	160	1039	1179	0.542	638	561	0.7	1.2	6.844	A
4	1286	321	788	1551	0.829	1274	889	1.9	4.9	13.774	B

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	479	120	1550	574	0.835	477	525	4.2	4.8	38.629	E
2	1299	325	311	1841	0.706	1299	1717	2.5	2.5	7.156	A
3	640	160	1043	1176	0.544	640	566	1.2	1.2	6.934	A
4	1286	321	790	1549	0.830	1285	893	4.9	5.1	14.924	B

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	391	98	1280	742	0.527	405	431	4.8	1.2	12.104	B
2	1061	265	262	1875	0.566	1065	1424	2.5	1.4	4.819	A
3	522	131	857	1302	0.401	524	470	1.2	0.7	4.798	A
4	1050	263	648	1652	0.636	1063	734	5.1	2.0	6.892	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	327	82	1064	876	0.374	330	360	1.2	0.7	7.207	A
2	888	222	214	1908	0.466	890	1180	1.4	0.9	3.820	A
3	437	109	715	1398	0.313	438	389	0.7	0.5	3.881	A
4	879	220	542	1729	0.509	883	612	2.0	1.2	4.718	A

Committed - Base + Committed + Dev (Vision), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	19.15	C

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	3	Arm 2	19.15	C

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)	Run automatically
D7	Base + Committed + Dev (Vision)	AM	ONE HOUR	07:45	09:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	460	100.000
2		ONE HOUR	✓	1537	100.000
3		ONE HOUR	✓	609	100.000
4		ONE HOUR	✓	859	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	295	84	81
	2	294	1	271	971
	3	155	358	9	87
	4	55	691	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.69	18.44	2.5	C	422	633
2	0.92	25.98	11.5	D	1410	2116
3	0.76	18.47	3.3	C	559	838
4	0.64	7.79	2.0	A	788	1182

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	346	87	878	992	0.349	344	377	0.0	0.6	6.546	A
2	1157	289	215	1908	0.606	1150	1007	0.0	1.8	5.444	A
3	458	115	1008	1200	0.382	456	357	0.0	0.7	5.303	A
4	647	162	611	1678	0.385	644	852	0.0	0.7	3.955	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	414	103	1051	884	0.468	412	451	0.6	1.0	8.986	A
2	1382	345	257	1878	0.736	1376	1206	1.8	3.1	8.201	A
3	547	137	1206	1066	0.513	546	427	0.7	1.1	7.581	A
4	772	193	732	1592	0.485	771	1020	0.7	1.1	4.989	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	506	127	1282	740	0.684	501	547	1.0	2.4	17.383	C
2	1692	423	313	1839	0.920	1664	1470	3.1	10.2	20.963	C
3	671	168	1459	896	0.749	663	519	1.1	3.1	16.494	C
4	946	236	888	1479	0.639	942	1234	1.1	2.0	7.583	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	506	127	1290	736	0.688	506	554	2.4	2.5	18.444	C
2	1692	423	316	1838	0.921	1687	1480	10.2	11.5	25.975	D
3	671	168	1479	882	0.760	669	524	3.1	3.3	18.469	C
4	946	236	898	1472	0.642	946	1251	2.0	2.0	7.786	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	414	103	1062	877	0.471	419	462	2.5	1.1	9.409	A
2	1382	345	261	1876	0.737	1414	1221	11.5	3.3	9.608	A
3	547	137	1239	1044	0.524	556	436	3.3	1.2	8.241	A
4	772	193	748	1580	0.489	776	1047	2.0	1.1	5.125	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	346	87	885	987	0.351	348	381	1.1	0.6	6.676	A
2	1157	289	217	1907	0.607	1163	1016	3.3	1.8	5.646	A
3	458	115	1019	1192	0.385	461	361	1.2	0.7	5.431	A
4	647	162	618	1674	0.386	648	862	1.1	0.7	4.007	A

Committed - Base + Committed + Dev (Vision), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	13.48	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-1	Arm 1	13.48	B

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)	Run automatically
D8	Base + Committed + Dev (Vision)	PM	ONE HOUR	16:45	18:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	434	100.000
2		ONE HOUR	✓	1166	100.000
3		ONE HOUR	✓	574	100.000
4		ONE HOUR	✓	1168	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	250	135	48
	2	255	2	267	642
	3	149	301	3	121
	4	72	1001	95	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.83	36.74	4.6	E	398	597
2	0.70	6.95	2.4	A	1070	1605
3	0.54	6.83	1.2	A	527	790
4	0.83	14.63	5.0	B	1072	1608

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	327	82	1050	885	0.369	324	358	0.0	0.6	6.963	A
2	878	219	211	1911	0.459	874	1164	0.0	0.9	3.732	A
3	432	108	711	1401	0.308	430	374	0.0	0.5	3.826	A
4	879	220	533	1735	0.507	875	608	0.0	1.1	4.601	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	390	98	1257	756	0.516	388	428	0.6	1.1	10.584	B
2	1048	262	252	1882	0.557	1046	1393	0.9	1.3	4.637	A
3	516	129	851	1306	0.395	515	448	0.5	0.7	4.697	A
4	1050	263	638	1659	0.633	1047	728	1.1	1.9	6.465	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	478	119	1531	586	0.816	466	523	1.1	4.1	30.285	D
2	1284	321	305	1846	0.696	1280	1693	1.3	2.4	6.805	A
3	632	158	1039	1179	0.536	630	545	0.7	1.2	6.750	A
4	1286	321	780	1557	0.826	1274	889	1.9	4.8	13.541	B

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	478	119	1543	579	0.826	476	525	4.1	4.6	36.736	E
2	1284	321	310	1842	0.697	1284	1709	2.4	2.4	6.946	A
3	632	158	1043	1176	0.537	632	550	1.2	1.2	6.834	A
4	1286	321	783	1555	0.827	1285	893	4.8	5.0	14.627	B

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	390	98	1273	746	0.523	404	431	4.6	1.2	11.862	B
2	1048	262	260	1876	0.559	1052	1416	2.4	1.4	4.735	A
3	516	129	857	1302	0.396	518	456	1.2	0.7	4.758	A
4	1050	263	642	1657	0.634	1062	733	5.0	2.0	6.827	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	327	82	1059	879	0.372	329	360	1.2	0.7	7.150	A
2	878	219	214	1909	0.460	880	1174	1.4	0.9	3.779	A
3	432	108	715	1398	0.309	433	378	0.7	0.5	3.860	A
4	879	220	536	1732	0.508	883	612	2.0	1.2	4.696	A

Committed - 2028 Base + Committed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	13.62	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	6	Arm 2	13.62	B

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)	Run automatically
D9	2028 Base + Committed	AM	ONE HOUR	07:45	09:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	452	100.000
2		ONE HOUR	✓	1490	100.000
3		ONE HOUR	✓	419	100.000
4		ONE HOUR	✓	865	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	299	71	82
	2	298	1	214	977
	3	122	201	9	87
	4	55	697	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.59	12.50	1.7	B	415	622
2	0.89	19.43	8.4	C	1367	2051
3	0.53	9.62	1.2	A	384	577
4	0.59	6.15	1.6	A	794	1191

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	340	85	765	1062	0.321	338	356	0.0	0.6	5.883	A
2	1122	280	206	1914	0.586	1115	898	0.0	1.6	5.167	A
3	315	79	1016	1194	0.264	314	305	0.0	0.4	4.486	A
4	651	163	473	1779	0.366	649	858	0.0	0.7	3.623	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	406	102	916	968	0.420	405	426	0.6	0.8	7.573	A
2	1339	335	247	1886	0.710	1335	1075	1.6	2.8	7.489	A
3	377	94	1217	1059	0.356	376	365	0.4	0.6	5.784	A
4	778	194	566	1711	0.454	776	1027	0.7	0.9	4.382	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	498	124	1121	841	0.592	494	518	0.8	1.7	12.205	B
2	1641	410	301	1848	0.888	1620	1314	2.8	7.8	16.945	C
3	461	115	1477	883	0.522	459	444	0.6	1.2	9.279	A
4	952	238	689	1623	0.587	950	1247	0.9	1.6	6.073	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	498	124	1124	839	0.593	498	522	1.7	1.7	12.497	B
2	1641	410	303	1847	0.888	1638	1319	7.8	8.4	19.432	C
3	461	115	1493	872	0.529	461	448	1.2	1.2	9.617	A
4	952	238	694	1619	0.588	952	1260	1.6	1.6	6.152	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	406	102	921	965	0.421	410	432	1.7	0.9	7.736	A
2	1339	335	249	1884	0.711	1361	1082	8.4	2.9	8.272	A
3	377	94	1240	1043	0.361	379	370	1.2	0.6	5.978	A
4	778	194	574	1706	0.456	780	1046	1.6	1.0	4.445	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	340	85	770	1059	0.321	342	359	0.9	0.6	5.965	A
2	1122	280	208	1913	0.586	1127	904	2.9	1.7	5.326	A
3	315	79	1027	1187	0.266	316	308	0.6	0.4	4.550	A
4	651	163	477	1775	0.367	652	866	1.0	0.7	3.658	A

Committed - 2028 Base + Committed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	10.82	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	3	Arm 1	10.82	B

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)	Run automatically
D10	2028 Base + Committed	PM	ONE HOUR	16:45	18:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	421	100.000
2		ONE HOUR	✓	1047	100.000
3		ONE HOUR	✓	503	100.000
4		ONE HOUR	✓	1174	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	253	119	48
	2	258	2	140	647
	3	141	238	3	121
	4	72	1007	95	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.75	25.10	3.1	D	386	579
2	0.62	5.50	1.7	A	961	1441
3	0.47	6.02	0.9	A	462	692
4	0.80	12.49	4.4	B	1077	1616

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	317	79	1008	911	0.348	315	354	0.0	0.6	6.559	A
2	788	197	199	1919	0.411	785	1123	0.0	0.7	3.392	A
3	379	95	717	1397	0.271	377	267	0.0	0.4	3.634	A
4	884	221	482	1772	0.499	879	612	0.0	1.1	4.438	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	378	95	1206	788	0.480	377	424	0.6	1.0	9.518	A
2	941	235	238	1892	0.498	940	1345	0.7	1.1	4.046	A
3	452	113	858	1301	0.347	452	320	0.4	0.5	4.365	A
4	1055	264	577	1703	0.620	1053	732	1.1	1.8	6.090	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	464	116	1471	623	0.744	456	518	1.0	2.9	22.538	C
2	1153	288	289	1856	0.621	1150	1638	1.1	1.7	5.438	A
3	554	138	1049	1172	0.472	552	390	0.5	0.9	5.970	A
4	1293	323	706	1610	0.803	1283	896	1.8	4.2	11.811	B

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	464	116	1480	617	0.751	463	520	2.9	3.1	25.099	D
2	1153	288	292	1854	0.622	1153	1651	1.7	1.7	5.497	A
3	554	138	1052	1170	0.473	554	393	0.9	0.9	6.018	A
4	1293	323	708	1609	0.803	1292	898	4.2	4.4	12.494	B

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	378	95	1219	780	0.485	387	426	3.1	1.1	10.193	B
2	941	235	243	1888	0.498	944	1363	1.7	1.1	4.095	A
3	452	113	863	1298	0.348	454	324	0.9	0.6	4.401	A
4	1055	264	580	1701	0.620	1066	737	4.4	1.8	6.355	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	317	79	1016	906	0.350	319	356	1.1	0.6	6.705	A
2	788	197	201	1917	0.411	790	1133	1.1	0.8	3.423	A
3	379	95	721	1394	0.272	379	270	0.6	0.4	3.660	A
4	884	221	485	1770	0.499	887	615	1.8	1.1	4.519	A

Committed - 2028 Base + Committed + Dev (Cont.), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	23.74	C

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	0	Arm 3	23.74	C

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)	Run automatically
D11	2028 Base + Committed + Dev (Cont.)	AM	ONE HOUR	07:45	09:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	464	100.000
2		ONE HOUR	✓	1546	100.000
3		ONE HOUR	✓	696	100.000
4		ONE HOUR	✓	865	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	299	83	82
	2	298	1	270	977
	3	166	434	9	87
	4	55	697	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.75	24.61	3.3	C	426	639
2	0.93	27.34	12.1	D	1419	2128
3	0.88	33.37	6.7	D	639	958
4	0.68	9.11	2.4	A	794	1191

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	349	87	939	954	0.366	347	388	0.0	0.7	6.984	A
2	1164	291	215	1908	0.610	1157	1071	0.0	1.8	5.491	A
3	524	131	1016	1195	0.439	521	355	0.0	0.9	5.851	A
4	651	163	679	1630	0.400	648	857	0.0	0.8	4.167	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	417	104	1124	839	0.497	415	465	0.7	1.1	10.010	B
2	1390	347	257	1879	0.740	1384	1282	1.8	3.2	8.327	A
3	626	156	1216	1060	0.590	623	425	0.9	1.6	9.015	A
4	778	194	813	1533	0.507	776	1026	0.8	1.2	5.404	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	511	128	1366	688	0.742	503	561	1.1	3.1	22.094	C
2	1702	426	312	1840	0.925	1672	1557	3.2	10.7	21.698	C
3	766	192	1469	889	0.862	750	516	1.6	5.7	25.970	D
4	952	238	979	1413	0.674	948	1239	1.2	2.3	8.732	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	511	128	1378	681	0.750	510	569	3.1	3.3	24.606	C
2	1702	426	316	1838	0.926	1697	1572	10.7	12.1	27.336	D
3	766	192	1490	874	0.876	762	522	5.7	6.7	33.372	D
4	952	238	995	1402	0.679	952	1258	2.3	2.4	9.108	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	417	104	1144	826	0.505	426	478	3.3	1.2	10.843	B
2	1390	347	262	1875	0.741	1425	1308	12.1	3.4	9.902	A
3	626	156	1251	1036	0.604	645	435	6.7	1.7	10.633	B
4	778	194	840	1513	0.514	782	1056	2.4	1.2	5.643	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	349	87	948	948	0.368	351	393	1.2	0.7	7.163	A
2	1164	291	217	1906	0.611	1170	1082	3.4	1.8	5.705	A
3	524	131	1028	1187	0.442	527	359	1.7	0.9	6.042	A
4	651	163	688	1623	0.401	653	868	1.2	0.8	4.234	A

Committed - 2028 Base + Committed + Dev (Cont.), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	16.63	C

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-3	Arm 1	16.63	C

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)	Run automatically
D12	2028 Base + Committed + Dev (Cont.)	PM	ONE HOUR	16:45	18:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	449	100.000
2		ONE HOUR	✓	1258	100.000
3		ONE HOUR	✓	602	100.000
4		ONE HOUR	✓	1174	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	253	147	48
	2	258	2	351	647
	3	153	325	3	121
	4	72	1007	95	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.89	51.89	6.6	F	412	618
2	0.76	8.66	3.3	A	1154	1732
3	0.57	7.33	1.3	A	552	829
4	0.84	16.45	5.7	C	1077	1616

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	338	85	1073	871	0.388	335	363	0.0	0.7	7.276	A
2	947	237	220	1905	0.497	943	1188	0.0	1.1	4.032	A
3	453	113	716	1397	0.324	451	446	0.0	0.5	3.928	A
4	884	221	556	1718	0.514	879	611	0.0	1.2	4.716	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	404	101	1284	740	0.546	401	434	0.7	1.3	11.494	B
2	1131	283	263	1874	0.603	1129	1422	1.1	1.6	5.207	A
3	541	135	858	1302	0.416	540	534	0.5	0.7	4.883	A
4	1055	264	666	1639	0.644	1052	732	1.2	2.0	6.740	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	494	124	1563	566	0.873	477	530	1.3	5.5	38.546	E
2	1385	346	315	1838	0.754	1379	1725	1.6	3.2	8.367	A
3	663	166	1046	1174	0.564	660	648	0.7	1.3	7.212	A
4	1293	323	814	1533	0.843	1279	893	2.0	5.4	14.934	B

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	494	124	1576	558	0.886	490	533	5.5	6.6	51.888	F
2	1385	346	322	1834	0.755	1385	1744	3.2	3.3	8.663	A
3	663	166	1052	1171	0.566	663	655	1.3	1.3	7.329	A
4	1293	323	817	1530	0.845	1291	898	5.4	5.7	16.450	C

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	404	101	1302	728	0.554	425	438	6.6	1.4	13.740	B
2	1131	283	275	1866	0.606	1137	1452	3.3	1.7	5.388	A
3	541	135	866	1296	0.418	544	546	1.3	0.7	4.965	A
4	1055	264	670	1636	0.645	1070	740	5.7	2.1	7.197	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	338	85	1082	865	0.391	341	365	1.4	0.7	7.505	A
2	947	237	223	1902	0.498	950	1200	1.7	1.1	4.097	A
3	453	113	722	1393	0.325	454	451	0.7	0.5	3.967	A
4	884	221	560	1716	0.515	887	616	2.1	1.2	4.821	A

Committed - 2028 Base + Committed + Dev (Trend), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	21.72	C

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	1	Arm 2	21.72	C

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)	Run automatically
D13	2028 Base + Committed + Dev (Trend)	AM	ONE HOUR	07:45	09:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	467	100.000
2		ONE HOUR	✓	1555	100.000
3		ONE HOUR	✓	637	100.000
4		ONE HOUR	✓	865	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	299	86	82
	2	298	1	279	977
	3	161	380	9	87
	4	55	697	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.72	20.79	2.9	C	429	643
2	0.93	29.27	13.0	D	1427	2140
3	0.80	22.24	4.1	C	585	877
4	0.66	8.28	2.2	A	794	1191

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	352	88	899	979	0.359	349	385	0.0	0.7	6.733	A
2	1171	293	217	1907	0.614	1163	1031	0.0	1.8	5.552	A
3	480	120	1016	1195	0.401	477	364	0.0	0.7	5.495	A
4	651	163	635	1661	0.392	648	857	0.0	0.7	4.038	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	420	105	1076	869	0.483	418	460	0.7	1.1	9.411	A
2	1398	349	260	1877	0.745	1392	1234	1.8	3.3	8.492	A
3	573	143	1216	1060	0.540	570	436	0.7	1.3	8.060	A
4	778	194	760	1571	0.495	776	1026	0.7	1.1	5.150	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	514	129	1311	722	0.712	508	557	1.1	2.7	19.267	C
2	1712	428	316	1837	0.932	1680	1503	3.3	11.4	22.770	C
3	701	175	1467	890	0.788	692	528	1.3	3.7	19.102	C
4	952	238	920	1456	0.654	948	1239	1.1	2.1	8.031	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	514	129	1320	717	0.717	514	564	2.7	2.9	20.791	C
2	1712	428	319	1835	0.933	1705	1515	11.4	13.0	29.272	D
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	952	238	932	1447	0.658	952	1257	2.1	2.2	8.276	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	420	105	1089	860	0.488	427	472	2.9	1.1	9.961	A
2	1398	349	264	1874	0.746	1436	1252	13.0	3.5	10.280	B
3	573	143	1253	1034	0.554	584	447	4.1	1.4	8.990	A
4	778	194	780	1557	0.499	782	1057	2.2	1.2	5.317	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	352	88	907	974	0.361	353	389	1.1	0.7	6.881	A
2	1171	293	219	1905	0.615	1177	1041	3.5	1.9	5.773	A
3	480	120	1028	1187	0.404	482	368	1.4	0.8	5.646	A
4	651	163	643	1656	0.393	653	868	1.2	0.7	4.095	A

Committed - 2028 Base + Committed + Dev (Trend), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	14.68	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-2	Arm 1	14.68	B

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)	Run automatically
D14	2028 Base + Committed + Dev (Trend)	PM	ONE HOUR	16:45	18:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	440	100.000
2		ONE HOUR	✓	1189	100.000
3		ONE HOUR	✓	584	100.000
4		ONE HOUR	✓	1174	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	253	138	48
	2	258	2	282	647
	3	151	309	3	121
	4	72	1007	95	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.85	42.34	5.3	E	404	606
2	0.71	7.31	2.6	A	1091	1637
3	0.55	7.05	1.2	A	536	804
4	0.84	15.56	5.4	C	1077	1616

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	331	83	1061	878	0.377	329	361	0.0	0.7	7.100	A
2	895	224	213	1909	0.469	891	1176	0.0	0.9	3.801	A
3	440	110	717	1397	0.315	438	388	0.0	0.5	3.873	A
4	884	221	543	1728	0.512	879	612	0.0	1.1	4.662	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	396	99	1270	748	0.529	393	432	0.7	1.2	10.972	B
2	1069	267	255	1880	0.569	1067	1408	0.9	1.4	4.766	A
3	525	131	858	1302	0.403	524	464	0.5	0.7	4.781	A
4	1055	264	650	1651	0.639	1052	732	1.1	1.9	6.612	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	484	121	1546	577	0.840	471	528	1.2	4.6	33.514	D
2	1309	327	307	1844	0.710	1304	1710	1.4	2.6	7.136	A
3	643	161	1047	1173	0.548	641	564	0.7	1.2	6.958	A
4	1293	323	794	1547	0.836	1280	894	1.9	5.1	14.267	B

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	484	121	1558	569	0.851	482	531	4.6	5.3	42.336	E
2	1309	327	313	1840	0.711	1309	1727	2.6	2.6	7.305	A
3	643	161	1052	1170	0.549	643	569	1.2	1.2	7.052	A
4	1293	323	797	1545	0.837	1292	898	5.1	5.4	15.564	C

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	396	99	1287	738	0.536	412	436	5.3	1.3	12.583	B
2	1069	267	264	1874	0.570	1074	1434	2.6	1.5	4.883	A
3	525	131	865	1297	0.405	527	473	1.2	0.7	4.849	A
4	1055	264	654	1648	0.640	1069	738	5.4	2.0	7.024	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	331	83	1070	873	0.380	334	364	1.3	0.7	7.306	A
2	895	224	216	1907	0.469	897	1188	1.5	1.0	3.851	A
3	440	110	721	1394	0.315	441	391	0.7	0.5	3.907	A
4	884	221	546	1725	0.512	887	616	2.0	1.2	4.763	A

Committed - 2028 Base + Committed + Dev (Vision), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	20.38	C

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	2	Arm 2	20.38	C

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)	Run automatically
D15	2028 Base + Committed + Dev (Vision)	AM	ONE HOUR	07:45	09:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	466	100.000
2		ONE HOUR	✓	1548	100.000
3		ONE HOUR	✓	613	100.000
4		ONE HOUR	✓	865	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	299	85	82
	2	298	1	272	977
	3	157	360	9	87
	4	55	697	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.70	19.44	2.7	C	428	641
2	0.93	27.94	12.4	D	1420	2131
3	0.77	19.52	3.5	C	562	844
4	0.65	7.98	2.1	A	794	1191

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	351	88	884	988	0.355	348	382	0.0	0.6	6.628	A
2	1165	291	216	1907	0.611	1158	1016	0.0	1.8	5.510	A
3	461	115	1016	1195	0.386	459	358	0.0	0.7	5.364	A
4	651	163	617	1674	0.389	648	857	0.0	0.7	3.987	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	419	105	1058	880	0.476	417	457	0.6	1.1	9.174	A
2	1392	348	259	1877	0.741	1386	1217	1.8	3.2	8.378	A
3	551	138	1216	1060	0.520	549	429	0.7	1.2	7.728	A
4	778	194	739	1587	0.490	776	1026	0.7	1.1	5.052	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	513	128	1291	735	0.698	507	553	1.1	2.6	18.196	C
2	1704	426	315	1838	0.927	1673	1482	3.2	10.9	22.058	C
3	675	169	1469	889	0.759	667	520	1.2	3.2	17.227	C
4	952	238	895	1474	0.646	949	1240	1.1	2.0	7.754	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	513	128	1298	731	0.702	513	560	2.6	2.7	19.438	C
2	1704	426	318	1836	0.928	1699	1493	10.9	12.4	27.941	D
3	675	169	1490	874	0.772	674	526	3.2	3.5	19.522	C
4	952	238	906	1466	0.650	952	1258	2.0	2.1	7.977	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	419	105	1070	873	0.480	425	468	2.7	1.1	9.646	A
2	1392	348	263	1875	0.742	1427	1232	12.4	3.5	10.005	B
3	551	138	1251	1036	0.532	560	439	3.5	1.3	8.477	A
4	778	194	756	1574	0.494	781	1055	2.1	1.1	5.199	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	351	88	891	984	0.357	353	386	1.1	0.7	6.769	A
2	1165	291	218	1905	0.612	1172	1025	3.5	1.8	5.723	A
3	461	115	1028	1187	0.389	464	362	1.3	0.7	5.496	A
4	651	163	624	1669	0.390	653	867	1.1	0.7	4.041	A

Committed - 2028 Base + Committed + Dev (Vision), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	14.14	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-1	Arm 1	14.14	B

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)	Run automatically
D16	2028 Base + Committed + Dev (Vision)	PM	ONE HOUR	16:45	18:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	438	100.000
2		ONE HOUR	✓	1175	100.000
3		ONE HOUR	✓	576	100.000
4		ONE HOUR	✓	1174	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	253	136	48
	2	258	2	268	647
	3	150	302	3	121
	4	72	1007	95	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.84	39.75	5.0	E	402	603
2	0.70	7.08	2.5	A	1078	1617
3	0.54	6.94	1.2	A	529	793
4	0.83	15.20	5.3	C	1077	1616

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	330	82	1056	881	0.374	327	361	0.0	0.6	7.040	A
2	885	221	212	1910	0.463	881	1171	0.0	0.9	3.756	A
3	434	108	717	1397	0.310	432	376	0.0	0.5	3.847	A
4	884	221	537	1732	0.510	879	612	0.0	1.1	4.640	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	394	98	1263	752	0.523	392	432	0.6	1.2	10.807	B
2	1056	264	253	1881	0.562	1055	1402	0.9	1.4	4.683	A
3	518	129	858	1302	0.398	517	450	0.5	0.7	4.736	A
4	1055	264	643	1656	0.637	1052	732	1.1	1.9	6.555	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	482	121	1539	581	0.830	469	527	1.2	4.4	32.047	D
2	1294	323	305	1845	0.701	1289	1703	1.4	2.5	6.927	A
3	634	159	1048	1173	0.541	632	547	0.7	1.2	6.848	A
4	1293	323	786	1553	0.832	1280	894	1.9	5.0	13.986	B

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	482	121	1550	574	0.840	480	529	4.4	5.0	39.751	E
2	1294	323	310	1841	0.703	1294	1720	2.5	2.5	7.079	A
3	634	159	1052	1170	0.542	634	552	1.2	1.2	6.937	A
4	1293	323	788	1551	0.833	1292	898	5.0	5.3	15.199	C

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	394	98	1280	742	0.531	409	435	5.0	1.3	12.261	B
2	1056	264	262	1875	0.563	1061	1427	2.5	1.4	4.791	A
3	518	129	864	1297	0.399	520	458	1.2	0.7	4.800	A
4	1055	264	646	1653	0.638	1068	738	5.3	2.0	6.950	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	330	82	1064	876	0.376	332	363	1.3	0.7	7.241	A
2	885	221	214	1908	0.464	886	1182	1.4	0.9	3.806	A
3	434	108	721	1394	0.311	435	379	0.7	0.5	3.881	A
4	884	221	540	1730	0.511	887	616	2.0	1.2	4.740	A

Committed - 2033 Base + Committed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	13.90	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	6	Arm 2	13.90	B

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)	Run automatically
D17	2033 Base + Committed	AM	ONE HOUR	07:45	09:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	454	100.000
2		ONE HOUR	✓	1495	100.000
3		ONE HOUR	✓	421	100.000
4		ONE HOUR	✓	868	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	301	71	82
	2	300	1	214	980
	3	123	202	9	87
	4	55	700	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.60	12.68	1.7	B	417	625
2	0.89	19.90	8.6	C	1372	2058
3	0.53	9.75	1.2	A	386	579
4	0.59	6.21	1.6	A	796	1195

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	342	85	768	1060	0.322	340	358	0.0	0.6	5.911	A
2	1126	281	206	1914	0.588	1119	902	0.0	1.6	5.192	A
3	317	79	1020	1192	0.266	315	305	0.0	0.4	4.507	A
4	653	163	475	1776	0.368	651	860	0.0	0.7	3.637	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	408	102	920	966	0.423	407	428	0.6	0.9	7.627	A
2	1344	336	247	1886	0.713	1339	1080	1.6	2.8	7.548	A
3	378	95	1221	1056	0.358	378	365	0.4	0.6	5.825	A
4	780	195	569	1709	0.457	779	1029	0.7	0.9	4.406	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	500	125	1125	838	0.596	497	521	0.9	1.7	12.371	B
2	1646	412	301	1848	0.891	1625	1320	2.8	8.0	17.259	C
3	464	116	1482	880	0.527	461	444	0.6	1.2	9.399	A
4	956	239	693	1620	0.590	953	1250	0.9	1.6	6.129	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	500	125	1128	836	0.598	500	526	1.7	1.7	12.680	B
2	1646	412	303	1847	0.891	1644	1325	8.0	8.6	19.903	C
3	464	116	1499	869	0.534	463	448	1.2	1.2	9.755	A
4	956	239	699	1616	0.592	956	1263	1.6	1.6	6.212	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	408	102	925	962	0.424	412	435	1.7	0.9	7.796	A
2	1344	336	249	1884	0.713	1367	1088	8.6	3.0	8.369	A
3	378	95	1245	1040	0.364	381	370	1.2	0.6	6.029	A
4	780	195	577	1703	0.458	783	1049	1.6	1.0	4.472	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	342	85	773	1057	0.323	343	361	0.9	0.6	5.994	A
2	1126	281	208	1913	0.588	1131	909	3.0	1.7	5.354	A
3	317	79	1031	1185	0.268	318	308	0.6	0.4	4.570	A
4	653	163	480	1773	0.369	655	869	1.0	0.7	3.669	A

Committed - 2033 Base + Committed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	10.70	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	4	Arm 1	10.70	B

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)	Run automatically
D18	2033 Base + Committed	PM	ONE HOUR	16:45	18:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	411	100.000
2		ONE HOUR	✓	1051	100.000
3		ONE HOUR	✓	504	100.000
4		ONE HOUR	✓	1178	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	254	119	37
	2	259	2	141	649
	3	141	239	3	121
	4	72	1010	96	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.74	24.02	2.9	C	377	566
2	0.62	5.47	1.7	A	964	1447
3	0.47	5.97	0.9	A	462	694
4	0.81	12.73	4.5	B	1081	1621

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	309	77	1011	909	0.340	307	355	0.0	0.6	6.516	A
2	791	198	192	1924	0.411	788	1127	0.0	0.7	3.385	A
3	379	95	711	1401	0.271	378	269	0.0	0.4	3.622	A
4	887	222	484	1770	0.501	882	605	0.0	1.1	4.458	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	369	92	1211	785	0.471	368	425	0.6	1.0	9.397	A
2	945	236	229	1898	0.498	944	1349	0.7	1.1	4.035	A
3	453	113	851	1306	0.347	452	322	0.4	0.5	4.343	A
4	1059	265	579	1702	0.622	1056	724	1.1	1.8	6.134	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	453	113	1476	620	0.730	445	519	1.0	2.7	22.029	C
2	1157	289	278	1864	0.621	1154	1643	1.1	1.7	5.415	A
3	555	139	1041	1178	0.471	553	392	0.5	0.9	5.927	A
4	1297	324	708	1609	0.806	1287	886	1.8	4.3	12.006	B

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	453	113	1486	614	0.737	452	521	2.7	2.9	24.018	C
2	1157	289	282	1862	0.622	1157	1656	1.7	1.7	5.472	A
3	555	139	1044	1176	0.472	555	395	0.9	0.9	5.971	A
4	1297	324	710	1607	0.807	1296	888	4.3	4.5	12.731	B

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	369	92	1224	777	0.476	377	427	2.9	1.0	10.020	B
2	945	236	234	1895	0.499	948	1367	1.7	1.1	4.081	A
3	453	113	855	1303	0.348	455	326	0.9	0.6	4.379	A
4	1059	265	582	1700	0.623	1069	728	4.5	1.9	6.410	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	309	77	1019	904	0.342	311	357	1.0	0.6	6.658	A
2	791	198	194	1923	0.412	793	1137	1.1	0.8	3.416	A
3	379	95	715	1398	0.271	380	271	0.6	0.4	3.646	A
4	887	222	486	1769	0.501	890	609	1.9	1.1	4.541	A

Committed - 2033 Base + Committed + Dev (Cont.), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	24.56	C

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	0	Arm 3	24.56	C

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)	Run automatically
D19	2033 Base + Committed + Dev (Cont.)	AM	ONE HOUR	07:45	09:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	466	100.000
2		ONE HOUR	✓	1552	100.000
3		ONE HOUR	✓	698	100.000
4		ONE HOUR	✓	868	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	301	83	82
	2	300	1	271	980
	3	167	435	9	87
	4	55	700	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.76	25.28	3.4	D	428	641
2	0.93	28.33	12.6	D	1424	2136
3	0.88	34.76	6.9	D	640	961
4	0.68	9.23	2.4	A	796	1195

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	351	88	942	952	0.369	348	391	0.0	0.7	7.024	A
2	1168	292	215	1908	0.612	1161	1075	0.0	1.8	5.523	A
3	525	131	1020	1192	0.441	522	356	0.0	0.9	5.886	A
4	653	163	682	1627	0.402	650	860	0.0	0.8	4.186	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	419	105	1128	837	0.501	417	467	0.7	1.2	10.104	B
2	1395	349	257	1879	0.743	1390	1287	1.8	3.2	8.415	A
3	627	157	1220	1057	0.594	625	426	0.9	1.6	9.111	A
4	780	195	816	1531	0.510	779	1029	0.8	1.2	5.441	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	513	128	1370	686	0.748	505	564	1.2	3.2	22.578	C
2	1709	427	312	1840	0.929	1677	1562	3.2	11.1	22.240	C
3	769	192	1473	886	0.868	751	516	1.6	5.9	26.690	D
4	956	239	983	1411	0.678	951	1242	1.2	2.3	8.838	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	513	128	1382	678	0.756	512	572	3.2	3.4	25.277	D
2	1709	427	316	1838	0.930	1703	1579	11.1	12.6	28.334	D
3	769	192	1495	871	0.882	764	523	5.9	6.9	34.757	D
4	956	239	999	1399	0.683	955	1260	2.3	2.4	9.232	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	419	105	1149	824	0.509	428	482	3.4	1.3	10.984	B
2	1395	349	262	1875	0.744	1432	1314	12.6	3.5	10.109	B
3	627	157	1257	1032	0.608	648	437	6.9	1.8	10.857	B
4	780	195	845	1510	0.517	785	1060	2.4	1.2	5.693	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	351	88	951	946	0.371	353	395	1.3	0.7	7.206	A
2	1168	292	217	1906	0.613	1175	1087	3.5	1.9	5.741	A
3	525	131	1032	1184	0.444	529	360	1.8	0.9	6.084	A
4	653	163	691	1621	0.403	655	870	1.2	0.8	4.254	A

Committed - 2033 Base + Committed + Dev (Cont.), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	17.17	C

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-4	Arm 1	17.17	C

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)	Run automatically
D20	2033 Base + Committed + Dev (Cont.)	PM	ONE HOUR	16:45	18:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	451	100.000
2		ONE HOUR	✓	1261	100.000
3		ONE HOUR	✓	603	100.000
4		ONE HOUR	✓	1178	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	254	147	49
	2	259	2	351	649
	3	154	325	3	121
	4	72	1010	96	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.89	54.62	7.0	F	414	621
2	0.76	8.75	3.3	A	1157	1736
3	0.57	7.39	1.3	A	553	830
4	0.85	16.85	5.8	C	1081	1621

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	340	85	1076	869	0.391	337	364	0.0	0.7	7.318	A
2	949	237	221	1904	0.499	945	1191	0.0	1.1	4.046	A
3	454	113	719	1395	0.325	452	447	0.0	0.5	3.940	A
4	887	222	558	1717	0.516	882	614	0.0	1.2	4.737	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	405	101	1287	737	0.550	403	436	0.7	1.3	11.627	B
2	1134	283	265	1873	0.605	1131	1426	1.1	1.6	5.234	A
3	542	136	861	1299	0.417	541	535	0.5	0.7	4.904	A
4	1059	265	668	1638	0.647	1056	735	1.2	2.0	6.794	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	497	124	1566	564	0.881	479	532	1.3	5.8	39.873	E
2	1388	347	317	1837	0.756	1382	1728	1.6	3.2	8.444	A
3	664	166	1050	1171	0.567	662	649	0.7	1.3	7.267	A
4	1297	324	816	1531	0.847	1283	896	2.0	5.5	15.229	C

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	497	124	1580	556	0.894	492	535	5.8	7.0	54.622	F
2	1388	347	324	1832	0.758	1388	1748	3.2	3.3	8.752	A
3	664	166	1056	1168	0.569	664	655	1.3	1.3	7.387	A
4	1297	324	819	1529	0.848	1296	901	5.5	5.8	16.850	C

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	405	101	1306	726	0.559	428	440	7.0	1.4	14.078	B
2	1134	283	277	1865	0.608	1140	1457	3.3	1.7	5.423	A
3	542	136	870	1293	0.419	544	547	1.3	0.8	4.987	A
4	1059	265	672	1635	0.648	1074	742	5.8	2.1	7.277	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	340	85	1085	863	0.393	342	367	1.4	0.7	7.559	A
2	949	237	224	1901	0.499	952	1203	1.7	1.1	4.113	A
3	454	113	725	1391	0.326	455	451	0.8	0.5	3.979	A
4	887	222	561	1714	0.517	890	618	2.1	1.2	4.846	A

Committed - 2033 Base + Committed + Dev (Trend), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	22.47	C

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	1	Arm 2	22.47	C

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)	Run automatically
D21	2033 Base + Committed + Dev (Trend)	AM	ONE HOUR	07:45	09:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	470	100.000
2		ONE HOUR	✓	1561	100.000
3		ONE HOUR	✓	638	100.000
4		ONE HOUR	✓	868	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	301	87	82
	2	300	1	280	980
	3	161	381	9	87
	4	55	700	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.72	21.40	3.0	C	431	647
2	0.94	30.51	13.7	D	1432	2149
3	0.81	22.77	4.2	C	585	878
4	0.66	8.37	2.2	A	796	1195

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	354	88	902	977	0.362	351	386	0.0	0.7	6.773	A
2	1175	294	218	1906	0.617	1168	1035	0.0	1.8	5.588	A
3	480	120	1020	1192	0.403	477	366	0.0	0.7	5.521	A
4	653	163	637	1660	0.394	651	860	0.0	0.7	4.053	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	423	106	1080	866	0.488	421	462	0.7	1.1	9.511	A
2	1403	351	261	1876	0.748	1397	1240	1.8	3.3	8.594	A
3	574	143	1220	1057	0.543	571	438	0.7	1.3	8.123	A
4	780	195	763	1569	0.497	779	1029	0.7	1.1	5.180	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	517	129	1316	720	0.719	511	559	1.1	2.8	19.745	C
2	1719	430	317	1837	0.936	1685	1509	3.3	11.8	23.423	C
3	702	176	1472	887	0.792	692	530	1.3	3.8	19.433	C
4	956	239	923	1454	0.657	952	1241	1.1	2.1	8.099	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	517	129	1324	714	0.724	517	566	2.8	3.0	21.397	C
2	1719	430	320	1835	0.937	1711	1521	11.8	13.7	30.514	D
3	702	176	1495	872	0.806	701	537	3.8	4.2	22.771	C
4	956	239	935	1445	0.661	955	1260	2.1	2.2	8.369	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	423	106	1093	858	0.492	430	475	3.0	1.2	10.096	B
2	1403	351	265	1873	0.749	1444	1258	13.7	3.6	10.536	B
3	574	143	1260	1030	0.557	585	449	4.2	1.4	9.112	A
4	780	195	783	1554	0.502	784	1061	2.2	1.2	5.356	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	354	88	910	972	0.364	356	391	1.2	0.7	6.925	A
2	1175	294	220	1904	0.617	1182	1045	3.6	1.9	5.817	A
3	480	120	1032	1184	0.406	483	370	1.4	0.8	5.672	A
4	653	163	645	1654	0.395	655	870	1.2	0.7	4.113	A

Committed - 2033 Base + Committed + Dev (Trend), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	14.98	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-2	Arm 1	14.98	B

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)	Run automatically
D22	2033 Base + Committed + Dev (Trend)	PM	ONE HOUR	16:45	18:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	442	100.000
2		ONE HOUR	✓	1192	100.000
3		ONE HOUR	✓	583	100.000
4		ONE HOUR	✓	1178	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	254	138	49
	2	259	2	282	649
	3	152	310	0	121
	4	72	1010	96	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.86	43.75	5.5	E	406	608
2	0.71	7.34	2.6	A	1094	1641
3	0.55	7.08	1.3	A	535	802
4	0.84	15.83	5.5	C	1081	1621

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	333	83	1062	877	0.379	330	363	0.0	0.7	7.128	A
2	897	224	212	1910	0.470	894	1180	0.0	0.9	3.807	A
3	439	110	720	1395	0.315	437	386	0.0	0.5	3.876	A
4	887	222	543	1728	0.513	882	614	0.0	1.2	4.678	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	397	99	1271	747	0.532	395	434	0.7	1.2	11.060	B
2	1072	268	254	1881	0.570	1070	1412	0.9	1.4	4.778	A
3	524	131	861	1299	0.403	523	462	0.5	0.7	4.791	A
4	1059	265	650	1651	0.642	1056	735	1.2	1.9	6.649	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	487	122	1548	575	0.846	472	530	1.2	4.7	34.280	D
2	1312	328	306	1845	0.711	1308	1715	1.4	2.6	7.167	A
3	642	160	1052	1171	0.548	640	562	0.7	1.2	6.983	A
4	1297	324	794	1547	0.839	1284	897	1.9	5.2	14.467	B

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	487	122	1560	568	0.857	484	533	4.7	5.5	43.750	E
2	1312	328	311	1841	0.713	1312	1733	2.6	2.6	7.339	A
3	642	160	1056	1167	0.550	642	567	1.2	1.3	7.078	A
4	1297	324	797	1545	0.840	1296	901	5.2	5.5	15.827	C

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	397	99	1289	736	0.540	414	438	5.5	1.3	12.764	B
2	1072	268	264	1874	0.572	1076	1439	2.6	1.5	4.895	A
3	524	131	869	1294	0.405	526	471	1.3	0.7	4.860	A
4	1059	265	654	1648	0.643	1073	741	5.5	2.0	7.074	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	333	83	1071	872	0.382	335	365	1.3	0.7	7.341	A
2	897	224	215	1908	0.470	899	1191	1.5	1.0	3.859	A
3	439	110	725	1392	0.315	440	390	0.7	0.5	3.913	A
4	887	222	546	1725	0.514	890	618	2.0	1.2	4.783	A

Committed - 2033 Base + Committed + Dev (Vision), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	20.92	C

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	1	Arm 2	20.92	C

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)	Run automatically
D23	2033 Base + Committed + Dev (Vision)	AM	ONE HOUR	07:45	09:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	468	100.000
2		ONE HOUR	✓	1553	100.000
3		ONE HOUR	✓	614	100.000
4		ONE HOUR	✓	868	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	301	85	82
	2	300	1	272	980
	3	157	361	9	87
	4	55	700	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.71	19.88	2.8	C	429	644
2	0.93	28.80	12.8	D	1425	2138
3	0.78	19.95	3.6	C	563	845
4	0.65	8.06	2.1	A	796	1195

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	352	88	887	986	0.357	350	383	0.0	0.6	6.664	A
2	1169	292	216	1907	0.613	1162	1020	0.0	1.8	5.536	A
3	462	116	1020	1192	0.388	459	358	0.0	0.7	5.386	A
4	653	163	620	1673	0.391	651	860	0.0	0.7	4.002	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	421	105	1062	878	0.479	419	459	0.6	1.1	9.253	A
2	1396	349	259	1877	0.744	1390	1222	1.8	3.2	8.451	A
3	552	138	1220	1057	0.522	550	429	0.7	1.2	7.787	A
4	780	195	742	1585	0.492	779	1029	0.7	1.1	5.081	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	515	129	1295	733	0.703	509	555	1.1	2.6	18.550	C
2	1710	427	315	1838	0.930	1678	1489	3.2	11.2	22.521	C
3	676	169	1473	886	0.763	668	520	1.2	3.3	17.518	C
4	956	239	898	1472	0.649	952	1243	1.1	2.1	7.832	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	515	129	1303	728	0.708	515	562	2.6	2.8	19.875	C
2	1710	427	318	1836	0.931	1704	1499	11.2	12.8	28.797	D
3	676	169	1495	871	0.776	675	526	3.3	3.6	19.953	C
4	956	239	909	1464	0.653	955	1261	2.1	2.1	8.064	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	421	105	1074	870	0.483	427	470	2.8	1.1	9.746	A
2	1396	349	263	1875	0.745	1433	1238	12.8	3.5	10.180	B
3	552	138	1257	1032	0.535	561	439	3.6	1.3	8.576	A
4	780	195	759	1572	0.496	784	1059	2.1	1.1	5.235	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	352	88	894	982	0.359	354	387	1.1	0.7	6.806	A
2	1169	292	218	1905	0.614	1176	1030	3.5	1.9	5.755	A
3	462	116	1032	1184	0.390	465	362	1.3	0.7	5.525	A
4	653	163	627	1667	0.392	655	870	1.1	0.7	4.059	A

Committed - 2033 Base + Committed + Dev (Vision), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	14.59	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-2	Arm 1	14.59	B

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)	Run automatically
D24	2033 Base + Committed + Dev (Vision)	PM	ONE HOUR	16:45	18:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	440	100.000
2		ONE HOUR	✓	1178	100.000
3		ONE HOUR	✓	578	100.000
4		ONE HOUR	✓	1178	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	254	136	49
	2	259	2	268	649
	3	151	303	3	121
	4	72	1010	96	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.85	41.80	5.3	E	404	606
2	0.70	7.14	2.5	A	1081	1621
3	0.55	7.00	1.2	A	530	796
4	0.84	15.59	5.4	C	1081	1621

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	331	83	1059	879	0.377	329	362	0.0	0.7	7.089	A
2	887	222	213	1909	0.465	883	1175	0.0	0.9	3.768	A
3	435	109	720	1395	0.312	433	377	0.0	0.5	3.862	A
4	887	222	539	1731	0.512	882	614	0.0	1.1	4.663	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	396	99	1268	749	0.528	393	433	0.7	1.2	10.941	B
2	1059	265	255	1880	0.563	1057	1406	0.9	1.4	4.706	A
3	520	130	861	1299	0.400	519	451	0.5	0.7	4.762	A
4	1059	265	645	1654	0.640	1056	735	1.1	1.9	6.616	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	484	121	1544	578	0.838	471	529	1.2	4.6	33.202	D
2	1297	324	307	1844	0.703	1293	1708	1.4	2.5	6.982	A
3	636	159	1052	1170	0.544	634	548	0.7	1.2	6.910	A
4	1297	324	789	1550	0.837	1284	897	1.9	5.2	14.285	B

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	484	121	1556	570	0.849	482	532	4.6	5.3	41.801	E
2	1297	324	313	1840	0.705	1297	1725	2.5	2.5	7.141	A
3	636	159	1057	1167	0.545	636	553	1.2	1.2	7.002	A
4	1297	324	792	1549	0.838	1296	901	5.2	5.4	15.590	C

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	396	99	1285	739	0.535	411	437	5.3	1.3	12.523	B
2	1059	265	264	1874	0.565	1063	1432	2.5	1.4	4.817	A
3	520	130	868	1294	0.401	522	459	1.2	0.7	4.826	A
4	1059	265	649	1651	0.641	1073	741	5.4	2.0	7.029	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	331	83	1068	874	0.379	334	364	1.3	0.7	7.292	A
2	887	222	216	1907	0.465	889	1186	1.4	0.9	3.816	A
3	435	109	724	1392	0.313	436	380	0.7	0.5	3.897	A
4	887	222	542	1728	0.513	890	618	2.0	1.2	4.765	A

Junctions 10

ARCADY 10 - Roundabout Module

Version: 10.1.0.1820
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For sales and distribution information, program advice and maintenance, contact TRL Software:
+44 (0)1344 379777 software@trl.co.uk trlsoftware.com

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Filename: A19_A645 - Committed (%HV + Additiobal Comm).j10
Path: Y:\PROJECTS\16146ITY Land West of Kellington Lane\Tech\Junction Assessments\Arcady\A19_A645 Weeland Road
Report generation date: 20/11/2024 15:15:34

»Committed - Base + Committed, AM
»Committed - Base + Committed, PM
»Committed - Base + Committed + Dev (Cont.), AM
»Committed - Base + Committed + Dev (Cont.), PM
»Committed - Base + Committed + Dev (Trend), AM
»Committed - Base + Committed + Dev (Trend), PM
»Committed - Base + Committed + Dev (Vision), AM
»Committed - Base + Committed + Dev (Vision), PM
»Committed - 2028 Base + Committed, AM
»Committed - 2028 Base + Committed, PM
»Committed - 2028 Base + Committed + Dev (Cont.), AM
»Committed - 2028 Base + Committed + Dev (Cont.), PM
»Committed - 2028 Base + Committed + Dev (Trend), AM
»Committed - 2028 Base + Committed + Dev (Trend), PM
»Committed - 2028 Base + Committed + Dev (Vision), AM
»Committed - 2028 Base + Committed + Dev (Vision), PM
»Committed - 2033 Base + Committed, AM
»Committed - 2033 Base + Committed, PM
»Committed - 2033 Base + Committed + Dev (Cont.), AM
»Committed - 2033 Base + Committed + Dev (Cont.), PM
»Committed - 2033 Base + Committed + Dev (Trend), AM
»Committed - 2033 Base + Committed + Dev (Trend), PM
»Committed - 2033 Base + Committed + Dev (Vision), AM
»Committed - 2033 Base + Committed + Dev (Vision), PM

Summary of junction performance

	AM							PM						
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity
	Committed - Base + Committed													
Arm 1	D1	1.6	12.12	0.58	B	13.09	7 % [Arm 2]	D2	2.9	23.99	0.74	C	10.53	4 % [Arm 1]
Arm 2		8.0	18.51	0.88	C				1.7	5.43	0.62	A		
Arm 3		1.2	9.39	0.52	A				0.9	5.96	0.47	A		
Arm 4		1.6	6.06	0.58	A				4.3	12.22	0.80	B		
	Committed - Base + Committed + Dev (Cont.)													
Arm 1	D3	3.1	23.33	0.74	C	22.47	1 % [Arm 3]	D4	6.1	48.28	0.87	E	15.91	-3 % [Arm 1]
Arm 2		11.4	25.73	0.92	D				3.2	8.53	0.75	A		
Arm 3		6.3	31.46	0.87	D				1.3	7.23	0.56	A		
Arm 4		2.3	8.94	0.67	A				5.5	15.94	0.84	C		

	Committed - Base + Committed + Dev (Trend)													
Arm 1	D5	2.7	19.79	0.70	C	20.62	2 % [Arm 2]	D6	4.9	39.33	0.84	E	14.05	-1 % [Arm 1]
Arm 2		12.3	27.65	0.93	D				2.6	7.20	0.71	A		
Arm 3		3.9	21.06	0.79	C				1.2	6.96	0.54	A		
Arm 4		2.1	8.11	0.65	A				5.2	15.10	0.83	C		
	Committed - Base + Committed + Dev (Vision)													
Arm 1	D7	2.5	18.55	0.69	C	19.32	2 % [Arm 2]	D8	4.7	37.38	0.83	E	13.64	-1 % [Arm 1]
Arm 2		11.6	26.28	0.92	D				2.5	6.99	0.70	A		
Arm 3		3.3	18.59	0.76	C				1.2	6.86	0.54	A		
Arm 4		2.0	7.82	0.64	A				5.1	14.80	0.83	B		
	Committed - 2028 Base + Committed													
Arm 1	D9	1.7	12.55	0.59	B	13.73	6 % [Arm 2]	D10	3.1	25.42	0.75	D	10.92	3 % [Arm 1]
Arm 2		8.5	19.62	0.89	C				1.8	5.52	0.62	A		
Arm 3		1.2	9.65	0.53	A				0.9	6.04	0.47	A		
Arm 4		1.6	6.17	0.59	A				4.4	12.62	0.81	B		
	Committed - 2028 Base + Committed + Dev (Cont.)													
Arm 1	D11	3.4	24.79	0.75	C	23.98	0 % [Arm 3]	D12	6.8	53.01	0.89	F	16.87	-3 % [Arm 1]
Arm 2		12.3	27.66	0.93	D				3.3	8.72	0.76	A		
Arm 3		6.7	33.71	0.88	D				1.3	7.36	0.57	A		
Arm 4		2.4	9.15	0.68	A				5.8	16.67	0.85	C		
	Committed - 2028 Base + Committed + Dev (Trend)													
Arm 1	D13	2.9	20.93	0.72	C	21.94	1 % [Arm 2]	D14	5.4	43.15	0.85	E	14.86	-2 % [Arm 1]
Arm 2		13.2	29.64	0.93	D				2.6	7.35	0.71	A		
Arm 3		4.2	22.40	0.80	C				1.3	7.08	0.55	A		
Arm 4		2.2	8.31	0.66	A				5.5	15.76	0.84	C		
	Committed - 2028 Base + Committed + Dev (Vision)													
Arm 1	D15	2.7	19.56	0.70	C	20.58	2 % [Arm 2]	D16	5.1	40.48	0.84	E	14.32	-1 % [Arm 1]
Arm 2		12.6	28.28	0.93	D				2.5	7.12	0.70	A		
Arm 3		3.5	19.65	0.77	C				1.2	6.97	0.54	A		
Arm 4		2.1	8.01	0.65	A				5.3	15.39	0.84	C		
	Committed - 2033 Base + Committed													
Arm 1	D17	1.7	12.73	0.60	B	14.01	5 % [Arm 2]	D18	2.9	24.31	0.74	C	10.79	4 % [Arm 1]
Arm 2		8.7	20.10	0.89	C				1.8	5.50	0.62	A		
Arm 3		1.2	9.79	0.53	A				0.9	5.99	0.47	A		
Arm 4		1.6	6.23	0.59	A				4.5	12.86	0.81	B		
	Committed - 2033 Base + Committed + Dev (Cont.)													
Arm 1	D19	3.5	25.47	0.76	D	24.81	0 % [Arm 3]	D20	7.2	55.83	0.90	F	17.42	-4 % [Arm 1]
Arm 2		12.8	28.68	0.93	D				3.3	8.82	0.76	A		
Arm 3		7.0	35.11	0.88	E				1.4	7.42	0.57	A		
Arm 4		2.4	9.28	0.68	A				5.9	17.08	0.85	C		
	Committed - 2033 Base + Committed + Dev (Trend)													
Arm 1	D21	3.0	21.54	0.73	C	22.70	1 % [Arm 2]	D22	5.6	44.61	0.86	E	15.18	-2 % [Arm 1]
Arm 2		13.8	30.90	0.94	D				2.7	7.38	0.71	A		
Arm 3		4.3	22.94	0.81	C				1.3	7.11	0.55	A		
Arm 4		2.2	8.41	0.66	A				5.6	16.03	0.84	C		
	Committed - 2033 Base + Committed + Dev (Vision)													
Arm 1	D23	2.8	20.00	0.71	C	21.12	1 % [Arm 2]	D24	5.3	42.33	0.85	E	14.71	-2 % [Arm 1]
Arm 2		13.0	29.15	0.93	D				2.6	7.18	0.71	A		
Arm 3		3.6	20.09	0.78	C				1.2	7.03	0.55	A		
Arm 4		2.1	8.10	0.65	A				5.5	15.72	0.84	C		

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables 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. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	Land West of Kellington Lane
Location	A19/A645
Site number	
Date	20/11/2024
Version	
Status	Committed
Identifier	
Client	Banks Group
Jobnumber	ITY16146
Enumerator	JW
Description	%HV

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

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75					✓	Delay	0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Base + Committed	AM	ONE HOUR	07:45	09:15	15	✓
D2	Base + Committed	PM	ONE HOUR	16:45	18:15	15	✓
D3	Base + Committed + Dev (Cont.)	AM	ONE HOUR	07:45	09:15	15	✓
D4	Base + Committed + Dev (Cont.)	PM	ONE HOUR	16:45	18:15	15	✓
D5	Base + Committed + Dev (Trend)	AM	ONE HOUR	07:45	09:15	15	✓
D6	Base + Committed + Dev (Trend)	PM	ONE HOUR	16:45	18:15	15	✓
D7	Base + Committed + Dev (Vision)	AM	ONE HOUR	07:45	09:15	15	✓
D8	Base + Committed + Dev (Vision)	PM	ONE HOUR	16:45	18:15	15	✓
D9	2028 Base + Committed	AM	ONE HOUR	07:45	09:15	15	✓
D10	2028 Base + Committed	PM	ONE HOUR	16:45	18:15	15	✓
D11	2028 Base + Committed + Dev (Cont.)	AM	ONE HOUR	07:45	09:15	15	✓
D12	2028 Base + Committed + Dev (Cont.)	PM	ONE HOUR	16:45	18:15	15	✓
D13	2028 Base + Committed + Dev (Trend)	AM	ONE HOUR	07:45	09:15	15	✓
D14	2028 Base + Committed + Dev (Trend)	PM	ONE HOUR	16:45	18:15	15	✓
D15	2028 Base + Committed + Dev (Vision)	AM	ONE HOUR	07:45	09:15	15	✓
D16	2028 Base + Committed + Dev (Vision)	PM	ONE HOUR	16:45	18:15	15	✓
D17	2033 Base + Committed	AM	ONE HOUR	07:45	09:15	15	✓
D18	2033 Base + Committed	PM	ONE HOUR	16:45	18:15	15	✓
D19	2033 Base + Committed + Dev (Cont.)	AM	ONE HOUR	07:45	09:15	15	✓
D20	2033 Base + Committed + Dev (Cont.)	PM	ONE HOUR	16:45	18:15	15	✓
D21	2033 Base + Committed + Dev (Trend)	AM	ONE HOUR	07:45	09:15	15	✓
D22	2033 Base + Committed + Dev (Trend)	PM	ONE HOUR	16:45	18:15	15	✓
D23	2033 Base + Committed + Dev (Vision)	AM	ONE HOUR	07:45	09:15	15	✓
D24	2033 Base + Committed + Dev (Vision)	PM	ONE HOUR	16:45	18:15	15	✓

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Committed	✓	100.000	100.000

Committed - Base + Committed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	13.09	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	7	Arm 2	13.09	B

Arms

Arms

Arm	Name	Description	No give-way line
1	A645 (East)		
2	A19 (south)		
3	A645 (west)		
4	A19 (north)		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1	3.50	5.90	10.0	14.0	40.6	11.1		
2	3.50	7.80	77.0	15.0	40.6	39.7		
3	3.65	7.00	36.0	20.0	40.6	31.1		
4	3.55	7.80	65.4	18.5	40.6	31.9		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.622	1537
2	0.697	2058
3	0.675	1881
4	0.721	2119

The slope and intercept shown above include any corrections and adjustments.

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)	Run automatically
D1	Base + Committed	AM	ONE HOUR	07:45	09:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	446	100.000
2		ONE HOUR	✓	1481	100.000
3		ONE HOUR	✓	416	100.000
4		ONE HOUR	✓	861	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	295	70	81
	2	294	1	213	973
	3	121	199	9	87
	4	55	693	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.58	12.12	1.6	B	409	614
2	0.88	18.51	8.0	C	1359	2038
3	0.52	9.39	1.2	A	382	573
4	0.58	6.06	1.6	A	790	1185

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	336	84	761	1065	0.315	334	352	0.0	0.5	5.827	A
2	1115	279	204	1915	0.582	1109	890	0.0	1.6	5.118	A
3	313	78	1010	1199	0.261	312	303	0.0	0.4	4.454	A
4	648	162	467	1782	0.364	646	854	0.0	0.6	3.601	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	401	100	911	971	0.413	400	421	0.5	0.8	7.457	A
2	1331	333	245	1887	0.706	1327	1066	1.6	2.7	7.368	A
3	374	93	1209	1065	0.351	373	363	0.4	0.6	5.717	A
4	774	194	559	1716	0.451	773	1022	0.6	0.9	4.344	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	491	123	1114	845	0.581	488	513	0.8	1.6	11.846	B
2	1631	408	299	1849	0.882	1611	1303	2.7	7.5	16.320	C
3	458	115	1468	889	0.515	456	442	0.6	1.1	9.085	A
4	948	237	681	1628	0.582	945	1243	0.9	1.6	5.987	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	491	123	1117	843	0.583	491	517	1.6	1.6	12.119	B
2	1631	408	301	1848	0.882	1629	1308	7.5	8.0	18.514	C
3	458	115	1484	879	0.521	458	446	1.1	1.2	9.394	A
4	948	237	687	1624	0.584	948	1255	1.6	1.6	6.064	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	401	100	916	968	0.414	404	427	1.6	0.9	7.612	A
2	1331	333	247	1886	0.706	1352	1073	8.0	2.9	8.077	A
3	374	93	1231	1050	0.356	376	368	1.2	0.6	5.899	A
4	774	194	567	1711	0.453	777	1040	1.6	0.9	4.403	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	336	84	766	1062	0.316	337	355	0.9	0.6	5.904	A
2	1115	279	206	1914	0.583	1120	897	2.9	1.6	5.269	A
3	313	78	1020	1192	0.263	314	306	0.6	0.4	4.514	A
4	648	162	471	1779	0.364	649	863	0.9	0.7	3.633	A

Committed - Base + Committed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	10.53	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	4	Arm 1	10.53	B

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)	Run automatically
D2	Base + Committed	PM	ONE HOUR	16:45	18:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	416	100.000
2		ONE HOUR	✓	1041	100.000
3		ONE HOUR	✓	501	100.000
4		ONE HOUR	✓	1171	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	250	117	48
	2	255	2	139	645
	3	139	238	3	121
	4	72	1004	95	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.74	23.99	2.9	C	382	573
2	0.62	5.43	1.7	A	955	1433
3	0.47	5.96	0.9	A	460	690
4	0.80	12.22	4.3	B	1075	1612

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	313	78	1006	912	0.343	311	350	0.0	0.6	6.506	A
2	784	196	197	1920	0.408	781	1119	0.0	0.7	3.375	A
3	377	94	713	1399	0.270	376	265	0.0	0.4	3.620	A
4	882	220	478	1774	0.497	877	610	0.0	1.1	4.413	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	374	93	1204	789	0.474	372	419	0.6	1.0	9.381	A
2	936	234	236	1893	0.494	935	1340	0.7	1.0	4.018	A
3	450	113	854	1304	0.345	450	317	0.4	0.5	4.338	A
4	1053	263	573	1706	0.617	1050	731	1.1	1.7	6.037	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	458	115	1468	625	0.733	451	513	1.0	2.7	21.722	C
2	1146	287	287	1858	0.617	1144	1632	1.0	1.7	5.376	A
3	552	138	1044	1176	0.469	550	387	0.5	0.9	5.916	A
4	1289	322	701	1614	0.799	1280	893	1.7	4.1	11.581	B

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	458	115	1477	619	0.739	457	514	2.7	2.9	23.988	C
2	1146	287	290	1855	0.618	1146	1644	1.7	1.7	5.434	A
3	552	138	1047	1174	0.470	552	390	0.9	0.9	5.961	A
4	1289	322	702	1613	0.799	1289	896	4.1	4.3	12.221	B

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	374	93	1216	781	0.479	382	421	2.9	1.0	10.001	B
2	936	234	241	1890	0.495	938	1357	1.7	1.1	4.065	A
3	450	113	858	1301	0.346	452	322	0.9	0.5	4.375	A
4	1053	263	575	1704	0.618	1062	735	4.3	1.8	6.286	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	313	78	1013	908	0.345	315	352	1.0	0.6	6.647	A
2	784	196	200	1919	0.409	785	1129	1.1	0.7	3.403	A
3	377	94	717	1396	0.270	378	267	0.5	0.4	3.643	A
4	882	220	481	1772	0.497	884	614	1.8	1.1	4.493	A

Committed - Base + Committed + Dev (Cont.), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	22.47	C

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	1	Arm 3	22.47	C

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)	Run automatically
D3	Base + Committed + Dev (Cont.)	AM	ONE HOUR	07:45	09:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	458	100.000
2		ONE HOUR	✓	1537	100.000
3		ONE HOUR	✓	694	100.000
4		ONE HOUR	✓	861	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	295	82	81
	2	294	1	269	973
	3	165	433	9	87
	4	55	693	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.74	23.33	3.1	C	420	630
2	0.92	25.73	11.4	D	1410	2116
3	0.87	31.46	6.3	D	637	955
4	0.67	8.94	2.3	A	790	1185

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	345	86	935	956	0.361	342	385	0.0	0.7	6.909	A
2	1157	289	213	1909	0.606	1150	1064	0.0	1.8	5.436	A
3	522	131	1009	1199	0.436	519	354	0.0	0.8	5.801	A
4	648	162	675	1633	0.397	645	854	0.0	0.7	4.141	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	412	103	1120	842	0.489	410	460	0.7	1.1	9.826	A
2	1382	345	255	1880	0.735	1376	1274	1.8	3.1	8.180	A
3	624	156	1208	1065	0.586	621	424	0.8	1.5	8.874	A
4	774	194	807	1537	0.504	772	1022	0.7	1.1	5.353	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	504	126	1361	691	0.729	497	557	1.1	2.9	21.153	C
2	1692	423	310	1841	0.919	1664	1548	3.1	10.1	20.800	C
3	764	191	1461	894	0.854	749	514	1.5	5.4	24.951	C
4	948	237	974	1417	0.669	944	1235	1.1	2.2	8.585	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	504	126	1373	684	0.737	503	564	2.9	3.1	23.331	C
2	1692	423	313	1839	0.920	1687	1563	10.1	11.4	25.733	D
3	764	191	1481	881	0.868	761	520	5.4	6.3	31.458	D
4	948	237	989	1406	0.674	948	1253	2.2	2.3	8.936	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	412	103	1139	830	0.496	420	473	3.1	1.2	10.570	B
2	1382	345	260	1877	0.736	1414	1298	11.4	3.3	9.576	A
3	624	156	1241	1043	0.598	642	433	6.3	1.7	10.320	B
4	774	194	833	1519	0.510	778	1050	2.3	1.2	5.576	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	345	86	944	951	0.363	347	389	1.2	0.7	7.078	A
2	1157	289	216	1907	0.607	1163	1075	3.3	1.8	5.638	A
3	522	131	1021	1191	0.439	526	358	1.7	0.9	5.985	A
4	648	162	683	1627	0.398	650	864	1.2	0.8	4.206	A

Committed - Base + Committed + Dev (Cont.), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	15.91	C

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-3	Arm 1	15.91	C

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)	Run automatically
D4	Base + Committed + Dev (Cont.)	PM	ONE HOUR	16:45	18:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	445	100.000
2		ONE HOUR	✓	1252	100.000
3		ONE HOUR	✓	599	100.000
4		ONE HOUR	✓	1171	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	250	146	48
	2	255	2	350	645
	3	151	324	3	121
	4	72	1004	95	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.87	48.28	6.1	E	408	613
2	0.75	8.53	3.2	A	1149	1723
3	0.56	7.23	1.3	A	550	824
4	0.84	15.94	5.5	C	1075	1612

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	335	84	1070	873	0.384	332	359	0.0	0.7	7.212	A
2	943	236	219	1905	0.495	938	1183	0.0	1.1	4.012	A
3	451	113	713	1400	0.322	449	445	0.0	0.5	3.909	A
4	882	220	552	1721	0.512	877	610	0.0	1.1	4.685	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	400	100	1280	742	0.539	398	430	0.7	1.2	11.307	B
2	1126	281	262	1875	0.600	1123	1416	1.1	1.6	5.165	A
3	538	135	853	1305	0.413	538	532	0.5	0.7	4.847	A
4	1053	263	660	1643	0.641	1050	730	1.1	1.9	6.665	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	490	122	1559	569	0.862	474	525	1.2	5.2	36.736	E
2	1378	345	315	1838	0.750	1372	1718	1.6	3.1	8.248	A
3	660	165	1041	1178	0.560	657	646	0.7	1.3	7.119	A
4	1289	322	807	1537	0.839	1276	891	1.9	5.2	14.550	B

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	490	122	1571	561	0.874	486	527	5.2	6.1	48.282	E
2	1378	345	321	1834	0.752	1378	1737	3.1	3.2	8.528	A
3	660	165	1046	1174	0.562	659	653	1.3	1.3	7.230	A
4	1289	322	810	1535	0.840	1288	896	5.2	5.5	15.938	C

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	400	100	1298	731	0.547	419	433	6.1	1.4	13.289	B
2	1126	281	273	1868	0.603	1132	1444	3.2	1.7	5.335	A
3	538	135	861	1299	0.415	541	543	1.3	0.7	4.926	A
4	1053	263	665	1640	0.642	1067	737	5.5	2.0	7.097	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	335	84	1079	867	0.386	338	362	1.4	0.7	7.434	A
2	943	236	222	1903	0.495	945	1194	1.7	1.1	4.075	A
3	451	113	718	1396	0.323	452	449	0.7	0.5	3.947	A
4	882	220	555	1719	0.513	885	615	2.0	1.2	4.790	A

Committed - Base + Committed + Dev (Trend), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	20.62	C

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	2	Arm 2	20.62	C

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)	Run automatically
D5	Base + Committed + Dev (Trend)	AM	ONE HOUR	07:45	09:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	461	100.000
2		ONE HOUR	✓	1547	100.000
3		ONE HOUR	✓	633	100.000
4		ONE HOUR	✓	861	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	295	85	81
	2	294	1	279	973
	3	159	378	9	87
	4	55	693	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.70	19.79	2.7	C	423	635
2	0.93	27.65	12.3	D	1420	2129
3	0.79	21.06	3.9	C	581	871
4	0.65	8.11	2.1	A	790	1185

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	347	87	894	982	0.354	345	380	0.0	0.6	6.655	A
2	1165	291	215	1908	0.611	1158	1023	0.0	1.8	5.501	A
3	477	119	1009	1199	0.397	474	364	0.0	0.7	5.435	A
4	648	162	629	1666	0.389	645	854	0.0	0.7	4.009	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	414	104	1071	872	0.475	413	455	0.6	1.1	9.237	A
2	1391	348	258	1878	0.741	1385	1225	1.8	3.2	8.353	A
3	569	142	1208	1065	0.534	567	435	0.7	1.2	7.920	A
4	774	194	753	1576	0.491	773	1022	0.7	1.1	5.094	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	508	127	1305	726	0.699	501	551	1.1	2.6	18.467	C
2	1703	426	314	1839	0.926	1673	1493	3.2	10.8	21.898	C
3	697	174	1459	895	0.778	688	528	1.2	3.5	18.330	C
4	948	237	912	1462	0.649	944	1235	1.1	2.1	7.870	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	508	127	1314	721	0.704	507	558	2.6	2.7	19.787	C
2	1703	426	317	1837	0.927	1698	1504	10.8	12.3	27.652	D
3	697	174	1480	881	0.791	696	534	3.5	3.9	21.055	C
4	948	237	924	1453	0.652	948	1252	2.1	2.1	8.106	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	414	104	1083	864	0.480	421	466	2.7	1.1	9.731	A
2	1391	348	262	1875	0.742	1426	1242	12.3	3.4	9.947	A
3	569	142	1243	1042	0.546	579	445	3.9	1.4	8.752	A
4	774	194	772	1563	0.495	778	1050	2.1	1.1	5.251	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	347	87	902	977	0.355	349	384	1.1	0.7	6.798	A
2	1165	291	218	1906	0.611	1171	1033	3.4	1.8	5.715	A
3	477	119	1021	1191	0.400	479	368	1.4	0.7	5.581	A
4	648	162	636	1660	0.390	650	864	1.1	0.7	4.065	A

Committed - Base + Committed + Dev (Trend), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	14.05	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-1	Arm 1	14.05	B

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)	Run automatically
D6	Base + Committed + Dev (Trend)	PM	ONE HOUR	16:45	18:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	435	100.000
2		ONE HOUR	✓	1183	100.000
3		ONE HOUR	✓	581	100.000
4		ONE HOUR	✓	1171	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	250	136	48
	2	255	2	281	645
	3	149	308	3	121
	4	72	1004	95	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.84	39.33	4.9	E	399	599
2	0.71	7.20	2.6	A	1086	1628
3	0.54	6.96	1.2	A	533	800
4	0.83	15.10	5.2	C	1075	1612

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	327	82	1058	880	0.372	325	358	0.0	0.6	7.027	A
2	891	223	212	1910	0.466	887	1171	0.0	0.9	3.780	A
3	437	109	713	1399	0.313	436	386	0.0	0.5	3.853	A
4	882	220	538	1731	0.509	877	610	0.0	1.1	4.633	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	391	98	1266	751	0.521	389	428	0.6	1.2	10.776	B
2	1063	266	253	1881	0.565	1062	1402	0.9	1.4	4.727	A
3	522	131	853	1305	0.400	521	462	0.5	0.7	4.746	A
4	1053	263	644	1655	0.636	1050	730	1.1	1.9	6.542	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	479	120	1542	579	0.827	466	523	1.2	4.3	31.820	D
2	1303	326	305	1845	0.706	1298	1703	1.4	2.5	7.039	A
3	640	160	1042	1177	0.543	638	561	0.7	1.2	6.876	A
4	1289	322	788	1551	0.831	1277	892	1.9	5.0	13.911	B

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	479	120	1554	572	0.838	477	525	4.3	4.9	39.326	E
2	1303	326	310	1841	0.707	1302	1720	2.5	2.6	7.199	A
3	640	160	1047	1174	0.545	640	566	1.2	1.2	6.963	A
4	1289	322	790	1549	0.832	1288	896	5.0	5.2	15.104	C

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	391	98	1283	740	0.528	406	431	4.9	1.3	12.196	B
2	1063	266	262	1875	0.567	1068	1427	2.6	1.4	4.836	A
3	522	131	860	1300	0.402	524	470	1.2	0.7	4.809	A
4	1053	263	648	1652	0.637	1066	736	5.2	2.0	6.927	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	327	82	1067	875	0.374	330	360	1.3	0.7	7.227	A
2	891	223	214	1908	0.467	893	1182	1.4	1.0	3.831	A
3	437	109	718	1396	0.313	438	389	0.7	0.5	3.889	A
4	882	220	542	1729	0.510	885	614	2.0	1.2	4.733	A

Committed - Base + Committed + Dev (Vision), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	19.32	C

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	2	Arm 2	19.32	C

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)	Run automatically
D7	Base + Committed + Dev (Vision)	AM	ONE HOUR	07:45	09:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	460	100.000
2		ONE HOUR	✓	1539	100.000
3		ONE HOUR	✓	609	100.000
4		ONE HOUR	✓	861	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	295	84	81
	2	294	1	271	973
	3	155	358	9	87
	4	55	693	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.69	18.55	2.5	C	422	633
2	0.92	26.28	11.6	D	1412	2118
3	0.76	18.59	3.3	C	559	838
4	0.64	7.82	2.0	A	790	1185

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	346	87	880	991	0.350	344	377	0.0	0.6	6.556	A
2	1159	290	215	1908	0.607	1152	1009	0.0	1.8	5.455	A
3	458	115	1009	1199	0.382	456	357	0.0	0.7	5.310	A
4	648	162	611	1678	0.386	645	854	0.0	0.7	3.961	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	414	103	1053	883	0.468	412	451	0.6	1.0	9.007	A
2	1384	346	257	1878	0.737	1378	1208	1.8	3.1	8.229	A
3	547	137	1208	1065	0.514	546	427	0.7	1.1	7.599	A
4	774	194	732	1592	0.486	773	1022	0.7	1.1	5.000	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	506	127	1284	739	0.685	501	547	1.0	2.4	17.471	C
2	1694	424	313	1839	0.921	1666	1472	3.1	10.4	21.136	C
3	671	168	1460	895	0.750	663	518	1.1	3.1	16.575	C
4	948	237	887	1479	0.641	944	1236	1.1	2.0	7.611	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	506	127	1292	735	0.689	506	554	2.4	2.5	18.552	C
2	1694	424	316	1838	0.922	1689	1482	10.4	11.6	26.277	D
3	671	168	1481	881	0.761	669	524	3.1	3.3	18.587	C
4	948	237	898	1472	0.644	948	1253	2.0	2.0	7.818	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	414	103	1064	876	0.472	419	462	2.5	1.1	9.433	A
2	1384	346	261	1876	0.737	1417	1223	11.6	3.4	9.666	A
3	547	137	1241	1043	0.525	556	436	3.3	1.2	8.269	A
4	774	194	748	1580	0.490	778	1049	2.0	1.1	5.137	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	346	87	887	986	0.351	348	381	1.1	0.6	6.688	A
2	1159	290	217	1907	0.608	1165	1018	3.4	1.8	5.658	A
3	458	115	1021	1191	0.385	461	361	1.2	0.7	5.439	A
4	648	162	618	1674	0.387	650	864	1.1	0.7	4.013	A

Committed - Base + Committed + Dev (Vision), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	13.64	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-1	Arm 1	13.64	B

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)	Run automatically
D8	Base + Committed + Dev (Vision)	PM	ONE HOUR	16:45	18:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	434	100.000
2		ONE HOUR	✓	1169	100.000
3		ONE HOUR	✓	574	100.000
4		ONE HOUR	✓	1171	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	250	135	48
	2	255	2	267	645
	3	149	301	3	121
	4	72	1004	95	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.83	37.38	4.7	E	398	597
2	0.70	6.99	2.5	A	1073	1609
3	0.54	6.86	1.2	A	527	790
4	0.83	14.80	5.1	B	1075	1612

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	327	82	1053	883	0.370	324	358	0.0	0.6	6.980	A
2	880	220	211	1911	0.461	876	1166	0.0	0.9	3.740	A
3	432	108	713	1399	0.309	430	374	0.0	0.5	3.831	A
4	882	220	533	1735	0.508	877	610	0.0	1.1	4.613	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	390	98	1260	754	0.517	388	428	0.6	1.1	10.640	B
2	1051	263	252	1882	0.558	1049	1396	0.9	1.3	4.651	A
3	516	129	853	1305	0.396	515	448	0.5	0.7	4.707	A
4	1053	263	638	1659	0.634	1050	730	1.1	1.9	6.493	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	478	119	1535	584	0.819	466	523	1.1	4.1	30.665	D
2	1287	322	304	1846	0.697	1283	1696	1.3	2.4	6.841	A
3	632	158	1042	1177	0.537	630	545	0.7	1.2	6.775	A
4	1289	322	780	1557	0.828	1277	892	1.9	4.9	13.675	B

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	478	119	1546	577	0.829	476	525	4.1	4.7	37.375	E
2	1287	322	310	1842	0.699	1287	1712	2.4	2.5	6.986	A
3	632	158	1047	1174	0.538	632	550	1.2	1.2	6.862	A
4	1289	322	783	1555	0.829	1288	896	4.9	5.1	14.800	B

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	390	98	1276	744	0.524	404	431	4.7	1.2	11.946	B
2	1051	263	260	1876	0.560	1055	1419	2.5	1.4	4.752	A
3	516	129	860	1300	0.397	518	456	1.2	0.7	4.769	A
4	1053	263	642	1657	0.635	1065	736	5.1	2.0	6.867	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	327	82	1061	878	0.372	329	360	1.2	0.7	7.169	A
2	880	220	214	1909	0.461	882	1177	1.4	0.9	3.787	A
3	432	108	718	1396	0.310	433	378	0.7	0.5	3.866	A
4	882	220	536	1732	0.509	885	614	2.0	1.2	4.711	A

Committed - 2028 Base + Committed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	13.73	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	6	Arm 2	13.73	B

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)	Run automatically
D9	2028 Base + Committed	AM	ONE HOUR	07:45	09:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	452	100.000
2		ONE HOUR	✓	1492	100.000
3		ONE HOUR	✓	419	100.000
4		ONE HOUR	✓	867	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	299	71	82
	2	298	1	214	979
	3	122	201	9	87
	4	55	699	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.59	12.55	1.7	B	415	622
2	0.89	19.62	8.5	C	1369	2054
3	0.53	9.65	1.2	A	384	577
4	0.59	6.17	1.6	A	796	1193

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	340	85	767	1061	0.321	338	356	0.0	0.6	5.891	A
2	1123	281	206	1914	0.587	1117	899	0.0	1.6	5.177	A
3	315	79	1018	1193	0.264	314	305	0.0	0.4	4.491	A
4	653	163	473	1779	0.367	650	859	0.0	0.7	3.628	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	406	102	918	967	0.420	405	426	0.6	0.8	7.588	A
2	1341	335	247	1886	0.711	1337	1077	1.6	2.8	7.513	A
3	377	94	1218	1058	0.356	376	365	0.4	0.6	5.795	A
4	779	195	566	1711	0.455	778	1029	0.7	0.9	4.390	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	498	124	1123	840	0.593	494	518	0.8	1.7	12.250	B
2	1643	411	301	1848	0.889	1622	1316	2.8	7.9	17.068	C
3	461	115	1479	882	0.523	459	444	0.6	1.2	9.309	A
4	955	239	689	1623	0.588	952	1249	0.9	1.6	6.091	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	498	124	1126	837	0.594	498	522	1.7	1.7	12.547	B
2	1643	411	303	1847	0.890	1640	1321	7.9	8.5	19.618	C
3	461	115	1495	871	0.530	461	448	1.2	1.2	9.651	A
4	955	239	694	1619	0.590	955	1262	1.6	1.6	6.172	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	406	102	923	964	0.422	410	432	1.7	0.9	7.754	A
2	1341	335	249	1884	0.712	1364	1084	8.5	2.9	8.309	A
3	377	94	1242	1042	0.362	379	370	1.2	0.6	5.993	A
4	779	195	574	1706	0.457	782	1048	1.6	1.0	4.452	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	340	85	772	1058	0.322	342	359	0.9	0.6	5.971	A
2	1123	281	208	1913	0.587	1128	906	2.9	1.7	5.335	A
3	315	79	1028	1186	0.266	316	308	0.6	0.4	4.555	A
4	653	163	477	1775	0.368	654	868	1.0	0.7	3.660	A

Committed - 2028 Base + Committed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	10.92	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	3	Arm 1	10.92	B

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)	Run automatically
D10	2028 Base + Committed	PM	ONE HOUR	16:45	18:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	421	100.000
2		ONE HOUR	✓	1050	100.000
3		ONE HOUR	✓	503	100.000
4		ONE HOUR	✓	1177	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	253	119	48
	2	258	2	140	650
	3	141	238	3	121
	4	72	1010	95	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.75	25.42	3.1	D	386	579
2	0.62	5.52	1.8	A	963	1445
3	0.47	6.04	0.9	A	462	692
4	0.81	12.62	4.4	B	1080	1620

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	317	79	1010	910	0.348	315	354	0.0	0.6	6.575	A
2	790	198	199	1919	0.412	788	1126	0.0	0.7	3.399	A
3	379	95	719	1395	0.271	377	267	0.0	0.4	3.639	A
4	886	222	482	1772	0.500	882	614	0.0	1.1	4.449	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	378	95	1209	786	0.481	377	424	0.6	1.0	9.557	A
2	944	236	238	1892	0.499	943	1347	0.7	1.1	4.057	A
3	452	113	861	1300	0.348	452	320	0.4	0.5	4.375	A
4	1058	265	577	1703	0.621	1055	735	1.1	1.8	6.115	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	464	116	1474	621	0.746	456	518	1.0	2.9	22.770	C
2	1156	289	289	1856	0.623	1153	1641	1.1	1.7	5.463	A
3	554	138	1053	1170	0.473	552	390	0.5	0.9	5.991	A
4	1296	324	706	1610	0.805	1286	899	1.8	4.3	11.917	B

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	464	116	1484	615	0.753	463	520	2.9	3.1	25.419	D
2	1156	289	292	1854	0.624	1156	1654	1.7	1.8	5.523	A
3	554	138	1056	1168	0.474	554	393	0.9	0.9	6.040	A
4	1296	324	708	1609	0.805	1295	902	4.3	4.4	12.624	B

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	378	95	1222	778	0.487	387	426	3.1	1.1	10.245	B
2	944	236	243	1888	0.500	947	1366	1.8	1.1	4.107	A
3	452	113	865	1296	0.349	454	324	0.9	0.6	4.409	A
4	1058	265	580	1701	0.622	1068	739	4.4	1.9	6.385	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	317	79	1018	905	0.350	319	356	1.1	0.6	6.724	A
2	790	198	201	1917	0.412	792	1135	1.1	0.8	3.430	A
3	379	95	723	1392	0.272	379	270	0.6	0.4	3.663	A
4	886	222	485	1770	0.501	889	618	1.9	1.1	4.533	A

Committed - 2028 Base + Committed + Dev (Cont.), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	23.98	C

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	0	Arm 3	23.98	C

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)	Run automatically
D11	2028 Base + Committed + Dev (Cont.)	AM	ONE HOUR	07:45	09:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	464	100.000
2		ONE HOUR	✓	1548	100.000
3		ONE HOUR	✓	696	100.000
4		ONE HOUR	✓	867	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	299	83	82
	2	298	1	270	979
	3	166	434	9	87
	4	55	699	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.75	24.79	3.4	C	426	639
2	0.93	27.66	12.3	D	1420	2131
3	0.88	33.71	6.7	D	639	958
4	0.68	9.15	2.4	A	796	1193

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	349	87	941	953	0.367	347	388	0.0	0.7	6.995	A
2	1165	291	215	1908	0.611	1158	1073	0.0	1.8	5.502	A
3	524	131	1018	1194	0.439	521	355	0.0	0.9	5.860	A
4	653	163	679	1630	0.401	650	859	0.0	0.8	4.174	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	417	104	1126	838	0.498	415	465	0.7	1.1	10.036	B
2	1392	348	257	1879	0.741	1386	1284	1.8	3.2	8.356	A
3	626	156	1218	1059	0.591	623	425	0.9	1.6	9.040	A
4	779	195	813	1533	0.508	778	1028	0.8	1.2	5.416	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	511	128	1368	687	0.743	503	561	1.1	3.1	22.229	C
2	1704	426	312	1840	0.926	1674	1559	3.2	10.8	21.875	C
3	766	192	1471	888	0.863	750	515	1.6	5.7	26.143	D
4	955	239	979	1413	0.675	950	1241	1.2	2.3	8.769	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	511	128	1380	680	0.752	510	569	3.1	3.4	24.790	C
2	1704	426	316	1838	0.927	1699	1574	10.8	12.3	27.663	D
3	766	192	1492	873	0.878	762	522	5.7	6.7	33.708	D
4	955	239	995	1402	0.681	954	1260	2.3	2.4	9.151	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	417	104	1146	825	0.506	426	478	3.4	1.2	10.879	B
2	1392	348	262	1875	0.742	1427	1310	12.3	3.5	9.969	A
3	626	156	1253	1034	0.605	646	436	6.7	1.7	10.691	B
4	779	195	841	1513	0.515	784	1058	2.4	1.2	5.659	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	349	87	949	947	0.369	351	393	1.2	0.7	7.175	A
2	1165	291	217	1906	0.611	1172	1084	3.5	1.8	5.718	A
3	524	131	1030	1186	0.442	527	359	1.7	0.9	6.052	A
4	653	163	688	1623	0.402	655	869	1.2	0.8	4.242	A

Committed - 2028 Base + Committed + Dev (Cont.), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	16.87	C

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-3	Arm 1	16.87	C

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)	Run automatically
D12	2028 Base + Committed + Dev (Cont.)	PM	ONE HOUR	16:45	18:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	449	100.000
2		ONE HOUR	✓	1261	100.000
3		ONE HOUR	✓	602	100.000
4		ONE HOUR	✓	1177	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	253	147	48
	2	258	2	351	650
	3	153	325	3	121
	4	72	1010	95	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.89	53.01	6.8	F	412	618
2	0.76	8.72	3.3	A	1157	1736
3	0.57	7.36	1.3	A	552	829
4	0.85	16.67	5.8	C	1080	1620

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	338	85	1075	869	0.389	335	363	0.0	0.7	7.295	A
2	949	237	220	1905	0.498	945	1190	0.0	1.1	4.041	A
3	453	113	719	1396	0.325	451	446	0.0	0.5	3.935	A
4	886	222	556	1718	0.516	881	614	0.0	1.2	4.727	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	404	101	1286	738	0.547	401	434	0.7	1.3	11.549	B
2	1134	283	263	1874	0.605	1131	1425	1.1	1.6	5.225	A
3	541	135	860	1300	0.416	540	534	0.5	0.7	4.895	A
4	1058	265	666	1639	0.646	1055	735	1.2	2.0	6.768	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	494	124	1566	564	0.876	477	530	1.3	5.6	39.094	E
2	1388	347	315	1838	0.755	1382	1728	1.6	3.2	8.420	A
3	663	166	1049	1172	0.565	660	648	0.7	1.3	7.242	A
4	1296	324	814	1533	0.846	1282	896	2.0	5.5	15.095	C

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	494	124	1579	556	0.889	490	533	5.6	6.8	53.007	F
2	1388	347	322	1834	0.757	1388	1747	3.2	3.3	8.723	A
3	663	166	1055	1168	0.567	663	654	1.3	1.3	7.361	A
4	1296	324	817	1530	0.847	1295	901	5.5	5.8	16.667	C

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	404	101	1305	726	0.556	425	438	6.8	1.4	13.878	B
2	1134	283	275	1866	0.607	1140	1455	3.3	1.7	5.408	A
3	541	135	869	1294	0.418	544	546	1.3	0.8	4.976	A
4	1058	265	670	1636	0.647	1073	742	5.8	2.1	7.243	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	338	85	1084	864	0.391	341	365	1.4	0.7	7.526	A
2	949	237	223	1902	0.499	952	1202	1.7	1.1	4.106	A
3	453	113	724	1392	0.326	454	451	0.8	0.5	3.974	A
4	886	222	560	1716	0.517	890	618	2.1	1.2	4.837	A

Committed - 2028 Base + Committed + Dev (Trend), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	21.94	C

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	1	Arm 2	21.94	C

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)	Run automatically
D13	2028 Base + Committed + Dev (Trend)	AM	ONE HOUR	07:45	09:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	467	100.000
2		ONE HOUR	✓	1557	100.000
3		ONE HOUR	✓	637	100.000
4		ONE HOUR	✓	867	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	299	86	82
	2	298	1	279	979
	3	161	380	9	87
	4	55	699	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.72	20.93	2.9	C	429	643
2	0.93	29.64	13.2	D	1429	2143
3	0.80	22.40	4.2	C	585	877
4	0.66	8.31	2.2	A	796	1193

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	352	88	900	978	0.360	349	385	0.0	0.7	6.740	A
2	1172	293	217	1907	0.615	1165	1032	0.0	1.8	5.563	A
3	480	120	1017	1194	0.402	477	364	0.0	0.7	5.503	A
4	653	163	635	1661	0.393	650	859	0.0	0.7	4.044	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	420	105	1078	868	0.484	418	460	0.7	1.1	9.434	A
2	1400	350	260	1877	0.746	1394	1236	1.8	3.3	8.520	A
3	573	143	1218	1059	0.541	570	436	0.7	1.3	8.080	A
4	779	195	760	1571	0.496	778	1028	0.7	1.1	5.161	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	514	129	1314	721	0.713	508	557	1.1	2.7	19.374	C
2	1714	429	316	1837	0.933	1681	1505	3.3	11.5	22.962	C
3	701	175	1469	889	0.789	691	528	1.3	3.7	19.204	C
4	955	239	920	1456	0.656	951	1241	1.1	2.1	8.051	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	514	129	1322	716	0.718	514	564	2.7	2.9	20.926	C
2	1714	429	319	1835	0.934	1708	1517	11.5	13.2	29.635	D
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	955	239	932	1447	0.660	954	1259	2.1	2.2	8.312	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	420	105	1091	859	0.489	427	473	2.9	1.2	9.993	A
2	1400	350	264	1874	0.747	1438	1254	13.2	3.5	10.353	B
3	573	143	1256	1033	0.554	584	447	4.2	1.4	9.026	A
4	779	195	780	1557	0.501	783	1059	2.2	1.2	5.331	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	352	88	908	973	0.361	353	389	1.2	0.7	6.890	A
2	1172	293	219	1905	0.615	1179	1042	3.5	1.9	5.788	A
3	480	120	1030	1185	0.405	482	368	1.4	0.8	5.652	A
4	653	163	643	1656	0.394	654	869	1.2	0.7	4.101	A

Committed - 2028 Base + Committed + Dev (Trend), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	14.86	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-2	Arm 1	14.86	B

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)	Run automatically
D14	2028 Base + Committed + Dev (Trend)	PM	ONE HOUR	16:45	18:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	440	100.000
2		ONE HOUR	✓	1192	100.000
3		ONE HOUR	✓	584	100.000
4		ONE HOUR	✓	1177	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	253	138	48
	2	258	2	282	650
	3	151	309	3	121
	4	72	1010	95	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.85	43.15	5.4	E	404	606
2	0.71	7.35	2.6	A	1094	1641
3	0.55	7.08	1.3	A	536	804
4	0.84	15.76	5.5	C	1080	1620

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	331	83	1063	877	0.378	329	361	0.0	0.7	7.127	A
2	897	224	213	1909	0.470	894	1179	0.0	0.9	3.809	A
3	440	110	719	1395	0.315	438	388	0.0	0.5	3.876	A
4	886	222	543	1728	0.513	882	614	0.0	1.2	4.674	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	396	99	1272	747	0.530	393	432	0.7	1.2	11.023	B
2	1072	268	255	1880	0.570	1070	1411	0.9	1.4	4.782	A
3	525	131	860	1300	0.404	524	464	0.5	0.7	4.792	A
4	1058	265	650	1651	0.641	1055	735	1.2	1.9	6.641	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	484	121	1549	575	0.843	471	528	1.2	4.7	33.958	D
2	1312	328	307	1844	0.712	1308	1713	1.4	2.6	7.179	A
3	643	161	1051	1171	0.549	641	564	0.7	1.2	6.987	A
4	1296	324	794	1547	0.838	1283	897	1.9	5.2	14.417	B

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	484	121	1561	567	0.854	481	531	4.7	5.4	43.146	E
2	1312	328	312	1840	0.713	1312	1730	2.6	2.6	7.350	A
3	643	161	1055	1168	0.550	643	569	1.2	1.3	7.082	A
4	1296	324	797	1545	0.839	1295	901	5.2	5.5	15.758	C

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	396	99	1290	736	0.538	412	436	5.4	1.3	12.685	B
2	1072	268	264	1874	0.572	1076	1437	2.6	1.5	4.900	A
3	525	131	868	1295	0.405	527	473	1.3	0.7	4.861	A
4	1058	265	654	1648	0.642	1072	741	5.5	2.0	7.064	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	331	83	1072	871	0.380	334	364	1.3	0.7	7.326	A
2	897	224	216	1907	0.471	899	1190	1.5	1.0	3.859	A
3	440	110	724	1392	0.316	441	392	0.7	0.5	3.915	A
4	886	222	546	1725	0.514	889	618	2.0	1.2	4.778	A

Committed - 2028 Base + Committed + Dev (Vision), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	20.58	C

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	2	Arm 2	20.58	C

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)	Run automatically
D15	2028 Base + Committed + Dev (Vision)	AM	ONE HOUR	07:45	09:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	466	100.000
2		ONE HOUR	✓	1550	100.000
3		ONE HOUR	✓	613	100.000
4		ONE HOUR	✓	867	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	299	85	82
	2	298	1	272	979
	3	157	360	9	87
	4	55	699	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.70	19.56	2.7	C	428	641
2	0.93	28.28	12.6	D	1422	2133
3	0.77	19.65	3.5	C	562	844
4	0.65	8.01	2.1	A	796	1193

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	351	88	886	987	0.355	348	382	0.0	0.6	6.638	A
2	1167	292	216	1907	0.612	1160	1018	0.0	1.8	5.538	A
3	461	115	1018	1194	0.387	459	358	0.0	0.7	5.371	A
4	653	163	617	1674	0.390	650	859	0.0	0.7	3.993	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	419	105	1060	879	0.477	417	457	0.6	1.1	9.196	A
2	1393	348	259	1877	0.742	1388	1218	1.8	3.2	8.407	A
3	551	138	1218	1059	0.521	549	429	0.7	1.2	7.746	A
4	779	195	739	1587	0.491	778	1028	0.7	1.1	5.063	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	513	128	1293	734	0.699	507	553	1.1	2.6	18.292	C
2	1707	427	315	1838	0.929	1675	1484	3.2	11.1	22.241	C
3	675	169	1470	888	0.760	667	520	1.2	3.2	17.310	C
4	955	239	895	1474	0.648	951	1242	1.1	2.0	7.784	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	513	128	1300	729	0.704	513	560	2.6	2.7	19.561	C
2	1707	427	318	1836	0.929	1701	1495	11.1	12.6	28.278	D
3	675	169	1492	873	0.773	674	526	3.2	3.5	19.651	C
4	955	239	906	1466	0.651	954	1260	2.0	2.1	8.010	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	419	105	1072	871	0.481	425	468	2.7	1.1	9.674	A
2	1393	348	263	1875	0.743	1430	1234	12.6	3.5	10.071	B
3	551	138	1254	1034	0.533	560	439	3.5	1.3	8.510	A
4	779	195	756	1574	0.495	783	1057	2.1	1.1	5.212	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	351	88	893	983	0.357	353	386	1.1	0.7	6.776	A
2	1167	292	218	1905	0.612	1173	1027	3.5	1.9	5.738	A
3	461	115	1030	1186	0.389	464	362	1.3	0.7	5.507	A
4	653	163	624	1669	0.391	654	869	1.1	0.7	4.049	A

Committed - 2028 Base + Committed + Dev (Vision), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	14.32	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-1	Arm 1	14.32	B

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)	Run automatically
D16	2028 Base + Committed + Dev (Vision)	PM	ONE HOUR	16:45	18:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	438	100.000
2		ONE HOUR	✓	1178	100.000
3		ONE HOUR	✓	576	100.000
4		ONE HOUR	✓	1177	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	253	136	48
	2	258	2	268	650
	3	150	302	3	121
	4	72	1010	95	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.84	40.48	5.1	E	402	603
2	0.70	7.12	2.5	A	1081	1621
3	0.54	6.97	1.2	A	529	793
4	0.84	15.39	5.3	C	1080	1620

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	330	82	1058	880	0.375	327	361	0.0	0.6	7.058	A
2	887	222	212	1910	0.464	883	1173	0.0	0.9	3.764	A
3	434	108	719	1395	0.311	432	376	0.0	0.5	3.853	A
4	886	222	537	1732	0.512	882	614	0.0	1.1	4.650	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	394	98	1266	751	0.525	392	432	0.6	1.2	10.855	B
2	1059	265	253	1881	0.563	1057	1404	0.9	1.4	4.698	A
3	518	129	861	1300	0.398	517	450	0.5	0.7	4.747	A
4	1058	265	643	1656	0.639	1055	735	1.1	1.9	6.584	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	482	121	1542	579	0.832	469	527	1.2	4.4	32.463	D
2	1297	324	305	1845	0.703	1293	1706	1.4	2.5	6.965	A
3	634	159	1051	1171	0.542	632	547	0.7	1.2	6.876	A
4	1296	324	786	1553	0.835	1283	897	1.9	5.1	14.129	B

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	482	121	1554	572	0.843	480	529	4.4	5.1	40.481	E
2	1297	324	310	1841	0.704	1297	1723	2.5	2.5	7.121	A
3	634	159	1055	1168	0.543	634	552	1.2	1.2	6.966	A
4	1296	324	788	1551	0.836	1295	901	5.1	5.3	15.386	C

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	394	98	1283	740	0.532	409	435	5.1	1.3	12.352	B
2	1059	265	262	1875	0.565	1063	1430	2.5	1.4	4.807	A
3	518	129	867	1295	0.400	520	458	1.2	0.7	4.810	A
4	1058	265	646	1653	0.640	1071	741	5.3	2.0	6.988	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	330	82	1067	875	0.377	332	363	1.3	0.7	7.260	A
2	887	222	214	1908	0.465	889	1184	1.4	0.9	3.812	A
3	434	108	724	1392	0.312	435	379	0.7	0.5	3.888	A
4	886	222	540	1730	0.512	889	618	2.0	1.2	4.751	A

Committed - 2033 Base + Committed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	14.01	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	5	Arm 2	14.01	B

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)	Run automatically
D17	2033 Base + Committed	AM	ONE HOUR	07:45	09:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	454	100.000
2		ONE HOUR	✓	1497	100.000
3		ONE HOUR	✓	421	100.000
4		ONE HOUR	✓	870	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	301	71	82
	2	300	1	214	982
	3	123	202	9	87
	4	55	702	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.60	12.73	1.7	B	417	625
2	0.89	20.10	8.7	C	1374	2061
3	0.53	9.79	1.2	A	386	579
4	0.59	6.23	1.6	A	798	1197

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	342	85	770	1059	0.323	340	358	0.0	0.6	5.918	A
2	1127	282	206	1914	0.589	1120	904	0.0	1.6	5.200	A
3	317	79	1022	1191	0.266	315	305	0.0	0.4	4.512	A
4	655	164	475	1776	0.369	652	862	0.0	0.7	3.642	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	408	102	922	965	0.423	407	428	0.6	0.9	7.640	A
2	1346	336	247	1886	0.714	1341	1082	1.6	2.8	7.572	A
3	378	95	1223	1055	0.359	378	365	0.4	0.6	5.835	A
4	782	196	569	1709	0.458	781	1031	0.7	1.0	4.415	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	500	125	1127	837	0.597	496	521	0.9	1.7	12.419	B
2	1648	412	301	1848	0.892	1627	1322	2.8	8.1	17.385	C
3	464	116	1484	879	0.528	461	444	0.6	1.2	9.429	A
4	958	239	693	1620	0.591	955	1252	1.0	1.6	6.149	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	500	125	1131	835	0.599	500	526	1.7	1.7	12.732	B
2	1648	412	303	1847	0.892	1646	1328	8.1	8.7	20.096	C
3	464	116	1501	867	0.534	463	448	1.2	1.2	9.790	A
4	958	239	699	1616	0.593	958	1266	1.6	1.6	6.232	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	408	102	927	961	0.425	412	435	1.7	0.9	7.815	A
2	1346	336	249	1884	0.714	1369	1090	8.7	3.0	8.410	A
3	378	95	1247	1038	0.364	381	370	1.2	0.6	6.042	A
4	782	196	577	1703	0.459	785	1051	1.6	1.0	4.479	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	342	85	775	1056	0.324	343	361	0.9	0.6	6.002	A
2	1127	282	208	1913	0.589	1132	910	3.0	1.7	5.364	A
3	317	79	1032	1184	0.268	318	308	0.6	0.4	4.577	A
4	655	164	480	1773	0.369	656	870	1.0	0.7	3.677	A

Committed - 2033 Base + Committed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	10.79	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	4	Arm 1	10.79	B

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)	Run automatically
D18	2033 Base + Committed	PM	ONE HOUR	16:45	18:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	411	100.000
2		ONE HOUR	✓	1054	100.000
3		ONE HOUR	✓	504	100.000
4		ONE HOUR	✓	1181	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	254	119	37
	2	259	2	141	652
	3	141	239	3	121
	4	72	1013	96	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.74	24.31	2.9	C	377	566
2	0.62	5.50	1.8	A	967	1451
3	0.47	5.99	0.9	A	462	694
4	0.81	12.86	4.5	B	1084	1626

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	309	77	1014	907	0.341	307	355	0.0	0.6	6.531	A
2	794	198	192	1924	0.412	791	1129	0.0	0.7	3.392	A
3	379	95	713	1399	0.271	378	269	0.0	0.4	3.628	A
4	889	222	484	1770	0.502	885	607	0.0	1.1	4.468	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	369	92	1213	783	0.472	368	425	0.6	1.0	9.433	A
2	948	237	229	1898	0.499	946	1352	0.7	1.1	4.046	A
3	453	113	854	1304	0.347	452	322	0.4	0.5	4.352	A
4	1062	265	579	1702	0.624	1059	727	1.1	1.8	6.160	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	453	113	1479	618	0.732	445	519	1.0	2.7	21.951	C
2	1160	290	278	1864	0.623	1158	1646	1.1	1.7	5.440	A
3	555	139	1044	1176	0.472	553	392	0.5	0.9	5.946	A
4	1300	325	708	1609	0.808	1290	889	1.8	4.4	12.116	B

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	453	113	1489	612	0.739	452	521	2.7	2.9	24.311	C
2	1160	290	282	1862	0.623	1160	1659	1.7	1.8	5.498	A
3	555	139	1047	1174	0.473	555	395	0.9	0.9	5.993	A
4	1300	325	710	1607	0.809	1300	892	4.4	4.5	12.862	B

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	369	92	1227	775	0.477	377	427	2.9	1.0	10.071	B
2	948	237	234	1895	0.500	950	1370	1.8	1.1	4.093	A
3	453	113	858	1301	0.348	455	326	0.9	0.6	4.387	A
4	1062	265	582	1700	0.625	1072	731	4.5	1.9	6.439	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	309	77	1022	902	0.343	311	357	1.0	0.6	6.672	A
2	794	198	194	1923	0.413	795	1139	1.1	0.8	3.423	A
3	379	95	717	1396	0.272	380	271	0.6	0.4	3.651	A
4	889	222	486	1768	0.503	892	611	1.9	1.1	4.554	A

Committed - 2033 Base + Committed + Dev (Cont.), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	24.81	C

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	0	Arm 3	24.81	C

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)	Run automatically
D19	2033 Base + Committed + Dev (Cont.)	AM	ONE HOUR	07:45	09:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	466	100.000
2		ONE HOUR	✓	1554	100.000
3		ONE HOUR	✓	698	100.000
4		ONE HOUR	✓	870	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	301	83	82
	2	300	1	271	982
	3	167	435	9	87
	4	55	702	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.76	25.47	3.5	D	428	641
2	0.93	28.68	12.8	D	1426	2139
3	0.88	35.11	7.0	E	640	961
4	0.68	9.28	2.4	A	798	1197

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	351	88	944	951	0.369	348	391	0.0	0.7	7.034	A
2	1170	292	215	1908	0.613	1163	1077	0.0	1.8	5.534	A
3	525	131	1021	1191	0.441	522	356	0.0	0.9	5.895	A
4	655	164	682	1627	0.402	652	861	0.0	0.8	4.192	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	419	105	1129	836	0.501	417	467	0.7	1.2	10.129	B
2	1397	349	257	1879	0.744	1391	1289	1.8	3.2	8.443	A
3	627	157	1222	1056	0.594	625	426	0.9	1.6	9.137	A
4	782	196	816	1531	0.511	780	1030	0.8	1.2	5.454	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	513	128	1372	685	0.749	505	564	1.2	3.2	22.718	C
2	1711	428	312	1840	0.930	1679	1565	3.2	11.2	22.425	C
3	769	192	1475	885	0.869	751	516	1.6	5.9	26.869	D
4	958	239	983	1411	0.679	953	1244	1.2	2.3	8.875	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	513	128	1384	677	0.758	512	572	3.2	3.5	25.469	D
2	1711	428	316	1838	0.931	1705	1581	11.2	12.8	28.678	D
3	769	192	1497	870	0.884	764	523	5.9	7.0	35.112	E
4	958	239	999	1399	0.685	958	1263	2.3	2.4	9.276	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	419	105	1151	822	0.509	428	482	3.5	1.3	11.023	B
2	1397	349	262	1875	0.745	1434	1316	12.8	3.5	10.180	B
3	627	157	1259	1030	0.609	649	437	7.0	1.8	10.918	B
4	782	196	845	1510	0.518	787	1062	2.4	1.2	5.709	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	351	88	953	945	0.371	353	395	1.3	0.7	7.215	A
2	1170	292	217	1906	0.614	1177	1088	3.5	1.9	5.756	A
3	525	131	1033	1183	0.444	529	360	1.8	0.9	6.092	A
4	655	164	691	1621	0.404	657	872	1.2	0.8	4.262	A

Committed - 2033 Base + Committed + Dev (Cont.), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	17.42	C

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-4	Arm 1	17.42	C

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)	Run automatically
D20	2033 Base + Committed + Dev (Cont.)	PM	ONE HOUR	16:45	18:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	451	100.000
2		ONE HOUR	✓	1264	100.000
3		ONE HOUR	✓	603	100.000
4		ONE HOUR	✓	1181	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	254	147	49
	2	259	2	351	652
	3	154	325	3	121
	4	72	1013	96	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.90	55.83	7.2	F	414	621
2	0.76	8.82	3.3	A	1160	1740
3	0.57	7.42	1.4	A	553	830
4	0.85	17.08	5.9	C	1084	1626

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	340	85	1078	868	0.391	337	364	0.0	0.7	7.338	A
2	952	238	221	1904	0.500	947	1193	0.0	1.1	4.055	A
3	454	113	722	1394	0.326	452	447	0.0	0.5	3.946	A
4	889	222	558	1717	0.518	884	616	0.0	1.2	4.750	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	405	101	1290	736	0.551	403	436	0.7	1.3	11.683	B
2	1136	284	265	1873	0.607	1134	1428	1.1	1.6	5.268	A
3	542	136	864	1298	0.418	541	535	0.5	0.7	4.916	A
4	1062	265	668	1638	0.648	1058	737	1.2	2.0	6.823	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	497	124	1570	562	0.884	478	532	1.3	5.8	40.448	E
2	1392	348	317	1837	0.758	1385	1731	1.6	3.3	8.486	A
3	664	166	1054	1169	0.568	662	648	0.7	1.3	7.296	A
4	1300	325	816	1531	0.849	1286	899	2.0	5.6	15.397	C

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	497	124	1583	553	0.897	491	535	5.8	7.2	55.829	F
2	1392	348	324	1832	0.760	1391	1751	3.3	3.3	8.815	A
3	664	166	1059	1165	0.570	664	655	1.3	1.4	7.420	A
4	1300	325	819	1529	0.851	1299	904	5.6	5.9	17.078	C

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	405	101	1309	724	0.560	428	440	7.2	1.4	14.227	B
2	1136	284	277	1864	0.609	1143	1460	3.3	1.7	5.445	A
3	542	136	873	1291	0.420	544	547	1.4	0.8	5.000	A
4	1062	265	672	1635	0.650	1077	745	5.9	2.1	7.321	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	340	85	1087	862	0.394	342	367	1.4	0.7	7.581	A
2	952	238	224	1901	0.500	954	1205	1.7	1.1	4.123	A
3	454	113	727	1390	0.327	455	451	0.8	0.5	3.986	A
4	889	222	561	1714	0.519	893	621	2.1	1.2	4.860	A

Committed - 2033 Base + Committed + Dev (Trend), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	22.70	C

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	1	Arm 2	22.70	C

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)	Run automatically
D21	2033 Base + Committed + Dev (Trend)	AM	ONE HOUR	07:45	09:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	470	100.000
2		ONE HOUR	✓	1563	100.000
3		ONE HOUR	✓	638	100.000
4		ONE HOUR	✓	870	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	301	87	82
	2	300	1	280	982
	3	161	381	9	87
	4	55	702	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.73	21.54	3.0	C	431	647
2	0.94	30.90	13.8	D	1434	2151
3	0.81	22.94	4.3	C	585	878
4	0.66	8.41	2.2	A	798	1197

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	354	88	903	976	0.363	351	386	0.0	0.7	6.783	A
2	1177	294	218	1906	0.617	1169	1037	0.0	1.8	5.600	A
3	480	120	1021	1191	0.403	477	366	0.0	0.7	5.528	A
4	655	164	637	1660	0.395	652	861	0.0	0.7	4.059	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	423	106	1081	865	0.488	421	462	0.7	1.1	9.535	A
2	1405	351	261	1876	0.749	1399	1241	1.8	3.3	8.623	A
3	574	143	1222	1056	0.543	571	438	0.7	1.3	8.143	A
4	782	196	763	1569	0.498	781	1030	0.7	1.1	5.188	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	517	129	1318	718	0.720	511	559	1.1	2.8	19.856	C
2	1721	430	317	1837	0.937	1686	1511	3.3	12.0	23.622	C
3	702	176	1473	886	0.793	692	530	1.3	3.8	19.537	C
4	958	239	923	1454	0.659	954	1243	1.1	2.1	8.132	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	517	129	1327	713	0.726	517	566	2.8	3.0	21.541	C
2	1721	430	320	1835	0.938	1713	1523	12.0	13.8	30.899	D
3	702	176	1497	870	0.807	701	537	3.8	4.3	22.937	C
4	958	239	935	1445	0.663	958	1262	2.1	2.2	8.406	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	423	106	1095	857	0.493	430	475	3.0	1.2	10.125	B
2	1405	351	265	1873	0.750	1446	1260	13.8	3.6	10.618	B
3	574	143	1262	1029	0.558	585	449	4.3	1.4	9.147	A
4	782	196	784	1554	0.503	786	1063	2.2	1.2	5.368	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	354	88	911	971	0.364	356	391	1.2	0.7	6.936	A
2	1177	294	220	1904	0.618	1184	1047	3.6	1.9	5.832	A
3	480	120	1034	1183	0.406	483	370	1.4	0.8	5.681	A
4	655	164	645	1654	0.396	657	872	1.2	0.8	4.119	A

Committed - 2033 Base + Committed + Dev (Trend), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	15.18	C

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-2	Arm 1	15.18	C

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)	Run automatically
D22	2033 Base + Committed + Dev (Trend)	PM	ONE HOUR	16:45	18:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	442	100.000
2		ONE HOUR	✓	1195	100.000
3		ONE HOUR	✓	583	100.000
4		ONE HOUR	✓	1181	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	254	138	49
	2	259	2	282	652
	3	152	310	0	121
	4	72	1013	96	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.86	44.61	5.6	E	406	608
2	0.71	7.38	2.7	A	1097	1645
3	0.55	7.11	1.3	A	535	802
4	0.84	16.03	5.6	C	1084	1626

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	333	83	1064	876	0.380	330	363	0.0	0.7	7.146	A
2	900	225	212	1910	0.471	896	1182	0.0	1.0	3.815	A
3	439	110	722	1393	0.315	437	386	0.0	0.5	3.882	A
4	889	222	543	1728	0.515	884	616	0.0	1.2	4.691	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	397	99	1274	746	0.533	395	434	0.7	1.2	11.110	B
2	1074	269	254	1881	0.571	1072	1415	1.0	1.4	4.794	A
3	524	131	864	1297	0.404	523	462	0.5	0.7	4.803	A
4	1062	265	650	1651	0.643	1059	738	1.2	2.0	6.679	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	487	122	1551	574	0.848	472	530	1.2	4.8	34.742	D
2	1316	329	305	1845	0.713	1311	1718	1.4	2.6	7.208	A
3	642	160	1055	1168	0.549	640	561	0.7	1.2	7.009	A
4	1300	325	794	1547	0.841	1287	900	2.0	5.3	14.621	B

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	487	122	1563	566	0.860	483	533	4.8	5.6	44.606	E
2	1316	329	311	1841	0.715	1316	1736	2.6	2.7	7.384	A
3	642	160	1060	1165	0.551	642	567	1.2	1.3	7.108	A
4	1300	325	797	1545	0.842	1299	905	5.3	5.6	16.030	C

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	397	99	1292	735	0.541	415	438	5.6	1.3	12.871	B
2	1074	269	264	1874	0.573	1079	1443	2.7	1.5	4.915	A
3	524	131	871	1292	0.406	526	472	1.3	0.7	4.870	A
4	1062	265	654	1648	0.644	1076	744	5.6	2.0	7.117	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	333	83	1074	870	0.382	335	365	1.3	0.7	7.358	A
2	900	225	215	1908	0.472	902	1194	1.5	1.0	3.866	A
3	439	110	727	1390	0.316	440	390	0.7	0.5	3.920	A
4	889	222	546	1725	0.515	893	620	2.0	1.2	4.796	A

Committed - 2033 Base + Committed + Dev (Vision), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	21.12	C

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	1	Arm 2	21.12	C

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)	Run automatically
D23	2033 Base + Committed + Dev (Vision)	AM	ONE HOUR	07:45	09:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	468	100.000
2		ONE HOUR	✓	1555	100.000
3		ONE HOUR	✓	614	100.000
4		ONE HOUR	✓	870	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	301	85	82
	2	300	1	272	982
	3	157	361	9	87
	4	55	702	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.71	20.00	2.8	C	429	644
2	0.93	29.15	13.0	D	1427	2140
3	0.78	20.09	3.6	C	563	845
4	0.65	8.10	2.1	A	798	1197

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	352	88	888	985	0.358	350	383	0.0	0.7	6.673	A
2	1171	293	216	1907	0.614	1163	1022	0.0	1.8	5.548	A
3	462	116	1021	1191	0.388	459	358	0.0	0.7	5.393	A
4	655	164	620	1673	0.392	652	861	0.0	0.7	4.008	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	421	105	1064	876	0.480	419	459	0.7	1.1	9.275	A
2	1398	349	259	1877	0.745	1392	1224	1.8	3.3	8.481	A
3	552	138	1222	1056	0.523	550	429	0.7	1.2	7.804	A
4	782	196	742	1585	0.494	781	1030	0.7	1.1	5.092	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	515	129	1297	731	0.705	509	555	1.1	2.6	18.650	C
2	1712	428	315	1838	0.932	1680	1491	3.3	11.4	22.709	C
3	676	169	1475	885	0.764	668	520	1.2	3.3	17.604	C
4	958	239	898	1472	0.651	954	1244	1.1	2.1	7.862	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	515	129	1305	726	0.709	515	562	2.6	2.8	19.999	C
2	1712	428	318	1836	0.932	1706	1502	11.4	13.0	29.151	D
3	676	169	1497	870	0.777	675	526	3.3	3.6	20.085	C
4	958	239	909	1464	0.654	958	1263	2.1	2.1	8.098	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	421	105	1075	869	0.484	427	470	2.8	1.1	9.774	A
2	1398	349	263	1875	0.746	1436	1240	13.0	3.5	10.250	B
3	552	138	1260	1030	0.536	561	439	3.6	1.3	8.608	A
4	782	196	760	1572	0.498	786	1061	2.1	1.1	5.248	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	352	88	896	981	0.359	354	387	1.1	0.7	6.817	A
2	1171	293	218	1905	0.614	1177	1031	3.5	1.9	5.768	A
3	462	116	1033	1183	0.391	465	362	1.3	0.7	5.531	A
4	655	164	627	1667	0.393	657	871	1.1	0.7	4.065	A

Committed - 2033 Base + Committed + Dev (Vision), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	14.71	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-2	Arm 1	14.71	B

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)	Run automatically
D24	2033 Base + Committed + Dev (Vision)	PM	ONE HOUR	16:45	18:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	440	100.000
2		ONE HOUR	✓	1181	100.000
3		ONE HOUR	✓	578	100.000
4		ONE HOUR	✓	1180	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	254	136	49
	2	259	2	268	652
	3	151	303	3	121
	4	72	1012	96	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.85	42.33	5.3	E	404	606
2	0.71	7.18	2.6	A	1084	1626
3	0.55	7.03	1.2	A	530	796
4	0.84	15.72	5.5	C	1083	1624

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	331	83	1061	878	0.377	329	362	0.0	0.7	7.101	A
2	889	222	213	1909	0.466	885	1176	0.0	0.9	3.776	A
3	435	109	722	1393	0.312	433	377	0.0	0.5	3.868	A
4	888	222	539	1731	0.513	884	616	0.0	1.2	4.672	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	396	99	1270	748	0.529	393	433	0.7	1.2	10.973	B
2	1062	265	255	1880	0.565	1060	1408	0.9	1.4	4.721	A
3	520	130	864	1297	0.401	519	451	0.5	0.7	4.773	A
4	1061	265	645	1654	0.641	1058	738	1.2	1.9	6.636	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	484	121	1546	577	0.840	471	529	1.2	4.6	33.493	D
2	1300	325	307	1844	0.705	1296	1709	1.4	2.5	7.021	A
3	636	159	1055	1168	0.545	634	547	0.7	1.2	6.938	A
4	1299	325	789	1550	0.838	1286	901	1.9	5.2	14.385	B

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	484	121	1558	569	0.851	482	532	4.6	5.3	42.328	E
2	1300	325	313	1840	0.707	1300	1727	2.5	2.6	7.181	A
3	636	159	1060	1165	0.546	636	553	1.2	1.2	7.031	A
4	1299	325	792	1549	0.839	1298	905	5.2	5.5	15.720	C

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	396	99	1287	738	0.536	412	437	5.3	1.3	12.587	B
2	1062	265	264	1874	0.567	1066	1434	2.6	1.4	4.833	A
3	520	130	871	1293	0.402	522	459	1.2	0.7	4.838	A
4	1061	265	649	1651	0.642	1075	744	5.5	2.0	7.056	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	331	83	1070	873	0.380	334	364	1.3	0.7	7.305	A
2	889	222	216	1907	0.466	891	1188	1.4	0.9	3.827	A
3	435	109	727	1390	0.313	436	380	0.7	0.5	3.902	A
4	888	222	542	1728	0.514	892	620	2.0	1.2	4.774	A

Junctions 10

ARCADY 10 - Roundabout Module

Version: 10.1.1.1905
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+44 (0)1344 379777 software@trl.co.uk trlsoftware.com

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Filename: A19_A645 - Committed (%HV + Additiobal Comm) - FLAT.j10
Path: Y:\PROJECTS\16146ITY Land West of Kellington Lane\Tech\Junction Assessments\Arcady\A19_A645 Weeland Road
Report generation date: 25/11/2024 12:02:08

»Committed - Base + Committed, AM
»Committed - Base + Committed, PM
»Committed - Base + Committed + Dev (Cont.), AM
»Committed - Base + Committed + Dev (Cont.), PM
»Committed - Base + Committed + Dev (Trend), AM
»Committed - Base + Committed + Dev (Trend), PM
»Committed - Base + Committed + Dev (Vision), AM
»Committed - Base + Committed + Dev (Vision), PM
»Committed - 2028 Base + Committed, AM
»Committed - 2028 Base + Committed, PM
»Committed - 2028 Base + Committed + Dev (Cont.), AM
»Committed - 2028 Base + Committed + Dev (Cont.), PM
»Committed - 2028 Base + Committed + Dev (Trend), AM
»Committed - 2028 Base + Committed + Dev (Trend), PM
»Committed - 2028 Base + Committed + Dev (Vision), AM
»Committed - 2028 Base + Committed + Dev (Vision), PM
»Committed - 2033 Base + Committed, AM
»Committed - 2033 Base + Committed, PM
»Committed - 2033 Base + Committed + Dev (Cont.), AM
»Committed - 2033 Base + Committed + Dev (Cont.), PM
»Committed - 2033 Base + Committed + Dev (Trend), AM
»Committed - 2033 Base + Committed + Dev (Trend), PM
»Committed - 2033 Base + Committed + Dev (Vision), AM
»Committed - 2033 Base + Committed + Dev (Vision), PM

Summary of junction performance

	AM							PM						
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity
	Committed - Base + Committed													
Arm 1	D1	1.1	9.27	0.49	A	8.55	16 % [Arm 2]	D2	1.6	13.66	0.59	B	7.21	14 % [Arm 1]
Arm 2		4.4	10.74	0.79	B				1.3	4.63	0.56	A		
Arm 3		0.8	7.14	0.43	A				0.7	5.03	0.40	A		
Arm 4		1.2	5.07	0.52	A				2.6	8.14	0.71	A		
	Committed - Base + Committed + Dev (Cont.)													
Arm 1	D3	1.8	14.04	0.60	B	11.83	10 % [Arm 3]	D4	2.3	19.06	0.68	C	9.00	7 % [Arm 1]
Arm 2		5.4	12.88	0.83	B				2.2	6.47	0.68	A		
Arm 3		2.7	14.34	0.72	B				1.0	5.82	0.48	A		

Arm 4		1.6	6.74	0.59	A				3.1	9.52	0.74	A		
	Committed - Base + Committed + Dev (Trend)													
Arm 1	D5	1.6	12.72	0.58	B	11.26	11 % [Arm 2]	D6	2.1	17.40	0.66	C	8.44	8 % [Arm 1]
Arm 2		5.6	13.38	0.83	B				1.9	5.73	0.64	A		
Arm 3		2.0	11.75	0.65	B				0.9	5.66	0.47	A		
Arm 4		1.5	6.29	0.57	A				3.0	9.23	0.73	A		
	Committed - Base + Committed + Dev (Vision)													
Arm 1	D7	1.6	12.24	0.57	B	10.85	12 % [Arm 2]	D8	2.0	17.00	0.65	C	8.31	9 % [Arm 1]
Arm 2		5.5	13.02	0.83	B				1.8	5.61	0.63	A		
Arm 3		1.8	10.97	0.63	B				0.9	5.60	0.46	A		
Arm 4		1.5	6.13	0.56	A				2.9	9.12	0.73	A		
	Committed - 2028 Base + Committed													
Arm 1	D9	1.2	9.50	0.50	A	8.78	16 % [Arm 2]	D10	1.6	14.08	0.60	B	7.36	13 % [Arm 1]
Arm 2		4.5	11.10	0.80	B				1.4	4.69	0.56	A		
Arm 3		0.8	7.28	0.44	A				0.7	5.08	0.41	A		
Arm 4		1.2	5.14	0.52	A				2.7	8.31	0.71	A		
	Committed - 2028 Base + Committed + Dev (Cont.)													
Arm 1	D11	1.9	14.53	0.61	B	12.24	10 % [Arm 3]	D12	2.4	19.87	0.70	C	9.24	6 % [Arm 1]
Arm 2		5.7	13.39	0.83	B				2.3	6.58	0.68	A		
Arm 3		2.8	14.85	0.72	B				1.0	5.90	0.49	A		
Arm 4		1.6	6.86	0.59	A				3.2	9.76	0.74	A		
	Committed - 2028 Base + Committed + Dev (Trend)													
Arm 1	D13	1.7	13.16	0.59	B	11.64	11 % [Arm 2]	D14	2.2	18.15	0.67	C	8.67	8 % [Arm 1]
Arm 2		5.9	13.88	0.84	B				1.9	5.82	0.64	A		
Arm 3		2.1	12.16	0.66	B				0.9	5.73	0.47	A		
Arm 4		1.5	6.41	0.58	A				3.1	9.46	0.74	A		
	Committed - 2028 Base + Committed + Dev (Vision)													
Arm 1	D15	1.6	12.63	0.58	B	11.22	11 % [Arm 2]	D16	2.1	17.64	0.66	C	8.51	8 % [Arm 1]
Arm 2		5.7	13.54	0.83	B				1.9	5.68	0.63	A		
Arm 3		1.9	11.33	0.64	B				0.9	5.66	0.47	A		
Arm 4		1.5	6.24	0.57	A				3.0	9.33	0.73	A		
	Committed - 2033 Base + Committed													
Arm 1	D17	1.2	9.59	0.50	A	8.88	15 % [Arm 2]	D18	1.6	13.77	0.59	B	7.32	14 % [Arm 1]
Arm 2		4.6	11.25	0.80	B				1.4	4.67	0.56	A		
Arm 3		0.9	7.35	0.44	A				0.7	5.05	0.41	A		
Arm 4		1.2	5.18	0.52	A				2.7	8.40	0.71	A		
	Committed - 2033 Base + Committed + Dev (Cont.)													
Arm 1	D19	1.9	14.76	0.62	B	12.46	9 % [Arm 3]	D20	2.5	20.33	0.70	C	9.37	6 % [Arm 1]
Arm 2		5.8	13.65	0.84	B				2.3	6.63	0.68	A		
Arm 3		2.9	15.15	0.73	C				1.0	5.93	0.49	A		
Arm 4		1.7	6.93	0.60	A				3.2	9.89	0.75	A		
	Committed - 2033 Base + Committed + Dev (Trend)													
Arm 1	D21	1.7	13.38	0.60	B	11.85	10 % [Arm 2]	D22	2.2	18.43	0.68	C	8.75	7 % [Arm 1]
Arm 2		6.0	14.20	0.84	B				1.9	5.84	0.64	A		
Arm 3		2.2	12.33	0.67	B				0.9	5.75	0.47	A		
Arm 4		1.6	6.46	0.58	A				3.1	9.54	0.74	A		
	Committed - 2033 Base + Committed + Dev (Vision)													
Arm 1	D23	1.6	12.80	0.58	B	11.38	11 % [Arm 2]	D24	2.2	18.00	0.67	C	8.62	8 % [Arm 1]
Arm 2		5.8	13.76	0.84	B				1.9	5.72	0.64	A		
Arm 3		1.9	11.47	0.64	B				0.9	5.70	0.47	A		
Arm 4		1.5	6.29	0.57	A				3.1	9.44	0.74	A		

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables 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. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	Land West of Kellington Lane
Location	A19/A645
Site number	
Date	20/11/2024
Version	
Status	Committed
Identifier	
Client	Banks Group
Jobnumber	ITY16146
Enumerator	JW
Description	%HV Flat Profile

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

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use simulation for HCM roundabouts	Use iterations for HCM roundabouts
5.75					✓	Delay	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 period length (min)	Time segment length (min)	Run automatically
D1	Base + Committed	AM	FLAT	08:00	09:00	60	15	✓
D2	Base + Committed	PM	FLAT	17:00	18:00	60	15	✓
D3	Base + Committed + Dev (Cont.)	AM	FLAT	08:00	09:00	60	15	✓
D4	Base + Committed + Dev (Cont.)	PM	FLAT	17:00	18:00	60	15	✓
D5	Base + Committed + Dev (Trend)	AM	FLAT	08:00	09:00	60	15	✓
D6	Base + Committed + Dev (Trend)	PM	FLAT	17:00	18:00	60	15	✓
D7	Base + Committed + Dev (Vision)	AM	FLAT	08:00	09:00	60	15	✓
D8	Base + Committed + Dev (Vision)	PM	FLAT	17:00	18:00	60	15	✓
D9	2028 Base + Committed	AM	FLAT	08:00	09:00	60	15	✓
D10	2028 Base + Committed	PM	FLAT	17:00	18:00	60	15	✓
D11	2028 Base + Committed + Dev (Cont.)	AM	FLAT	08:00	09:00	60	15	✓
D12	2028 Base + Committed + Dev (Cont.)	PM	FLAT	17:00	18:00	60	15	✓
D13	2028 Base + Committed + Dev (Trend)	AM	FLAT	08:00	09:00	60	15	✓
D14	2028 Base + Committed + Dev (Trend)	PM	FLAT	17:00	18:00	60	15	✓
D15	2028 Base + Committed + Dev (Vision)	AM	FLAT	08:00	09:00	60	15	✓
D16	2028 Base + Committed + Dev (Vision)	PM	FLAT	17:00	18:00	60	15	✓
D17	2033 Base + Committed	AM	FLAT	08:00	09:00	60	15	✓
D18	2033 Base + Committed	PM	FLAT	17:00	18:30	90	15	✓
D19	2033 Base + Committed + Dev (Cont.)	AM	FLAT	08:00	09:00	60	15	✓
D20	2033 Base + Committed + Dev (Cont.)	PM	FLAT	17:00	18:00	60	15	✓
D21	2033 Base + Committed + Dev (Trend)	AM	FLAT	08:00	09:00	60	15	✓
D22	2033 Base + Committed + Dev (Trend)	PM	FLAT	17:00	18:00	60	15	✓
D23	2033 Base + Committed + Dev (Vision)	AM	FLAT	08:00	09:00	60	15	✓
D24	2033 Base + Committed + Dev (Vision)	PM	FLAT	17:00	18:00	60	15	✓

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Committed	✓	100.000	100.000

Committed - Base + Committed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	8.55	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	16	Arm 2	8.55	A

Arms

Arms

Arm	Name	Description	No give-way line
1	A645 (East)		
2	A19 (south)		
3	A645 (west)		
4	A19 (north)		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1	3.50	5.90	10.0	14.0	40.6	11.1		
2	3.50	7.80	77.0	15.0	40.6	39.7		
3	3.65	7.00	36.0	20.0	40.6	31.1		
4	3.55	7.80	65.4	18.5	40.6	31.9		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.622	1537
2	0.697	2058
3	0.675	1881
4	0.721	2119

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	Base + Committed	AM	FLAT	08:00	09:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		FLAT	✓	446	100.000
2		FLAT	✓	1481	100.000
3		FLAT	✓	416	100.000
4		FLAT	✓	861	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	295	70	81
	2	294	1	213	973
	3	121	199	9	87
	4	55	693	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.49	9.27	1.1	A	446	446
2	0.79	10.74	4.4	B	1481	1481
3	0.43	7.14	0.8	A	416	416
4	0.52	5.07	1.2	A	861	861

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	446	112	1009	910	0.490	442	465	0.0	1.1	9.026	A
2	1481	370	271	1869	0.792	1464	1180	0.0	4.2	9.908	A
3	416	104	1334	980	0.424	413	401	0.0	0.8	6.939	A
4	861	215	618	1674	0.514	856	1129	0.0	1.2	4.990	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	446	112	1015	907	0.492	446	470	1.1	1.1	9.265	A
2	1481	370	273	1868	0.793	1481	1188	4.2	4.3	10.714	B
3	416	104	1349	970	0.429	416	405	0.8	0.8	7.142	A
4	861	215	624	1669	0.516	861	1141	1.2	1.2	5.073	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	446	112	1015	907	0.492	446	470	1.1	1.1	9.268	A
2	1481	370	273	1867	0.793	1481	1188	4.3	4.3	10.740	B
3	416	104	1349	970	0.429	416	405	0.8	0.8	7.144	A
4	861	215	624	1669	0.516	861	1141	1.2	1.2	5.073	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	446	112	1015	907	0.492	446	470	1.1	1.1	9.270	A
2	1481	370	273	1867	0.793	1481	1188	4.3	4.4	10.739	B
3	416	104	1349	970	0.429	416	405	0.8	0.8	7.145	A
4	861	215	624	1669	0.516	861	1141	1.2	1.2	5.073	A

Committed - Base + Committed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	7.21	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	14	Arm 1	7.21	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D2	Base + Committed	PM	FLAT	17:00	18:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		FLAT	✓	416	100.000
2		FLAT	✓	1041	100.000
3		FLAT	✓	501	100.000
4		FLAT	✓	1171	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	250	117	48
	2	255	2	139	645
	3	139	238	3	121
	4	72	1004	95	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.59	13.66	1.6	B	416	416
2	0.56	4.63	1.3	A	1041	1041
3	0.40	5.03	0.7	A	501	501
4	0.71	8.14	2.6	A	1171	1171

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	416	104	1331	710	0.586	410	464	0.0	1.5	12.846	B
2	1041	260	261	1876	0.555	1036	1480	0.0	1.3	4.560	A
3	501	125	946	1242	0.403	498	351	0.0	0.7	4.969	A
4	1171	293	635	1662	0.705	1161	809	0.0	2.6	7.790	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	416	104	1342	703	0.591	416	467	1.5	1.5	13.630	B
2	1041	260	264	1874	0.556	1041	1494	1.3	1.3	4.628	A
3	501	125	951	1239	0.404	501	354	0.7	0.7	5.028	A
4	1171	293	638	1659	0.706	1171	814	2.6	2.6	8.134	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	416	104	1342	703	0.591	416	467	1.5	1.6	13.653	B
2	1041	260	264	1874	0.556	1041	1494	1.3	1.3	4.628	A
3	501	125	951	1239	0.404	501	354	0.7	0.7	5.028	A
4	1171	293	638	1659	0.706	1171	814	2.6	2.6	8.141	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	416	104	1342	703	0.591	416	467	1.6	1.6	13.659	B
2	1041	260	264	1874	0.556	1041	1494	1.3	1.3	4.628	A
3	501	125	951	1239	0.404	501	354	0.7	0.7	5.029	A
4	1171	293	638	1659	0.706	1171	814	2.6	2.6	8.143	A

Committed - Base + Committed + Dev (Cont.), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	11.83	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	10	Arm 3	11.83	B

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D3	Base + Committed + Dev (Cont.)	AM	FLAT	08:00	09:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		FLAT	✓	458	100.000
2		FLAT	✓	1537	100.000
3		FLAT	✓	694	100.000
4		FLAT	✓	861	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	295	82	81
	2	294	1	269	973
	3	165	433	9	87
	4	55	693	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.60	14.04	1.8	B	458	458
2	0.83	12.88	5.4	B	1537	1537
3	0.72	14.34	2.7	B	694	694
4	0.59	6.74	1.6	A	861	861

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	458	115	1237	769	0.596	451	507	0.0	1.7	13.154	B
2	1537	384	282	1861	0.826	1517	1406	0.0	5.1	11.480	B
3	694	174	1331	982	0.707	684	467	0.0	2.5	12.898	B
4	861	215	889	1478	0.582	855	1126	0.0	1.6	6.519	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	458	115	1249	761	0.601	458	514	1.7	1.7	13.998	B
2	1537	384	285	1859	0.827	1536	1421	5.1	5.3	12.804	B
3	694	174	1348	970	0.715	693	473	2.5	2.7	14.256	B
4	861	215	901	1469	0.586	861	1140	1.6	1.6	6.738	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	458	115	1249	761	0.602	458	514	1.7	1.8	14.031	B
2	1537	384	285	1859	0.827	1537	1422	5.3	5.4	12.862	B
3	694	174	1349	970	0.715	694	473	2.7	2.7	14.326	B
4	861	215	902	1469	0.586	861	1141	1.6	1.6	6.744	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	458	115	1249	761	0.602	458	514	1.8	1.8	14.038	B
2	1537	384	285	1859	0.827	1537	1422	5.4	5.4	12.882	B
3	694	174	1349	970	0.716	694	473	2.7	2.7	14.342	B
4	861	215	902	1469	0.586	861	1141	1.6	1.6	6.745	A

Committed - Base + Committed + Dev (Cont.), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	9.00	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	7	Arm 1	9.00	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D4	Base + Committed + Dev (Cont.)	PM	FLAT	17:00	18:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		FLAT	✓	445	100.000
2		FLAT	✓	1252	100.000
3		FLAT	✓	599	100.000
4		FLAT	✓	1171	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	250	146	48
	2	255	2	350	645
	3	151	324	3	121
	4	72	1004	95	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.68	19.06	2.3	C	445	445
2	0.68	6.47	2.2	A	1252	1252
3	0.48	5.82	1.0	A	599	599
4	0.74	9.52	3.1	A	1171	1171

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	445	111	1415	658	0.676	436	476	0.0	2.1	17.069	C
2	1252	313	288	1857	0.674	1243	1563	0.0	2.2	6.262	A
3	599	150	944	1244	0.482	595	588	0.0	0.9	5.710	A
4	1171	293	731	1592	0.736	1159	808	0.0	3.0	8.959	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	445	111	1428	650	0.685	444	479	2.1	2.3	18.945	C
2	1252	313	293	1854	0.675	1252	1579	2.2	2.2	6.469	A
3	599	150	951	1239	0.484	599	594	0.9	1.0	5.819	A
4	1171	293	736	1589	0.737	1171	814	3.0	3.0	9.500	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	445	111	1428	650	0.685	445	479	2.3	2.3	19.039	C
2	1252	313	293	1854	0.675	1252	1580	2.2	2.2	6.473	A
3	599	150	951	1239	0.484	599	594	1.0	1.0	5.820	A
4	1171	293	736	1589	0.737	1171	814	3.0	3.1	9.515	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	445	111	1428	650	0.685	445	479	2.3	2.3	19.064	C
2	1252	313	293	1854	0.675	1252	1580	2.2	2.2	6.473	A
3	599	150	951	1239	0.484	599	594	1.0	1.0	5.820	A
4	1171	293	736	1589	0.737	1171	814	3.1	3.1	9.518	A

Committed - Base + Committed + Dev (Trend), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	11.26	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	11	Arm 2	11.26	B

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D5	Base + Committed + Dev (Trend)	AM	FLAT	08:00	09:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		FLAT	✓	461	100.000
2		FLAT	✓	1547	100.000
3		FLAT	✓	633	100.000
4		FLAT	✓	861	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	295	85	81
	2	294	1	279	973
	3	159	378	9	87
	4	55	693	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.58	12.72	1.6	B	461	461
2	0.83	13.38	5.6	B	1547	1547
3	0.65	11.75	2.0	B	633	633
4	0.57	6.29	1.5	A	861	861

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	461	115	1184	802	0.575	455	502	0.0	1.6	12.068	B
2	1547	387	285	1859	0.832	1526	1354	0.0	5.3	11.835	B
3	633	158	1331	982	0.644	625	480	0.0	1.9	10.876	B
4	861	215	830	1521	0.566	855	1126	0.0	1.5	6.107	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	461	115	1194	796	0.579	461	508	1.6	1.6	12.700	B
2	1547	387	288	1857	0.833	1546	1367	5.3	5.5	13.290	B
3	633	158	1348	970	0.652	633	486	1.9	2.0	11.709	B
4	861	215	841	1513	0.569	861	1140	1.5	1.5	6.285	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	461	115	1194	795	0.580	461	508	1.6	1.6	12.721	B
2	1547	387	288	1857	0.833	1547	1367	5.5	5.6	13.357	B
3	633	158	1349	970	0.653	633	486	2.0	2.0	11.744	B
4	861	215	841	1513	0.569	861	1141	1.5	1.5	6.290	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	461	115	1194	795	0.580	461	508	1.6	1.6	12.724	B
2	1547	387	288	1857	0.833	1547	1367	5.6	5.6	13.381	B
3	633	158	1349	970	0.653	633	486	2.0	2.0	11.752	B
4	861	215	841	1513	0.569	861	1141	1.5	1.5	6.290	A

Committed - Base + Committed + Dev (Trend), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	8.44	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	8	Arm 1	8.44	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D6	Base + Committed + Dev (Trend)	PM	FLAT	17:00	18:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		FLAT	✓	435	100.000
2		FLAT	✓	1183	100.000
3		FLAT	✓	581	100.000
4		FLAT	✓	1171	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	250	136	48
	2	255	2	281	645
	3	149	308	3	121
	4	72	1004	95	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.66	17.40	2.1	C	435	435
2	0.64	5.73	1.9	A	1183	1183
3	0.47	5.66	0.9	A	581	581
4	0.73	9.23	3.0	A	1171	1171

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	435	109	1399	668	0.651	427	474	0.0	1.9	15.831	C
2	1183	296	279	1863	0.635	1176	1548	0.0	1.8	5.587	A
3	581	145	945	1243	0.467	577	510	0.0	0.9	5.560	A
4	1171	293	714	1605	0.730	1159	808	0.0	2.9	8.722	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	435	109	1412	660	0.659	435	477	1.9	2.0	17.321	C
2	1183	296	283	1861	0.636	1183	1564	1.8	1.9	5.727	A
3	581	145	951	1239	0.469	581	515	0.9	0.9	5.657	A
4	1171	293	718	1602	0.731	1171	814	2.9	2.9	9.216	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	435	109	1412	660	0.659	435	477	2.0	2.1	17.385	C
2	1183	296	283	1861	0.636	1183	1564	1.9	1.9	5.730	A
3	581	145	951	1239	0.469	581	515	0.9	0.9	5.657	A
4	1171	293	718	1602	0.731	1171	814	2.9	3.0	9.227	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	435	109	1412	660	0.659	435	477	2.1	2.1	17.402	C
2	1183	296	283	1861	0.636	1183	1564	1.9	1.9	5.730	A
3	581	145	951	1239	0.469	581	515	0.9	0.9	5.657	A
4	1171	293	718	1602	0.731	1171	814	3.0	3.0	9.231	A

Committed - Base + Committed + Dev (Vision), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	10.85	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	12	Arm 2	10.85	B

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D7	Base + Committed + Dev (Vision)	AM	FLAT	08:00	09:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		FLAT	✓	460	100.000
2		FLAT	✓	1539	100.000
3		FLAT	✓	609	100.000
4		FLAT	✓	861	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	295	84	81
	2	294	1	271	973
	3	155	358	9	87
	4	55	693	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.57	12.24	1.6	B	460	460
2	0.83	13.02	5.5	B	1539	1539
3	0.63	10.97	1.8	B	609	609
4	0.56	6.13	1.5	A	861	861

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	460	115	1164	814	0.565	454	498	0.0	1.5	11.654	B
2	1539	385	284	1860	0.828	1518	1334	0.0	5.1	11.582	B
3	609	152	1331	982	0.620	602	471	0.0	1.7	10.249	B
4	861	215	807	1537	0.560	855	1126	0.0	1.4	5.966	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	460	115	1174	808	0.569	460	504	1.5	1.5	12.218	B
2	1539	385	287	1858	0.828	1538	1347	5.1	5.4	12.939	B
3	609	152	1348	970	0.628	609	477	1.7	1.8	10.940	B
4	861	215	817	1531	0.563	861	1140	1.4	1.5	6.123	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	460	115	1174	808	0.569	460	504	1.5	1.5	12.232	B
2	1539	385	287	1858	0.828	1539	1347	5.4	5.4	12.999	B
3	609	152	1349	970	0.628	609	477	1.8	1.8	10.965	B
4	861	215	817	1530	0.563	861	1141	1.5	1.5	6.127	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	460	115	1174	808	0.569	460	504	1.5	1.6	12.235	B
2	1539	385	287	1858	0.828	1539	1347	5.4	5.5	13.020	B
3	609	152	1349	970	0.628	609	477	1.8	1.8	10.972	B
4	861	215	817	1530	0.563	861	1141	1.5	1.5	6.128	A

Committed - Base + Committed + Dev (Vision), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	8.31	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	9	Arm 1	8.31	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D8	Base + Committed + Dev (Vision)	PM	FLAT	17:00	18:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		FLAT	✓	434	100.000
2		FLAT	✓	1169	100.000
3		FLAT	✓	574	100.000
4		FLAT	✓	1171	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	250	135	48
	2	255	2	267	645
	3	149	301	3	121
	4	72	1004	95	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.65	17.00	2.0	C	434	434
2	0.63	5.61	1.8	A	1169	1169
3	0.46	5.60	0.9	A	574	574
4	0.73	9.12	2.9	A	1171	1171

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	434	109	1392	672	0.646	426	474	0.0	1.9	15.524	C
2	1169	292	278	1864	0.627	1162	1541	0.0	1.8	5.473	A
3	574	144	945	1243	0.462	570	495	0.0	0.9	5.504	A
4	1171	293	707	1610	0.727	1160	808	0.0	2.8	8.632	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	434	109	1405	664	0.653	434	477	1.9	2.0	16.928	C
2	1169	292	282	1861	0.628	1169	1557	1.8	1.8	5.602	A
3	574	144	951	1239	0.463	574	500	0.9	0.9	5.595	A
4	1171	293	711	1607	0.729	1171	814	2.8	2.9	9.111	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	434	109	1405	664	0.653	434	477	2.0	2.0	16.986	C
2	1169	292	282	1861	0.628	1169	1557	1.8	1.8	5.605	A
3	574	144	951	1239	0.463	574	500	0.9	0.9	5.596	A
4	1171	293	711	1607	0.729	1171	814	2.9	2.9	9.121	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	434	109	1405	664	0.653	434	477	2.0	2.0	17.001	C
2	1169	292	282	1861	0.628	1169	1557	1.8	1.8	5.605	A
3	574	144	951	1239	0.463	574	500	0.9	0.9	5.596	A
4	1171	293	711	1607	0.729	1171	814	2.9	2.9	9.124	A

Committed - 2028 Base + Committed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	8.78	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	16	Arm 2	8.78	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D9	2028 Base + Committed	AM	FLAT	08:00	09:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		FLAT	✓	452	100.000
2		FLAT	✓	1492	100.000
3		FLAT	✓	419	100.000
4		FLAT	✓	867	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	299	71	82
	2	298	1	214	979
	3	122	201	9	87
	4	55	699	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.50	9.50	1.2	A	452	452
2	0.80	11.10	4.5	B	1492	1492
3	0.44	7.28	0.8	A	419	419
4	0.52	5.14	1.2	A	867	867

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	452	113	1017	906	0.499	447	470	0.0	1.2	9.231	A
2	1492	373	273	1868	0.799	1475	1191	0.0	4.3	10.180	B
3	419	105	1344	973	0.431	416	403	0.0	0.8	7.062	A
4	867	217	625	1669	0.520	862	1135	0.0	1.2	5.055	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	452	113	1023	902	0.501	452	475	1.2	1.2	9.491	A
2	1492	373	275	1866	0.800	1491	1200	4.3	4.5	11.063	B
3	419	105	1360	963	0.435	419	407	0.8	0.8	7.278	A
4	867	217	631	1664	0.521	867	1148	1.2	1.2	5.143	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	452	113	1023	902	0.501	452	475	1.2	1.2	9.494	A
2	1492	373	275	1866	0.800	1492	1200	4.5	4.5	11.092	B
3	419	105	1360	963	0.435	419	407	0.8	0.8	7.281	A
4	867	217	631	1664	0.521	867	1148	1.2	1.2	5.143	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	452	113	1023	902	0.501	452	475	1.2	1.2	9.496	A
2	1492	373	275	1866	0.800	1492	1200	4.5	4.5	11.101	B
3	419	105	1360	962	0.435	419	407	0.8	0.8	7.282	A
4	867	217	631	1664	0.521	867	1148	1.2	1.2	5.143	A

Committed - 2028 Base + Committed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	7.36	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	13	Arm 1	7.36	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D10	2028 Base + Committed	PM	FLAT	17:00	18:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		FLAT	✓	421	100.000
2		FLAT	✓	1050	100.000
3		FLAT	✓	503	100.000
4		FLAT	✓	1177	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	253	119	48
	2	258	2	140	650
	3	141	238	3	121
	4	72	1010	95	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.60	14.08	1.6	B	421	421
2	0.56	4.69	1.4	A	1050	1050
3	0.41	5.08	0.7	A	503	503
4	0.71	8.31	2.7	A	1177	1177

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	421	105	1337	707	0.596	415	469	0.0	1.6	13.197	B
2	1050	263	263	1875	0.560	1045	1489	0.0	1.3	4.615	A
3	503	126	954	1237	0.407	500	354	0.0	0.7	5.016	A
4	1177	294	640	1658	0.710	1167	814	0.0	2.6	7.930	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	421	105	1348	700	0.602	421	472	1.6	1.6	14.051	B
2	1050	263	266	1872	0.561	1050	1503	1.3	1.4	4.686	A
3	503	126	959	1233	0.408	503	357	0.7	0.7	5.079	A
4	1177	294	643	1656	0.711	1177	819	2.6	2.7	8.297	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	421	105	1348	700	0.602	421	472	1.6	1.6	14.078	B
2	1050	263	266	1872	0.561	1050	1503	1.4	1.4	4.687	A
3	503	126	959	1233	0.408	503	357	0.7	0.7	5.079	A
4	1177	294	643	1656	0.711	1177	819	2.7	2.7	8.304	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	421	105	1348	700	0.602	421	472	1.6	1.6	14.084	B
2	1050	263	266	1872	0.561	1050	1503	1.4	1.4	4.687	A
3	503	126	959	1233	0.408	503	357	0.7	0.7	5.079	A
4	1177	294	643	1656	0.711	1177	819	2.7	2.7	8.306	A

Committed - 2028 Base + Committed + Dev (Cont.), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	12.24	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	10	Arm 3	12.24	B

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D11	2028 Base + Committed + Dev (Cont.)	AM	FLAT	08:00	09:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		FLAT	✓	464	100.000
2		FLAT	✓	1548	100.000
3		FLAT	✓	696	100.000
4		FLAT	✓	867	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	299	83	82
	2	298	1	270	979
	3	166	434	9	87
	4	55	699	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.61	14.53	1.9	B	464	464
2	0.83	13.39	5.7	B	1548	1548
3	0.72	14.85	2.8	B	696	696
4	0.59	6.86	1.6	A	867	867

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	464	116	1243	765	0.607	457	512	0.0	1.8	13.553	B
2	1548	387	284	1860	0.832	1527	1417	0.0	5.3	11.834	B
3	696	174	1341	975	0.714	686	469	0.0	2.6	13.256	B
4	867	217	895	1474	0.588	861	1132	0.0	1.6	6.620	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	464	116	1255	757	0.613	464	519	1.8	1.8	14.489	B
2	1548	387	287	1858	0.833	1547	1432	5.3	5.5	13.299	B
3	696	174	1359	963	0.723	695	475	2.6	2.8	14.745	B
4	867	217	907	1465	0.592	867	1147	1.6	1.6	6.853	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	464	116	1256	757	0.613	464	519	1.8	1.8	14.524	B
2	1548	387	287	1858	0.833	1548	1433	5.5	5.6	13.370	B
3	696	174	1360	963	0.723	696	475	2.8	2.8	14.826	B
4	867	217	908	1465	0.592	867	1148	1.6	1.6	6.860	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	464	116	1256	757	0.613	464	519	1.8	1.9	14.534	B
2	1548	387	287	1858	0.833	1548	1433	5.6	5.7	13.394	B
3	696	174	1360	963	0.723	696	475	2.8	2.8	14.845	B
4	867	217	908	1465	0.592	867	1148	1.6	1.6	6.861	A

Committed - 2028 Base + Committed + Dev (Cont.), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	9.24	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	6	Arm 1	9.24	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D12	2028 Base + Committed + Dev (Cont.)	PM	FLAT	17:00	18:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		FLAT	✓	449	100.000
2		FLAT	✓	1261	100.000
3		FLAT	✓	602	100.000
4		FLAT	✓	1177	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	253	147	48
	2	258	2	351	650
	3	153	325	3	121
	4	72	1010	95	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.70	19.87	2.4	C	449	449
2	0.68	6.58	2.3	A	1261	1261
3	0.49	5.90	1.0	A	602	602
4	0.74	9.76	3.2	A	1177	1177

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	449	112	1421	654	0.687	440	480	0.0	2.2	17.644	C
2	1261	315	289	1856	0.679	1252	1572	0.0	2.2	6.355	A
3	602	151	952	1238	0.486	598	590	0.0	1.0	5.782	A
4	1177	294	737	1588	0.741	1165	813	0.0	3.0	9.158	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	449	112	1435	646	0.695	448	484	2.2	2.4	19.727	C
2	1261	315	294	1853	0.681	1261	1589	2.2	2.3	6.572	A
3	602	151	959	1233	0.488	602	596	1.0	1.0	5.896	A
4	1177	294	742	1584	0.743	1177	819	3.0	3.1	9.739	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	449	112	1435	646	0.695	449	484	2.4	2.4	19.839	C
2	1261	315	294	1853	0.681	1261	1590	2.3	2.3	6.578	A
3	602	151	959	1233	0.488	602	596	1.0	1.0	5.897	A
4	1177	294	742	1584	0.743	1177	819	3.1	3.1	9.753	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	449	112	1435	646	0.695	449	484	2.4	2.4	19.869	C
2	1261	315	294	1853	0.681	1261	1590	2.3	2.3	6.579	A
3	602	151	959	1233	0.488	602	596	1.0	1.0	5.897	A
4	1177	294	742	1584	0.743	1177	819	3.1	3.2	9.757	A

Committed - 2028 Base + Committed + Dev (Trend), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	11.64	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	11	Arm 2	11.64	B

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D13	2028 Base + Committed + Dev (Trend)	AM	FLAT	08:00	09:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		FLAT	✓	467	100.000
2		FLAT	✓	1557	100.000
3		FLAT	✓	637	100.000
4		FLAT	✓	867	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	299	86	82
	2	298	1	279	979
	3	161	380	9	87
	4	55	699	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.59	13.16	1.7	B	467	467
2	0.84	13.88	5.9	B	1557	1557
3	0.66	12.16	2.1	B	637	637
4	0.58	6.41	1.5	A	867	867

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	467	117	1191	797	0.586	461	507	0.0	1.6	12.430	B
2	1557	389	287	1858	0.838	1535	1365	0.0	5.5	12.178	B
3	637	159	1341	975	0.653	629	481	0.0	2.0	11.198	B
4	867	217	838	1515	0.572	861	1132	0.0	1.5	6.215	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	467	117	1202	791	0.591	467	514	1.6	1.7	13.128	B
2	1557	389	290	1856	0.839	1556	1379	5.5	5.8	13.776	B
3	637	159	1359	963	0.661	637	487	2.0	2.1	12.112	B
4	867	217	848	1508	0.575	867	1147	1.5	1.5	6.400	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	467	117	1202	790	0.591	467	514	1.7	1.7	13.150	B
2	1557	389	290	1856	0.839	1557	1379	5.8	5.8	13.857	B
3	637	159	1360	963	0.662	637	487	2.1	2.1	12.152	B
4	867	217	849	1507	0.575	867	1148	1.5	1.5	6.405	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	467	117	1202	790	0.591	467	514	1.7	1.7	13.156	B
2	1557	389	290	1856	0.839	1557	1379	5.8	5.9	13.885	B
3	637	159	1360	963	0.662	637	487	2.1	2.1	12.161	B
4	867	217	849	1507	0.575	867	1148	1.5	1.5	6.405	A

Committed - 2028 Base + Committed + Dev (Trend), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	8.67	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	8	Arm 1	8.67	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D14	2028 Base + Committed + Dev (Trend)	PM	FLAT	17:00	18:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		FLAT	✓	440	100.000
2		FLAT	✓	1192	100.000
3		FLAT	✓	584	100.000
4		FLAT	✓	1177	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	253	138	48
	2	258	2	282	650
	3	151	309	3	121
	4	72	1010	95	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.67	18.15	2.2	C	440	440
2	0.64	5.82	1.9	A	1192	1192
3	0.47	5.73	0.9	A	584	584
4	0.74	9.46	3.1	A	1177	1177

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	440	110	1406	664	0.663	432	479	0.0	2.0	16.391	C
2	1192	298	281	1862	0.640	1184	1557	0.0	1.9	5.668	A
3	584	146	952	1238	0.472	580	513	0.0	0.9	5.631	A
4	1177	294	719	1601	0.735	1165	813	0.0	3.0	8.909	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	440	110	1419	656	0.671	440	482	2.0	2.1	18.056	C
2	1192	298	285	1859	0.641	1192	1573	1.9	1.9	5.816	A
3	584	146	959	1233	0.474	584	518	0.9	0.9	5.730	A
4	1177	294	724	1597	0.737	1177	819	3.0	3.0	9.440	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	440	110	1419	656	0.671	440	482	2.1	2.2	18.132	C
2	1192	298	285	1859	0.641	1192	1574	1.9	1.9	5.819	A
3	584	146	959	1233	0.474	584	518	0.9	0.9	5.730	A
4	1177	294	724	1597	0.737	1177	819	3.0	3.1	9.454	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	440	110	1419	656	0.671	440	482	2.2	2.2	18.152	C
2	1192	298	285	1859	0.641	1192	1574	1.9	1.9	5.819	A
3	584	146	959	1233	0.474	584	518	0.9	0.9	5.730	A
4	1177	294	724	1597	0.737	1177	819	3.1	3.1	9.458	A

Committed - 2028 Base + Committed + Dev (Vision), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	11.22	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	11	Arm 2	11.22	B

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D15	2028 Base + Committed + Dev (Vision)	AM	FLAT	08:00	09:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		FLAT	✓	466	100.000
2		FLAT	✓	1550	100.000
3		FLAT	✓	613	100.000
4		FLAT	✓	867	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	299	85	82
	2	298	1	272	979
	3	157	360	9	87
	4	55	699	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.58	12.63	1.6	B	466	466
2	0.83	13.54	5.7	B	1550	1550
3	0.64	11.33	1.9	B	613	613
4	0.57	6.24	1.5	A	867	867

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	466	117	1172	809	0.576	460	504	0.0	1.6	11.992	B
2	1550	388	286	1858	0.834	1529	1346	0.0	5.4	11.945	B
3	613	153	1341	975	0.629	606	473	0.0	1.8	10.534	B
4	867	217	815	1532	0.566	861	1132	0.0	1.5	6.064	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	466	117	1182	803	0.580	466	510	1.6	1.6	12.613	B
2	1550	388	289	1856	0.835	1549	1359	5.4	5.6	13.442	B
3	613	153	1359	963	0.637	613	479	1.8	1.9	11.290	B
4	867	217	825	1525	0.569	867	1147	1.5	1.5	6.232	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	466	117	1182	803	0.580	466	510	1.6	1.6	12.631	B
2	1550	388	289	1856	0.835	1550	1359	5.6	5.7	13.516	B
3	613	153	1360	963	0.637	613	479	1.9	1.9	11.322	B
4	867	217	825	1525	0.569	867	1148	1.5	1.5	6.237	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	466	117	1182	803	0.580	466	510	1.6	1.6	12.634	B
2	1550	388	289	1856	0.835	1550	1359	5.7	5.7	13.540	B
3	613	153	1360	963	0.637	613	479	1.9	1.9	11.327	B
4	867	217	825	1525	0.569	867	1148	1.5	1.5	6.237	A

Committed - 2028 Base + Committed + Dev (Vision), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	8.51	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	8	Arm 1	8.51	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D16	2028 Base + Committed + Dev (Vision)	PM	FLAT	17:00	18:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		FLAT	✓	438	100.000
2		FLAT	✓	1178	100.000
3		FLAT	✓	576	100.000
4		FLAT	✓	1177	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	253	136	48
	2	258	2	268	650
	3	150	302	3	121
	4	72	1010	95	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.66	17.64	2.1	C	438	438
2	0.63	5.68	1.9	A	1178	1178
3	0.47	5.66	0.9	A	576	576
4	0.73	9.33	3.0	A	1177	1177

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	438	110	1399	668	0.656	430	478	0.0	2.0	16.006	C
2	1178	295	279	1864	0.632	1171	1551	0.0	1.8	5.545	A
3	576	144	952	1238	0.465	572	497	0.0	0.9	5.564	A
4	1177	294	712	1606	0.733	1165	813	0.0	2.9	8.804	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	438	110	1412	660	0.664	438	481	2.0	2.1	17.554	C
2	1178	295	283	1861	0.633	1178	1566	1.8	1.8	5.681	A
3	576	144	959	1233	0.467	576	502	0.9	0.9	5.658	A
4	1177	294	716	1603	0.734	1177	819	2.9	3.0	9.314	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	438	110	1412	660	0.664	438	481	2.1	2.1	17.622	C
2	1178	295	283	1861	0.633	1178	1567	1.8	1.8	5.684	A
3	576	144	959	1233	0.467	576	502	0.9	0.9	5.659	A
4	1177	294	716	1603	0.734	1177	819	3.0	3.0	9.326	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	438	110	1412	660	0.664	438	481	2.1	2.1	17.640	C
2	1178	295	283	1861	0.633	1178	1567	1.8	1.9	5.684	A
3	576	144	959	1233	0.467	576	502	0.9	0.9	5.659	A
4	1177	294	716	1603	0.734	1177	819	3.0	3.0	9.330	A

Committed - 2033 Base + Committed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	8.88	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	15	Arm 2	8.88	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D17	2033 Base + Committed	AM	FLAT	08:00	09:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		FLAT	✓	454	100.000
2		FLAT	✓	1497	100.000
3		FLAT	✓	421	100.000
4		FLAT	✓	870	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	301	71	82
	2	300	1	214	982
	3	123	202	9	87
	4	55	702	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.50	9.59	1.2	A	454	454
2	0.80	11.25	4.6	B	1497	1497
3	0.44	7.35	0.9	A	421	421
4	0.52	5.18	1.2	A	870	870

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	454	114	1021	903	0.503	449	473	0.0	1.2	9.319	A
2	1497	374	273	1868	0.802	1479	1197	0.0	4.4	10.294	B
3	421	105	1349	970	0.434	418	403	0.0	0.8	7.126	A
4	870	218	629	1666	0.522	865	1138	0.0	1.2	5.092	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	454	114	1027	899	0.505	454	478	1.2	1.2	9.585	A
2	1497	374	275	1866	0.802	1496	1206	4.4	4.5	11.211	B
3	421	105	1365	959	0.439	421	407	0.8	0.9	7.347	A
4	870	218	635	1662	0.524	870	1151	1.2	1.2	5.181	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	454	114	1027	899	0.505	454	478	1.2	1.2	9.590	A
2	1497	374	275	1866	0.802	1497	1206	4.5	4.6	11.241	B
3	421	105	1365	959	0.439	421	407	0.9	0.9	7.353	A
4	870	218	635	1661	0.524	870	1151	1.2	1.2	5.181	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	454	114	1027	899	0.505	454	478	1.2	1.2	9.592	A
2	1497	374	275	1866	0.802	1497	1206	4.6	4.6	11.252	B
3	421	105	1365	959	0.439	421	407	0.9	0.9	7.354	A
4	870	218	635	1661	0.524	870	1151	1.2	1.2	5.181	A

Committed - 2033 Base + Committed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	7.32	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	14	Arm 1	7.32	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D18	2033 Base + Committed	PM	FLAT	17:00	18:30	90	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		FLAT	✓	411	100.000
2		FLAT	✓	1054	100.000
3		FLAT	✓	504	100.000
4		FLAT	✓	1181	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	254	119	37
	2	259	2	141	652
	3	141	239	3	121
	4	72	1013	96	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.59	13.77	1.6	B	411	617
2	0.56	4.67	1.4	A	1054	1581
3	0.41	5.05	0.7	A	504	756
4	0.71	8.40	2.7	A	1181	1772

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	411	103	1342	704	0.584	405	470	0.0	1.5	12.938	B
2	1054	264	253	1882	0.560	1049	1494	0.0	1.3	4.600	A
3	504	126	946	1242	0.406	501	356	0.0	0.7	4.988	A
4	1181	295	642	1657	0.713	1170	805	0.0	2.7	8.012	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	411	103	1353	697	0.590	411	473	1.5	1.5	13.741	B
2	1054	264	256	1879	0.561	1054	1508	1.3	1.4	4.670	A
3	504	126	951	1239	0.407	504	359	0.7	0.7	5.049	A
4	1181	295	645	1654	0.714	1181	810	2.7	2.7	8.398	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	411	103	1353	697	0.590	411	473	1.5	1.6	13.764	B
2	1054	264	256	1879	0.561	1054	1508	1.4	1.4	4.670	A
3	504	126	951	1239	0.407	504	359	0.7	0.7	5.049	A
4	1181	295	645	1654	0.714	1181	810	2.7	2.7	8.399	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	411	103	1353	697	0.590	411	473	1.6	1.6	13.770	B
2	1054	264	256	1879	0.561	1054	1508	1.4	1.4	4.670	A
3	504	126	951	1239	0.407	504	359	0.7	0.7	5.049	A
4	1181	295	645	1654	0.714	1181	810	2.7	2.7	8.401	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	411	103	1353	697	0.590	411	473	1.6	1.6	13.770	B
2	1054	264	256	1879	0.561	1054	1508	1.4	1.4	4.670	A
3	504	126	951	1239	0.407	504	359	0.7	0.7	5.049	A
4	1181	295	645	1654	0.714	1181	810	2.7	2.7	8.403	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	411	103	1353	697	0.590	411	473	1.6	1.6	13.773	B
2	1054	264	256	1879	0.561	1054	1508	1.4	1.4	4.670	A
3	504	126	951	1239	0.407	504	359	0.7	0.7	5.049	A
4	1181	295	645	1654	0.714	1181	810	2.7	2.7	8.403	A

Committed - 2033 Base + Committed + Dev (Cont.), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	12.46	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	9	Arm 3	12.46	B

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D19	2033 Base + Committed + Dev (Cont.)	AM	FLAT	08:00	09:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		FLAT	✓	466	100.000
2		FLAT	✓	1554	100.000
3		FLAT	✓	698	100.000
4		FLAT	✓	870	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	301	83	82
	2	300	1	271	982
	3	167	435	9	87
	4	55	702	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.62	14.76	1.9	B	466	466
2	0.84	13.65	5.8	B	1554	1554
3	0.73	15.15	2.9	C	698	698
4	0.60	6.93	1.7	A	870	870

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	466	117	1247	762	0.611	459	515	0.0	1.8	13.736	B
2	1554	389	283	1860	0.835	1532	1423	0.0	5.4	12.015	B
3	698	175	1346	972	0.718	687	470	0.0	2.7	13.470	B
4	870	218	898	1471	0.591	864	1135	0.0	1.6	6.677	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	466	117	1259	755	0.617	466	522	1.8	1.9	14.710	B
2	1554	389	287	1858	0.836	1553	1438	5.4	5.7	13.551	B
3	698	175	1364	960	0.727	697	476	2.7	2.8	15.037	C
4	870	218	911	1462	0.595	870	1150	1.6	1.7	6.921	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	466	117	1260	754	0.618	466	522	1.9	1.9	14.750	B
2	1554	389	287	1858	0.836	1554	1439	5.7	5.7	13.626	B
3	698	175	1365	959	0.728	698	476	2.8	2.9	15.127	C
4	870	218	912	1462	0.595	870	1151	1.7	1.7	6.928	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	466	117	1260	754	0.618	466	522	1.9	1.9	14.758	B
2	1554	389	287	1858	0.837	1554	1439	5.7	5.8	13.653	B
3	698	175	1365	959	0.728	698	476	2.9	2.9	15.150	C
4	870	218	912	1462	0.595	870	1151	1.7	1.7	6.929	A

Committed - 2033 Base + Committed + Dev (Cont.), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	9.37	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	6	Arm 1	9.37	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D20	2033 Base + Committed + Dev (Cont.)	PM	FLAT	17:00	18:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		FLAT	✓	451	100.000
2		FLAT	✓	1264	100.000
3		FLAT	✓	603	100.000
4		FLAT	✓	1181	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	254	147	49
	2	259	2	351	652
	3	154	325	3	121
	4	72	1013	96	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.70	20.33	2.5	C	451	451
2	0.68	6.63	2.3	A	1264	1264
3	0.49	5.93	1.0	A	603	603
4	0.75	9.89	3.2	A	1181	1181

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	451	113	1425	652	0.692	442	482	0.0	2.3	17.966	C
2	1264	316	291	1855	0.681	1255	1576	0.0	2.3	6.398	A
3	603	151	955	1236	0.488	599	590	0.0	1.0	5.815	A
4	1181	295	739	1586	0.744	1169	816	0.0	3.1	9.265	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	451	113	1439	643	0.701	450	486	2.3	2.4	20.172	C
2	1264	316	296	1852	0.683	1264	1593	2.3	2.3	6.620	A
3	603	151	963	1231	0.490	603	597	1.0	1.0	5.931	A
4	1181	295	744	1583	0.746	1181	822	3.1	3.2	9.869	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	451	113	1439	643	0.701	451	486	2.4	2.5	20.295	C
2	1264	316	296	1852	0.683	1264	1594	2.3	2.3	6.627	A
3	603	151	963	1231	0.490	603	597	1.0	1.0	5.931	A
4	1181	295	744	1583	0.746	1181	822	3.2	3.2	9.885	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	451	113	1439	643	0.701	451	486	2.5	2.5	20.328	C
2	1264	316	296	1851	0.683	1264	1594	2.3	2.3	6.628	A
3	603	151	963	1231	0.490	603	597	1.0	1.0	5.932	A
4	1181	295	744	1583	0.746	1181	822	3.2	3.2	9.889	A

Committed - 2033 Base + Committed + Dev (Trend), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	11.85	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	10	Arm 2	11.85	B

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D21	2033 Base + Committed + Dev (Trend)	AM	FLAT	08:00	09:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		FLAT	✓	470	100.000
2		FLAT	✓	1563	100.000
3		FLAT	✓	638	100.000
4		FLAT	✓	870	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	301	87	82
	2	300	1	280	982
	3	161	381	9	87
	4	55	702	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.60	13.38	1.7	B	470	470
2	0.84	14.20	6.0	B	1563	1563
3	0.67	12.33	2.2	B	638	638
4	0.58	6.46	1.6	A	870	870

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	470	118	1195	795	0.592	463	509	0.0	1.7	12.617	B
2	1563	391	288	1857	0.842	1540	1371	0.0	5.6	12.391	B
3	638	160	1345	972	0.656	630	483	0.0	2.0	11.321	B
4	870	218	841	1513	0.575	864	1135	0.0	1.5	6.261	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	470	118	1206	788	0.596	470	516	1.7	1.7	13.349	B
2	1563	391	291	1855	0.843	1562	1385	5.6	5.9	14.078	B
3	638	160	1364	960	0.665	638	489	2.0	2.1	12.273	B
4	870	218	851	1505	0.578	870	1150	1.5	1.5	6.451	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	470	118	1206	788	0.596	470	516	1.7	1.7	13.374	B
2	1563	391	291	1855	0.843	1563	1385	5.9	6.0	14.167	B
3	638	160	1365	959	0.665	638	489	2.1	2.1	12.315	B
4	870	218	852	1505	0.578	870	1151	1.5	1.6	6.457	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	470	118	1206	788	0.597	470	516	1.7	1.7	13.381	B
2	1563	391	291	1855	0.843	1563	1385	6.0	6.0	14.198	B
3	638	160	1365	959	0.665	638	489	2.1	2.2	12.326	B
4	870	218	852	1505	0.578	870	1151	1.6	1.6	6.457	A

Committed - 2033 Base + Committed + Dev (Trend), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	8.75	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	7	Arm 1	8.75	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D22	2033 Base + Committed + Dev (Trend)	PM	FLAT	17:00	18:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		FLAT	✓	442	100.000
2		FLAT	✓	1195	100.000
3		FLAT	✓	583	100.000
4		FLAT	✓	1181	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	254	138	49
	2	259	2	282	652
	3	152	310	0	121
	4	72	1013	96	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.68	18.43	2.2	C	442	442
2	0.64	5.84	1.9	A	1195	1195
3	0.47	5.75	0.9	A	583	583
4	0.74	9.54	3.1	A	1181	1181

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	442	111	1408	662	0.667	434	481	0.0	2.1	16.593	C
2	1195	299	280	1863	0.641	1187	1562	0.0	1.9	5.687	A
3	583	146	956	1235	0.472	579	511	0.0	0.9	5.644	A
4	1181	295	719	1601	0.738	1169	816	0.0	3.0	8.985	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	442	111	1421	654	0.675	442	484	2.1	2.2	18.323	C
2	1195	299	284	1860	0.642	1195	1578	1.9	1.9	5.836	A
3	583	146	963	1231	0.474	583	516	0.9	0.9	5.746	A
4	1181	295	724	1597	0.739	1181	822	3.0	3.1	9.531	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	442	111	1421	654	0.676	442	484	2.2	2.2	18.406	C
2	1195	299	284	1860	0.643	1195	1579	1.9	1.9	5.839	A
3	583	146	963	1231	0.474	583	516	0.9	0.9	5.746	A
4	1181	295	724	1597	0.739	1181	822	3.1	3.1	9.543	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	442	111	1421	654	0.676	442	484	2.2	2.2	18.427	C
2	1195	299	284	1860	0.643	1195	1579	1.9	1.9	5.839	A
3	583	146	963	1231	0.474	583	516	0.9	0.9	5.746	A
4	1181	295	724	1597	0.739	1181	822	3.1	3.1	9.544	A

Committed - 2033 Base + Committed + Dev (Vision), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	11.38	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	11	Arm 2	11.38	B

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D23	2033 Base + Committed + Dev (Vision)	AM	FLAT	08:00	09:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		FLAT	✓	468	100.000
2		FLAT	✓	1555	100.000
3		FLAT	✓	614	100.000
4		FLAT	✓	870	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	301	85	82
	2	300	1	272	982
	3	157	361	9	87
	4	55	702	113	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	19	8	28
	2	23	0	18	13
	3	7	11	0	13
	4	18	13	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.58	12.80	1.6	B	468	468
2	0.84	13.76	5.8	B	1555	1555
3	0.64	11.47	1.9	B	614	614
4	0.57	6.29	1.5	A	870	870

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	468	117	1176	807	0.580	462	506	0.0	1.6	12.137	B
2	1555	389	286	1859	0.837	1533	1352	0.0	5.5	12.096	B
3	614	154	1346	972	0.632	607	473	0.0	1.8	10.646	B
4	870	218	818	1530	0.569	864	1135	0.0	1.5	6.108	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	468	117	1186	801	0.585	468	512	1.6	1.6	12.781	B
2	1555	389	289	1856	0.838	1554	1365	5.5	5.7	13.657	B
3	614	154	1364	960	0.640	614	479	1.8	1.9	11.429	B
4	870	218	828	1523	0.571	870	1150	1.5	1.5	6.281	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	468	117	1186	800	0.585	468	512	1.6	1.6	12.802	B
2	1555	389	289	1856	0.838	1555	1365	5.7	5.8	13.735	B
3	614	154	1365	959	0.640	614	479	1.9	1.9	11.463	B
4	870	218	828	1522	0.571	870	1151	1.5	1.5	6.286	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	468	117	1186	800	0.585	468	512	1.6	1.6	12.805	B
2	1555	389	289	1856	0.838	1555	1365	5.8	5.8	13.762	B
3	614	154	1365	959	0.640	614	479	1.9	1.9	11.471	B
4	870	218	828	1522	0.571	870	1151	1.5	1.5	6.286	A

Committed - 2033 Base + Committed + Dev (Vision), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A19/A645	Standard Roundabout		1, 2, 3, 4	8.62	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	8	Arm 1	8.62	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D24	2033 Base + Committed + Dev (Vision)	PM	FLAT	17:00	18:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		FLAT	✓	440	100.000
2		FLAT	✓	1181	100.000
3		FLAT	✓	578	100.000
4		FLAT	✓	1180	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	254	136	49
	2	259	2	268	652
	3	151	303	3	121
	4	72	1012	96	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		1	2	3	4
From	1	0	13	4	3
	2	9	0	14	5
	3	1	6	0	0
	4	17	10	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.67	18.00	2.2	C	440	440
2	0.64	5.72	1.9	A	1181	1181
3	0.47	5.70	0.9	A	578	578
4	0.74	9.44	3.1	A	1180	1180

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	440	110	1403	665	0.661	432	480	0.0	2.0	16.275	C
2	1181	295	281	1862	0.634	1174	1554	0.0	1.8	5.578	A
3	578	145	956	1235	0.468	574	498	0.0	0.9	5.601	A
4	1180	295	715	1604	0.736	1168	816	0.0	3.0	8.898	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	440	110	1416	658	0.669	440	483	2.0	2.1	17.908	C
2	1181	295	285	1859	0.635	1181	1570	1.8	1.9	5.718	A
3	578	145	963	1231	0.470	578	503	0.9	0.9	5.699	A
4	1180	295	719	1601	0.737	1180	822	3.0	3.0	9.427	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	440	110	1416	657	0.669	440	483	2.1	2.2	17.981	C
2	1181	295	285	1859	0.635	1181	1571	1.9	1.9	5.721	A
3	578	145	963	1231	0.470	578	503	0.9	0.9	5.700	A
4	1180	295	719	1601	0.737	1180	822	3.0	3.1	9.440	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	440	110	1416	657	0.669	440	483	2.2	2.2	18.001	C
2	1181	295	285	1859	0.635	1181	1571	1.9	1.9	5.721	A
3	578	145	963	1231	0.470	578	503	0.9	0.9	5.700	A
4	1180	295	719	1601	0.737	1180	822	3.1	3.1	9.444	A

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APPENDIX E. WEBTRIS TRAFFIC FLOWS AND TURN PROPORTIONS

M62 Eastbound (west of the junction)

Annual report for 2023 for SiteId : 7031

Month	24hr ADT	24hr %>6.6m	24hr AWT	24hr %>6.6m	18hr ADT	18hr %>6.6m	18hr AWT	18hr %>6.6m	16hr ADT	16hr %>6.6m	16hr AWT	16hr %>6.6m	12hr ADT	12hr %>6.6m	12hr AWT	12hr %>6.6m
Jan	15828	27.8	17041	30.9	15453	27.3	16712	30.4	15254	27.2	16543	30.4	13981	26.9	15231	30.5
Mar	23084	26.9	24602	30.6	22271	25.9	23715	29.7	21721	25.7	23146	29.6	19646	25.4	21010	29.3
Apr	30132	21.5	34043	25.3	29116	20.7	33017	24.5	28312	20.8	32125	24.6	25148	20.8	28650	24.7
May	30950	20.9	33791	23.5	29636	20	32379	22.7	28947	20.1	31680	22.8	25178	20.2	27569	22.9
Jun	33026	21.5	35965	24.2	31407	20.7	34219	23.4	30659	20.7	33464	23.4	26590	20.9	28992	23.7
Jul	32336	20.3	36512	23.5	30905	19.5	34948	22.7	30162	19.5	34169	22.7	26176	19.6	29631	23
Aug	33382	20.5	35687	22.9	32015	19.8	34234	22.1	31328	19.8	33527	22.2	27338	20	29200	22.5
Sep	32578	20.4	35903	23.7	31211	19.6	34390	23	30528	19.7	33693	23	26675	19.9	29449	23.3
Oct	32036	21.2	35355	24.5	30650	20.4	33827	23.8	29944	20.4	33093	23.8	26329	20.4	29060	23.9
Nov	28152	24.1	31065	26.9	27003	23.2	29746	26	26479	23.1	29219	25.9	23502	22.9	25882	25.9
Dec	13755	39.3	18013	38.9	13364	38.8	17466	38.3	13175	38.9	17212	38.4	12105	39	15751	38.5
Avg	27750	24	30725	26.8	26639	23.2	29513	26	26046	23.3	28897	26.1	22969	23.3	25493	26.2

Site Hours	6156
Number of Hours (days)	261
1a. AADF (One way - 12 hr)	22969
1b. AADF (One way - 16 hr)	26046
1c. AADF (One way - 18 hr)	26639
2a. AAWF (One way - 12 hr)	25493
2b. AAWF (One way - 16 hr)	28897
2c. AAWF (One way - 18 hr)	29513
3a. peak daily flow	42460
3b. peak daily flow date	########
3c. peak hourly flow	4085
3d. peak hourly flow date/time	########
4a. AADF (Two way) 16 Hr	
4b. AADF (Two way) 24 Hr	
5. CRF	
6. Stress	
7a. % vehicles over (AADF)	24.03%
7b. % vehicles over (AAWF)	26.80%

M62 Eastbound (through Junction)

Annual report for 2023 for SiteId : 9185

Month	24hr ADT	24hr %>6.6m	24hr AWT	24hr %>6.6m	18hr ADT	18hr %>6.6m	18hr AWT	18hr %>6.6m	16hr ADT	16hr %>6.6m	16hr AWT	16hr %>6.6m	12hr ADT	12hr %>6.6m	12hr AWT	12hr %>6.6m
Jan	18199	25.2	20301	28.3	17392	24.3	19421	27.3	16945	24.4	18948	27.4	14770	24.4	16518	27.5
Feb	21814	25.9	24051	29.4	20712	24.5	22830	28	20124	24.2	22166	27.7	17605	24.2	19331	27.8
Mar	21072	24.3	24090	29.5	20029	23	22868	28.3	19447	22.9	22231	28.3	17025	22.9	19470	28.4
Apr	23894	24.7	27085	28.3	22877	23.7	25955	27.4	22242	23.9	25244	27.6	19449	24.1	22049	27.9
May	22434	23.9	24925	27.1	21468	22.9	23851	26.1	20951	23	23313	26.2	18217	23.1	20277	26.5
Jun	24573	24.3	27282	27.7	23364	23.5	25945	26.9	22862	23.5	25457	26.9	19845	23.6	22062	27.2
Jul	24935	23.3	27967	26.8	23804	22.3	26711	25.8	23246	22.2	26130	25.7	20241	22.3	22732	25.9
Oct	24156	23.5	27248	27.8	23055	22.6	26000	27	22496	22.6	25424	27	19716	22.7	22315	27.1
Dec	21235	21.4	23361	25	20362	20.3	22407	24	19886	20.3	21902	24	17609	20.2	19345	24
Avg	22479	24.1	25145	27.8	21451	23	23998	26.7	20911	23	23423	26.7	18275	23	20455	26.9

Site Hours	3138
Number of Hours (days)	144
1a. AADF (One way - 12 hr)	18275
1b. AADF (One way - 16 hr)	20911
1c. AADF (One way - 18 hr)	21451
2a. AAWF (One way - 12 hr)	20455
2b. AAWF (One way - 16 hr)	23423
2c. AAWF (One way - 18 hr)	23998
3a. peak daily flow	32468
3b. peak daily flow date	########
3c. peak hourly flow	3302
3d. peak hourly flow date/time	########
4a. AADF (Two way) 16 Hr	
4b. AADF (Two way) 24 Hr	
5. CRF	
6. Stress	
7a. % vehicles over (AADF)	24.06%
7b. % vehicles over (AAWF)	27.76%

M62 Westbound (West of Junction 34)

Annual report for 2023 for SiteId : 633

Month	24hr ADT	24hr %>6.6m	24hr AWT	24hr %>6.6m	18hr ADT	18hr %>6.6m	18hr AWT	18hr %>6.6m	16hr ADT	16hr %>6.6m	16hr AWT	16hr %>6.6m	12hr ADT	12hr %>6.6m	12hr AWT	12hr %>6.6m
Jan	25686	24.2	28840	27.8	24350	23	27272	26.7	23940	23	26860	26.6	21164	22.7	23633	26.5
Feb	28389	24.6	31334	28.2	26939	23.3	29640	26.9	26512	23.3	29198	26.8	23374	23.1	25601	26.9
Mar	28904	25.6	31380	29.1	27364	24.4	29624	27.9	26871	24.3	29111	27.9	23623	24.2	25461	27.9
Apr	29539	23.3	32471	27	28061	22.1	30748	25.8	27559	22.1	30247	25.7	24220	22	26528	25.7
May	30837	23.7	33478	26.8	29308	22.6	31748	25.7	28795	22.6	31245	25.7	25211	22.6	27297	25.8
Jun	32100	24	34921	27.6	30432	23	33018	26.5	29889	23	32484	26.5	26085	23	28292	26.7
Jul	32821	24.8	35467	27.3	31138	23.7	33583	26.3	30606	23.7	33044	26.3	26789	23.8	28855	26.5
Aug	33543	23.6	35770	25.9	31952	22.6	34025	24.9	31391	22.5	33461	24.9	27600	22.5	29346	25
Sep	32503	23.2	35224	27.2	30910	22.2	33406	26.2	30355	22.1	32852	26.1	26723	22.1	28788	26.2
Oct	33007	24.8	35144	27.6	31314	23.7	33279	26.5	30760	23.7	32753	26.5	27137	23.6	28821	26.5
Nov	30683	24.1	34133	28.3	29149	23	32309	27.2	28662	22.9	31832	27.1	25402	22.7	28017	27
Dec	27840	21.5	31025	24.8	26500	20.3	29490	23.6	26021	20.2	28993	23.5	23224	19.9	25719	23.3
Avg	30487	23.9	33265	27.3	28951	22.8	31511	26.2	28446	22.8	31006	26.1	25046	22.7	27196	26.2
Site Hours	8315															
Number of Hours (days)	352															
1a. AADF (One way - 12 hr)	25046															
1b. AADF (One way - 16 hr)	28446															
1c. AADF (One way - 18 hr)	28951															
2a. AAWF (One way - 12 hr)	27196															
2b. AAWF (One way - 16 hr)	31006															
2c. AAWF (One way - 18 hr)	31511															
3a. peak daily flow	40655															
3b. peak daily flow date	########															
3c. peak hourly flow	3603															
3d. peak hourly flow date/time	########															
4a. AADF (Two way) 16 Hr																
4b. AADF (Two way) 24 Hr																
5. CRF																
6. Stress																
7a. % vehicles over (AADF)	23.94%															
7b. % vehicles over (AAWF)	27.31%															

M62 Westbound (Through Junction)

Annual report for 2023 for SiteId : 9187

Month	24hr ADT	24hr %>6.6m	24hr AWT	24hr %>6.6m	18hr ADT	18hr %>6.6m	18hr AWT	18hr %>6.6m	16hr ADT	16hr %>6.6m	16hr AWT	16hr %>6.6m	12hr ADT	12hr %>6.6m	12hr AWT	12hr %>6.6m
Jan	19404	23.8	21830	27.2	18341	22.3	20580	25.8	18041	22.2	20274	25.6	15959	21.8	17863	25.3
Feb	21115	23.8	23361	27.4	19970	22.3	22022	25.9	19659	22.2	21703	25.7	17352	21.9	19058	25.5
Mar	21302	25	23066	28.1	19749	23.5	21241	26.6	19366	23.3	20824	26.4	17052	22.9	18244	26.2
Apr	21823	22.1	24245	26.1	20665	20.7	22868	24.7	20285	20.6	22483	24.6	17871	20.3	19775	24.3
May	23387	22.8	25417	25.8	22180	21.6	24042	24.6	21797	21.5	23665	24.5	19139	21.3	20752	24.4
Jun	24429	23.2	26437	26.6	23083	21.9	24906	25.3	22669	21.9	24497	25.2	19829	21.7	21419	25.1
Jul	24221	22.3	27097	26	22966	21.1	25598	24.9	22571	21.1	25187	24.8	19820	20.9	22086	24.7
Aug	25551	21.3	27647	24.2	24308	20.2	26249	23	23873	20.1	25810	22.9	21045	20	22712	22.8
Sep	24847	21.9	26834	25.9	23585	20.8	25395	24.7	23160	20.7	24967	24.6	20457	20.5	21982	24.5
Oct	24834	22.3	26969	26.1	23542	21.1	25477	24.8	23116	21	25061	24.7	20509	20.8	22154	24.5
Nov	23749	23.4	25952	26.6	22523	22.1	24522	25.3	22195	22	24213	25.2	19747	21.6	21448	24.9
Dec	21271	20.6	23836	23.9	20210	19.2	22603	22.5	19855	19.1	22229	22.4	17762	18.6	19769	22
Avg	22994	22.7	25224	26.2	21760	21.4	23791	24.8	21382	21.3	23409	24.7	18878	21	20605	24.5
Site Hours	8635															
Number of Hours (days)	361															
1a. AADF (One way - 12 hr)	18878															
1b. AADF (One way - 16 hr)	21382															
1c. AADF (One way - 18 hr)	21760															
2a. AAWF (One way - 12 hr)	20605															
2b. AAWF (One way - 16 hr)	23409															
2c. AAWF (One way - 18 hr)	23791															
3a. peak daily flow	32168															
3b. peak daily flow date	########															
3c. peak hourly flow	2942															
3d. peak hourly flow date/time	########															
4a. AADF (Two way) 16 Hr																
4b. AADF (Two way) 24 Hr																
5. CRF																
6. Stress																
7a. % vehicles over (AADF)	22.70%															
7b. % vehicles over (AAWF)	26.15%															

M62 (West) to A1M North

Annual report for 2023 for SiteId : 4488

Month	24hr ADT	24hr %>6.6m	24hr AWT	24hr %>6.6m	18hr ADT	18hr %>6.6m	18hr AWT	18hr %>6.6m	16hr ADT	16hr %>6.6m	16hr AWT	16hr %>6.6m	12hr ADT	12hr %>6.6m	12hr AWT	12hr %>6.6m
Jan	5784	15.9	6459	17.8	5402	14.4	6014	16.3	5258	14.2	5856	16.1	4457	14.1	4912	16.1
Feb	5755	16.5	6228	18.6	5339	14.6	5742	16.6	5165	14.1	5533	16.1	4325	13.7	4571	15.8
Mar	6352	16.7	6953	18.4	5902	15.1	6441	16.8	5724	14.7	6236	16.4	4818	14.5	5195	16.4
Apr	6156	16	6984	18.4	5731	14.2	6466	16.7	5546	13.8	6243	16.2	4707	13.5	5231	16
May	6289	16.4	6791	18	5869	15	6324	16.7	5736	14.8	6180	16.4	4844	14.6	5160	16.4
Jun	6433	16.8	7043	18.6	5997	15.4	6555	17.3	5861	15.2	6413	17	4922	15.1	5331	17.1
Jul	6678	16.7	7202	18	6235	15.4	6723	16.7	6065	15.1	6546	16.4	5095	15	5449	16.5
Aug	6960	16	7408	17.4	6525	14.7	6931	16	6380	14.4	6777	15.7	5463	14.2	5753	15.6
Sep	6695	15.9	7342	18	6259	14.6	6840	16.7	6119	14.3	6699	16.4	5225	14.2	5660	16.5
Oct	6903	17.6	7329	18.9	6390	15.7	6775	17.1	6206	15.1	6575	16.5	5240	15	5504	16.5
Nov	6865	17.2	7610	19.1	6319	15.1	6984	17.1	6102	14.7	6734	16.6	5187	14.5	5662	16.6
Dec	7175	18.6	7951	20.2	6454	15.8	7145	17.5	6100	15.1	6710	16.7	5108	14.8	5555	16.6
Avg	6503	16.7	7108	18.5	6035	15	6578	16.8	5855	14.6	6375	16.4	4949	14.4	5331	16.3
Site Hours	8228															
Number of Hours (days)	347															
1a. AADF (One way - 12 hr)	4949															
1b. AADF (One way - 16 hr)	5855															
1c. AADF (One way - 18 hr)	6035															
2a. AAWF (One way - 12 hr)	5331															
2b. AAWF (One way - 16 hr)	6375															
2c. AAWF (One way - 18 hr)	6578															
3a. peak daily flow	9271															
3b. peak daily flow date	########															
3c. peak hourly flow	1408															
3d. peak hourly flow date/time	########															
4a. AADF (Two way) 16 Hr																
4b. AADF (Two way) 24 Hr																
5. CRF																
6. Stress																
7a. % vehicles over (AADF)	16.69%															
7b. % vehicles over (AAWF)	18.45%															

M62 (West) to A1M South

Annual report for 2023 for SiteId : 3726

Month	24hr ADT	24hr %>6.6m	24hr AWT	24hr %>6.6m	18hr ADT	18hr %>6.6m	18hr AWT	18hr %>6.6m	16hr ADT	16hr %>6.6m	16hr AWT	16hr %>6.6m	12hr ADT	12hr %>6.6m	12hr AWT	12hr %>6.6m
Jan	12373	25.1	13625	28.4	11407	23.1	12527	26.5	11028	22.8	12123	26.3	9310	22.2	10190	25.8
Feb	12720	24.5	13804	27.7	11935	23	12885	26.1	11740	22.8	12700	26	9957	22.3	10716	25.5
Mar	12072	25.1	12842	28.2	11290	23.6	11984	26.8	11095	23.5	11815	26.6	9364	23	9934	26.2
Apr	9221	25.1	9874	30.1	8332	22.6	8812	27.6	7946	22.4	8343	27.6	6473	21.7	6670	27.1
May	6564	29.6	6544	34.1	5593	26.1	5471	30.7	5221	25.6	5084	30.2	3890	25.1	3695	30.4
Jun	6042	29.8	6024	34.6	5178	27	5103	32.1	4875	26.8	4827	31.9	3619	26.3	3495	32
Jul	6088	31.1	6171	34.8	5096	27.6	5078	31.5	4773	27.1	4756	30.9	3467	26.8	3388	31.1
Aug	5998	31.1	6094	34.5	4995	27.3	5001	30.8	4631	26.9	4614	30.5	3343	26.5	3259	30.5
Sep	6416	31.1	6502	36.4	5340	27.1	5306	32.7	4931	26.5	4890	32	3628	25.7	3507	31.7
Oct	6441	32.6	6420	36.3	5357	28.8	5246	32.8	4990	28.4	4877	32.4	3703	27.9	3546	32.5
Nov	6284	31.2	6309	36.6	5308	27.5	5210	33.2	4936	26.9	4822	32.8	3672	26.3	3462	33
Dec	6184	32.8	6297	37.7	5119	28.9	5053	34	4755	28.3	4642	33.6	3488	27.4	3257	33.7
Avg	8033	29.1	8375	33.3	7079	26	7306	30.4	6743	25.7	6957	30.1	5326	25.1	5426	30
Site Hours	8228															
Number of Hours (days)	347															
1a. AADF (One way - 12 hr)	5326															
1b. AADF (One way - 16 hr)	6743															
1c. AADF (One way - 18 hr)	7079															
2a. AAWF (One way - 12 hr)	5426															
2b. AAWF (One way - 16 hr)	6957															
2c. AAWF (One way - 18 hr)	7306															
3a. peak daily flow	18199															
3b. peak daily flow date	########															
3c. peak hourly flow	1326															
3d. peak hourly flow date/time	########															
4a. AADF (Two way) 16 Hr																
4b. AADF (Two way) 24 Hr																
5. CRF																
6. Stress																
7a. % vehicles over (AADF)	29.08%															
7b. % vehicles over (AAWF)	33.28%															

M62 (West) to M62 (East)

Annual report for 2023 for SiteId : 3592

Month	24hr ADT	24hr %>6.6m	24hr AWT	24hr %>6.6m	18hr ADT	18hr %>6.6m	18hr AWT	18hr %>6.6m	16hr ADT	16hr %>6.6m	16hr AWT	16hr %>6.6m	12hr ADT	12hr %>6.6m	12hr AWT	12hr %>6.6m
Jan	22062	15.3	24721	17.6	21010	14.6	23584	16.9	20400	14.6	22942	17	17657	14.5	19822	17
Feb	24217	15.9	26731	18.1	22973	15	25344	17.2	22335	14.9	24617	17.1	19328	14.9	21217	17.2
Mar	24821	16.1	26665	17.9	23571	15.3	25332	17.1	22898	15.2	24617	17	19799	15.3	21245	17.2
Apr	24959	15.2	28394	18	23793	14.5	27112	17.3	23043	14.6	26256	17.4	19974	14.6	22726	17.6
May	26670	20.1	29130	22.6	25422	19.4	27796	22	24779	19.5	27131	22	21367	19.7	23388	22.3
Jun	28262	20.7	31279	23.5	26771	20	29657	22.8	26088	20.1	28974	22.9	22505	20.4	24946	23.3
Jul	28507	21.1	30957	23.2	27157	20.4	29528	22.6	26499	20.5	28847	22.6	22811	20.8	24828	23
Aug	28705	20.5	30742	22.5	27452	19.8	29425	21.9	26802	20	28738	22	23195	20.2	24811	22.3
Sep	28172	20	31212	23.2	26889	19.4	29812	22.6	26237	19.5	29137	22.7	22800	19.7	25309	23
Oct	29225	21.5	31205	23.6	27853	20.9	29766	23	27154	21	29055	23.1	23694	21.2	25304	23.4
Nov	27753	21	30821	24.1	26485	20.3	29443	23.4	25806	20.4	28749	23.5	22513	20.5	25027	23.7
Dec	24702	18.6	27529	21.6	23605	17.8	26355	20.8	22963	17.9	25677	21	20111	17.9	22433	21.1
Avg	26504	18.8	29115	21.3	25248	18.1	27762	20.6	24583	18.2	27061	20.7	21312	18.3	23421	20.9

Site Hours	8656
Number of Hours (days)	364
1a. AADF (One way - 12 hr)	21312
1b. AADF (One way - 16 hr)	24583
1c. AADF (One way - 18 hr)	25248
2a. AAWF (One way - 12 hr)	23421
2b. AAWF (One way - 16 hr)	27061
2c. AAWF (One way - 18 hr)	27762
3a. peak daily flow	36869
3b. peak daily flow date	########
3c. peak hourly flow	3417
3d. peak hourly flow date/time	########
4a. AADF (Two way) 16 Hr	
4b. AADF (Two way) 24 Hr	
5. CRF	
6. Stress	
7a. % vehicles over (AADF)	18.84%
7b. % vehicles over (AAWF)	21.33%

A1M North to M62 (West)

Annual report for 2023 for SiteId : 2910

Month	24hr ADT	24hr %>6.6m	24hr AWT	24hr %>6.6m	18hr ADT	18hr %>6.6m	18hr AWT	18hr %>6.6m	16hr ADT	16hr %>6.6m	16hr AWT	16hr %>6.6m	12hr ADT	12hr %>6.6m	12hr AWT	12hr %>6.6m
Jan	5573	16.1	6161	18.1	5316	14.9	5869	16.9	5195	14.5	5738	16.5	4611	14.2	5072	16.3
Feb	5317	16.5	5617	18.7	5001	14.8	5266	17	4824	14.3	5063	16.5	4258	14	4443	16.3
Mar	6105	17.1	6608	19.1	5750	15.5	6204	17.4	5522	15.1	5940	16.9	4824	14.7	5161	16.6
Apr	5966	15.5	6629	17.9	5701	14.4	6334	16.8	5552	14.1	6181	16.5	4893	13.8	5454	16.3
May	6390	16.4	6947	18.2	6103	15.3	6631	17	5938	15	6456	16.7	5206	14.8	5664	16.5
Jun	6847	17.2	7417	19.2	6463	15.7	6975	17.6	6228	15.3	6718	17.2	5393	15.2	5815	17.1
Jul	6851	17.3	7230	18.5	6526	16	6878	17	6356	15.7	6698	16.7	5535	15.5	5814	16.6
Aug	6898	16.2	7296	17.6	6605	15.1	6985	16.5	6454	14.9	6833	16.3	5693	14.8	6022	16.2
Sep	6679	16.4	7232	18.8	6375	15.2	6888	17.6	6182	14.9	6673	17.2	5379	14.6	5771	17
Oct	6810	17.2	7221	18.8	6481	15.9	6861	17.4	6299	15.6	6671	17.1	5559	15.3	5874	16.9
Nov	6714	16.8	7265	19	6399	15.5	6916	17.7	6236	15.3	6749	17.4	5510	15	5948	17.3
Avg	6377	16.6	6874	18.5	6065	15.3	6527	17.2	5889	15	6338	16.8	5169	14.7	5548	16.6

Site Hours	7200
Number of Hours (days)	305
1a. AADF (One way - 12 hr)	5169
1b. AADF (One way - 16 hr)	5889
1c. AADF (One way - 18 hr)	6065
2a. AAWF (One way - 12 hr)	5548
2b. AAWF (One way - 16 hr)	6338
2c. AAWF (One way - 18 hr)	6527
3a. peak daily flow	8588
3b. peak daily flow date	22/08/2023 00:00
3c. peak hourly flow	1418
3d. peak hourly flow date/time	22/08/2023 17:00
4a. AADF (Two way) 16 Hr	
4b. AADF (Two way) 24 Hr	
5. CRF	
6. Stress	
7a. % vehicles over (AADF)	16.61%
7b. % vehicles over (AAWF)	18.52%

A1M South to M62 (West)

Annual report for 2023 for SiteId : 728

Month	24hr ADT	24hr %>6.6m	24hr AWT	24hr %>6.6m	18hr ADT	18hr %>6.6m	18hr AWT	18hr %>6.6m	16hr ADT	16hr %>6.6m	16hr AWT	16hr %>6.6m	12hr ADT	12hr %>6.6m	12hr AWT	12hr %>6.6m
Jan	12520	25.6	13838	28.9	11598	23.9	12783	27.2	11252	23.5	12424	26.9	9465	23.5	10389	27.1
Feb	11960	25.6	12604	29	11069	23.8	11630	27.3	10748	23.7	11335	27.1	9012	23.7	9440	27.6
Mar	12964	27	13755	29.7	11974	25.1	12681	27.9	11607	24.9	12322	27.7	9701	25	10234	28.1
Apr	9572	24.5	10184	28.7	8751	22.3	9252	26.4	8401	22	8930	26.1	6865	21.7	7237	26.2
May	8556	26.5	8935	29.3	7696	23.8	7994	26.8	7317	23.5	7603	26.5	5831	23.3	6002	26.6
Jun	8813	26.5	9192	29.9	7907	23.9	8199	27.3	7518	23.5	7819	27	5992	23.3	6210	27
Jul	8985	26.5	9332	29.1	8040	24.1	8326	26.7	7627	23.7	7928	26.3	6036	23.5	6246	26.3
Aug	8696	26.8	9034	29.1	7735	24.2	8001	26.5	7310	23.9	7583	26.2	5748	24	5960	26.5
Sep	8936	26.4	9481	30	7977	23.8	8390	27.5	7566	23.3	7991	27	5980	22.9	6282	26.9
Oct	9031	27.2	9273	29.6	8117	24.9	8293	27.4	7748	24.6	7945	27.1	6209	24.4	6331	27
Nov	9392	27.3	10062	30.6	8405	24.7	8942	28	8016	24.2	8551	27.5	6450	23.8	6846	27.5
Dec	8425	24.7	8895	28.1	7581	22.1	7988	25.6	7180	21.6	7545	25.1	5762	21.1	6010	24.8
Avg	9820	26.2	10382	29.3	8904	23.9	9373	27.1	8524	23.5	8998	26.7	6920	23.3	7265	26.8
Site Hours	8658															
Number of Hours (days)	364															
1a. AADF (One way - 12 hr)	6920															
1b. AADF (One way - 16 hr)	8524															
1c. AADF (One way - 18 hr)	8904															
2a. AAWF (One way - 12 hr)	7265															
2b. AAWF (One way - 16 hr)	8998															
2c. AAWF (One way - 18 hr)	9373															
3a. peak daily flow	16000															
3b. peak daily flow date	########															
3c. peak hourly flow	1287															
3d. peak hourly flow date/time	########															
4a. AADF (Two way) 16 Hr																
4b. AADF (Two way) 24 Hr																
5. CRF																
6. Stress																
7a. % vehicles over (AADF)	26.22%															
7b. % vehicles over (AAWF)	29.34%															

M62 (East) to M62 (West)

Annual report for 2023 for SiteId : 3344

Month	24hr ADT	24hr %>6.6m	24hr AWT	24hr %>6.6m	18hr ADT	18hr %>6.6m	18hr AWT	18hr %>6.6m	16hr ADT	16hr %>6.6m	16hr AWT	16hr %>6.6m	12hr ADT	12hr %>6.6m	12hr AWT	12hr %>6.6m
Jan	21709	25.3	24141	29.1	20509	24.4	22756	28.2	20096	24.3	22320	28.1	17576	24.4	19397	28.5
Feb	24782	26.3	27287	29.9	23410	25.2	25702	28.8	22940	25.1	25202	28.8	20021	25.2	21856	29.1
Mar	24183	26.6	25804	29.9	22825	25.6	24291	29	22316	25.6	23757	29	19408	25.8	20542	29.4
Apr	23547	23.3	26024	27.7	22319	22.4	24591	26.7	21825	22.3	24089	26.7	18960	22.4	20833	27
May	25075	24.6	27042	27.7	23760	23.7	25587	26.9	23238	23.7	25079	26.9	20115	23.9	21671	27.3
Jun	26192	25.3	28453	29	24689	24.3	26731	28	24098	24.2	26119	27.9	20768	24.5	22439	28.4
Jul	26396	25.8	28267	28.6	24950	25	26669	27.8	24421	25	26130	27.8	21125	25.2	22529	28.2
Aug	26720	24.7	28425	27.1	25370	23.9	26958	26.4	24829	23.9	26407	26.3	21575	24.1	22886	26.7
Sep	26057	24.3	28064	28.4	24693	23.5	26529	27.7	24154	23.5	25985	27.7	21027	23.6	22492	28.1
Oct	26699	26.3	28036	29	25255	25.5	26477	28.3	24731	25.5	25973	28.3	21635	25.7	22645	28.6
Nov	25703	25.6	28105	29.4	24320	24.7	26519	28.6	23840	24.6	26040	28.5	20953	24.6	22734	28.8
Dec	22795	22.7	25167	26.2	21578	21.7	23793	25.2	21089	21.6	23276	25.2	18623	21.5	20408	25.3
Avg	24988	25.1	27067	28.5	23639	24.1	25550	27.6	23131	24.1	25031	27.6	20148	24.2	21702	27.9

Site Hours	8658
Number of Hours (days)	364
1a. AADF (One way - 12 hr)	20148
1b. AADF (One way - 16 hr)	23131
1c. AADF (One way - 18 hr)	23639
2a. AAWF (One way - 12 hr)	21702
2b. AAWF (One way - 16 hr)	25031
2c. AAWF (One way - 18 hr)	25550
3a. peak daily flow	40974
3b. peak daily flow date	########
3c. peak hourly flow	3235
3d. peak hourly flow date/time	########
4a. AADF (Two way) 16 Hr	
4b. AADF (Two way) 24 Hr	
5. CRF	
6. Stress	
7a. % vehicles over (AADF)	25.06%
7b. % vehicles over (AAWF)	28.49%

APPENDIX F. M62 J34 EXISITNG LAYOUT CAPACITY ASSESSMENTS

Junctions 10

ARCADY 10 - Roundabout Module

Version: 10.1.1.1905
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+44 (0)1344 379777 software@trl.co.uk trlsoftware.com

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Filename: M6J34 v3 Existing Layout + NH Comm Dev.j10
Path: Y:\PROJECTS\16146ITY Land West of Kellington Lane\Tech\Junction Assessments\Arcady\M62 Junction 34
Report generation date: 06/12/2024 16:27:25

»Existing Layout - Base + Committed, AM
»Existing Layout - Base + Committed, PM
»Existing Layout - 2025 Base + Committed, AM
»Existing Layout - 2025 Base + Committed, PM

Summary of junction performance

	AM							PM						
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity
	Existing Layout - Base + Committed													
1 - M62 (east)	D3	0.5	4.11	0.34	A	85.62	-13 % [3 - M62 (west)]	D4	0.3	4.16	0.22	A	5.21	17 % [3 - M62 (west)]
2 - A19 (south)		1.0	5.08	0.49	A				0.4	3.62	0.31	A		
3 - M62 (west)		112.0	375.69	1.11	F				2.9	11.61	0.74	B		
3D - M62 (west) Dummy		0.7	2.26	0.42	A				0.6	1.79	0.36	A		
4 - Selby Road		0.2	3.50	0.17	A				0.1	2.77	0.10	A		
5 - A19 (north)		1.2	3.40	0.55	A				2.0	4.83	0.67	A		
	Existing Layout - 2025 Base + Committed													
1 - M62 (east)	D33	0.5	4.21	0.35	A	97.73	-14 % [3 - M62 (west)]	D34	0.3	4.24	0.23	A	5.43	15 % [3 - M62 (west)]
2 - A19 (south)		1.0	5.23	0.50	A				0.5	3.68	0.31	A		
3 - M62 (west)		128.3	431.12	1.13	F				3.1	12.29	0.76	B		
3D - M62 (west) Dummy		0.7	2.29	0.43	A				0.6	1.81	0.37	A		
4 - Selby Road		0.2	3.55	0.18	A				0.1	2.80	0.11	A		
5 - A19 (north)		1.2	3.48	0.55	A				2.1	5.00	0.68	A		

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables 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. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	Land West of Kellington Lane
Location	M62 Junction 34
Site number	
Date	31/05/2023
Version	
Status	Existing Layout
Identifier	
Client	Banks Group
Jobnumber	ITY16146
Enumerator	JW
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

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use simulation for HCM roundabouts	Use iterations for HCM roundabouts
5.75					✓	Delay	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 period length (min)	Time segment length (min)	Run automatically
D3	Base + Committed	AM	FLAT	08:00	09:00	60	15	✓
D4	Base + Committed	PM	FLAT	17:00	18:00	60	15	✓
D33	2025 Base + Committed	AM	FLAT	08:00	09:00	60	15	✓
D34	2025 Base + Committed	PM	FLAT	17:00	18:00	60	15	✓

Analysis Set Details

ID	Name	Description	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Existing Layout	No Unequal on M62 (East)	✓	100.000	100.000

Existing Layout - Base + Committed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - M62 (east) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - A19 (south) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	M62 Junction 34	Large Roundabout		1, 2, 3, 3D, 4, 5	85.62	F

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-13	3 - M62 (west)	85.62	F

Arms

Arms

Arm	Name	Description	No give-way line
1	M62 (east)		
2	A19 (south)		
3	M62 (west)		
3D	M62 (west) Dummy		
4	Selby Road		
5	A19 (north)		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1 - M62 (east)	5.90	6.50	100.0	41.5	162.0	6.6		
2 - A19 (south)	3.20	6.10	51.9	50.0	122.0	4.7		
3 - M62 (west)	2.85	3.40	20.0	50.7	162.0	10.3		
3D - M62 (west) Dummy	10.00	10.00	0.0	50.7	162.0	10.3		
4 - Selby Road	3.50	9.50	22.0	22.0	122.0	33.7		
5 - A19 (north)	3.80	10.60	10.7	31.5	122.0	17.5		

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Has entry-to-exit separation	Entry-to-exit separation (m)
1 - M62 (east)	1271	✓	120.50
2 - A19 (south)	1282		0.00
3 - M62 (west)	766	✓	134.80
3D - M62 (west) Dummy	766	✓	134.80
4 - Selby Road	1699		0.00
5 - A19 (north)	401		0.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - M62 (east)	0.882	2490
2 - A19 (south)	0.825	2487
3 - M62 (west)	0.711	1513
3D - M62 (west) Dummy	1.277	3732
4 - Selby Road	0.726	2489
5 - A19 (north)	0.979	2718

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D3	Base + Committed	AM	FLAT	08:00	09:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - M62 (east)		FLAT	✓	453	100.000
2 - A19 (south)		FLAT	✓	683	100.000
3 - M62 (west)		FLAT	✓	1072	100.000
3D - M62 (west) Dummy		FLAT	✓	1162	100.000
4 - Selby Road		FLAT	✓	218	100.000
5 - A19 (north)		FLAT	✓	1268	100.000

Origin-Destination Data

Demand (PCU/hr)

		To					
		1 - M62 (east)	2 - A19 (south)	3 - M62 (west)	3D - M62 (west) Dummy	4 - Selby Road	5 - A19 (north)
From	1 - M62 (east)	1	113	2	0	54	283
	2 - A19 (south)	104	2	262	0	83	232
	3 - M62 (west)	0	0	0	1072	0	0
	3D - M62 (west) Dummy	0	83	7	0	73	999
	4 - Selby Road	30	85	89	0	0	14
	5 - A19 (north)	218	159	884	0	7	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To					
		1 - M62 (east)	2 - A19 (south)	3 - M62 (west)	3D - M62 (west) Dummy	4 - Selby Road	5 - A19 (north)
From	1 - M62 (east)	0	0	0	0	0	0
	2 - A19 (south)	0	0	0	0	0	0
	3 - M62 (west)	0	0	0	0	0	0
	3D - M62 (west) Dummy	0	0	0	0	0	0
	4 - Selby Road	0	0	0	0	0	0
	5 - A19 (north)	0	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - M62 (east)	0.34	4.11	0.5	A	453	453
2 - A19 (south)	0.49	5.08	1.0	A	683	683
3 - M62 (west)	1.11	375.69	112.0	F	1072	1072
3D - M62 (west) Dummy	0.42	2.26	0.7	A	1162	1162
4 - Selby Road	0.17	3.50	0.2	A	218	218
5 - A19 (north)	0.55	3.40	1.2	A	1268	1268

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - M62 (east)	453	113	1311	1333	0.340	451	351	0.0	0.5	4.073	A
2 - A19 (south)	683	171	1322	1396	0.489	679	440	0.0	0.9	4.996	A
3 - M62 (west)	1072	268	762	971	1.104	942	1239	0.0	32.6	73.419	F
3D - M62 (west) Dummy	1162	291	762	2759	0.421	1159	942	0.0	0.7	2.246	A
4 - Selby Road	218	55	1705	1251	0.174	217	216	0.0	0.2	3.480	A
5 - A19 (north)	1268	317	399	2328	0.545	1263	1523	0.0	1.2	3.367	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - M62 (east)	453	113	1316	1329	0.341	453	353	0.5	0.5	4.110	A
2 - A19 (south)	683	171	1327	1392	0.491	683	442	0.9	1.0	5.078	A
3 - M62 (west)	1072	268	766	968	1.107	965	1244	32.6	59.4	182.329	F
3D - M62 (west) Dummy	1162	291	766	2754	0.422	1162	965	0.7	0.7	2.260	A
4 - Selby Road	218	55	1711	1246	0.175	218	217	0.2	0.2	3.500	A
5 - A19 (north)	1268	317	401	2326	0.545	1268	1528	1.2	1.2	3.401	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - M62 (east)	453	113	1316	1329	0.341	453	353	0.5	0.5	4.110	A
2 - A19 (south)	683	171	1327	1392	0.491	683	442	1.0	1.0	5.078	A
3 - M62 (west)	1072	268	766	968	1.107	966	1244	59.4	85.8	279.086	F
3D - M62 (west) Dummy	1162	291	766	2754	0.422	1162	966	0.7	0.7	2.260	A
4 - Selby Road	218	55	1711	1246	0.175	218	217	0.2	0.2	3.500	A
5 - A19 (north)	1268	317	401	2326	0.545	1268	1528	1.2	1.2	3.401	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - M62 (east)	453	113	1316	1329	0.341	453	353	0.5	0.5	4.110	A
2 - A19 (south)	683	171	1327	1392	0.491	683	442	1.0	1.0	5.078	A
3 - M62 (west)	1072	268	766	968	1.107	967	1244	85.8	112.0	375.690	F
3D - M62 (west) Dummy	1162	291	766	2754	0.422	1162	967	0.7	0.7	2.260	A
4 - Selby Road	218	55	1711	1246	0.175	218	217	0.2	0.2	3.500	A
5 - A19 (north)	1268	317	401	2326	0.545	1268	1528	1.2	1.2	3.401	A

Existing Layout - Base + Committed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - M62 (east) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - A19 (south) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	M62 Junction 34	Large Roundabout		1, 2, 3, 3D, 4, 5	5.21	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	17	3 - M62 (west)	5.21	A

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Has entry-to-exit separation	Entry-to-exit separation (m)
1 - M62 (east)	1572	✓	120.50
2 - A19 (south)	1255		0.00
3 - M62 (west)	484	✓	134.80
3D - M62 (west) Dummy	484	✓	134.80
4 - Selby Road	1366		0.00
5 - A19 (north)	456		0.00

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D4	Base + Committed	PM	FLAT	17:00	18:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - M62 (east)		FLAT	✓	250	100.000
2 - A19 (south)		FLAT	✓	441	100.000
3 - M62 (west)		FLAT	✓	904	100.000
3D - M62 (west) Dummy		FLAT	✓	1130	100.000
4 - Selby Road		FLAT	✓	149	100.000
5 - A19 (north)		FLAT	✓	1519	100.000

Origin-Destination Data

Demand (PCU/hr)

		To					
		1 - M62 (east)	2 - A19 (south)	3 - M62 (west)	3D - M62 (west) Dummy	4 - Selby Road	5 - A19 (north)
From	1 - M62 (east)	2	74	7	0	33	134
	2 - A19 (south)	86	3	133	0	52	167
	3 - M62 (west)	0	0	0	904	0	0
	3D - M62 (west) Dummy	8	215	3	0	108	796
	4 - Selby Road	30	53	56	0	0	10
	5 - A19 (north)	259	222	1031	0	6	1

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To					
		1 - M62 (east)	2 - A19 (south)	3 - M62 (west)	3D - M62 (west) Dummy	4 - Selby Road	5 - A19 (north)
From	1 - M62 (east)	0	0	0	0	0	0
	2 - A19 (south)	0	0	0	0	0	0
	3 - M62 (west)	0	0	0	0	0	0
	3D - M62 (west) Dummy	0	0	0	0	0	0
	4 - Selby Road	0	0	0	0	0	0
	5 - A19 (north)	0	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - M62 (east)	0.22	4.16	0.3	A	250	250
2 - A19 (south)	0.31	3.62	0.4	A	441	441
3 - M62 (west)	0.74	11.61	2.9	B	904	904
3D - M62 (west) Dummy	0.36	1.79	0.6	A	1130	1130
4 - Selby Road	0.10	2.77	0.1	A	149	149
5 - A19 (north)	0.67	4.83	2.0	A	1519	1519

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - M62 (east)	250	63	1583	1121	0.223	249	383	0.0	0.3	4.122	A
2 - A19 (south)	441	110	1267	1441	0.306	439	565	0.0	0.4	3.586	A
3 - M62 (west)	904	226	482	1215	0.744	893	1224	0.0	2.8	10.824	B
3D - M62 (west) Dummy	1130	283	482	3146	0.359	1128	893	0.0	0.6	1.781	A
4 - Selby Road	149	37	1411	1453	0.103	149	198	0.0	0.1	2.759	A
5 - A19 (north)	1519	380	455	2265	0.671	1511	1105	0.0	2.0	4.724	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - M62 (east)	250	63	1590	1115	0.224	250	385	0.3	0.3	4.161	A
2 - A19 (south)	441	110	1273	1436	0.307	441	567	0.4	0.4	3.616	A
3 - M62 (west)	904	226	484	1214	0.745	904	1230	2.8	2.8	11.579	B
3D - M62 (west) Dummy	1130	283	484	3143	0.359	1130	904	0.6	0.6	1.787	A
4 - Selby Road	149	37	1415	1450	0.103	149	199	0.1	0.1	2.765	A
5 - A19 (north)	1519	380	456	2264	0.671	1519	1108	2.0	2.0	4.830	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - M62 (east)	250	63	1590	1115	0.224	250	385	0.3	0.3	4.161	A
2 - A19 (south)	441	110	1273	1436	0.307	441	567	0.4	0.4	3.616	A
3 - M62 (west)	904	226	484	1214	0.745	904	1230	2.8	2.9	11.599	B
3D - M62 (west) Dummy	1130	283	484	3143	0.359	1130	904	0.6	0.6	1.787	A
4 - Selby Road	149	37	1415	1450	0.103	149	199	0.1	0.1	2.765	A
5 - A19 (north)	1519	380	456	2264	0.671	1519	1108	2.0	2.0	4.830	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - M62 (east)	250	63	1590	1115	0.224	250	385	0.3	0.3	4.161	A
2 - A19 (south)	441	110	1273	1436	0.307	441	567	0.4	0.4	3.616	A
3 - M62 (west)	904	226	484	1214	0.745	904	1230	2.9	2.9	11.606	B
3D - M62 (west) Dummy	1130	283	484	3143	0.359	1130	904	0.6	0.6	1.787	A
4 - Selby Road	149	37	1415	1450	0.103	149	199	0.1	0.1	2.765	A
5 - A19 (north)	1519	380	456	2264	0.671	1519	1108	2.0	2.0	4.830	A

Existing Layout - 2025 Base + Committed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - M62 (east) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - A19 (south) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	M62 Junction 34	Large Roundabout		1, 2, 3, 3D, 4, 5	97.73	F

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-14	3 - M62 (west)	97.73	F

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Has entry-to-exit separation	Entry-to-exit separation (m)
1 - M62 (east)	1289	✓	120.50
2 - A19 (south)	1296		0.00
3 - M62 (west)	775	✓	134.80
3D - M62 (west) Dummy	775	✓	134.80
4 - Selby Road	1717		0.00
5 - A19 (north)	408		0.00

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D33	2025 Base + Committed	AM	FLAT	08:00	09:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - M62 (east)		FLAT	✓	458	100.000
2 - A19 (south)		FLAT	✓	693	100.000
3 - M62 (west)		FLAT	✓	1082	100.000
3D - M62 (west) Dummy		FLAT	✓	1174	100.000
4 - Selby Road		FLAT	✓	221	100.000
5 - A19 (north)		FLAT	✓	1283	100.000

Origin-Destination Data

Demand (PCU/hr)

		To					
		1 - M62 (east)	2 - A19 (south)	3 - M62 (west)	3D - M62 (west) Dummy	4 - Selby Road	5 - A19 (north)
From	1 - M62 (east)	1	115	2	0	55	285
	2 - A19 (south)	106	2	266	0	84	235
	3 - M62 (west)	0	0	0	1082	0	0
	3D - M62 (west) Dummy	0	85	7	0	74	1008
	4 - Selby Road	30	87	90	0	0	14
	5 - A19 (north)	220	162	894	0	7	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To					
		1 - M62 (east)	2 - A19 (south)	3 - M62 (west)	3D - M62 (west) Dummy	4 - Selby Road	5 - A19 (north)
From	1 - M62 (east)	0	0	0	0	0	0
	2 - A19 (south)	0	0	0	0	0	0
	3 - M62 (west)	0	0	0	0	0	0
	3D - M62 (west) Dummy	0	0	0	0	0	0
	4 - Selby Road	0	0	0	0	0	0
	5 - A19 (north)	0	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - M62 (east)	0.35	4.21	0.5	A	458	458
2 - A19 (south)	0.50	5.23	1.0	A	693	693
3 - M62 (west)	1.13	431.12	128.3	F	1082	1082
3D - M62 (west) Dummy	0.43	2.29	0.7	A	1174	1174
4 - Selby Road	0.18	3.55	0.2	A	221	221
5 - A19 (north)	0.55	3.48	1.2	A	1283	1283

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - M62 (east)	458	115	1329	1318	0.348	456	355	0.0	0.5	4.166	A
2 - A19 (south)	693	173	1336	1385	0.500	689	449	0.0	1.0	5.144	A
3 - M62 (west)	1082	271	771	963	1.123	937	1254	0.0	36.1	80.165	F
3D - M62 (west) Dummy	1174	294	771	2747	0.427	1171	937	0.0	0.7	2.280	A
4 - Selby Road	221	55	1723	1239	0.178	220	219	0.0	0.2	3.529	A
5 - A19 (north)	1283	321	406	2320	0.553	1278	1537	0.0	1.2	3.441	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - M62 (east)	458	115	1334	1314	0.349	458	357	0.5	0.5	4.207	A
2 - A19 (south)	693	173	1341	1381	0.502	693	451	1.0	1.0	5.234	A
3 - M62 (west)	1082	271	775	961	1.126	958	1259	36.1	67.2	204.382	F
3D - M62 (west) Dummy	1174	294	775	2742	0.428	1174	958	0.7	0.7	2.295	A
4 - Selby Road	221	55	1729	1235	0.179	221	220	0.2	0.2	3.549	A
5 - A19 (north)	1283	321	408	2318	0.553	1283	1542	1.2	1.2	3.477	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - M62 (east)	458	115	1334	1314	0.349	458	357	0.5	0.5	4.207	A
2 - A19 (south)	693	173	1341	1381	0.502	693	451	1.0	1.0	5.234	A
3 - M62 (west)	1082	271	775	960	1.127	959	1259	67.2	97.8	317.672	F
3D - M62 (west) Dummy	1174	294	775	2742	0.428	1174	959	0.7	0.7	2.295	A
4 - Selby Road	221	55	1729	1235	0.179	221	220	0.2	0.2	3.549	A
5 - A19 (north)	1283	321	408	2318	0.553	1283	1542	1.2	1.2	3.477	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - M62 (east)	458	115	1334	1314	0.349	458	357	0.5	0.5	4.207	A
2 - A19 (south)	693	173	1341	1381	0.502	693	451	1.0	1.0	5.234	A
3 - M62 (west)	1082	271	775	960	1.127	960	1259	97.8	128.3	431.123	F
3D - M62 (west) Dummy	1174	294	775	2742	0.428	1174	960	0.7	0.7	2.295	A
4 - Selby Road	221	55	1729	1235	0.179	221	220	0.2	0.2	3.549	A
5 - A19 (north)	1283	321	408	2318	0.553	1283	1542	1.2	1.2	3.477	A

Existing Layout - 2025 Base + Committed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - M62 (east) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - A19 (south) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	M62 Junction 34	Large Roundabout		1, 2, 3, 3D, 4, 5	5.43	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	15	3 - M62 (west)	5.43	A

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Has entry-to-exit separation	Entry-to-exit separation (m)
1 - M62 (east)	1591	✓	120.50
2 - A19 (south)	1267		0.00
3 - M62 (west)	491	✓	134.80
3D - M62 (west) Dummy	491	✓	134.80
4 - Selby Road	1385		0.00
5 - A19 (north)	465		0.00

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D34	2025 Base + Committed	PM	FLAT	17:00	18:00	60	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - M62 (east)		FLAT	✓	252	100.000
2 - A19 (south)		FLAT	✓	449	100.000
3 - M62 (west)		FLAT	✓	915	100.000
3D - M62 (west) Dummy		FLAT	✓	1145	100.000
4 - Selby Road		FLAT	✓	152	100.000
5 - A19 (north)		FLAT	✓	1535	100.000

Origin-Destination Data

Demand (PCU/hr)

		To					
		1 - M62 (east)	2 - A19 (south)	3 - M62 (west)	3D - M62 (west) Dummy	4 - Selby Road	5 - A19 (north)
From	1 - M62 (east)	2	75	7	0	33	135
	2 - A19 (south)	88	3	135	0	53	170
	3 - M62 (west)	0	0	0	915	0	0
	3D - M62 (west) Dummy	8	219	3	0	110	805
	4 - Selby Road	31	54	57	0	0	10
	5 - A19 (north)	262	225	1041	0	6	1

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To					
		1 - M62 (east)	2 - A19 (south)	3 - M62 (west)	3D - M62 (west) Dummy	4 - Selby Road	5 - A19 (north)
From	1 - M62 (east)	0	0	0	0	0	0
	2 - A19 (south)	0	0	0	0	0	0
	3 - M62 (west)	0	0	0	0	0	0
	3D - M62 (west) Dummy	0	0	0	0	0	0
	4 - Selby Road	0	0	0	0	0	0
	5 - A19 (north)	0	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - M62 (east)	0.23	4.24	0.3	A	252	252
2 - A19 (south)	0.31	3.68	0.5	A	449	449
3 - M62 (west)	0.76	12.29	3.1	B	915	915
3D - M62 (west) Dummy	0.37	1.81	0.6	A	1145	1145
4 - Selby Road	0.11	2.80	0.1	A	152	152
5 - A19 (north)	0.68	5.00	2.1	A	1535	1535

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - M62 (east)	252	63	1601	1108	0.228	251	389	0.0	0.3	4.197	A
2 - A19 (south)	449	112	1278	1432	0.314	447	574	0.0	0.5	3.650	A
3 - M62 (west)	915	229	489	1209	0.757	903	1237	0.0	3.0	11.372	B
3D - M62 (west) Dummy	1145	286	489	3136	0.365	1143	903	0.0	0.6	1.804	A
4 - Selby Road	152	38	1430	1439	0.106	152	201	0.0	0.1	2.796	A
5 - A19 (north)	1535	384	464	2255	0.681	1527	1118	0.0	2.1	4.885	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - M62 (east)	252	63	1609	1101	0.229	252	391	0.3	0.3	4.238	A
2 - A19 (south)	449	112	1285	1426	0.315	449	576	0.5	0.5	3.682	A
3 - M62 (west)	915	229	491	1207	0.758	915	1243	3.0	3.0	12.259	B
3D - M62 (west) Dummy	1145	286	491	3133	0.365	1145	915	0.6	0.6	1.809	A
4 - Selby Road	152	38	1434	1436	0.106	152	202	0.1	0.1	2.802	A
5 - A19 (north)	1535	384	465	2254	0.681	1535	1121	2.1	2.1	5.003	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - M62 (east)	252	63	1609	1101	0.229	252	391	0.3	0.3	4.238	A
2 - A19 (south)	449	112	1285	1426	0.315	449	576	0.5	0.5	3.682	A
3 - M62 (west)	915	229	491	1207	0.758	915	1243	3.0	3.1	12.282	B
3D - M62 (west) Dummy	1145	286	491	3133	0.365	1145	915	0.6	0.6	1.809	A
4 - Selby Road	152	38	1434	1436	0.106	152	202	0.1	0.1	2.802	A
5 - A19 (north)	1535	384	465	2254	0.681	1535	1121	2.1	2.1	5.005	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - M62 (east)	252	63	1609	1101	0.229	252	391	0.3	0.3	4.238	A
2 - A19 (south)	449	112	1285	1426	0.315	449	576	0.5	0.5	3.682	A
3 - M62 (west)	915	229	491	1207	0.758	915	1243	3.1	3.1	12.292	B
3D - M62 (west) Dummy	1145	286	491	3133	0.365	1145	915	0.6	0.6	1.809	A
4 - Selby Road	152	38	1434	1436	0.106	152	202	0.1	0.1	2.802	A
5 - A19 (north)	1535	384	465	2254	0.681	1535	1121	2.1	2.1	5.005	A

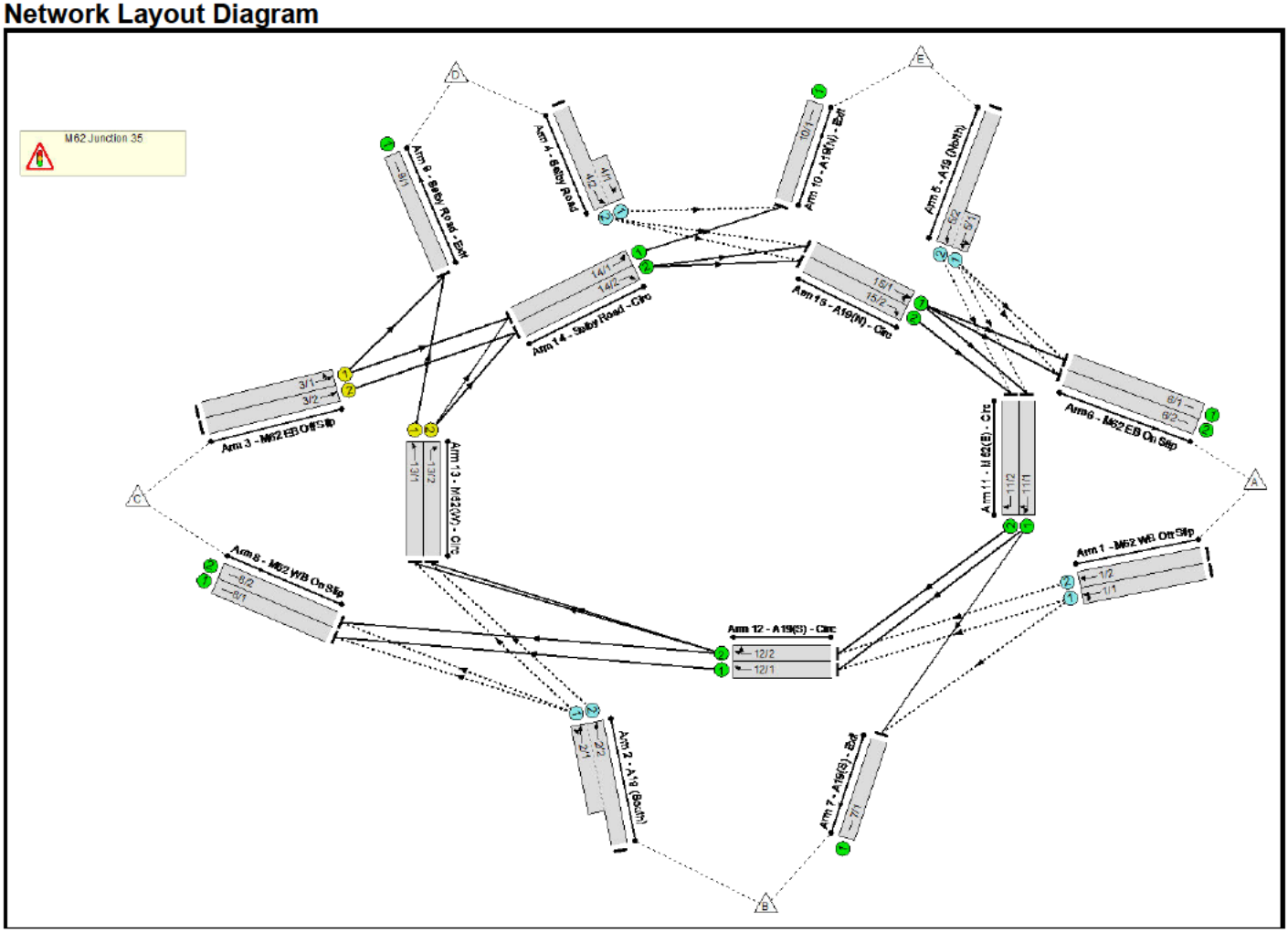
APPENDIX G. M62 J34 MITIGATION LAYOUT CAPACITY ASSESSMENTS

Full Input Data And Results

User and Project Details

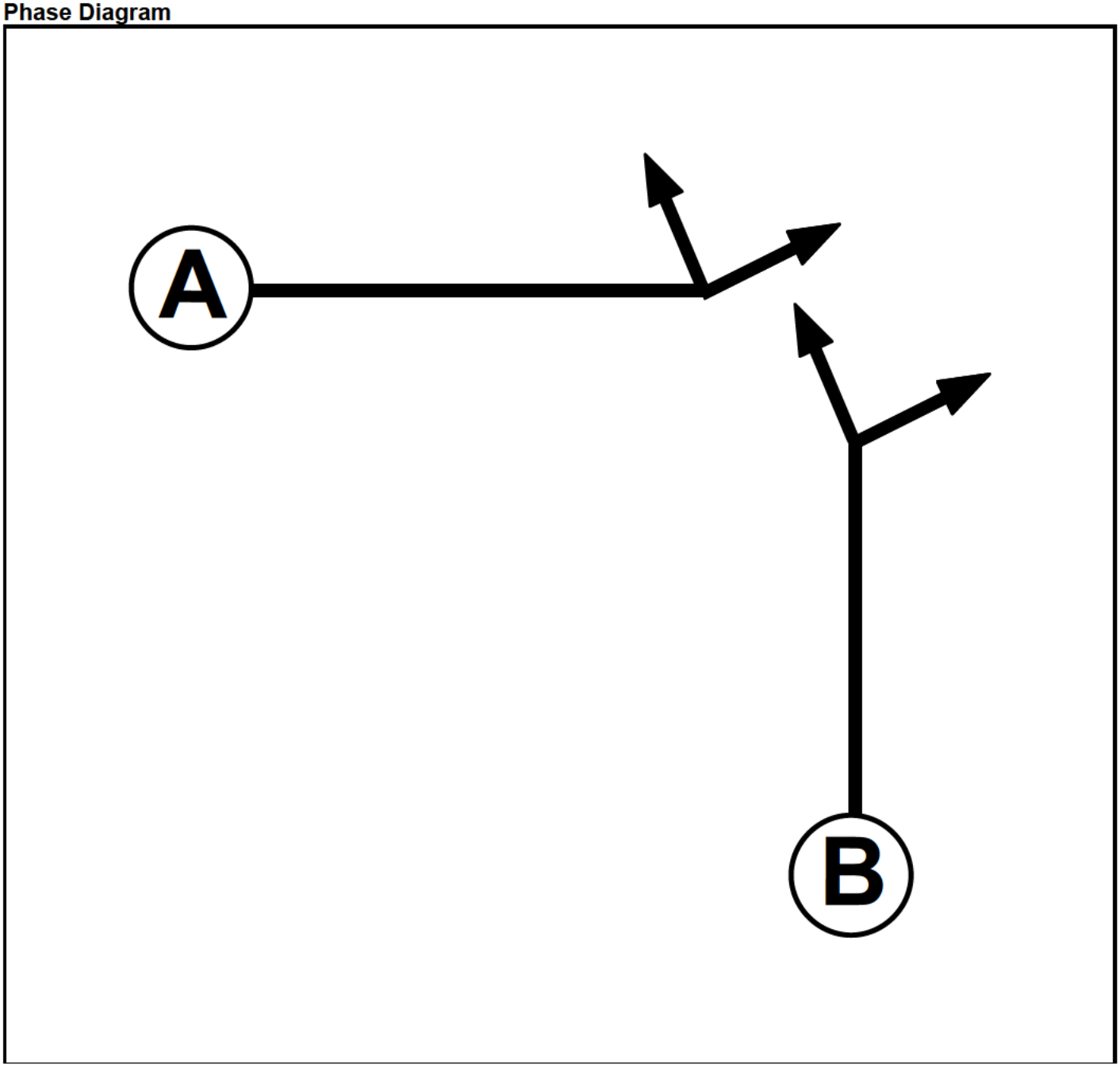
Project:	**Kellington Lane, Eggborough**
Title:	**M62 Junction 34**
Location:	
Client:	Banks Group
Date Started:	17.05.2023
Model Purpose:	Mitigation - Partial Signals
Additional detail:	
File name:	M62J34 - Mitigation EB Slip Signalised Rev A + NH Comm Dev.lsg3x
Author:	[redacted]
Company:	i-Transport
Address:	Manchester

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7

Full Input Data And Results

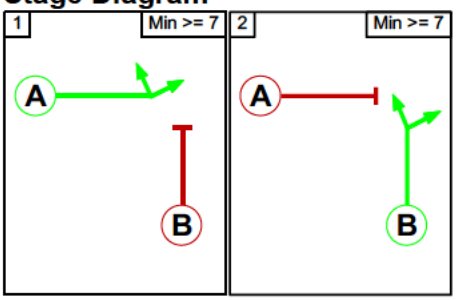
Phase Intergreens Matrix

Terminating Phase	Starting Phase		
		A	B
A			7
B	7		

Phases in Stage

Stage No.	Phases in Stage
1	A
2	B

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

From Stage	To Stage		
		1	2
1			7
2	7		

Full Input Data And Results

Give-Way Lane Input Data

Full Input Data And Results

Junction: M62 Junction 35											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
1/1 (M62 WB Off Slip)	7/1 (Left)	1278	0	11/1	0.47	All	-	-	-	-	-
				11/2	0.47	All					
	12/1 (Ahead)	1278	0	11/1	0.47	All					
				11/2	0.47	All					
1/2 (M62 WB Off Slip)	12/2 (Ahead)	1278	0	11/1	0.47	All	-	-	-	-	-
				11/2	0.47	All					
2/1 (A19 (South))	8/1 (Left)	1293	0	12/1	0.45	All	-	-	-	-	-
				12/2	0.45	All					
	8/2 (Left)	1293	0	12/1	0.45	All					
				12/2	0.45	All					
	13/1 (Ahead)	1293	0	12/1	0.45	All					
				12/2	0.45	All					
2/2 (A19 (South))	13/2 (Ahead)	1293	0	12/1	0.45	All	-	-	-	-	-
				12/2	0.45	All					
4/1 (Selby Road)	10/1 (U-Turn)	1328	0	14/1	0.43	All	-	-	-	-	-
				14/2	0.43	All					
4/2 (Selby Road)	15/1 (Ahead)	1328	0	14/1	0.43	All	-	-	-	-	-
				14/2	0.43	All					
	15/2 (Ahead)	1328	0	14/1	0.43	All					
				14/2	0.43	All					
5/1 (A19 (North))	6/1 (Left)	1359	0	15/1	0.49	All	-	-	-	-	-
				15/2	0.49	All					
	6/2 (Left)	1359	0	15/1	0.49	All					
				15/2	0.49	All					

Full Input Data And Results

	11/1 (Ahead)	1359	0	15/1	0.49	All					
				15/2	0.49	All					
5/2 (A19 (North))	11/2 (Ahead)	1000	0	15/1	0.33	All	-	-	-	-	-
				15/2	0.33	All					

Full Input Data And Results

Lane Input Data

Full Input Data And Results

Junction: M62 Junction 35

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (M62 WB Off Slip)	O		2	3	60.0	Inf	-	-	-	-	-	-
1/2 (M62 WB Off Slip)	O		2	3	60.0	Inf	-	-	-	-	-	-
2/1 (A19 (South))	O		2	3	8.2	Inf	-	-	-	-	-	-
2/2 (A19 (South))	O		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (M62 EB Off Slip)	U	A	2	3	60.0	Geom	-	3.40	0.00	Y	Arm 9 Left Arm 14 Ahead	50.00 50.00
3/2 (M62 EB Off Slip)	U	A	2	3	60.0	Geom	-	3.40	0.00	N	Arm 14 Ahead	50.00
4/1 (Selby Road)	O		2	3	4.3	Inf	-	-	-	-	-	-
4/2 (Selby Road)	O		2	3	60.0	Inf	-	-	-	-	-	-
5/1 (A19 (North))	O		2	3	3.5	Inf	-	-	-	-	-	-
5/2 (A19 (North))	O		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (M62 EB On Slip)	U		2	3	60.0	Inf	-	-	-	-	-	-
6/2 (M62 EB On Slip)	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1 (A19(S) - Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1 (M62 WB On Slip)	U		2	3	60.0	Inf	-	-	-	-	-	-
8/2 (M62 WB On Slip)	U		2	3	60.0	Inf	-	-	-	-	-	-
9/1 (Selby Road - Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
10/1 (A19(N) - Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-

Full Input Data And Results

11/1 (M62(E) - Circ)	U		2	3	18.3	Inf	-	-	-	-	-	-
11/2 (M62(E) - Circ)	U		2	3	18.3	Inf	-	-	-	-	-	-
12/1 (A19(S) - Circ)	U		2	3	7.0	Inf	-	-	-	-	-	-
12/2 (A19(S) - Circ)	U		2	3	7.0	Inf	-	-	-	-	-	-
13/1 (M62(W) - Circ)	U	B	2	3	17.7	Geom	-	3.65	0.00	Y	Arm 9 Ahead	40.00
13/2 (M62(W) - Circ)	U	B	2	3	17.7	Geom	-	3.65	0.00	N	Arm 14 Right	40.00
14/1 (Selby Road - Circ)	U		2	3	4.2	Inf	-	-	-	-	-	-
14/2 (Selby Road - Circ)	U		2	3	4.2	Inf	-	-	-	-	-	-
15/1 (A19(N) - Circ)	U		2	3	2.4	Inf	-	-	-	-	-	-
15/2 (A19(N) - Circ)	U		2	3	2.4	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: 'Base + Committed + Dev (Cont.)'	08:00	09:00	01:00	
2: 'Base + Committed + Dev (Cont.)'	17:00	18:00	01:00	
3: 'Base + Committed + Dev (Vision)'	08:00	09:00	01:00	
4: 'Base + Committed + Dev (Vision)'	17:00	18:00	01:00	
5: '2025 Base + Committed + Dev (Cont.)'	08:00	09:00	01:00	
6: '2025 Base + Committed + Dev (Cont.)'	17:00	18:00	01:00	
7: '2025 Base + Committed + Dev (Vision)'	08:00	09:00	01:00	
8: '2025 Base + Committed + Dev (Vision)'	17:00	18:00	01:00	

Scenario 1: 'Base + Committed + Dev (Cont.) AM' (FG1: 'Base + Committed + Dev (Cont.)', Plan 1: 'Network

Full Input Data And Results
Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	1	113	2	57	289	462
	B	104	2	262	85	237	690
	C	0	83	7	93	1044	1227
	D	37	92	143	0	14	286
	E	243	183	1068	7	0	1501
	Tot.	385	473	1482	242	1584	4166

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: Base + Committed + Dev (Cont.) AM
Junction: M62 Junction 35	
1/1	115
1/2	347
2/1 (short)	347
2/2 (with short)	690(In) 343(Out)
3/1	1137
3/2	90
4/1 (short)	14
4/2 (with short)	286(In) 272(Out)
5/1 (short)	914
5/2 (with short)	1501(In) 587(Out)
6/1	191
6/2	194
7/1	473
8/1	695
8/2	787
9/1	242
10/1	1584
11/1	922
11/2	663
12/1	564
12/2	1010
13/1	149
13/2	633
14/1	1570
14/2	197
15/1	393
15/2	76

Full Input Data And Results

Lane Saturation Flows

Full Input Data And Results

Junction: M62 Junction 35

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (M62 WB Off Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
1/2 (M62 WB Off Slip Lane 2)	Infinite Saturation Flow						Inf	Inf
2/1 (A19 (South) Lane 1)	Infinite Saturation Flow						Inf	Inf
2/2 (A19 (South) Lane 2)	Infinite Saturation Flow						Inf	Inf
3/1 (M62 EB Off Slip)	3.40	0.00	Y	Arm 9 Left	50.00	8.2 %	1898	1898
				Arm 14 Ahead	50.00	91.8 %		
3/2 (M62 EB Off Slip)	3.40	0.00	N	Arm 14 Ahead	50.00	100.0 %	2034	2034
4/1 (Selby Road Lane 1)	Infinite Saturation Flow						Inf	Inf
4/2 (Selby Road Lane 2)	Infinite Saturation Flow						Inf	Inf
5/1 (A19 (North) Lane 1)	Infinite Saturation Flow						Inf	Inf
5/2 (A19 (North) Lane 2)	Infinite Saturation Flow						Inf	Inf
6/1 (M62 EB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
6/2 (M62 EB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf
7/1 (A19(S) - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (M62 WB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
8/2 (M62 WB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf
9/1 (Selby Road - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
10/1 (A19(N) - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
11/1 (M62(E) - Circ Lane 1)	Infinite Saturation Flow						Inf	Inf
11/2 (M62(E) - Circ Lane 2)	Infinite Saturation Flow						Inf	Inf
12/1 (A19(S) - Circ Lane 1)	Infinite Saturation Flow						Inf	Inf
12/2 (A19(S) - Circ Lane 2)	Infinite Saturation Flow						Inf	Inf
13/1 (M62(W) - Circ)	3.65	0.00	Y	Arm 9 Ahead	40.00	100.0 %	1908	1908
13/2 (M62(W) - Circ)	3.65	0.00	N	Arm 14 Right	40.00	100.0 %	2043	2043
14/1 (Selby Road - Circ Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

14/2 (Selby Road - Circ Lane 2)	Infinite Saturation Flow	Inf	Inf
15/1 (A19(N) - Circ Lane 1)	Infinite Saturation Flow	Inf	Inf
15/2 (A19(N) - Circ Lane 2)	Infinite Saturation Flow	Inf	Inf

Scenario 2: 'Base + Committed + Dev (Cont.) PM' (FG2: 'Base + Committed + Dev (Cont.)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	2	74	7	38	152	273
	B	86	3	133	57	182	461
	C	8	215	3	156	973	1355
	D	33	55	79	0	10	177
	E	267	228	1103	6	1	1605
	Tot.	396	575	1325	257	1318	3871

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: Base + Committed + Dev (Cont.) PM
Junction: M62 Junction 35	
1/1	81
1/2	192
2/1 (short)	190
2/2 (with short)	461(In) 271(Out)
3/1	1129
3/2	226
4/1 (short)	10
4/2 (with short)	177(In) 167(Out)
5/1 (short)	902
5/2 (with short)	1605(In) 703(Out)
6/1	197
6/2	199
7/1	575
8/1	520
8/2	805
9/1	257
10/1	1318
11/1	948
11/2	745
12/1	454
12/2	937
13/1	101
13/2	426
14/1	1308
14/2	317
15/1	442
15/2	42

Full Input Data And Results

Lane Saturation Flows

Full Input Data And Results

Junction: M62 Junction 35

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (M62 WB Off Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
1/2 (M62 WB Off Slip Lane 2)	Infinite Saturation Flow						Inf	Inf
2/1 (A19 (South) Lane 1)	Infinite Saturation Flow						Inf	Inf
2/2 (A19 (South) Lane 2)	Infinite Saturation Flow						Inf	Inf
3/1 (M62 EB Off Slip)	3.40	0.00	Y	Arm 9 Left	50.00	13.8 %	1898	1898
				Arm 14 Ahead	50.00	86.2 %		
3/2 (M62 EB Off Slip)	3.40	0.00	N	Arm 14 Ahead	50.00	100.0 %	2034	2034
4/1 (Selby Road Lane 1)	Infinite Saturation Flow						Inf	Inf
4/2 (Selby Road Lane 2)	Infinite Saturation Flow						Inf	Inf
5/1 (A19 (North) Lane 1)	Infinite Saturation Flow						Inf	Inf
5/2 (A19 (North) Lane 2)	Infinite Saturation Flow						Inf	Inf
6/1 (M62 EB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
6/2 (M62 EB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf
7/1 (A19(S) - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (M62 WB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
8/2 (M62 WB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf
9/1 (Selby Road - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
10/1 (A19(N) - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
11/1 (M62(E) - Circ Lane 1)	Infinite Saturation Flow						Inf	Inf
11/2 (M62(E) - Circ Lane 2)	Infinite Saturation Flow						Inf	Inf
12/1 (A19(S) - Circ Lane 1)	Infinite Saturation Flow						Inf	Inf
12/2 (A19(S) - Circ Lane 2)	Infinite Saturation Flow						Inf	Inf
13/1 (M62(W) - Circ)	3.65	0.00	Y	Arm 9 Ahead	40.00	100.0 %	1908	1908
13/2 (M62(W) - Circ)	3.65	0.00	N	Arm 14 Right	40.00	100.0 %	2043	2043
14/1 (Selby Road - Circ Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

14/2 (Selby Road - Circ Lane 2)	Infinite Saturation Flow	Inf	Inf
15/1 (A19(N) - Circ Lane 1)	Infinite Saturation Flow	Inf	Inf
15/2 (A19(N) - Circ Lane 2)	Infinite Saturation Flow	Inf	Inf

Scenario 3: 'Base + Committed + Dev (Vision) AM' (FG3: 'Base + Committed + Dev (Vision)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	1	113	2	57	290	463
	B	104	2	262	85	238	691
	C	0	83	7	93	1045	1228
	D	35	90	127	0	14	266
	E	235	176	1009	7	0	1427
	Tot.	375	464	1407	242	1587	4075

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 3: Base + Committed + Dev (Vision) AM
Junction: M62 Junction 35	
1/1	115
1/2	348
2/1 (short)	347
2/2 (with short)	691(In) 344(Out)
3/1	1138
3/2	90
4/1 (short)	14
4/2 (with short)	266(In) 252(Out)
5/1 (short)	877
5/2 (with short)	1427(In) 550(Out)
6/1	186
6/2	189
7/1	464
8/1	666
8/2	741
9/1	242
10/1	1587
11/1	884
11/2	617
12/1	535
12/2	965
13/1	149
13/2	635
14/1	1573
14/2	197
15/1	382
15/2	67

Full Input Data And Results

Lane Saturation Flows

Full Input Data And Results

Junction: M62 Junction 35

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (M62 WB Off Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
1/2 (M62 WB Off Slip Lane 2)	Infinite Saturation Flow						Inf	Inf
2/1 (A19 (South) Lane 1)	Infinite Saturation Flow						Inf	Inf
2/2 (A19 (South) Lane 2)	Infinite Saturation Flow						Inf	Inf
3/1 (M62 EB Off Slip)	3.40	0.00	Y	Arm 9 Left	50.00	8.2 %	1898	1898
				Arm 14 Ahead	50.00	91.8 %		
3/2 (M62 EB Off Slip)	3.40	0.00	N	Arm 14 Ahead	50.00	100.0 %	2034	2034
4/1 (Selby Road Lane 1)	Infinite Saturation Flow						Inf	Inf
4/2 (Selby Road Lane 2)	Infinite Saturation Flow						Inf	Inf
5/1 (A19 (North) Lane 1)	Infinite Saturation Flow						Inf	Inf
5/2 (A19 (North) Lane 2)	Infinite Saturation Flow						Inf	Inf
6/1 (M62 EB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
6/2 (M62 EB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf
7/1 (A19(S) - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (M62 WB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
8/2 (M62 WB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf
9/1 (Selby Road - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
10/1 (A19(N) - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
11/1 (M62(E) - Circ Lane 1)	Infinite Saturation Flow						Inf	Inf
11/2 (M62(E) - Circ Lane 2)	Infinite Saturation Flow						Inf	Inf
12/1 (A19(S) - Circ Lane 1)	Infinite Saturation Flow						Inf	Inf
12/2 (A19(S) - Circ Lane 2)	Infinite Saturation Flow						Inf	Inf
13/1 (M62(W) - Circ)	3.65	0.00	Y	Arm 9 Ahead	40.00	100.0 %	1908	1908
13/2 (M62(W) - Circ)	3.65	0.00	N	Arm 14 Right	40.00	100.0 %	2043	2043
14/1 (Selby Road - Circ Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

14/2 (Selby Road - Circ Lane 2)	Infinite Saturation Flow	Inf	Inf
15/1 (A19(N) - Circ Lane 1)	Infinite Saturation Flow	Inf	Inf
15/2 (A19(N) - Circ Lane 2)	Infinite Saturation Flow	Inf	Inf

Scenario 4: 'Base + Committed + Dev (Vision) PM' (FG4: 'Base + Committed + Dev (Vision)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	2	74	7	36	145	264
	B	86	3	133	55	176	453
	C	8	215	3	138	903	1267
	D	32	54	74	0	10	170
	E	265	226	1084	6	1	1582
	Tot.	393	572	1301	235	1235	3736

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 4: Base + Committed + Dev (Vision) PM
Junction: M62 Junction 35	
1/1	81
1/2	183
2/1 (short)	188
2/2 (with short)	453(In) 265(Out)
3/1	1041
3/2	226
4/1 (short)	10
4/2 (with short)	170(In) 160(Out)
5/1 (short)	888
5/2 (with short)	1582(In) 694(Out)
6/1	196
6/2	197
7/1	572
8/1	508
8/2	793
9/1	235
10/1	1235
11/1	933
11/2	733
12/1	442
12/2	916
13/1	97
13/2	413
14/1	1225
14/2	317
15/1	438
15/2	39

Full Input Data And Results

Lane Saturation Flows

Full Input Data And Results

Junction: M62 Junction 35

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (M62 WB Off Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
1/2 (M62 WB Off Slip Lane 2)	Infinite Saturation Flow						Inf	Inf
2/1 (A19 (South) Lane 1)	Infinite Saturation Flow						Inf	Inf
2/2 (A19 (South) Lane 2)	Infinite Saturation Flow						Inf	Inf
3/1 (M62 EB Off Slip)	3.40	0.00	Y	Arm 9 Left	50.00	13.3 %	1898	1898
				Arm 14 Ahead	50.00	86.7 %		
3/2 (M62 EB Off Slip)	3.40	0.00	N	Arm 14 Ahead	50.00	100.0 %	2034	2034
4/1 (Selby Road Lane 1)	Infinite Saturation Flow						Inf	Inf
4/2 (Selby Road Lane 2)	Infinite Saturation Flow						Inf	Inf
5/1 (A19 (North) Lane 1)	Infinite Saturation Flow						Inf	Inf
5/2 (A19 (North) Lane 2)	Infinite Saturation Flow						Inf	Inf
6/1 (M62 EB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
6/2 (M62 EB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf
7/1 (A19(S) - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (M62 WB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
8/2 (M62 WB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf
9/1 (Selby Road - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
10/1 (A19(N) - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
11/1 (M62(E) - Circ Lane 1)	Infinite Saturation Flow						Inf	Inf
11/2 (M62(E) - Circ Lane 2)	Infinite Saturation Flow						Inf	Inf
12/1 (A19(S) - Circ Lane 1)	Infinite Saturation Flow						Inf	Inf
12/2 (A19(S) - Circ Lane 2)	Infinite Saturation Flow						Inf	Inf
13/1 (M62(W) - Circ)	3.65	0.00	Y	Arm 9 Ahead	40.00	100.0 %	1908	1908
13/2 (M62(W) - Circ)	3.65	0.00	N	Arm 14 Right	40.00	100.0 %	2043	2043
14/1 (Selby Road - Circ Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

14/2 (Selby Road - Circ Lane 2)	Infinite Saturation Flow	Inf	Inf
15/1 (A19(N) - Circ Lane 1)	Infinite Saturation Flow	Inf	Inf
15/2 (A19(N) - Circ Lane 2)	Infinite Saturation Flow	Inf	Inf

Scenario 5: '2025 Base + Committed + Dev (Cont.) AM' (FG5: '2025 Base + Committed + Dev (Cont.)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	1	115	2	58	292	468
	B	106	2	266	87	240	701
	C	0	85	7	94	1053	1239
	D	38	94	144	0	14	290
	E	245	186	1079	7	0	1517
	Tot.	390	482	1498	246	1599	4215

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 5: 2025 Base + Committed + Dev (Cont.) AM
Junction: M62 Junction 35	
1/1	117
1/2	351
2/1 (short)	353
2/2 (with short)	701(In) 348(Out)
3/1	1147
3/2	92
4/1 (short)	14
4/2 (with short)	290(In) 276(Out)
5/1 (short)	912
5/2 (with short)	1517(In) 605(Out)
6/1	194
6/2	196
7/1	482
8/1	691
8/2	807
9/1	246
10/1	1599
11/1	923
11/2	681
12/1	558
12/2	1032
13/1	152
13/2	641
14/1	1585
14/2	201
15/1	401
15/2	76

Full Input Data And Results

Lane Saturation Flows

Full Input Data And Results

Junction: M62 Junction 35

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (M62 WB Off Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
1/2 (M62 WB Off Slip Lane 2)	Infinite Saturation Flow						Inf	Inf
2/1 (A19 (South) Lane 1)	Infinite Saturation Flow						Inf	Inf
2/2 (A19 (South) Lane 2)	Infinite Saturation Flow						Inf	Inf
3/1 (M62 EB Off Slip)	3.40	0.00	Y	Arm 9 Left	50.00	8.2 %	1898	1898
				Arm 14 Ahead	50.00	91.8 %		
3/2 (M62 EB Off Slip)	3.40	0.00	N	Arm 14 Ahead	50.00	100.0 %	2034	2034
4/1 (Selby Road Lane 1)	Infinite Saturation Flow						Inf	Inf
4/2 (Selby Road Lane 2)	Infinite Saturation Flow						Inf	Inf
5/1 (A19 (North) Lane 1)	Infinite Saturation Flow						Inf	Inf
5/2 (A19 (North) Lane 2)	Infinite Saturation Flow						Inf	Inf
6/1 (M62 EB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
6/2 (M62 EB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf
7/1 (A19(S) - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (M62 WB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
8/2 (M62 WB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf
9/1 (Selby Road - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
10/1 (A19(N) - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
11/1 (M62(E) - Circ Lane 1)	Infinite Saturation Flow						Inf	Inf
11/2 (M62(E) - Circ Lane 2)	Infinite Saturation Flow						Inf	Inf
12/1 (A19(S) - Circ Lane 1)	Infinite Saturation Flow						Inf	Inf
12/2 (A19(S) - Circ Lane 2)	Infinite Saturation Flow						Inf	Inf
13/1 (M62(W) - Circ)	3.65	0.00	Y	Arm 9 Ahead	40.00	100.0 %	1908	1908
13/2 (M62(W) - Circ)	3.65	0.00	N	Arm 14 Right	40.00	100.0 %	2043	2043
14/1 (Selby Road - Circ Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

14/2 (Selby Road - Circ Lane 2)	Infinite Saturation Flow	Inf	Inf
15/1 (A19(N) - Circ Lane 1)	Infinite Saturation Flow	Inf	Inf
15/2 (A19(N) - Circ Lane 2)	Infinite Saturation Flow	Inf	Inf

Scenario 6: '2025 Base + Committed + Dev (Cont.) PM' (FG6: '2025 Base + Committed + Dev (Cont.)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	2	75	7	39	153	276
	B	88	3	135	57	185	468
	C	8	219	3	158	982	1370
	D	34	56	80	0	10	180
	E	269	231	1114	6	1	1621
	Tot.	401	584	1339	260	1331	3915

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 6: 2025 Base + Committed + Dev (Cont.) PM
Junction: M62 Junction 35	
1/1	82
1/2	194
2/1 (short)	192
2/2 (with short)	468(In) 276(Out)
3/1	1140
3/2	230
4/1 (short)	10
4/2 (with short)	180(In) 170(Out)
5/1 (short)	909
5/2 (with short)	1621(In) 712(Out)
6/1	200
6/2	201
7/1	584
8/1	524
8/2	815
9/1	260
10/1	1331
11/1	959
11/2	754
12/1	457
12/2	948
13/1	102
13/2	432
14/1	1321
14/2	323
15/1	451
15/2	42

Full Input Data And Results

Lane Saturation Flows

Full Input Data And Results

Junction: M62 Junction 35

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (M62 WB Off Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
1/2 (M62 WB Off Slip Lane 2)	Infinite Saturation Flow						Inf	Inf
2/1 (A19 (South) Lane 1)	Infinite Saturation Flow						Inf	Inf
2/2 (A19 (South) Lane 2)	Infinite Saturation Flow						Inf	Inf
3/1 (M62 EB Off Slip)	3.40	0.00	Y	Arm 9 Left	50.00	13.9 %	1898	1898
				Arm 14 Ahead	50.00	86.1 %		
3/2 (M62 EB Off Slip)	3.40	0.00	N	Arm 14 Ahead	50.00	100.0 %	2034	2034
4/1 (Selby Road Lane 1)	Infinite Saturation Flow						Inf	Inf
4/2 (Selby Road Lane 2)	Infinite Saturation Flow						Inf	Inf
5/1 (A19 (North) Lane 1)	Infinite Saturation Flow						Inf	Inf
5/2 (A19 (North) Lane 2)	Infinite Saturation Flow						Inf	Inf
6/1 (M62 EB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
6/2 (M62 EB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf
7/1 (A19(S) - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (M62 WB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
8/2 (M62 WB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf
9/1 (Selby Road - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
10/1 (A19(N) - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
11/1 (M62(E) - Circ Lane 1)	Infinite Saturation Flow						Inf	Inf
11/2 (M62(E) - Circ Lane 2)	Infinite Saturation Flow						Inf	Inf
12/1 (A19(S) - Circ Lane 1)	Infinite Saturation Flow						Inf	Inf
12/2 (A19(S) - Circ Lane 2)	Infinite Saturation Flow						Inf	Inf
13/1 (M62(W) - Circ)	3.65	0.00	Y	Arm 9 Ahead	40.00	100.0 %	1908	1908
13/2 (M62(W) - Circ)	3.65	0.00	N	Arm 14 Right	40.00	100.0 %	2043	2043
14/1 (Selby Road - Circ Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

14/2 (Selby Road - Circ Lane 2)	Infinite Saturation Flow	Inf	Inf
15/1 (A19(N) - Circ Lane 1)	Infinite Saturation Flow	Inf	Inf
15/2 (A19(N) - Circ Lane 2)	Infinite Saturation Flow	Inf	Inf

Scenario 7: '2025 Base + Committed + Dev (Vision) AM' (FG7: '2025 Base + Committed + Dev (Vision)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	1	115	2	58	292	468
	B	106	2	266	87	241	702
	C	0	85	7	95	1055	1242
	D	36	92	129	0	14	271
	E	237	178	1020	7	0	1442
	Tot.	380	472	1424	247	1602	4125

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 7: 2025 Base + Committed + Dev (Vision) AM
Junction: M62 Junction 35	
1/1	117
1/2	351
2/1 (short)	353
2/2 (with short)	702(In) 349(Out)
3/1	1150
3/2	92
4/1 (short)	14
4/2 (with short)	271(In) 257(Out)
5/1 (short)	881
5/2 (with short)	1442(In) 561(Out)
6/1	189
6/2	191
7/1	472
8/1	669
8/2	755
9/1	247
10/1	1602
11/1	891
11/2	629
12/1	536
12/2	980
13/1	152
13/2	642
14/1	1588
14/2	201
15/1	390
15/2	68

Full Input Data And Results

Lane Saturation Flows

Full Input Data And Results

Junction: M62 Junction 35

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (M62 WB Off Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
1/2 (M62 WB Off Slip Lane 2)	Infinite Saturation Flow						Inf	Inf
2/1 (A19 (South) Lane 1)	Infinite Saturation Flow						Inf	Inf
2/2 (A19 (South) Lane 2)	Infinite Saturation Flow						Inf	Inf
3/1 (M62 EB Off Slip)	3.40	0.00	Y	Arm 9 Left	50.00	8.3 %	1898	1898
				Arm 14 Ahead	50.00	91.7 %		
3/2 (M62 EB Off Slip)	3.40	0.00	N	Arm 14 Ahead	50.00	100.0 %	2034	2034
4/1 (Selby Road Lane 1)	Infinite Saturation Flow						Inf	Inf
4/2 (Selby Road Lane 2)	Infinite Saturation Flow						Inf	Inf
5/1 (A19 (North) Lane 1)	Infinite Saturation Flow						Inf	Inf
5/2 (A19 (North) Lane 2)	Infinite Saturation Flow						Inf	Inf
6/1 (M62 EB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
6/2 (M62 EB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf
7/1 (A19(S) - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (M62 WB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
8/2 (M62 WB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf
9/1 (Selby Road - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
10/1 (A19(N) - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
11/1 (M62(E) - Circ Lane 1)	Infinite Saturation Flow						Inf	Inf
11/2 (M62(E) - Circ Lane 2)	Infinite Saturation Flow						Inf	Inf
12/1 (A19(S) - Circ Lane 1)	Infinite Saturation Flow						Inf	Inf
12/2 (A19(S) - Circ Lane 2)	Infinite Saturation Flow						Inf	Inf
13/1 (M62(W) - Circ)	3.65	0.00	Y	Arm 9 Ahead	40.00	100.0 %	1908	1908
13/2 (M62(W) - Circ)	3.65	0.00	N	Arm 14 Right	40.00	100.0 %	2043	2043
14/1 (Selby Road - Circ Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

14/2 (Selby Road - Circ Lane 2)	Infinite Saturation Flow	Inf	Inf
15/1 (A19(N) - Circ Lane 1)	Infinite Saturation Flow	Inf	Inf
15/2 (A19(N) - Circ Lane 2)	Infinite Saturation Flow	Inf	Inf

Scenario 8: '2025 Base + Committed + Dev (Vision) PM' (FG8: '2025 Base + Committed + Dev (Vision)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	2	75	7	37	146	267
	B	88	3	135	56	179	461
	C	8	219	3	140	912	1282
	D	33	55	75	0	10	173
	E	267	229	1095	6	1	1598
	Tot.	398	581	1315	239	1248	3781

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 8: 2025 Base + Committed + Dev (Vision) PM
Junction: M62 Junction 35	
1/1	82
1/2	185
2/1 (short)	191
2/2 (with short)	461(In) 270(Out)
3/1	1052
3/2	230
4/1 (short)	10
4/2 (with short)	173(In) 163(Out)
5/1 (short)	896
5/2 (with short)	1598(In) 702(Out)
6/1	198
6/2	200
7/1	581
8/1	513
8/2	802
9/1	239
10/1	1248
11/1	945
11/2	741
12/1	446
12/2	926
13/1	99
13/2	419
14/1	1238
14/2	323
15/1	447
15/2	39

Full Input Data And Results

Lane Saturation Flows

Full Input Data And Results

Junction: M62 Junction 35

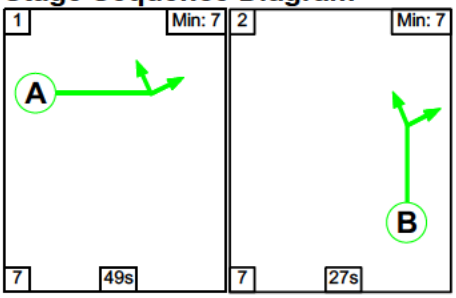
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (M62 WB Off Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
1/2 (M62 WB Off Slip Lane 2)	Infinite Saturation Flow						Inf	Inf
2/1 (A19 (South) Lane 1)	Infinite Saturation Flow						Inf	Inf
2/2 (A19 (South) Lane 2)	Infinite Saturation Flow						Inf	Inf
3/1 (M62 EB Off Slip)	3.40	0.00	Y	Arm 9 Left	50.00	13.3 %	1898	1898
				Arm 14 Ahead	50.00	86.7 %		
3/2 (M62 EB Off Slip)	3.40	0.00	N	Arm 14 Ahead	50.00	100.0 %	2034	2034
4/1 (Selby Road Lane 1)	Infinite Saturation Flow						Inf	Inf
4/2 (Selby Road Lane 2)	Infinite Saturation Flow						Inf	Inf
5/1 (A19 (North) Lane 1)	Infinite Saturation Flow						Inf	Inf
5/2 (A19 (North) Lane 2)	Infinite Saturation Flow						Inf	Inf
6/1 (M62 EB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
6/2 (M62 EB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf
7/1 (A19(S) - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (M62 WB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
8/2 (M62 WB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf
9/1 (Selby Road - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
10/1 (A19(N) - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
11/1 (M62(E) - Circ Lane 1)	Infinite Saturation Flow						Inf	Inf
11/2 (M62(E) - Circ Lane 2)	Infinite Saturation Flow						Inf	Inf
12/1 (A19(S) - Circ Lane 1)	Infinite Saturation Flow						Inf	Inf
12/2 (A19(S) - Circ Lane 2)	Infinite Saturation Flow						Inf	Inf
13/1 (M62(W) - Circ)	3.65	0.00	Y	Arm 9 Ahead	40.00	100.0 %	1908	1908
13/2 (M62(W) - Circ)	3.65	0.00	N	Arm 14 Right	40.00	100.0 %	2043	2043
14/1 (Selby Road - Circ Lane 1)	Infinite Saturation Flow						Inf	Inf

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14/2 (Selby Road - Circ Lane 2)	Infinite Saturation Flow	Inf	Inf
15/1 (A19(N) - Circ Lane 1)	Infinite Saturation Flow	Inf	Inf
15/2 (A19(N) - Circ Lane 2)	Infinite Saturation Flow	Inf	Inf

Scenario 1: 'Base + Committed + Dev (Cont.) AM' (FG1: 'Base + Committed + Dev (Cont.)', Plan 1: 'Network Control Plan 1')

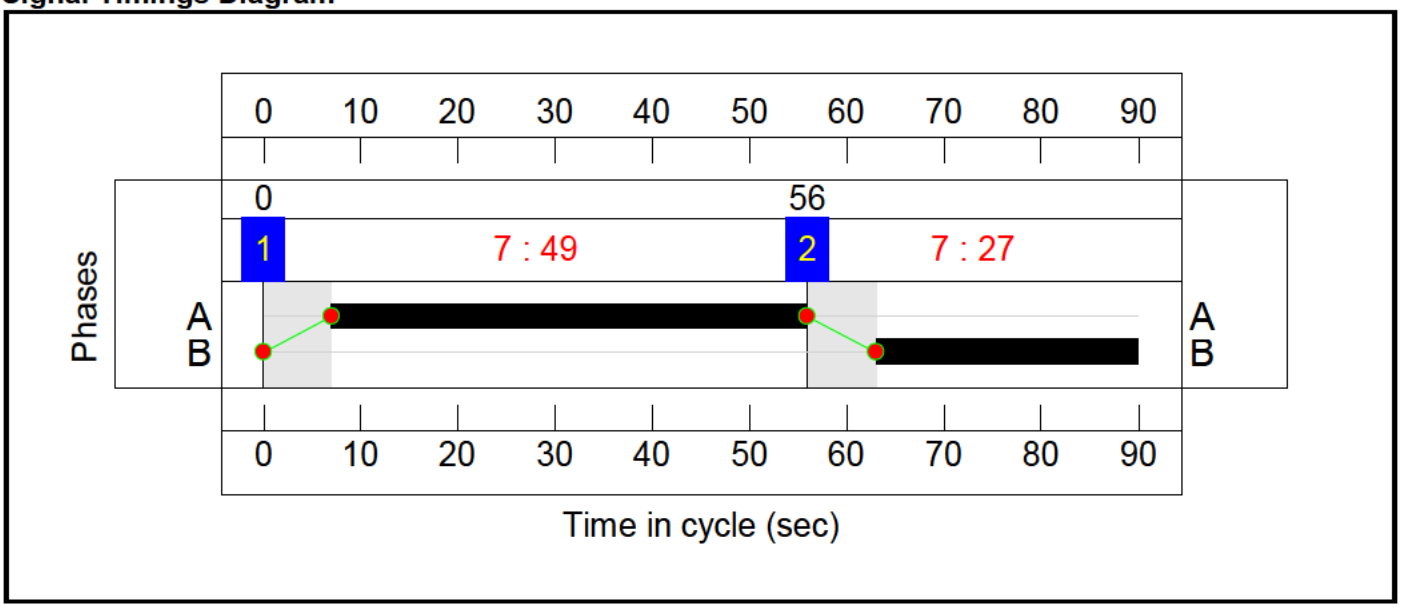
Stage Sequence Diagram



Stage Timings

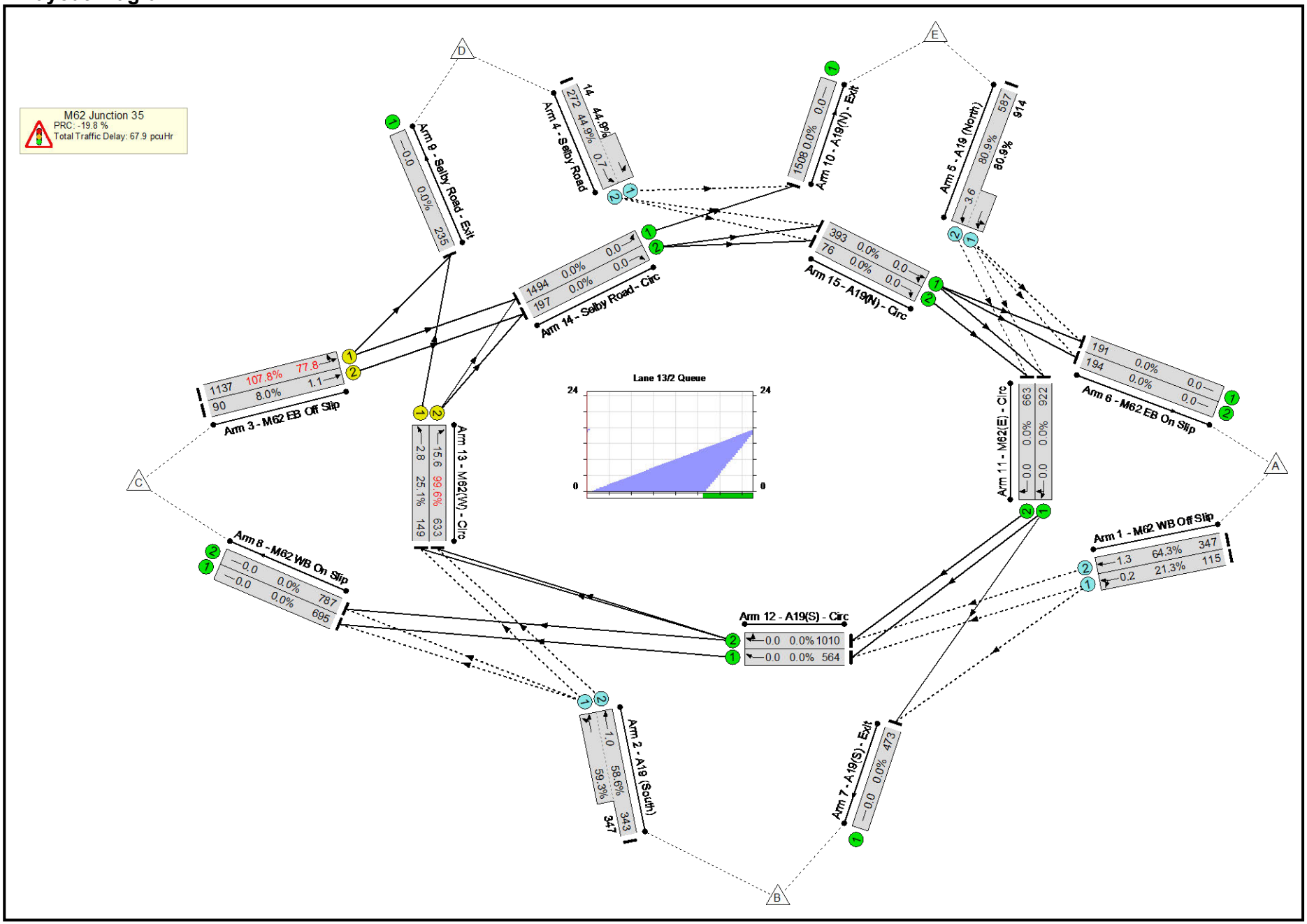
Stage	1	2
Duration	49	27
Change Point	0	56

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Full Input Data And Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: M62 Junction 34	-	-	**N/A**	-	-		-	-	-	-	-	-	**107.8%**
M62 Junction 35	-	-	**N/A**	-	-		-	-	-	-	-	-	**107.8%**
1/1	M62 WB Off Slip Left Ahead	O	N/A	N/A	-		-	-	-	115	Inf	540	21.3%
1/2	M62 WB Off Slip Ahead	O	N/A	N/A	-		-	-	-	347	Inf	540	64.3%
2/2+2/1	A19 (South) Left Ahead	O	N/A	N/A	-		-	-	-	690	Inf : Inf	585+585	58.6 : 59.3%
3/1	M62 EB Off Slip Left Ahead	U	N/A	N/A	A		1	49	-	1137	1898	1054	107.8%
3/2	M62 EB Off Slip Ahead	U	N/A	N/A	A		1	49	-	90	2034	1130	8.0%
4/2+4/1	Selby Road U-Turn Ahead	O	N/A	N/A	-		-	-	-	286	Inf : Inf	606+31	44.9 : 44.9%
5/2+5/1	A19 (North) Left Ahead	O	N/A	N/A	-		-	-	-	1501	Inf : Inf	725+1129	80.9 : 80.9%
6/1	M62 EB On Slip	U	N/A	N/A	-		-	-	-	191	Inf	Inf	0.0%
6/2	M62 EB On Slip	U	N/A	N/A	-		-	-	-	194	Inf	Inf	0.0%
7/1	A19(S) - Exit	U	N/A	N/A	-		-	-	-	473	Inf	Inf	0.0%
8/1	M62 WB On Slip	U	N/A	N/A	-		-	-	-	695	Inf	Inf	0.0%
8/2	M62 WB On Slip	U	N/A	N/A	-		-	-	-	787	Inf	Inf	0.0%
9/1	Selby Road - Exit	U	N/A	N/A	-		-	-	-	242	Inf	Inf	0.0%
10/1	A19(N) - Exit	U	N/A	N/A	-		-	-	-	1584	Inf	Inf	0.0%
11/1	M62(E) - Circ Ahead Right	U	N/A	N/A	-		-	-	-	922	Inf	Inf	0.0%
11/2	M62(E) - Circ Right	U	N/A	N/A	-		-	-	-	663	Inf	Inf	0.0%

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12/1	A19(S) - Circ Ahead	U	N/A	N/A	-		-	-	-	564	Inf	Inf	0.0%
12/2	A19(S) - Circ Ahead Right	U	N/A	N/A	-		-	-	-	1010	Inf	Inf	0.0%
13/1	M62(W) - Circ Ahead	U	N/A	N/A	B		1	27	-	149	1908	594	25.1%
13/2	M62(W) - Circ Right	U	N/A	N/A	B		1	27	-	633	2043	636	99.6%
14/1	Selby Road - Circ Left	U	N/A	N/A	-		-	-	-	1570	Inf	Inf	0.0%
14/2	Selby Road - Circ Right	U	N/A	N/A	-		-	-	-	197	Inf	Inf	0.0%
15/1	A19(N) - Circ Ahead Right	U	N/A	N/A	-		-	-	-	393	Inf	Inf	0.0%
15/2	A19(N) - Circ Right	U	N/A	N/A	-		-	-	-	76	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: M62 Junction 34	**-**	**-**	**5416**	**0**	**0**	**16.3**	**51.6**	**0.0**	**67.9**	**-**	**-**	**-**	**-**
M62 Junction 35	**-**	**-**	**5416**	**0**	**0**	**16.3**	**51.6**	**0.0**	**67.9**	**-**	**-**	**-**	**-**
1/1	115	115	115	0	0	0.0	0.1	-	0.1	4.3	0.1	0.1	0.2
1/2	347	347	347	0	0	0.0	0.9	-	0.9	9.3	0.4	0.9	1.3
2/2+2/1	690	690	1380	0	0	0.0	0.7	-	0.7	3.8	0.3	0.7	1.0
3/1	1137	1054	-	-	-	9.7	47.3	-	57.0	180.4	30.5	47.3	77.8
3/2	90	90	-	-	-	0.2	0.0	-	0.3	11.0	1.0	0.0	1.1
4/2+4/1	286	286	572	0	0	0.0	0.4	-	0.4	5.2	0.3	0.4	0.7
5/2+5/1	1501	1501	3002	0	0	0.0	2.1	-	2.1	5.1	1.5	2.1	3.6
6/1	191	191	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	194	194	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	473	473	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	695	695	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/2	787	787	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	235	235	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	1508	1508	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	922	922	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/2	663	663	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	564	564	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/2	1010	1010	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
13/1	149	149	-	-	-	1.0	0.0	-	1.0	23.1	2.8	0.0	2.8
13/2	633	633	-	-	-	5.4	0.0	-	5.4	30.9	15.6	0.0	15.6
14/1	1494	1494	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
14/2	197	197	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
15/1	393	393	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Full Input Data And Results

15/2	76	76	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1

PRC for Signalled Lanes (%): -19.8
PRC Over All Lanes (%): -19.8

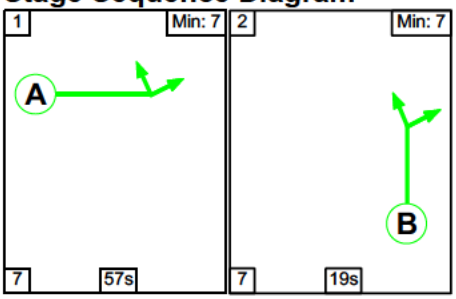
Total Delay for Signalled Lanes (pcuHr): 63.63
Total Delay Over All Lanes(pcuHr): 67.91

Cycle Time (s): 90

Full Input Data And Results

Scenario 2: 'Base + Committed + Dev (Cont.) PM' (FG2: 'Base + Committed + Dev (Cont.)', Plan 1: 'Network Control Plan 1')

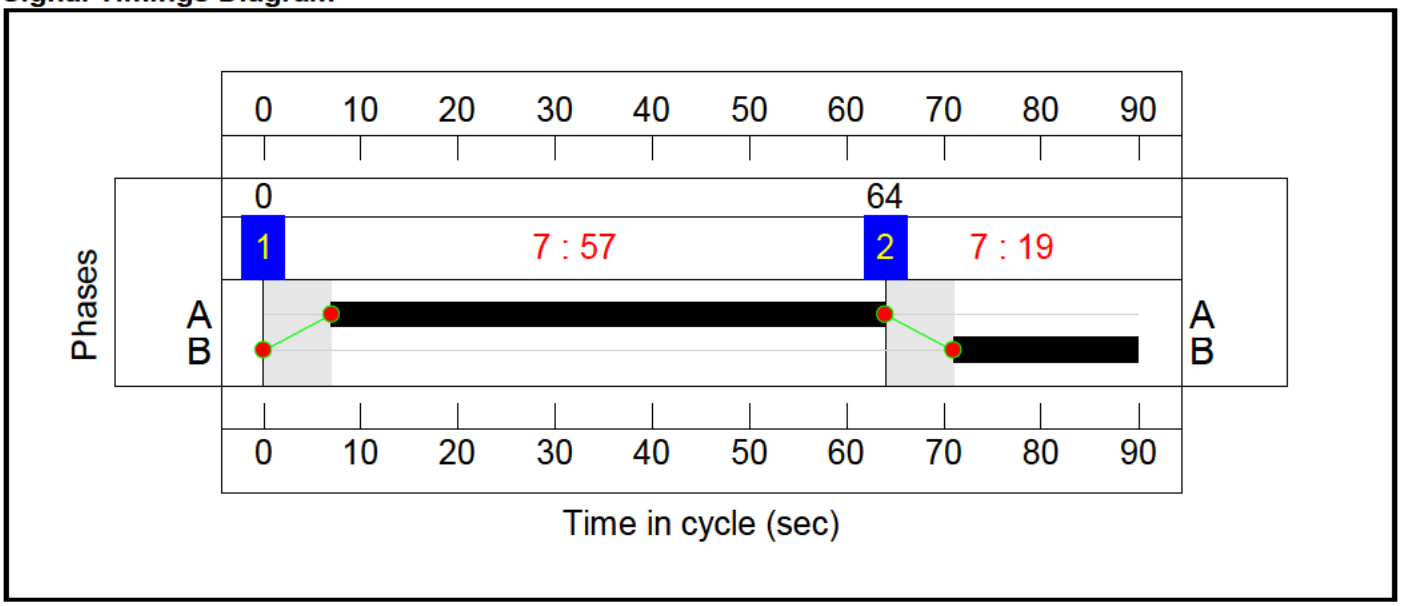
Stage Sequence Diagram



Stage Timings

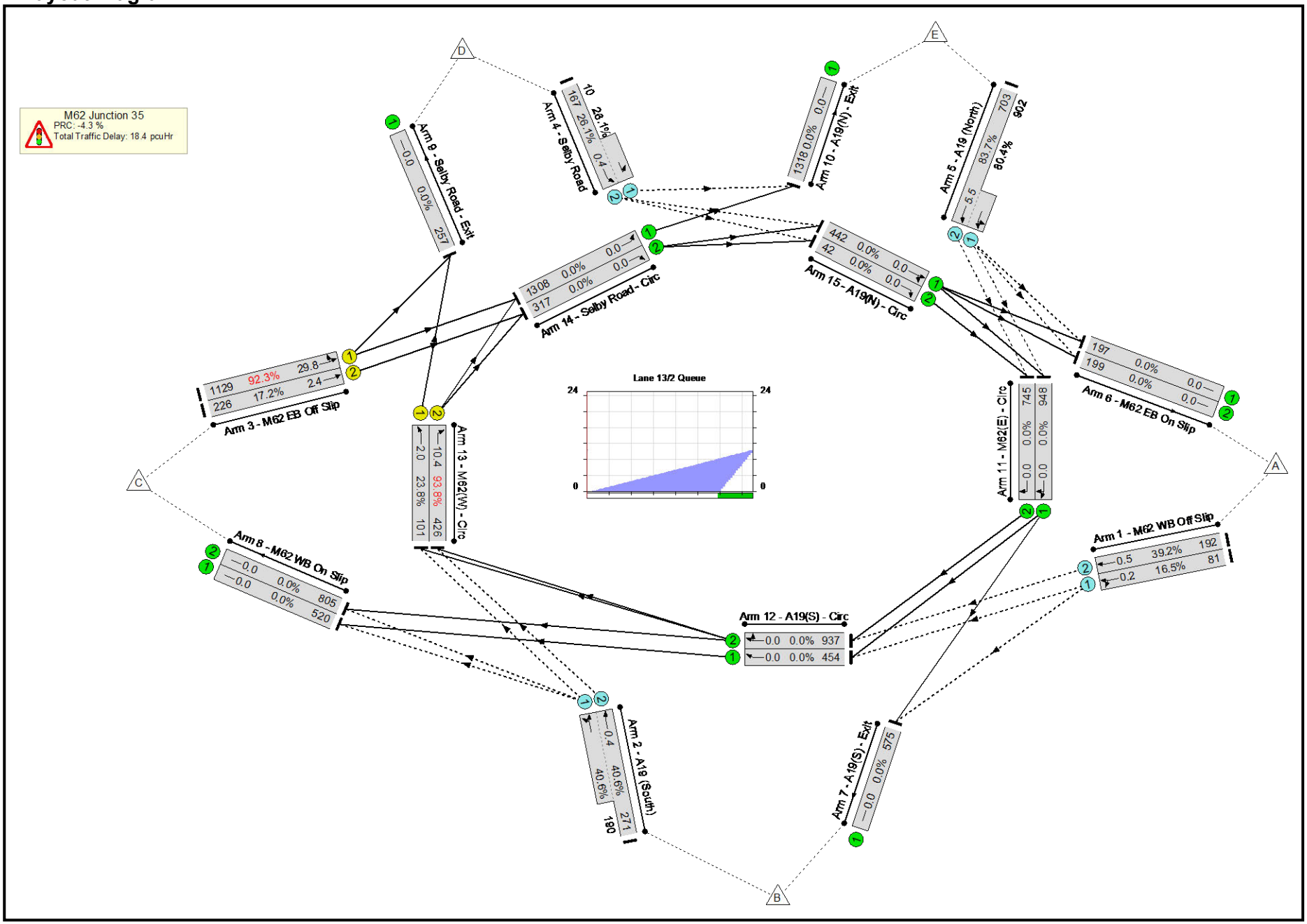
Stage	1	2
Duration	57	19
Change Point	0	64

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Full Input Data And Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: M62 Junction 34	-	-	**N/A**	-	-		-	-	-	-	-	-	**93.8%**
M62 Junction 35	-	-	**N/A**	-	-		-	-	-	-	-	-	**93.8%**
1/1	M62 WB Off Slip Left Ahead	O	N/A	N/A	-		-	-	-	81	Inf	490	16.5%
1/2	M62 WB Off Slip Ahead	O	N/A	N/A	-		-	-	-	192	Inf	490	39.2%
2/2+2/1	A19 (South) Left Ahead	O	N/A	N/A	-		-	-	-	461	Inf : Inf	667+468	40.6 : 40.6%
3/1	M62 EB Off Slip Left Ahead	U	N/A	N/A	A		1	57	-	1129	1898	1223	92.3%
3/2	M62 EB Off Slip Ahead	U	N/A	N/A	A		1	57	-	226	2034	1311	17.2%
4/2+4/1	Selby Road U-Turn Ahead	O	N/A	N/A	-		-	-	-	177	Inf : Inf	640+38	26.1 : 26.1%
5/2+5/1	A19 (North) Left Ahead	O	N/A	N/A	-		-	-	-	1605	Inf : Inf	840+1122	83.7 : 80.4%
6/1	M62 EB On Slip	U	N/A	N/A	-		-	-	-	197	Inf	Inf	0.0%
6/2	M62 EB On Slip	U	N/A	N/A	-		-	-	-	199	Inf	Inf	0.0%
7/1	A19(S) - Exit	U	N/A	N/A	-		-	-	-	575	Inf	Inf	0.0%
8/1	M62 WB On Slip	U	N/A	N/A	-		-	-	-	520	Inf	Inf	0.0%
8/2	M62 WB On Slip	U	N/A	N/A	-		-	-	-	805	Inf	Inf	0.0%
9/1	Selby Road - Exit	U	N/A	N/A	-		-	-	-	257	Inf	Inf	0.0%
10/1	A19(N) - Exit	U	N/A	N/A	-		-	-	-	1318	Inf	Inf	0.0%
11/1	M62(E) - Circ Ahead Right	U	N/A	N/A	-		-	-	-	948	Inf	Inf	0.0%
11/2	M62(E) - Circ Right	U	N/A	N/A	-		-	-	-	745	Inf	Inf	0.0%

Full Input Data And Results

12/1	A19(S) - Circ Ahead	U	N/A	N/A	-		-	-	-	454	Inf	Inf	0.0%
12/2	A19(S) - Circ Ahead Right	U	N/A	N/A	-		-	-	-	937	Inf	Inf	0.0%
13/1	M62(W) - Circ Ahead	U	N/A	N/A	B		1	19	-	101	1908	424	23.8%
13/2	M62(W) - Circ Right	U	N/A	N/A	B		1	19	-	426	2043	454	93.8%
14/1	Selby Road - Circ Left	U	N/A	N/A	-		-	-	-	1308	Inf	Inf	0.0%
14/2	Selby Road - Circ Right	U	N/A	N/A	-		-	-	-	317	Inf	Inf	0.0%
15/1	A19(N) - Circ Ahead Right	U	N/A	N/A	-		-	-	-	442	Inf	Inf	0.0%
15/2	A19(N) - Circ Right	U	N/A	N/A	-		-	-	-	42	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: M62 Junction 34	**-**	**-**	**4759**	**0**	**0**	**9.8**	**8.6**	**0.0**	**18.4**	**-**	**-**	**-**	**-**
M62 Junction 35	**-**	**-**	**4759**	**0**	**0**	**9.8**	**8.6**	**0.0**	**18.4**	**-**	**-**	**-**	**-**
1/1	81	81	81	0	0	0.0	0.1	-	0.1	4.5	0.1	0.1	0.2
1/2	192	192	192	0	0	0.0	0.3	-	0.3	6.1	0.2	0.3	0.5
2/2+2/1	461	461	922	0	0	0.0	0.3	-	0.3	2.7	0.1	0.3	0.4
3/1	1129	1129	-	-	-	4.4	5.4	-	9.8	31.2	24.5	5.4	29.8
3/2	226	226	-	-	-	0.4	0.1	-	0.5	8.1	2.3	0.1	2.4
4/2+4/1	177	177	354	0	0	0.0	0.2	-	0.2	3.7	0.2	0.2	0.4
5/2+5/1	1605	1605	3210	0	0	0.1	2.2	-	2.3	5.2	3.3	2.2	5.5
6/1	197	197	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	199	199	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	575	575	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	520	520	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/2	805	805	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	257	257	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	1318	1318	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	948	948	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/2	745	745	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	454	454	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/2	937	937	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
13/1	101	101	-	-	-	0.8	0.0	-	0.8	28.7	2.0	0.0	2.0
13/2	426	426	-	-	-	4.1	0.0	-	4.1	34.4	10.4	0.0	10.4
14/1	1308	1308	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
14/2	317	317	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
15/1	442	442	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Full Input Data And Results

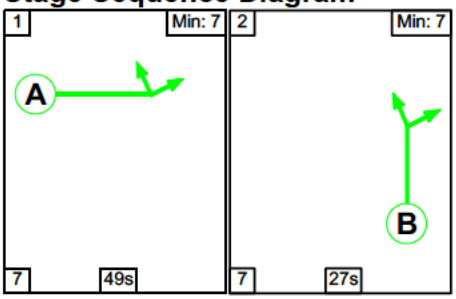
15/2	42	42	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1	PRC for Signalled Lanes (%):	-4.3	Total Delay for Signalled Lanes (pcuHr):	15.16	Cycle Time (s):	90
	PRC Over All Lanes (%):	-4.3	Total Delay Over All Lanes(pcuHr):	18.42		

Full Input Data And Results

Scenario 3: 'Base + Committed + Dev (Vision) AM' (FG3: 'Base + Committed + Dev (Vision)', Plan 1: 'Network Control Plan 1')

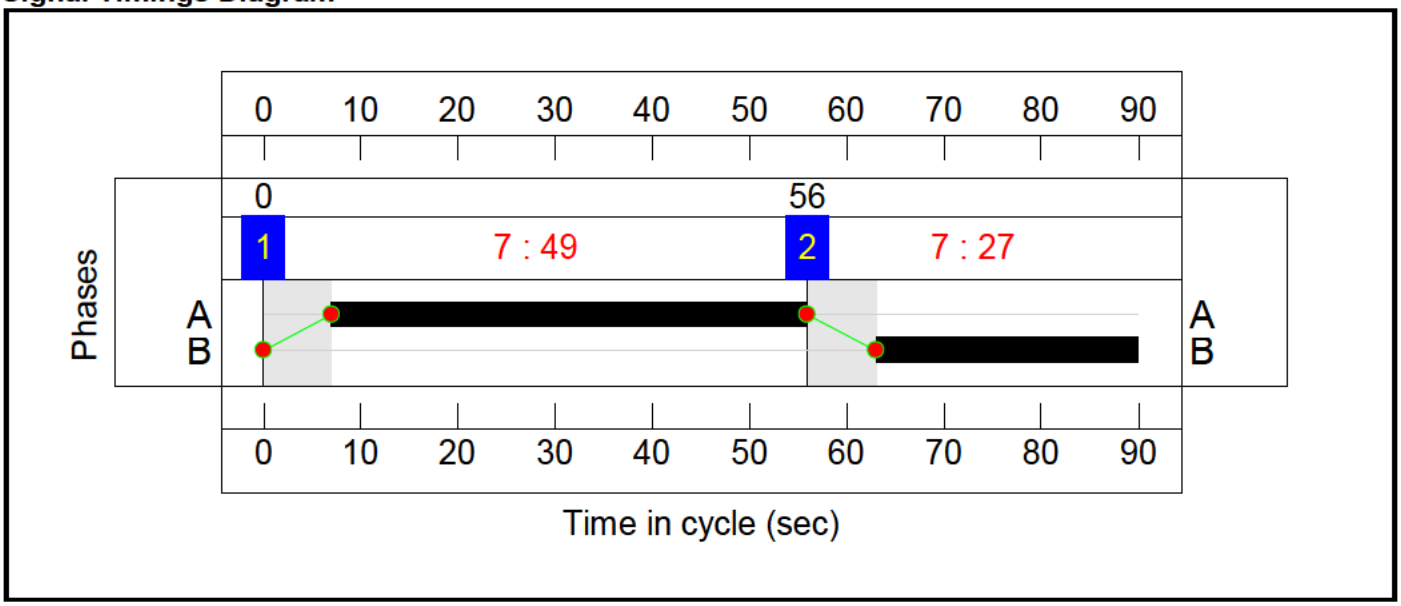
Stage Sequence Diagram



Stage Timings

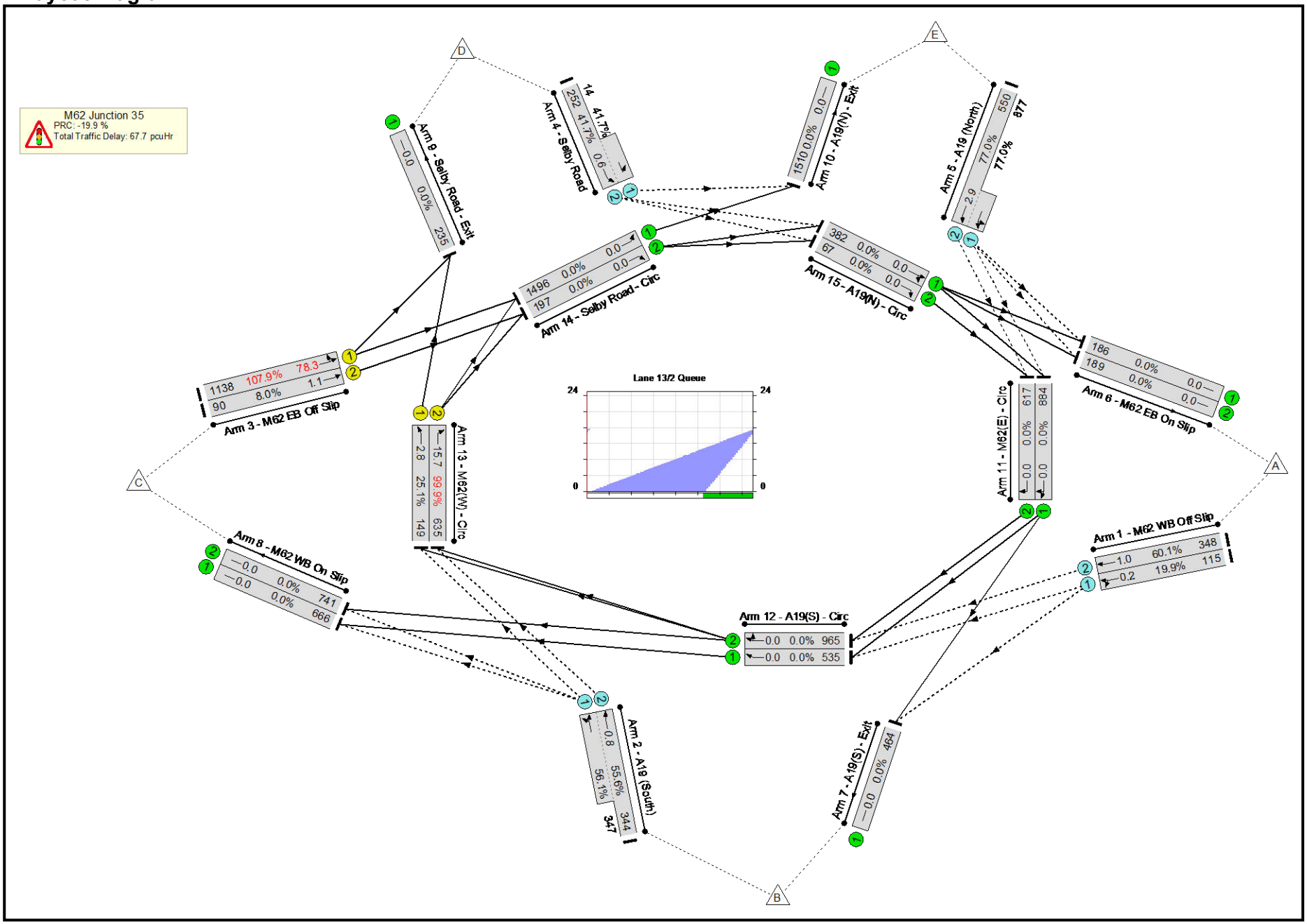
Stage	1	2
Duration	49	27
Change Point	0	56

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Full Input Data And Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: M62 Junction 34	-	-	**N/A**	-	-		-	-	-	-	-	-	**107.9%**
M62 Junction 35	-	-	**N/A**	-	-		-	-	-	-	-	-	**107.9%**
1/1	M62 WB Off Slip Left Ahead	O	N/A	N/A	-		-	-	-	115	Inf	579	19.9%
1/2	M62 WB Off Slip Ahead	O	N/A	N/A	-		-	-	-	348	Inf	579	60.1%
2/2+2/1	A19 (South) Left Ahead	O	N/A	N/A	-		-	-	-	691	Inf : Inf	618+618	55.6 : 56.1%
3/1	M62 EB Off Slip Left Ahead	U	N/A	N/A	A		1	49	-	1138	1898	1054	107.9%
3/2	M62 EB Off Slip Ahead	U	N/A	N/A	A		1	49	-	90	2034	1130	8.0%
4/2+4/1	Selby Road U-Turn Ahead	O	N/A	N/A	-		-	-	-	266	Inf : Inf	605+34	41.7 : 41.7%
5/2+5/1	A19 (North) Left Ahead	O	N/A	N/A	-		-	-	-	1427	Inf : Inf	714+1139	77.0 : 77.0%
6/1	M62 EB On Slip	U	N/A	N/A	-		-	-	-	186	Inf	Inf	0.0%
6/2	M62 EB On Slip	U	N/A	N/A	-		-	-	-	189	Inf	Inf	0.0%
7/1	A19(S) - Exit	U	N/A	N/A	-		-	-	-	464	Inf	Inf	0.0%
8/1	M62 WB On Slip	U	N/A	N/A	-		-	-	-	666	Inf	Inf	0.0%
8/2	M62 WB On Slip	U	N/A	N/A	-		-	-	-	741	Inf	Inf	0.0%
9/1	Selby Road - Exit	U	N/A	N/A	-		-	-	-	242	Inf	Inf	0.0%
10/1	A19(N) - Exit	U	N/A	N/A	-		-	-	-	1587	Inf	Inf	0.0%
11/1	M62(E) - Circ Ahead Right	U	N/A	N/A	-		-	-	-	884	Inf	Inf	0.0%
11/2	M62(E) - Circ Right	U	N/A	N/A	-		-	-	-	617	Inf	Inf	0.0%

Full Input Data And Results

12/1	A19(S) - Circ Ahead	U	N/A	N/A	-		-	-	-	535	Inf	Inf	0.0%
12/2	A19(S) - Circ Ahead Right	U	N/A	N/A	-		-	-	-	965	Inf	Inf	0.0%
13/1	M62(W) - Circ Ahead	U	N/A	N/A	B		1	27	-	149	1908	594	25.1%
13/2	M62(W) - Circ Right	U	N/A	N/A	B		1	27	-	635	2043	636	99.9%
14/1	Selby Road - Circ Left	U	N/A	N/A	-		-	-	-	1573	Inf	Inf	0.0%
14/2	Selby Road - Circ Right	U	N/A	N/A	-		-	-	-	197	Inf	Inf	0.0%
15/1	A19(N) - Circ Ahead Right	U	N/A	N/A	-		-	-	-	382	Inf	Inf	0.0%
15/2	A19(N) - Circ Right	U	N/A	N/A	-		-	-	-	67	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: M62 Junction 34	**-**	**-**	**5231**	**0**	**0**	**16.4**	**51.3**	**0.0**	**67.7**	**-**	**-**	**-**	**-**
M62 Junction 35	**-**	**-**	**5231**	**0**	**0**	**16.4**	**51.3**	**0.0**	**67.7**	**-**	**-**	**-**	**-**
1/1	115	115	115	0	0	0.0	0.1	-	0.1	3.9	0.1	0.1	0.2
1/2	348	348	348	0	0	0.0	0.7	-	0.8	7.8	0.3	0.7	1.0
2/2+2/1	691	691	1382	0	0	0.0	0.6	-	0.6	3.3	0.2	0.6	0.8
3/1	1138	1054	-	-	-	9.7	47.7	-	57.5	181.8	30.5	47.7	78.3
3/2	90	90	-	-	-	0.2	0.0	-	0.3	11.0	1.0	0.0	1.1
4/2+4/1	266	266	532	0	0	0.0	0.4	-	0.4	4.9	0.2	0.4	0.6
5/2+5/1	1427	1427	2854	0	0	0.0	1.7	-	1.7	4.2	1.2	1.7	2.9
6/1	186	186	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	189	189	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	464	464	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	666	666	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/2	741	741	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	235	235	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	1510	1510	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	884	884	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/2	617	617	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	535	535	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/2	965	965	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
13/1	149	149	-	-	-	1.0	0.0	-	1.0	23.1	2.8	0.0	2.8
13/2	635	635	-	-	-	5.5	0.0	-	5.5	31.0	15.7	0.0	15.7
14/1	1496	1496	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
14/2	197	197	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
15/1	382	382	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Full Input Data And Results

15/2	67	67	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1

PRC for Signalled Lanes (%): -19.9
PRC Over All Lanes (%): -19.9

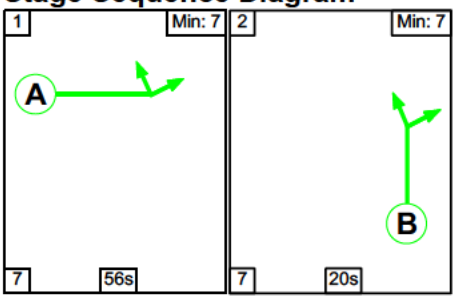
Total Delay for Signalled Lanes (pcuHr): 64.16
Total Delay Over All Lanes(pcuHr): 67.70

Cycle Time (s): 90

Full Input Data And Results

Scenario 4: 'Base + Committed + Dev (Vision) PM' (FG4: 'Base + Committed + Dev (Vision)', Plan 1: 'Network Control Plan 1')

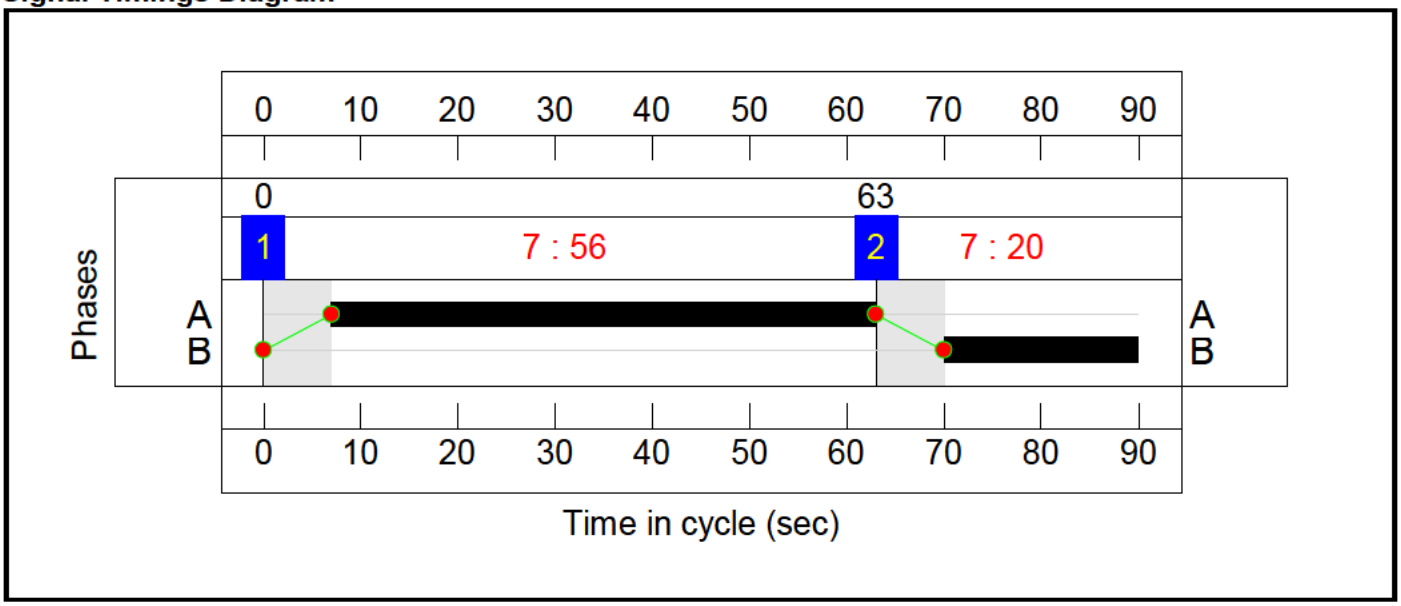
Stage Sequence Diagram



Stage Timings

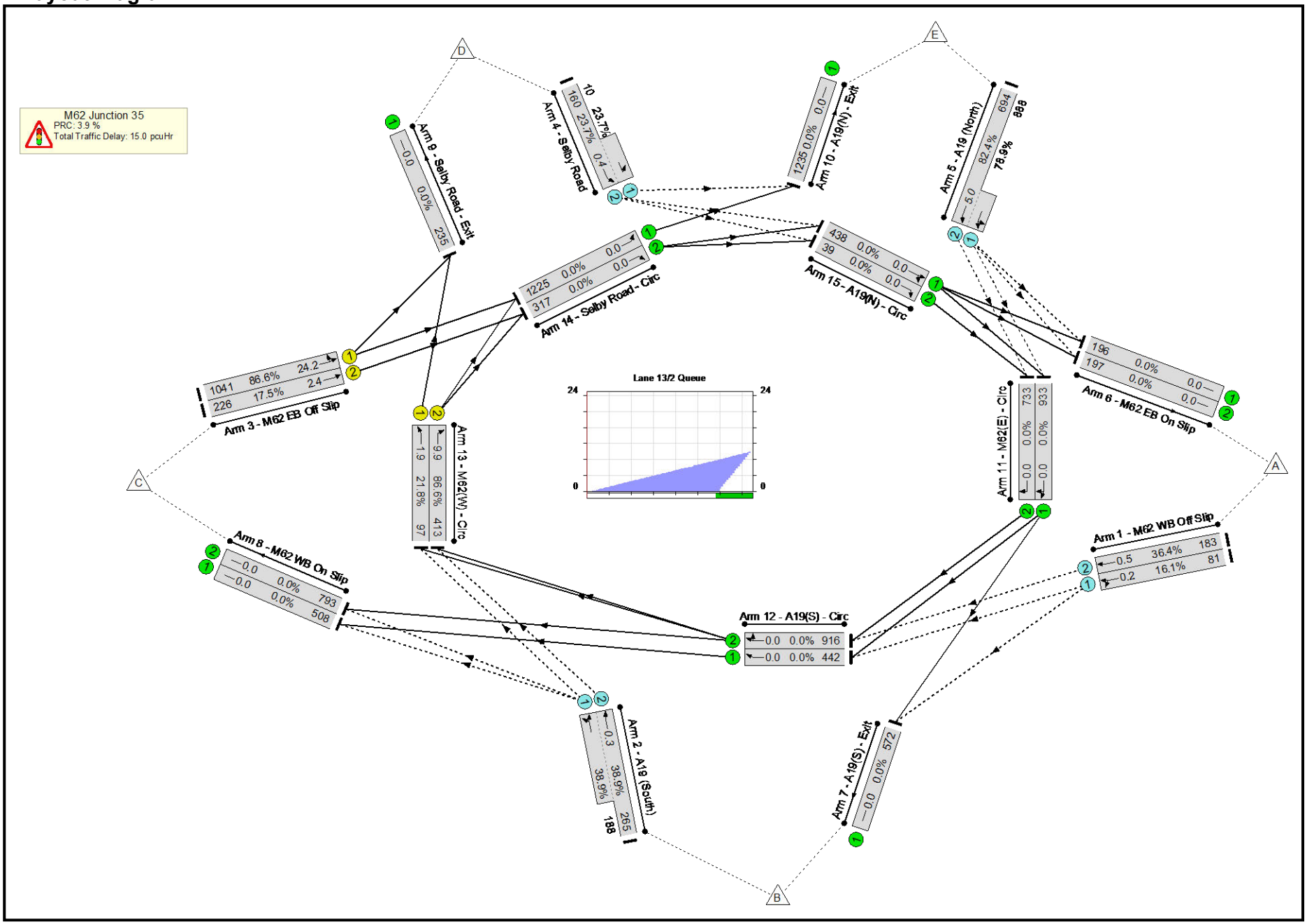
Stage	1	2
Duration	56	20
Change Point	0	63

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Full Input Data And Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: M62 Junction 34	-	-	**N/A**	-	-		-	-	-	-	-	-	**86.6%**
M62 Junction 35	-	-	**N/A**	-	-		-	-	-	-	-	-	**86.6%**
1/1	M62 WB Off Slip Left Ahead	O	N/A	N/A	-		-	-	-	81	Inf	502	16.1%
1/2	M62 WB Off Slip Ahead	O	N/A	N/A	-		-	-	-	183	Inf	502	36.4%
2/2+2/1	A19 (South) Left Ahead	O	N/A	N/A	-		-	-	-	453	Inf : Inf	682+484	38.9 : 38.9%
3/1	M62 EB Off Slip Left Ahead	U	N/A	N/A	A		1	56	-	1041	1898	1202	86.6%
3/2	M62 EB Off Slip Ahead	U	N/A	N/A	A		1	56	-	226	2034	1288	17.5%
4/2+4/1	Selby Road U-Turn Ahead	O	N/A	N/A	-		-	-	-	170	Inf : Inf	676+42	23.7 : 23.7%
5/2+5/1	A19 (North) Left Ahead	O	N/A	N/A	-		-	-	-	1582	Inf : Inf	842+1125	82.4 : 78.9%
6/1	M62 EB On Slip	U	N/A	N/A	-		-	-	-	196	Inf	Inf	0.0%
6/2	M62 EB On Slip	U	N/A	N/A	-		-	-	-	197	Inf	Inf	0.0%
7/1	A19(S) - Exit	U	N/A	N/A	-		-	-	-	572	Inf	Inf	0.0%
8/1	M62 WB On Slip	U	N/A	N/A	-		-	-	-	508	Inf	Inf	0.0%
8/2	M62 WB On Slip	U	N/A	N/A	-		-	-	-	793	Inf	Inf	0.0%
9/1	Selby Road - Exit	U	N/A	N/A	-		-	-	-	235	Inf	Inf	0.0%
10/1	A19(N) - Exit	U	N/A	N/A	-		-	-	-	1235	Inf	Inf	0.0%
11/1	M62(E) - Circ Ahead Right	U	N/A	N/A	-		-	-	-	933	Inf	Inf	0.0%
11/2	M62(E) - Circ Right	U	N/A	N/A	-		-	-	-	733	Inf	Inf	0.0%

Full Input Data And Results

12/1	A19(S) - Circ Ahead	U	N/A	N/A	-		-	-	-	442	Inf	Inf	0.0%
12/2	A19(S) - Circ Ahead Right	U	N/A	N/A	-		-	-	-	916	Inf	Inf	0.0%
13/1	M62(W) - Circ Ahead	U	N/A	N/A	B		1	20	-	97	1908	445	21.8%
13/2	M62(W) - Circ Right	U	N/A	N/A	B		1	20	-	413	2043	477	86.6%
14/1	Selby Road - Circ Left	U	N/A	N/A	-		-	-	-	1225	Inf	Inf	0.0%
14/2	Selby Road - Circ Right	U	N/A	N/A	-		-	-	-	317	Inf	Inf	0.0%
15/1	A19(N) - Circ Ahead Right	U	N/A	N/A	-		-	-	-	438	Inf	Inf	0.0%
15/2	A19(N) - Circ Right	U	N/A	N/A	-		-	-	-	39	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: M62 Junction 34	**-**	**-**	**4674**	**0**	**0**	**8.9**	**6.1**	**0.0**	**15.0**	**-**	**-**	**-**	**-**
M62 Junction 35	**-**	**-**	**4674**	**0**	**0**	**8.9**	**6.1**	**0.0**	**15.0**	**-**	**-**	**-**	**-**
1/1	81	81	81	0	0	0.0	0.1	-	0.1	4.3	0.1	0.1	0.2
1/2	183	183	183	0	0	0.0	0.3	-	0.3	5.7	0.2	0.3	0.5
2/2+2/1	453	453	906	0	0	0.0	0.3	-	0.3	2.5	0.0	0.3	0.3
3/1	1041	1041	-	-	-	3.9	3.1	-	7.0	24.2	21.1	3.1	24.2
3/2	226	226	-	-	-	0.4	0.1	-	0.5	8.5	2.3	0.1	2.4
4/2+4/1	170	170	340	0	0	0.0	0.2	-	0.2	3.4	0.3	0.2	0.4
5/2+5/1	1582	1582	3164	0	0	0.1	2.0	-	2.1	4.8	3.0	2.0	5.0
6/1	196	196	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	197	197	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	572	572	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	508	508	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/2	793	793	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	235	235	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	1235	1235	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	933	933	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/2	733	733	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	442	442	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/2	916	916	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
13/1	97	97	-	-	-	0.8	0.0	-	0.8	27.8	1.9	0.0	1.9
13/2	413	413	-	-	-	3.8	0.0	-	3.8	33.1	9.9	0.0	9.9
14/1	1225	1225	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
14/2	317	317	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
15/1	438	438	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Full Input Data And Results

15/2	39	39	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

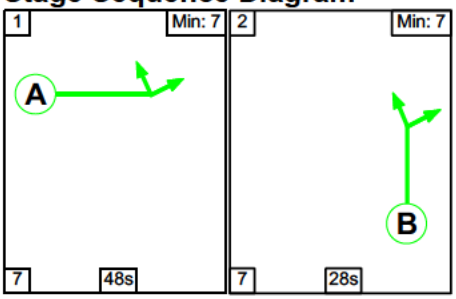
C1

PRC for Signalled Lanes (%): 3.9
PRC Over All Lanes (%): 3.9
Total Delay for Signalled Lanes (pcuHr): 12.07
Total Delay Over All Lanes(pcuHr): 15.05
Cycle Time (s): 90

Full Input Data And Results

Scenario 5: '2025 Base + Committed + Dev (Cont.) AM' (FG5: '2025 Base + Committed + Dev (Cont.)', Plan 1: 'Network Control Plan 1')

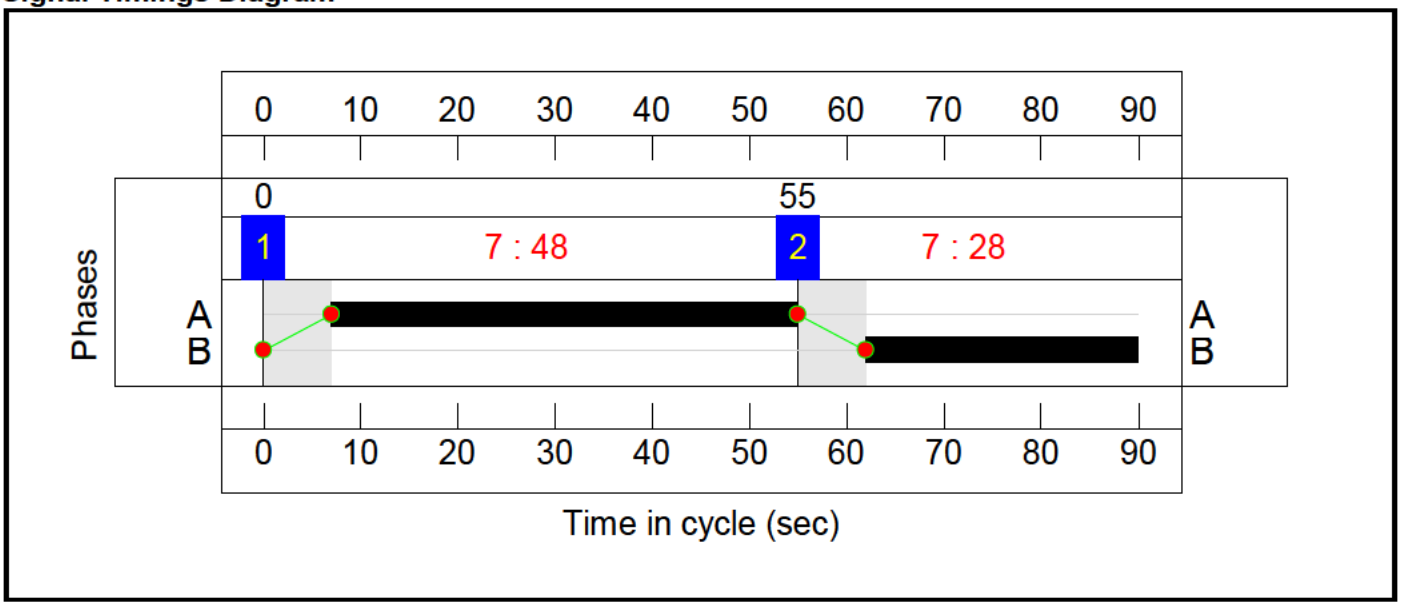
Stage Sequence Diagram



Stage Timings

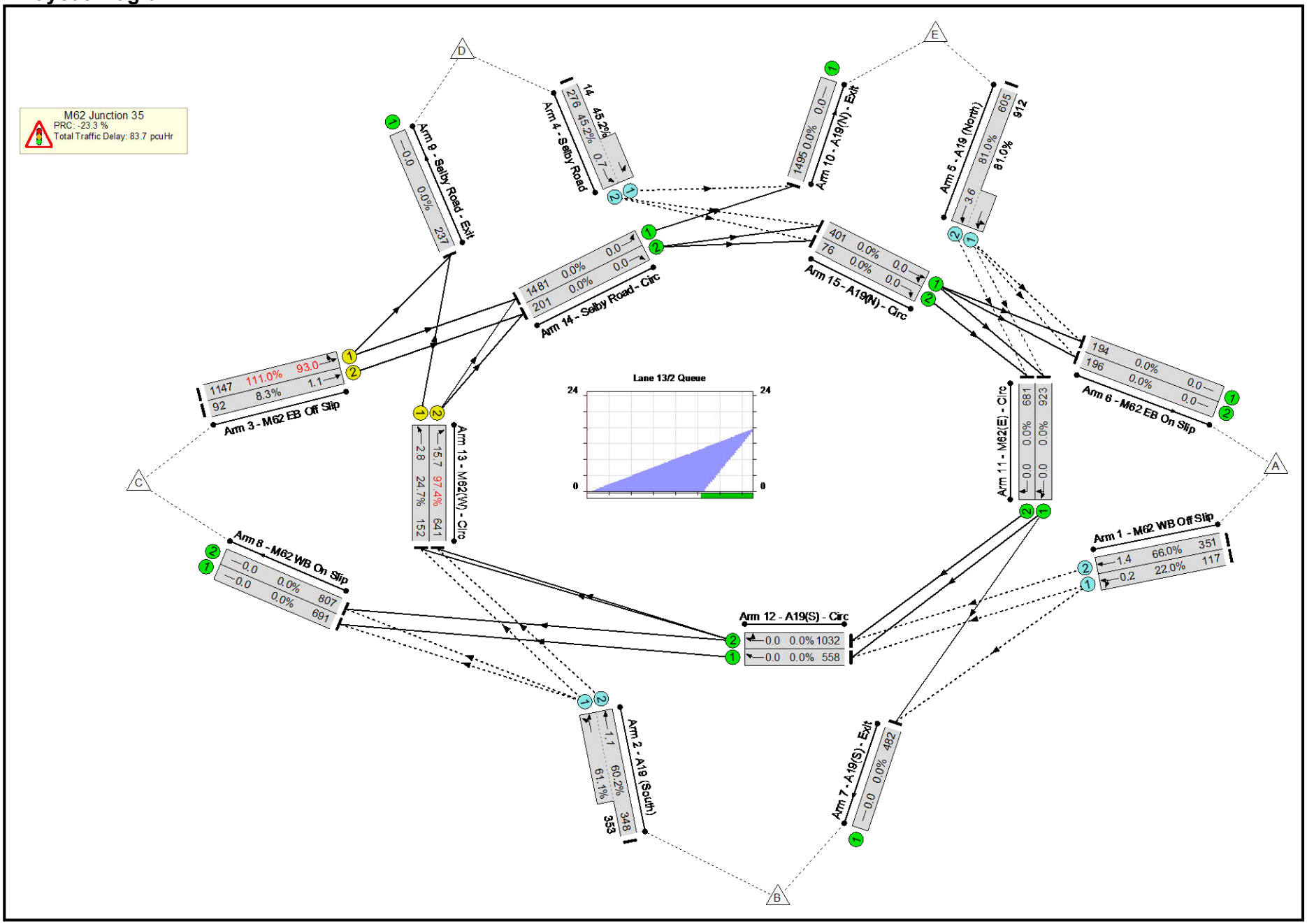
Stage	1	2
Duration	48	28
Change Point	0	55

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Full Input Data And Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: M62 Junction 34	-	-	**N/A**	-	-		-	-	-	-	-	-	**111.0%**
M62 Junction 35	-	-	**N/A**	-	-		-	-	-	-	-	-	**111.0%**
1/1	M62 WB Off Slip Left Ahead	O	N/A	N/A	-		-	-	-	117	Inf	532	22.0%
1/2	M62 WB Off Slip Ahead	O	N/A	N/A	-		-	-	-	351	Inf	532	66.0%
2/2+2/1	A19 (South) Left Ahead	O	N/A	N/A	-		-	-	-	701	Inf : Inf	578+578	60.2 : 61.1%
3/1	M62 EB Off Slip Left Ahead	U	N/A	N/A	A		1	48	-	1147	1898	1033	111.0%
3/2	M62 EB Off Slip Ahead	U	N/A	N/A	A		1	48	-	92	2034	1107	8.3%
4/2+4/1	Selby Road U-Turn Ahead	O	N/A	N/A	-		-	-	-	290	Inf : Inf	611+31	45.2 : 45.2%
5/2+5/1	A19 (North) Left Ahead	O	N/A	N/A	-		-	-	-	1517	Inf : Inf	746+1125	81.0 : 81.0%
6/1	M62 EB On Slip	U	N/A	N/A	-		-	-	-	194	Inf	Inf	0.0%
6/2	M62 EB On Slip	U	N/A	N/A	-		-	-	-	196	Inf	Inf	0.0%
7/1	A19(S) - Exit	U	N/A	N/A	-		-	-	-	482	Inf	Inf	0.0%
8/1	M62 WB On Slip	U	N/A	N/A	-		-	-	-	691	Inf	Inf	0.0%
8/2	M62 WB On Slip	U	N/A	N/A	-		-	-	-	807	Inf	Inf	0.0%
9/1	Selby Road - Exit	U	N/A	N/A	-		-	-	-	246	Inf	Inf	0.0%
10/1	A19(N) - Exit	U	N/A	N/A	-		-	-	-	1599	Inf	Inf	0.0%
11/1	M62(E) - Circ Ahead Right	U	N/A	N/A	-		-	-	-	923	Inf	Inf	0.0%
11/2	M62(E) - Circ Right	U	N/A	N/A	-		-	-	-	681	Inf	Inf	0.0%

Full Input Data And Results

12/1	A19(S) - Circ Ahead	U	N/A	N/A	-		-	-	-	558	Inf	Inf	0.0%
12/2	A19(S) - Circ Ahead Right	U	N/A	N/A	-		-	-	-	1032	Inf	Inf	0.0%
13/1	M62(W) - Circ Ahead	U	N/A	N/A	B		1	28	-	152	1908	615	24.7%
13/2	M62(W) - Circ Right	U	N/A	N/A	B		1	28	-	641	2043	658	97.4%
14/1	Selby Road - Circ Left	U	N/A	N/A	-		-	-	-	1585	Inf	Inf	0.0%
14/2	Selby Road - Circ Right	U	N/A	N/A	-		-	-	-	201	Inf	Inf	0.0%
15/1	A19(N) - Circ Ahead Right	U	N/A	N/A	-		-	-	-	401	Inf	Inf	0.0%
15/2	A19(N) - Circ Right	U	N/A	N/A	-		-	-	-	76	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: M62 Junction 34	**-**	**-**	**5484**	**0**	**0**	**17.8**	**65.9**	**0.0**	**83.7**	**-**	**-**	**-**	**-**
M62 Junction 35	**-**	**-**	**5484**	**0**	**0**	**17.8**	**65.9**	**0.0**	**83.7**	**-**	**-**	**-**	**-**
1/1	117	117	117	0	0	0.0	0.1	-	0.1	4.4	0.1	0.1	0.2
1/2	351	351	351	0	0	0.0	1.0	-	1.0	9.9	0.5	1.0	1.4
2/2+2/1	701	701	1402	0	0	0.0	0.8	-	0.8	4.0	0.3	0.8	1.1
3/1	1147	1033	-	-	-	11.2	61.5	-	72.7	228.0	31.5	61.5	93.0
3/2	92	92	-	-	-	0.3	0.0	-	0.3	11.6	1.1	0.0	1.1
4/2+4/1	290	290	580	0	0	0.0	0.4	-	0.4	5.2	0.3	0.4	0.7
5/2+5/1	1517	1517	3034	0	0	0.0	2.1	-	2.1	5.1	1.5	2.1	3.6
6/1	194	194	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	196	196	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	482	482	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	691	691	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/2	807	807	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	237	237	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	1495	1495	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	923	923	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/2	681	681	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	558	558	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/2	1032	1032	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
13/1	152	152	-	-	-	0.9	0.0	-	0.9	22.4	2.8	0.0	2.8
13/2	641	641	-	-	-	5.4	0.0	-	5.4	30.1	15.7	0.0	15.7
14/1	1481	1481	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
14/2	201	201	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
15/1	401	401	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Full Input Data And Results

15/2	76	76	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1

PRC for Signalled Lanes (%): -23.3
PRC Over All Lanes (%): -23.3

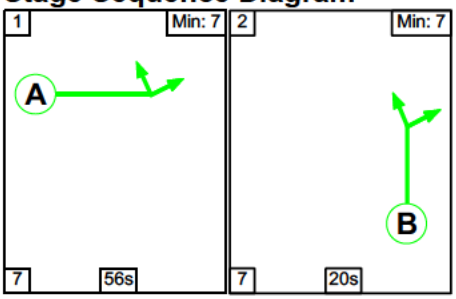
Total Delay for Signalled Lanes (pcuHr): 79.26
Total Delay Over All Lanes(pcuHr): 83.68

Cycle Time (s): 90

Full Input Data And Results

Scenario 6: '2025 Base + Committed + Dev (Cont.) PM' (FG6: '2025 Base + Committed + Dev (Cont.)', Plan 1: 'Network Control Plan 1')

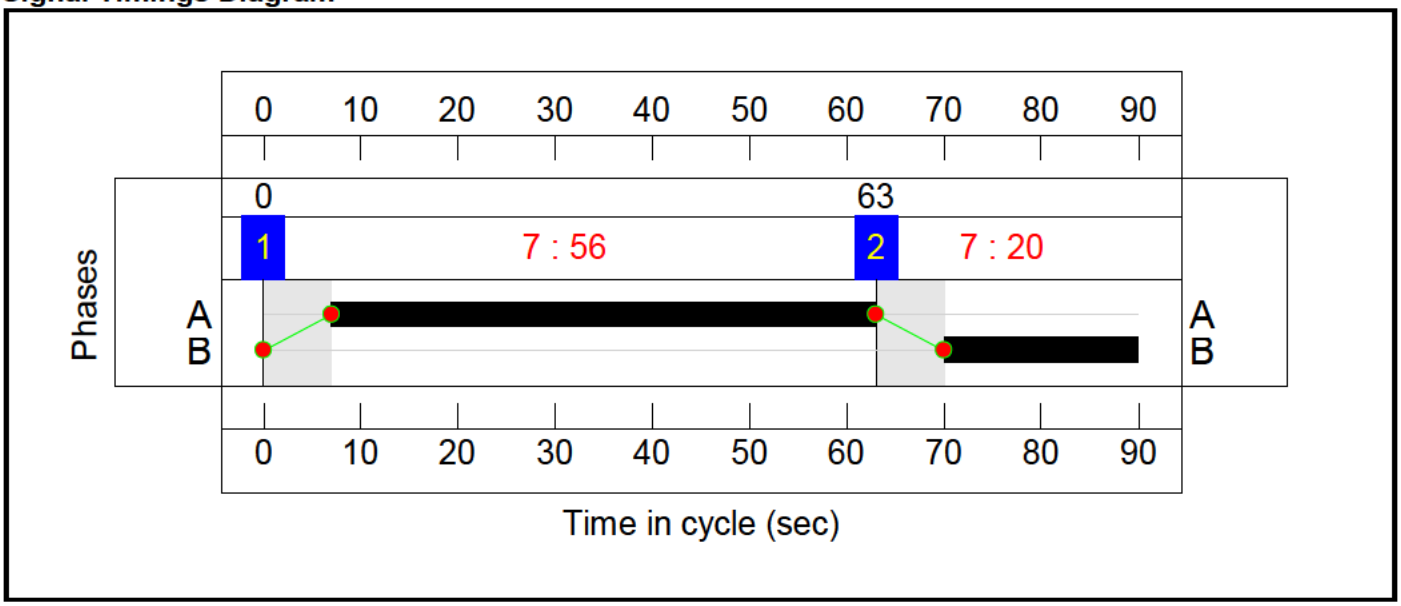
Stage Sequence Diagram



Stage Timings

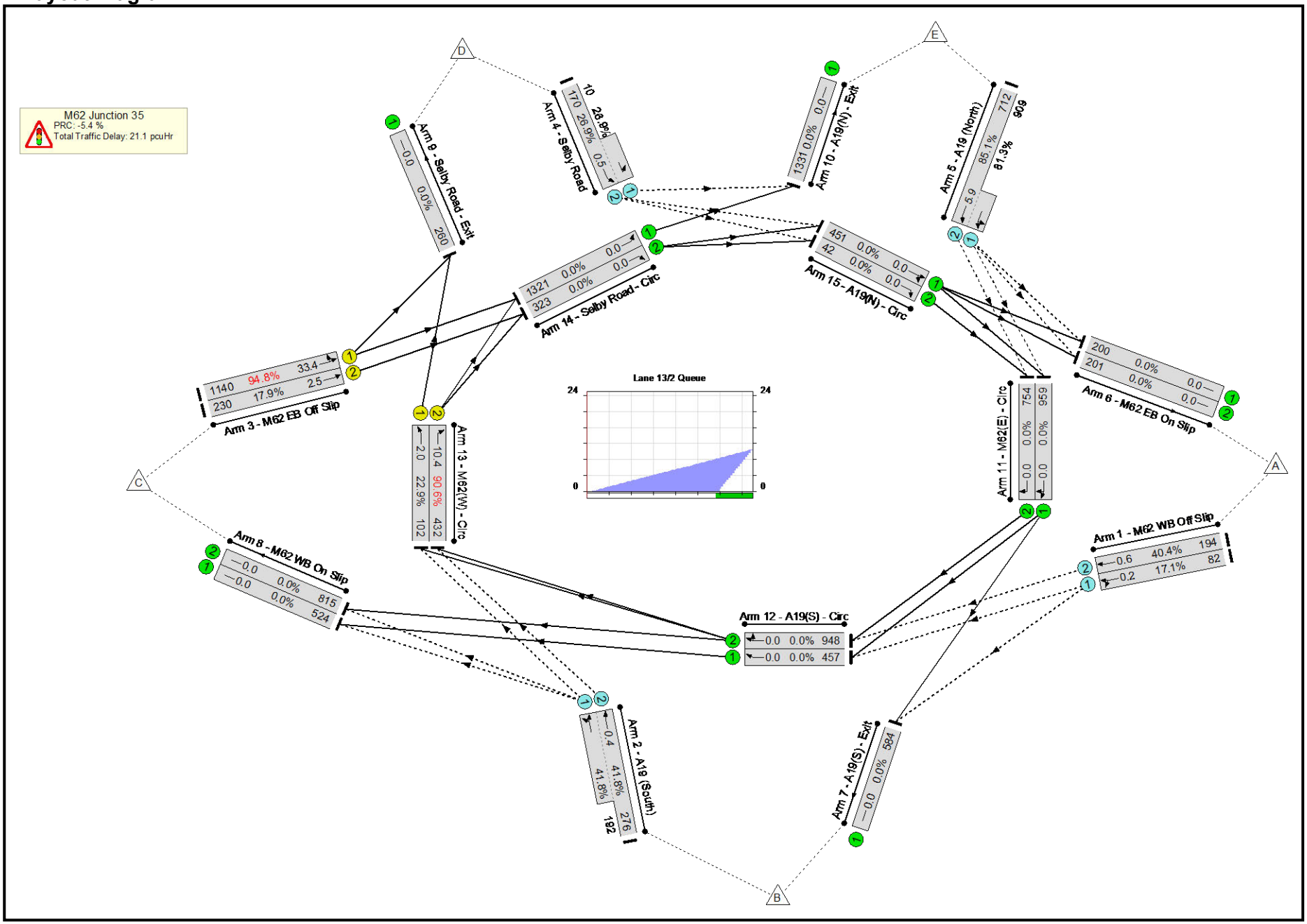
Stage	1	2
Duration	56	20
Change Point	0	63

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Full Input Data And Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: M62 Junction 34	-	-	**N/A**	-	-		-	-	-	-	-	-	**94.8%**
M62 Junction 35	-	-	**N/A**	-	-		-	-	-	-	-	-	**94.8%**
1/1	M62 WB Off Slip Left Ahead	O	N/A	N/A	-		-	-	-	82	Inf	481	17.1%
1/2	M62 WB Off Slip Ahead	O	N/A	N/A	-		-	-	-	194	Inf	481	40.4%
2/2+2/1	A19 (South) Left Ahead	O	N/A	N/A	-		-	-	-	468	Inf : Inf	661+459	41.8 : 41.8%
3/1	M62 EB Off Slip Left Ahead	U	N/A	N/A	A		1	56	-	1140	1898	1202	94.8%
3/2	M62 EB Off Slip Ahead	U	N/A	N/A	A		1	56	-	230	2034	1288	17.9%
4/2+4/1	Selby Road U-Turn Ahead	O	N/A	N/A	-		-	-	-	180	Inf : Inf	632+37	26.9 : 26.9%
5/2+5/1	A19 (North) Left Ahead	O	N/A	N/A	-		-	-	-	1621	Inf : Inf	837+1117	85.1 : 81.3%
6/1	M62 EB On Slip	U	N/A	N/A	-		-	-	-	200	Inf	Inf	0.0%
6/2	M62 EB On Slip	U	N/A	N/A	-		-	-	-	201	Inf	Inf	0.0%
7/1	A19(S) - Exit	U	N/A	N/A	-		-	-	-	584	Inf	Inf	0.0%
8/1	M62 WB On Slip	U	N/A	N/A	-		-	-	-	524	Inf	Inf	0.0%
8/2	M62 WB On Slip	U	N/A	N/A	-		-	-	-	815	Inf	Inf	0.0%
9/1	Selby Road - Exit	U	N/A	N/A	-		-	-	-	260	Inf	Inf	0.0%
10/1	A19(N) - Exit	U	N/A	N/A	-		-	-	-	1331	Inf	Inf	0.0%
11/1	M62(E) - Circ Ahead Right	U	N/A	N/A	-		-	-	-	959	Inf	Inf	0.0%
11/2	M62(E) - Circ Right	U	N/A	N/A	-		-	-	-	754	Inf	Inf	0.0%

Full Input Data And Results

12/1	A19(S) - Circ Ahead	U	N/A	N/A	-		-	-	-	457	Inf	Inf	0.0%
12/2	A19(S) - Circ Ahead Right	U	N/A	N/A	-		-	-	-	948	Inf	Inf	0.0%
13/1	M62(W) - Circ Ahead	U	N/A	N/A	B		1	20	-	102	1908	445	22.9%
13/2	M62(W) - Circ Right	U	N/A	N/A	B		1	20	-	432	2043	477	90.6%
14/1	Selby Road - Circ Left	U	N/A	N/A	-		-	-	-	1321	Inf	Inf	0.0%
14/2	Selby Road - Circ Right	U	N/A	N/A	-		-	-	-	323	Inf	Inf	0.0%
15/1	A19(N) - Circ Ahead Right	U	N/A	N/A	-		-	-	-	451	Inf	Inf	0.0%
15/2	A19(N) - Circ Right	U	N/A	N/A	-		-	-	-	42	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: M62 Junction 34	**-**	**-**	**4814**	**0**	**0**	**10.2**	**10.9**	**0.0**	**21.1**	**-**	**-**	**-**	**-**
M62 Junction 35	**-**	**-**	**4814**	**0**	**0**	**10.2**	**10.9**	**0.0**	**21.1**	**-**	**-**	**-**	**-**
1/1	82	82	82	0	0	0.0	0.1	-	0.1	4.6	0.1	0.1	0.2
1/2	194	194	194	0	0	0.0	0.3	-	0.3	6.4	0.2	0.3	0.6
2/2+2/1	468	468	936	0	0	0.0	0.4	-	0.4	2.8	0.0	0.4	0.4
3/1	1140	1140	-	-	-	4.8	7.4	-	12.2	38.6	26.0	7.4	33.4
3/2	230	230	-	-	-	0.4	0.1	-	0.5	8.5	2.4	0.1	2.5
4/2+4/1	180	180	360	0	0	0.0	0.2	-	0.2	3.8	0.3	0.2	0.5
5/2+5/1	1621	1621	3242	0	0	0.1	2.4	-	2.5	5.5	3.5	2.4	5.9
6/1	200	200	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	201	201	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	584	584	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	524	524	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/2	815	815	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	260	260	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	1331	1331	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	959	959	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/2	754	754	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	457	457	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/2	948	948	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
13/1	102	102	-	-	-	0.8	0.0	-	0.8	27.9	2.0	0.0	2.0
13/2	432	432	-	-	-	4.0	0.0	-	4.0	33.5	10.4	0.0	10.4
14/1	1321	1321	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
14/2	323	323	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
15/1	451	451	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Full Input Data And Results

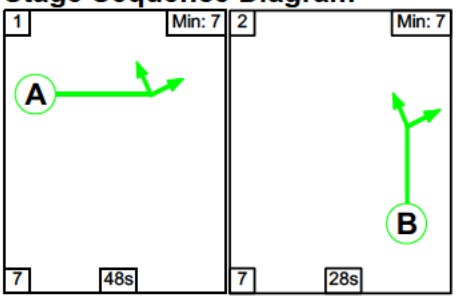
15/2	42	42	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1	PRC for Signalled Lanes (%):	-5.4	Total Delay for Signalled Lanes (pcuHr):	17.57	Cycle Time (s):	90
	PRC Over All Lanes (%):	-5.4	Total Delay Over All Lanes(pcuHr):	21.06		

Full Input Data And Results

Scenario 7: '2025 Base + Committed + Dev (Vision) AM' (FG7: '2025 Base + Committed + Dev (Vision)', Plan 1: 'Network Control Plan 1')

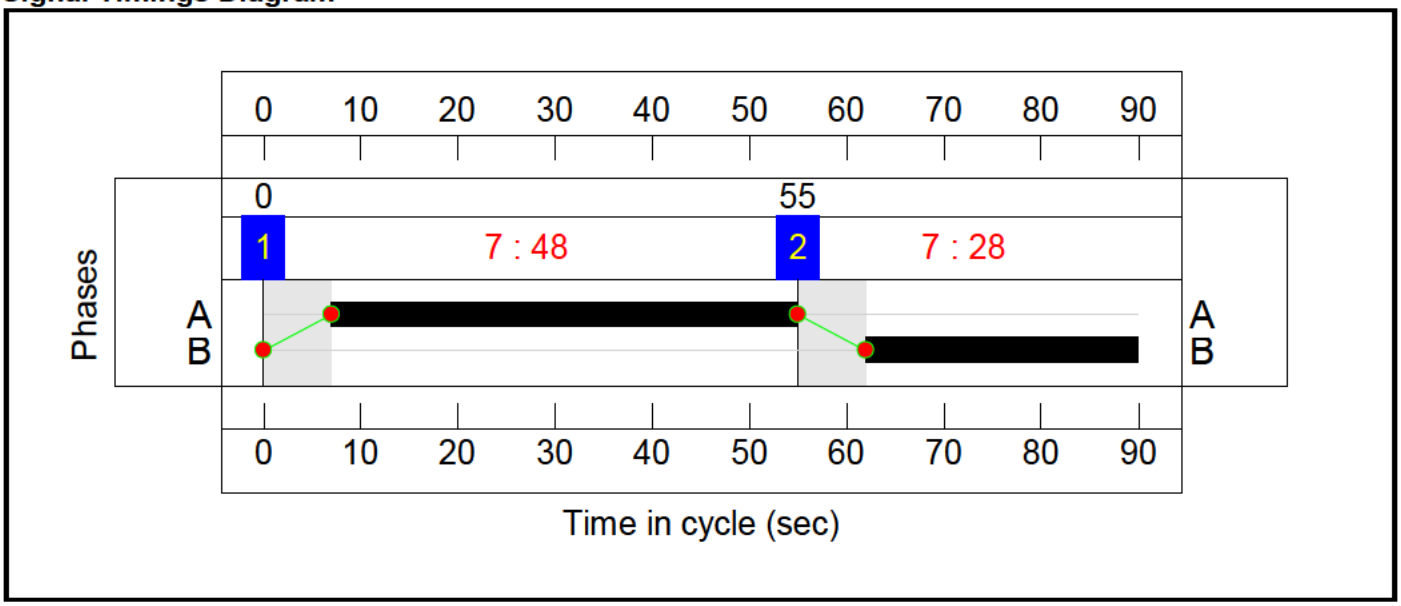
Stage Sequence Diagram



Stage Timings

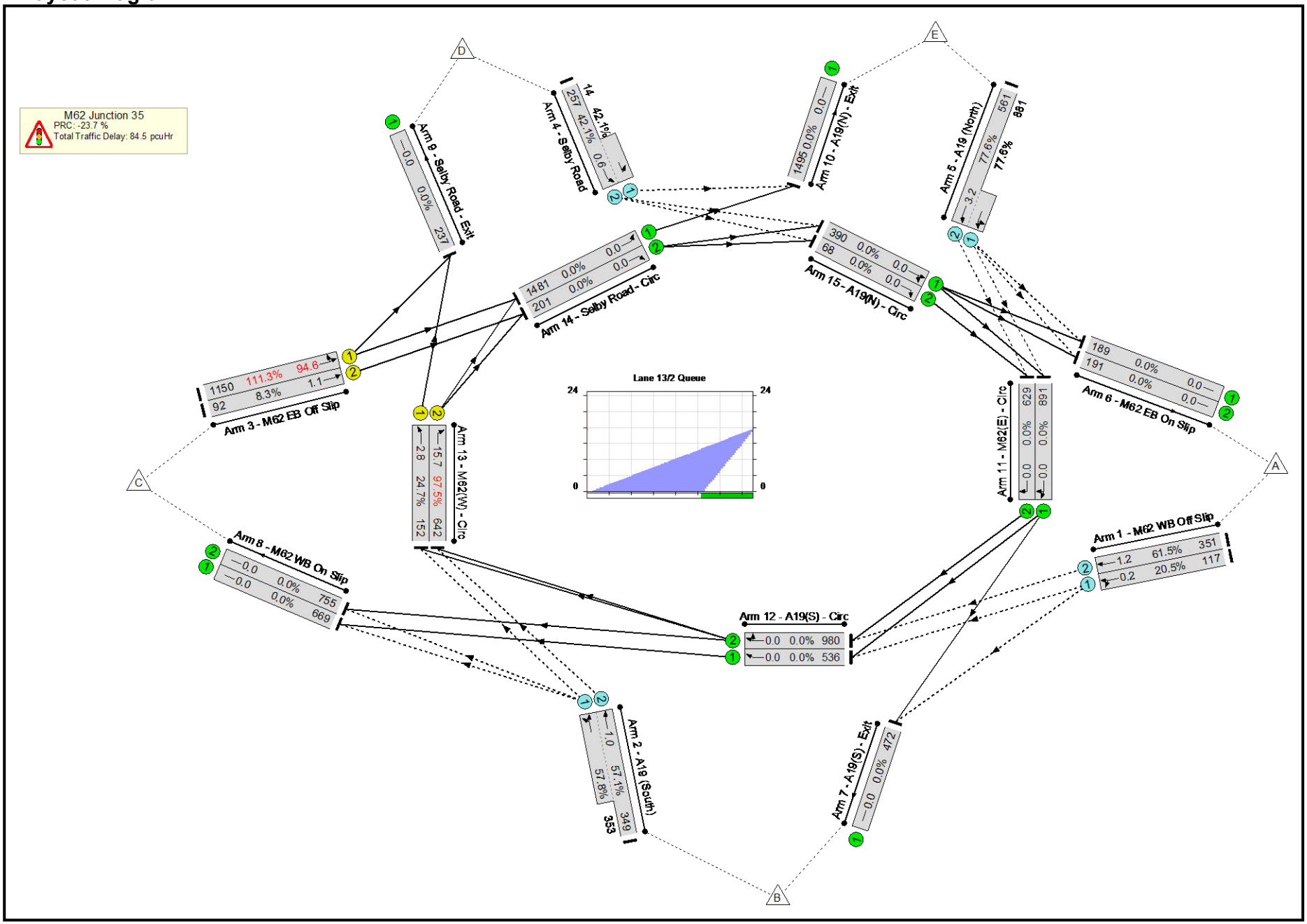
Stage	1	2
Duration	48	28
Change Point	0	55

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Full Input Data And Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: M62 Junction 34	-	-	**N/A**	-	-		-	-	-	-	-	-	**111.3%**
M62 Junction 35	-	-	**N/A**	-	-		-	-	-	-	-	-	**111.3%**
1/1	M62 WB Off Slip Left Ahead	O	N/A	N/A	-		-	-	-	117	Inf	571	20.5%
1/2	M62 WB Off Slip Ahead	O	N/A	N/A	-		-	-	-	351	Inf	571	61.5%
2/2+2/1	A19 (South) Left Ahead	O	N/A	N/A	-		-	-	-	702	Inf : Inf	611+611	57.1 : 57.8%
3/1	M62 EB Off Slip Left Ahead	U	N/A	N/A	A		1	48	-	1150	1898	1033	111.3%
3/2	M62 EB Off Slip Ahead	U	N/A	N/A	A		1	48	-	92	2034	1107	8.3%
4/2+4/1	Selby Road U-Turn Ahead	O	N/A	N/A	-		-	-	-	271	Inf : Inf	610+33	42.1 : 42.1%
5/2+5/1	A19 (North) Left Ahead	O	N/A	N/A	-		-	-	-	1442	Inf : Inf	722+1135	77.6 : 77.6%
6/1	M62 EB On Slip	U	N/A	N/A	-		-	-	-	189	Inf	Inf	0.0%
6/2	M62 EB On Slip	U	N/A	N/A	-		-	-	-	191	Inf	Inf	0.0%
7/1	A19(S) - Exit	U	N/A	N/A	-		-	-	-	472	Inf	Inf	0.0%
8/1	M62 WB On Slip	U	N/A	N/A	-		-	-	-	669	Inf	Inf	0.0%
8/2	M62 WB On Slip	U	N/A	N/A	-		-	-	-	755	Inf	Inf	0.0%
9/1	Selby Road - Exit	U	N/A	N/A	-		-	-	-	247	Inf	Inf	0.0%
10/1	A19(N) - Exit	U	N/A	N/A	-		-	-	-	1602	Inf	Inf	0.0%
11/1	M62(E) - Circ Ahead Right	U	N/A	N/A	-		-	-	-	891	Inf	Inf	0.0%
11/2	M62(E) - Circ Right	U	N/A	N/A	-		-	-	-	629	Inf	Inf	0.0%

Full Input Data And Results

12/1	A19(S) - Circ Ahead	U	N/A	N/A	-		-	-	-	536	Inf	Inf	0.0%
12/2	A19(S) - Circ Ahead Right	U	N/A	N/A	-		-	-	-	980	Inf	Inf	0.0%
13/1	M62(W) - Circ Ahead	U	N/A	N/A	B		1	28	-	152	1908	615	24.7%
13/2	M62(W) - Circ Right	U	N/A	N/A	B		1	28	-	642	2043	658	97.5%
14/1	Selby Road - Circ Left	U	N/A	N/A	-		-	-	-	1588	Inf	Inf	0.0%
14/2	Selby Road - Circ Right	U	N/A	N/A	-		-	-	-	201	Inf	Inf	0.0%
15/1	A19(N) - Circ Ahead Right	U	N/A	N/A	-		-	-	-	390	Inf	Inf	0.0%
15/2	A19(N) - Circ Right	U	N/A	N/A	-		-	-	-	68	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: M62 Junction 34	**-**	**-**	**5298**	**0**	**0**	**17.9**	**66.6**	**0.0**	**84.5**	**-**	**-**	**-**	**-**
M62 Junction 35	**-**	**-**	**5298**	**0**	**0**	**17.9**	**66.6**	**0.0**	**84.5**	**-**	**-**	**-**	**-**
1/1	117	117	117	0	0	0.0	0.1	-	0.1	4.0	0.1	0.1	0.2
1/2	351	351	351	0	0	0.0	0.8	-	0.8	8.2	0.4	0.8	1.2
2/2+2/1	702	702	1404	0	0	0.0	0.7	-	0.7	3.5	0.3	0.7	1.0
3/1	1150	1033	-	-	-	11.3	62.9	-	74.2	232.3	31.7	62.9	94.6
3/2	92	92	-	-	-	0.3	0.0	-	0.3	11.6	1.1	0.0	1.1
4/2+4/1	271	271	542	0	0	0.0	0.4	-	0.4	4.9	0.2	0.4	0.6
5/2+5/1	1442	1442	2884	0	0	0.0	1.7	-	1.7	4.3	1.5	1.7	3.2
6/1	189	189	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	191	191	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	472	472	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	669	669	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/2	755	755	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	237	237	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	1495	1495	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	891	891	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/2	629	629	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	536	536	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/2	980	980	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
13/1	152	152	-	-	-	0.9	0.0	-	0.9	22.4	2.8	0.0	2.8
13/2	642	642	-	-	-	5.4	0.0	-	5.4	30.1	15.7	0.0	15.7
14/1	1481	1481	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
14/2	201	201	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
15/1	390	390	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Full Input Data And Results

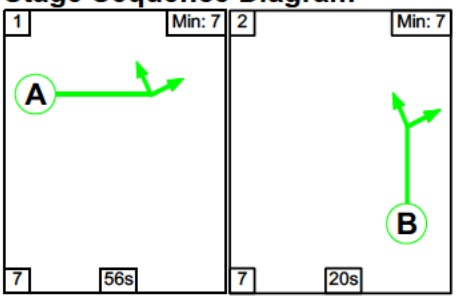
15/2	68	68	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1	PRC for Signalled Lanes (%):	-23.7	Total Delay for Signalled Lanes (pcuHr):	80.82	Cycle Time (s): 90
	PRC Over All Lanes (%):	-23.7	Total Delay Over All Lanes(pcuHr):	84.53	

Full Input Data And Results

Scenario 8: '2025 Base + Committed + Dev (Vision) PM' (FG8: '2025 Base + Committed + Dev (Vision)', Plan 1: 'Network Control Plan 1')

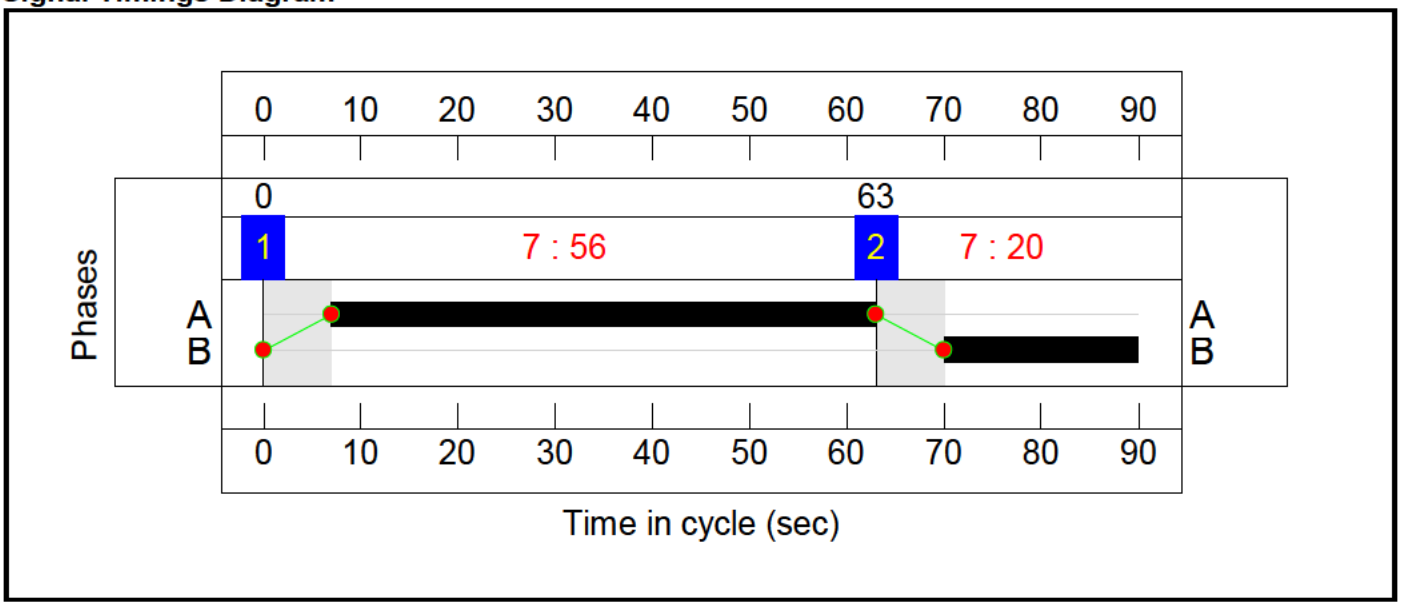
Stage Sequence Diagram



Stage Timings

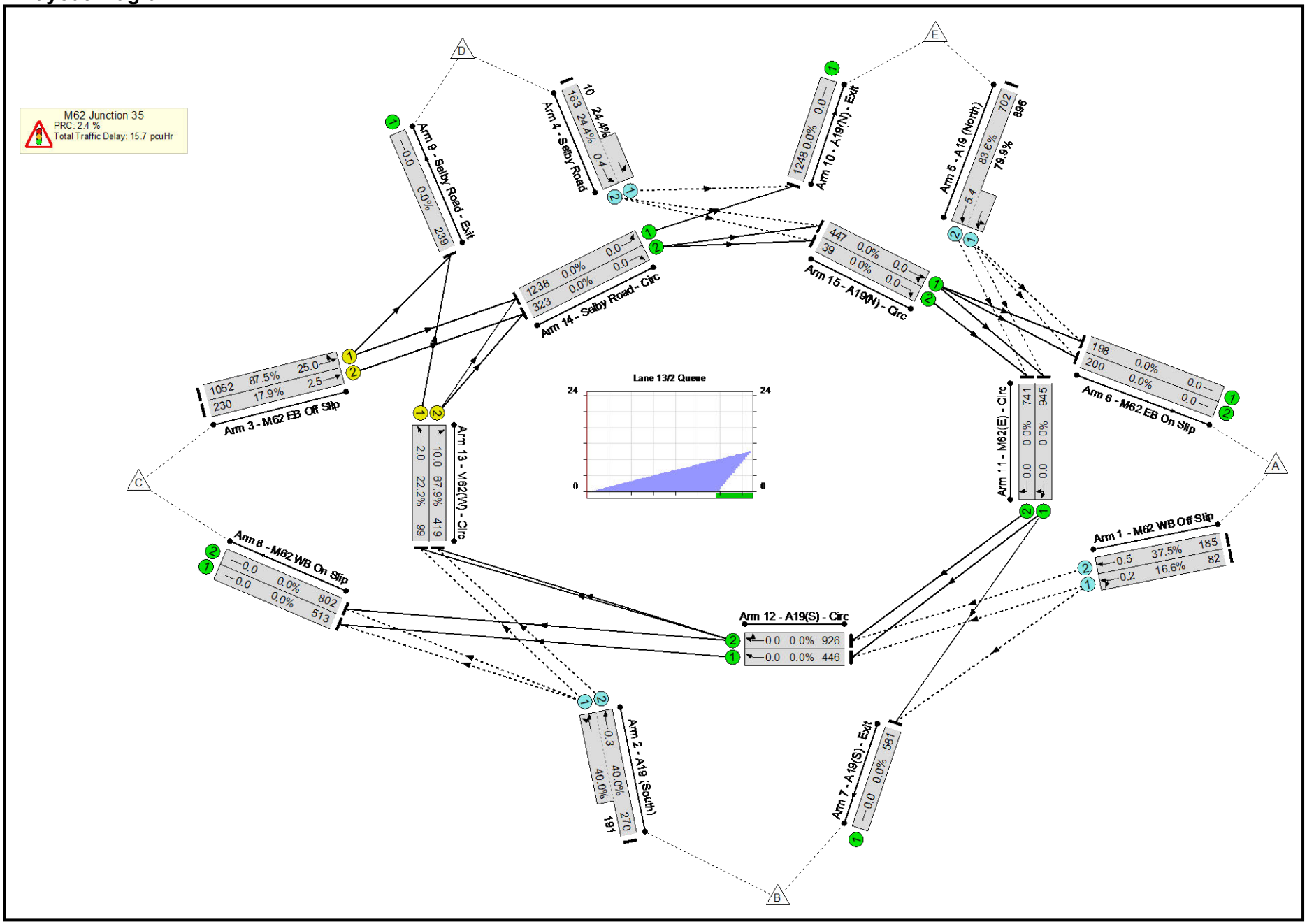
Stage	1	2
Duration	56	20
Change Point	0	63

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Full Input Data And Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: M62 Junction 34	-	-	**N/A**	-	-		-	-	-	-	-	-	**87.9%**
M62 Junction 35	-	-	**N/A**	-	-		-	-	-	-	-	-	**87.9%**
1/1	M62 WB Off Slip Left Ahead	O	N/A	N/A	-		-	-	-	82	Inf	493	16.6%
1/2	M62 WB Off Slip Ahead	O	N/A	N/A	-		-	-	-	185	Inf	493	37.5%
2/2+2/1	A19 (South) Left Ahead	O	N/A	N/A	-		-	-	-	461	Inf : Inf	675+478	40.0 : 40.0%
3/1	M62 EB Off Slip Left Ahead	U	N/A	N/A	A		1	56	-	1052	1898	1202	87.5%
3/2	M62 EB Off Slip Ahead	U	N/A	N/A	A		1	56	-	230	2034	1288	17.9%
4/2+4/1	Selby Road U-Turn Ahead	O	N/A	N/A	-		-	-	-	173	Inf : Inf	668+41	24.4 : 24.4%
5/2+5/1	A19 (North) Left Ahead	O	N/A	N/A	-		-	-	-	1598	Inf : Inf	839+1121	83.6 : 79.9%
6/1	M62 EB On Slip	U	N/A	N/A	-		-	-	-	198	Inf	Inf	0.0%
6/2	M62 EB On Slip	U	N/A	N/A	-		-	-	-	200	Inf	Inf	0.0%
7/1	A19(S) - Exit	U	N/A	N/A	-		-	-	-	581	Inf	Inf	0.0%
8/1	M62 WB On Slip	U	N/A	N/A	-		-	-	-	513	Inf	Inf	0.0%
8/2	M62 WB On Slip	U	N/A	N/A	-		-	-	-	802	Inf	Inf	0.0%
9/1	Selby Road - Exit	U	N/A	N/A	-		-	-	-	239	Inf	Inf	0.0%
10/1	A19(N) - Exit	U	N/A	N/A	-		-	-	-	1248	Inf	Inf	0.0%
11/1	M62(E) - Circ Ahead Right	U	N/A	N/A	-		-	-	-	945	Inf	Inf	0.0%
11/2	M62(E) - Circ Right	U	N/A	N/A	-		-	-	-	741	Inf	Inf	0.0%

Full Input Data And Results

12/1	A19(S) - Circ Ahead	U	N/A	N/A	-		-	-	-	446	Inf	Inf	0.0%
12/2	A19(S) - Circ Ahead Right	U	N/A	N/A	-		-	-	-	926	Inf	Inf	0.0%
13/1	**M62(W) - Circ Ahead**	**U**	**N/A**	**N/A**	**B**		**1**	**20**	-	**99**	**1908**	**445**	**22.2%**
13/2	**M62(W) - Circ Right**	**U**	**N/A**	**N/A**	**B**		**1**	**20**	-	**419**	**2043**	**477**	**87.9%**
14/1	Selby Road - Circ Left	U	N/A	N/A	-		-	-	-	1238	Inf	Inf	0.0%
14/2	Selby Road - Circ Right	U	N/A	N/A	-		-	-	-	323	Inf	Inf	0.0%
15/1	A19(N) - Circ Ahead Right	U	N/A	N/A	-		-	-	-	447	Inf	Inf	0.0%
15/2	A19(N) - Circ Right	U	N/A	N/A	-		-	-	-	39	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: M62 Junction 34	**-**	**-**	**4731**	**0**	**0**	**9.1**	**6.5**	**0.0**	**15.7**	**-**	**-**	**-**	**-**
M62 Junction 35	**-**	**-**	**4731**	**0**	**0**	**9.1**	**6.5**	**0.0**	**15.7**	**-**	**-**	**-**	**-**
1/1	82	82	82	0	0	0.0	0.1	-	0.1	4.4	0.1	0.1	0.2
1/2	185	185	185	0	0	0.0	0.3	-	0.3	5.9	0.2	0.3	0.5
2/2+2/1	461	461	922	0	0	0.0	0.3	-	0.3	2.6	0.0	0.3	0.3
3/1	1052	1052	-	-	-	4.0	3.4	-	7.3	25.1	21.6	3.4	25.0
3/2	230	230	-	-	-	0.4	0.1	-	0.5	8.5	2.4	0.1	2.5
4/2+4/1	173	173	346	0	0	0.0	0.2	-	0.2	3.5	0.3	0.2	0.4
5/2+5/1	1598	1598	3196	0	0	0.1	2.2	-	2.3	5.1	3.2	2.2	5.4
6/1	198	198	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	200	200	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	581	581	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	513	513	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/2	802	802	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	239	239	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	1248	1248	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	945	945	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/2	741	741	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	446	446	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/2	926	926	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
13/1	99	99	-	-	-	0.8	0.0	-	0.8	27.9	2.0	0.0	2.0
13/2	419	419	-	-	-	3.9	0.0	-	3.9	33.2	10.0	0.0	10.0
14/1	1238	1238	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
14/2	323	323	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
15/1	447	447	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Full Input Data And Results

15/2	39	39	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1

PRC for Signalled Lanes (%): 2.4
PRC Over All Lanes (%): 2.4
Total Delay for Signalled Lanes (pcuHr): 12.50
Total Delay Over All Lanes(pcuHr): 15.68
Cycle Time (s): 90

APPENDIX H. M62 J34 MITIGATION ARRANGEMENT

APPROXIMATE ROAD MARKINGS ON M62

APPROXIMATE LOCATION OF EXISTING NOSE ON M62

CUT LINE 1

295m VISIBILITY SPLAYS TO SIGNAL HEADS FROM VEHICLES ON M62 MAINLINE

120m VISIBILITY SPLAYS TO SIGNAL HEADS FROM VEHICLES ON SLIP ROAD

Sewage Pumping Station

INTERVISIBILITY ZONE

Subway

PART-TIME SIGNALS ON EASTBOUND EXIT SLIP ROAD AND NORTHBOUND CIRCULATORY CARRIAGEWAY

VISIBILITY SPLAYS TO SIGNAL HEADS 70m FROM STOP LINE

FB

70m FORWARD VISIBILITY AROUND ROUNDABOUT CIRCULATORY CARRIAGEWAY

SCALE BAR @ 1:1000

0 10 25 50 100

REPRODUCED FROM THE ORDNANCE SURVEY MAP WITH THE PERMISSION OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE. LICENCE No. 100044286.
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KEY:

HIGHWAY BOUNDARY BASED ON OS

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Princes Exchange, Leeds, LS1 2PY Tel: 0113 280 5805

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REV	DATE	BY	DESCRIPTION	CHK	APD
A	10.12.24	JB	ROADMARKINGS UPDATED	JW	JW

STATUS: FOR INFORMATION

TITLE: POTENTIAL IMPROVEMENT WORKS AT M62 J34
M62 EASTBOUND EXIT SLIP ROAD IMPROVEMENT WORKS

PROJECT: LAND WEST OF KELLINGTON LANE

CLIENT: BANKS GROUP

DRAWN:	CHECKED:	APPROVED:
PH/JB	JW	GJ
PROJECT No:	SCALE @ A3:	DATE:
ITY16146	1:1000	13.04.23

DRAWING No: ITY16146 - GA - 013 REV: A

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