

Proposed Residential Development Harras Moor, Whitehaven

Technical Note 3: Improvements to Off-Site Roundabouts A090070-410

Homes England

March 2021

Issue 3

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1.0 INTRODUCTION

1.1 BACKGROUND

- 1.1.1 WYG Group, rebranded as Tetra Tech (Tt) in January 2021, has been commissioned by Homes England to provide transport and highways advice in relation to an outline planning application for up to 370 residential units on land at Harras Moor, Whitehaven, Cumbria.
- 1.1.2 **Plan 1** shows the location of the site relative to the wider local highway network.
- 1.1.3 The local planning authority (LPA) for the area where the site is located is Copeland Borough Council (CBC) while the local highway authority (LHA) is Cumbria County Council (CCC). Highways England maintain the nearby A595 which runs north to south between the site and Whitehaven town centre.
- 1.1.4 Since 2017, WYG/Tt have worked very closely with CCC and Highways England to resolve all of the highway and traffic matters, subject to conditions.
- 1.1.5 The outline application, ref: 4/18/2287/001, has yet to be determined. The initial Planning Panel meeting report is dated 18-09-2019.
- 1.1.6 In relation to two off-site roundabouts, detailed below, pre-commencement conditions were previously proposed by the LPA in the Planning Panel Report.
- 1.1.7 Highways England have no objection in principle to the proposed scheme, subject to a scheme to mitigate the effects of the development on the A595 Egremont Road/Homewood Road roundabout. An improvement scheme was previously designed for this roundabout by WYG using OS mapping and is shown on Drawing A099970-P004 Rev P02 (dated May 2019). Highways England were not satisfied with the improvements shown on this drawing as they considered them to not fully comply with the current design standards. This resulted in the LPA raising a pre-commencement condition in the Planning Panel Report of September 2019, namely Condition 5, which required a scheme to be agreed with Highways England for improving the A595 Egremont Road/Homewood Road roundabout junction, prior to commencement of the development.
- 1.1.8 CCC have no objections to the proposed development subject to some improvements to the Main Street/Cleator Moor Road roundabout junction. An improvements scheme was previously designed using OS mapping, which was acceptable to CCC in principle, which is shown on Drawing A090070-P006 Rev A (dated June 2019). The LPA stipulated a pre-commencement condition in the September 2019 Planning Panel report, namely Condition 7, requiring a scheme to be agreed with CCC for improving the Main Street/Cleator Moor Road/ mini roundabout junction, prior to commencement of the development.

- 1.1.9 Further discussions have been held more recently in 2020/21 between CCC, Highways England and Tt. It has been agreed that Tt would carry out preliminary designs for improvements to current standards to both above mentioned roundabouts using a topographical survey, to provide further clarity to stakeholders on the off-site highway improvements, this includes CCC, Highways England, Copeland Council, elected member and local residents. The improvements would form the basis of Section 278 detailed design, to be delivered by condition.
- 1.1.10 Once the topographical based improvements for the two roundabouts are accepted by CCC and Highways England then there would not be any justification for pre-commencement conditions relating to the two roundabouts. The applicant therefore considers that changing the trigger date for submission of the detailed schemes from "pre-commencement" to "prior to first occupation" would be appropriate in this instance. The NPPF is clear that the use of pre-commencement conditions should be avoided unless clear justification can be provided.
- 1.1.11 Proposed conditions 6 and 8, as listed in the Panel Report of September 2019, would ensure the improvement scheme for each roundabout would be implemented within appropriate timescales. The conditions state:

'Condition 6 - Prior to the occupation of the 200th dwelling (or 4 years after the first unit is completed, whichever comes first) no further dwellings shall be occupied until the scheme to provide improvements to the A595 Egremont Road/ Homewood Road roundabout junction referred to within (5) above and as agreed, is constructed and completed to the satisfaction of the local planning authority in consultation with Highways England (unless otherwise agreed).'

'Condition 8 - Prior to the occupation of the 100th dwelling no further dwellings shall be occupied until the junction modifications for the Main Street/Cleator Moor Road Junction referred to within (7) above and as agreed with the Highways Authority under section 278 of the Highways Act 1980, is constructed and completed to the satisfaction of the local planning authority in consultation with the Highways Authority (unless otherwise agreed).'

1.2 PURPOSE OF THE REPORT

- 1.2.1 Given the above, the purpose of this Technical Note 3 (TN3) is to present the topographical based improvements to the following two roundabouts, together with associated capacity assessments using the previously accepted traffic flows:
- Main Street/Cleator Moor Road mini roundabout
 - A595 Egremont Road/Homewood Road roundabout
- 1.2.2 The above roundabouts are shown on **Plan 1**.

2.0 PROPOSED IMPROVEMENTS TO ROUNDABOUTS

2.1 BACKGROUND

2.1.1 This chapter presents updated preliminary designs for improvements to the following two off-site roundabouts:

- Main Street/Cleator Moor Road mini roundabout
- A595 Egremont Road/Homewood Road roundabout

2.1.2 The previous improvement designs for these roundabouts were based on OS mapping. The current designs of the improvements are based on a topographical survey, which was carried out in February 2021.

2.2 MAIN STREET/CLEATOR MOOR ROAD MINI ROUNDABOUT

2.2.1 The existing layout of the Main Street/Cleator Moor Road mini roundabout, based on topographical survey, is shown in **Appendix A** (Drawing P015, Rev P01).

2.2.2 Topographical survey based proposed improvements to the Main Street/Cleator Moor Road mini roundabout are shown on Drawing P012, Rev P02, which is contained in **Appendix B**. The proposed improvements are broadly in line with current design guidance on mini roundabouts in the Design Manual for Roads and Bridges (DMRB).

2.2.3 The improvements shown in **Appendix B** are broadly very similar to the improvements previously agreed with CCC, which were based on OS mapping. The improvements entail provision of an extra lane on the Cleator Moor Road arm of the roundabout. The extra lane has been created by utilising the existing hatched carriageway and slightly narrowing the existing footway. However, the width of the existing footway at this location is greater than the standard width required in built-up areas, which is 2m. Under the revised layout the footway is now 2m wide over the extent of the proposed changes.

2.2.4 On the drawing (see **Appendix B**) the light grey shows the extent of the proposed footway realigned. Similarly, the dark grey shows the extent of the footway used for carriageway widening, see **Appendix B**.

2.2.5 The improvements drawing also shows tracking for relevant maneuvers with both a 16.5m long articulated vehicle and a large car, as was the case previously. The tracking demonstrates that the improvements are operationally feasible.

2.2.6 It should be noted that the proposed improvements are contained entirely within the adopted highway.

2.3 A595 EGREMONT ROAD/HOMEWOOD ROAD ROUNDABOUT

- 2.3.1 The existing layout of the A595 Egremont Road/Homewood Road roundabout, based on topographical survey, is shown in **Appendix C** (Drawing P016, Rev P01).
- 2.3.2 Topographical survey based proposed improvements to the A595 Egremont Road/Homewood Road roundabout are shown on Drawing P013, Rev P02, which is contained in **Appendix D**. The proposed improvements are in line with current design guidance in DMRB.
- 2.3.3 As can be seen from **Appendix D**, the improvements entail widening of the existing carriageway on the west side of the southern arm to create an extra lane on the A595. The existing hatching has been modified as shown to facilitate the creation of the extra lane. The dark grey shows the extent of the existing hatching and hard verge that has been used to create the extra running lane, (see **Appendix D**).
- 2.3.4 Furthermore, the existing central splitter island has been re-aligned and the existing pedestrian crossing re-instated.
- 2.3.5 The improvements drawing also shows tracking for relevant manoeuvre with both a 16.5m long articulated vehicle and a large car. The tracking demonstrates that the improvements are operationally feasible.
- 2.3.6 The extent of the adopted highway on the west side of the A595 southern arm of the roundabout has been defined based on information provided by Highways England in 2020. The extent of the proposed changes are contained within the adopted highway.

3.0 CAPACITY ASSESSMENTS OF ROUNDABOUTS

3.1 BACKGROUND

3.1.1 This chapter presents capacity assessments for the following two roundabouts, which are described in Chapter 2, for which the improvements are proposed:

- Main Street/Cleator Moor Road mini roundabout, see **Appendix B**.
- A595 Egremont Road/Homewood Road roundabout, see **Appendix D**.

3.1.2 The assessments were carried out using the same traffic flows that were approved by Highways England and CCC, which are contained in the previously submitted Transport Assessment Addendum, Issue 2, dated November 2018. The traffic flow data from the TA remain appropriate to use for future modelling rather than traffic flows currently experienced during the Covid-19 pandemic. Furthermore, post Covid-19 traffic flows on the local highway network are likely to be lower than the pre-Covid flows, because more people are expected to switch to working from home on a permanent basis. Accordingly, assessments using the traffic flow data from the TA will be very robust. The previous assessments were based on OS based layouts for these roundabouts.

3.1.3 Junction 9 (Arcady) software has been used to model the two roundabouts.

3.2 MAIN STREET/CLEATOR MOOR ROAD MINI ROUNDABOUT

3.2.1 The existing layout of this mini roundabout is shown in **Appendix A**, whilst the proposed improvements are shown in **Appendix B**.

3.2.2 In line with previous assessments, the revised assessments have been carried out for 2018 and 2028.

3.2.3 **Table 1** contains results for the existing layout with 2018 surveyed flows only.

Table 1: Capacity Results Using 2018 Surveyed Flows - Existing Layout

Link Description	2018 Surveyed Year			
	AM Peak		PM Peak	
	Max RFC	Max Queue (PCU)	Max RFC	Max Queue (PCU)
Moresby Parks Rd	0.70	2	0.79	4
Cleator Moor Rd	0.86	6	1.08	39
Main St	0.70	2	0.76	3

3.2.4 It can be seen that in the AM peak the roundabout operates within capacity. In the PM peak one of the arms is marginally overcapacity at 1.08 in RFC terms. However, the corresponding maximum queue on this arm is not excessive.

3.2.5 **Table 2** shows the operational results for the existing roundabout using the 2028 forecast flows, for the 'without' and 'with' development scenarios.

3.2.6 In the AM peak, for the 'with' development scenario only the Cleator Moor Road arms is slightly over capacity. In the PM peak, the Cleator Moor Road arms is over capacity in both 'without' and 'with' development scenarios. However, the overall average junction delay increase due to the development is only 55 seconds. This level of impact is not considered to be 'severe' in NPPF (National Planning Policy Framework) terms.

Table 2: Capacity Results Using 2028 Flows - Existing Layout

Link Description	AM Peak					PM Peak				
	2028 w/o Dev.		2028 With Dev.		Diff.	2028 w/o Dev.		2028 With Dev.		Diff.
	Max RFC	Max Queue (PCU)	Max RFC	Max Queue (PCU)		Max RFC	Max Queue (PCU)	Max RFC	Max Queue (PCU)	
Moresby Parks Rd	0.81	4	0.95	12	8	0.89	7	0.95	12	5
Cleator Moor Rd	0.98	16	1.07	34	18	1.21	85	1.26	104	19
Main St	0.79	4	0.82	4	1	0.84	5	0.94	10	6
Average Jun. Delay (s/pcu)	44		82		-	178		233		-
Average Jun. Delay Increase Due to Dev. (s/pcu)	+		38.1		-	+		55.0		-

3.2.7 Even though the impact of the development is not considered to be 'severe', mitigation measures are proposed for the mini-roundabout, which are shown in **Appendix B**.

3.2.8 **Table 3** shows the capacity results with the proposed mitigation measures. For comparison it also shows the results for the existing layout without the development flows.

Table 3: Capacity Results Using 2028 Flows - Mitigation Layout

Link Description	AM Peak					PM Peak				
	2028 w/o Dev. (Existing Layout)		2028 with Dev. (with Mitigation)		Diff.	2028 w/o Dev. (Existing Layout)		2028 with Dev. (with Mitigation)		Diff.
	Max RFC	Max Queue (PCU)	Max RFC	Max Queue (PCU)		Max RFC	Max Queue (PCU)	Max RFC	Max Queue (PCU)	
Moresby Parks Rd	0.81	4	0.95	12	8	0.89	7	0.94	11	4
Cleator Moor Rd	0.98	16	0.79	4	-12	1.21	85	0.95	12	-73
Main St	0.79	4	0.83	5	1	0.84	5	1.03	25	20
Average Jun. Delay (s/pcu)	44		36		-	178		74		-
Average Jun. Delay Increase Due to Dev. (s/pcu)			-8		-			-104		-

3.2.9 In the AM peak hour, the roundabout works within capacity with the mitigation measures, with lower average junction delay per vehicle than the existing layout.

- 3.2.10 In the PM peak hour, the Cleator Moor Road arm is overcapacity in the without the development / without mitigation scenario. However, with the mitigation measures this arm operates within capacity and Main Street is fractionally overcapacity. The average junction delay in seconds per vehicle is significantly lower with the mitigation scheme than the existing layout with no development.
- 3.2.11 Given the above results, the mitigation measures will significantly reduce queues and delays in 2028 to the extent that it will operate much better than the existing layout without the development. So, overall the development will provide net benefit to the mini roundabout.
- 3.2.12 Full capacity assessment outputs for the mini roundabout are contained in **Appendix E**.

3.3 A595 EGREMONT ROAD/HOMEWOOD ROAD ROUNDABOUT

- 3.3.1 The existing layout of this roundabout is shown in **Appendix C**, whilst the proposed improvements are shown in **Appendix D**.
- 3.3.2 In line previous assessments, the revised assessments have been carried out for 2018 and 2028.
- 3.3.3 It should be noted that the entry width parameter for the southern arm has been measured to take account of how traffic actually uses this arm, with the nearside hatching being used near the give way line.
- 3.3.4 **Table 4** contains results for the existing layout with 2018 surveyed flows only. It can be seen that in both AM and PM peaks the roundabout operates within capacity.

Table 4: Capacity Results Using 2018 Surveyed Flows - Existing Layout

Link Description	2018 Surveyed Year			
	AM Peak		PM Peak	
	Max RFC	Max Queue (PCU)	Max RFC	Max Queue (PCU)
B5295 Egremont Rd	0.25	0	0.23	0
Homewood Rd	0.53	1	0.69	2
A595 Egremont Rd	0.87	6	0.97	15
A595	0.76	3	0.73	3

- 3.3.5 **Table 5** shows the operational results for the existing roundabout using the 2028 forecast flows, for the 'without' and 'with' development scenarios.
- 3.3.6 In the AM peak the existing layout operates within capacity under the 'without' and 'with' development scenarios.
- 3.3.7 In the PM peak the A595 Egremont Road arm is overcapacity.

- 3.3.8 However, the average junction delay under the 'without' and 'with' development scenarios are not significant.

Table 5: Capacity Results Using 2028 Flows - Existing Layout

Link Description	AM Peak					PM Peak				
	2028 w/o Dev.		2028 With Dev.		Diff.	2028 w/o Dev.		2028 With Dev.		Diff.
	Max RFC	Max Queue (PCU)	Max RFC	Max Queue (PCU)	Max Queue (PCU)	Max RFC	Max Queue (PCU)	Max RFC	Max Queue (PCU)	Max Queue (PCU)
B5295 Egremont Rd	0.31	1	0.40	1	0	0.27	0	0.31	0	0
Homewood Rd	0.62	2	0.66	2	0	0.81	4	0.83	4	1
A595 Egremont Rd	0.96	13	0.98	16	3	1.06	45	1.12	85	40
A595	0.85	5	0.86	6	1	0.81	4	0.82	4	1
Average Jun. Delay (s/pcu)	26		29		-	61		105		-
Average Jun. Delay Increase Due to Dev. (s/pcu)	+		3.8		-	+		43.7		-

- 3.3.9 **Table 6** shows the capacity results with the proposed mitigation measures. For comparison it also shows the results for the existing layout without the development flows.

Table 6: Capacity Results Using 2028 Flows - Mitigation Layout

Link Description	AM Peak					PM Peak				
	2028 w/o Dev. (Existing Layout)		2028 with Dev. (with Mitigation)		Diff.	2028 w/o Dev. (Existing Layout)		2028 with Dev. (with Mitigation)		Diff.
	Max RFC	Max Queue (PCU)	Max RFC	Max Queue (PCU)	Max Queue (PCU)	Max RFC	Max Queue (PCU)	Max RFC	Max Queue (PCU)	Max Queue (PCU)
B5295 Egremont Rd	0.31	1	0.40	1	0	0.27	0	0.31	0	0
Homewood Rd	0.62	2	0.66	2	0	0.81	4	0.83	4	1
A595 Egremont Rd	0.96	13	0.70	2	-10	1.06	45	0.79	4	-42
A595	0.85	5	0.85	5	0	0.81	4	0.84	5	1
Average Jun. Delay (s/pcu)	26		13		-	61		17		-
Average Jun. Delay Increase Due to Dev. (s/pcu)			-12.6		-			-44.4		-

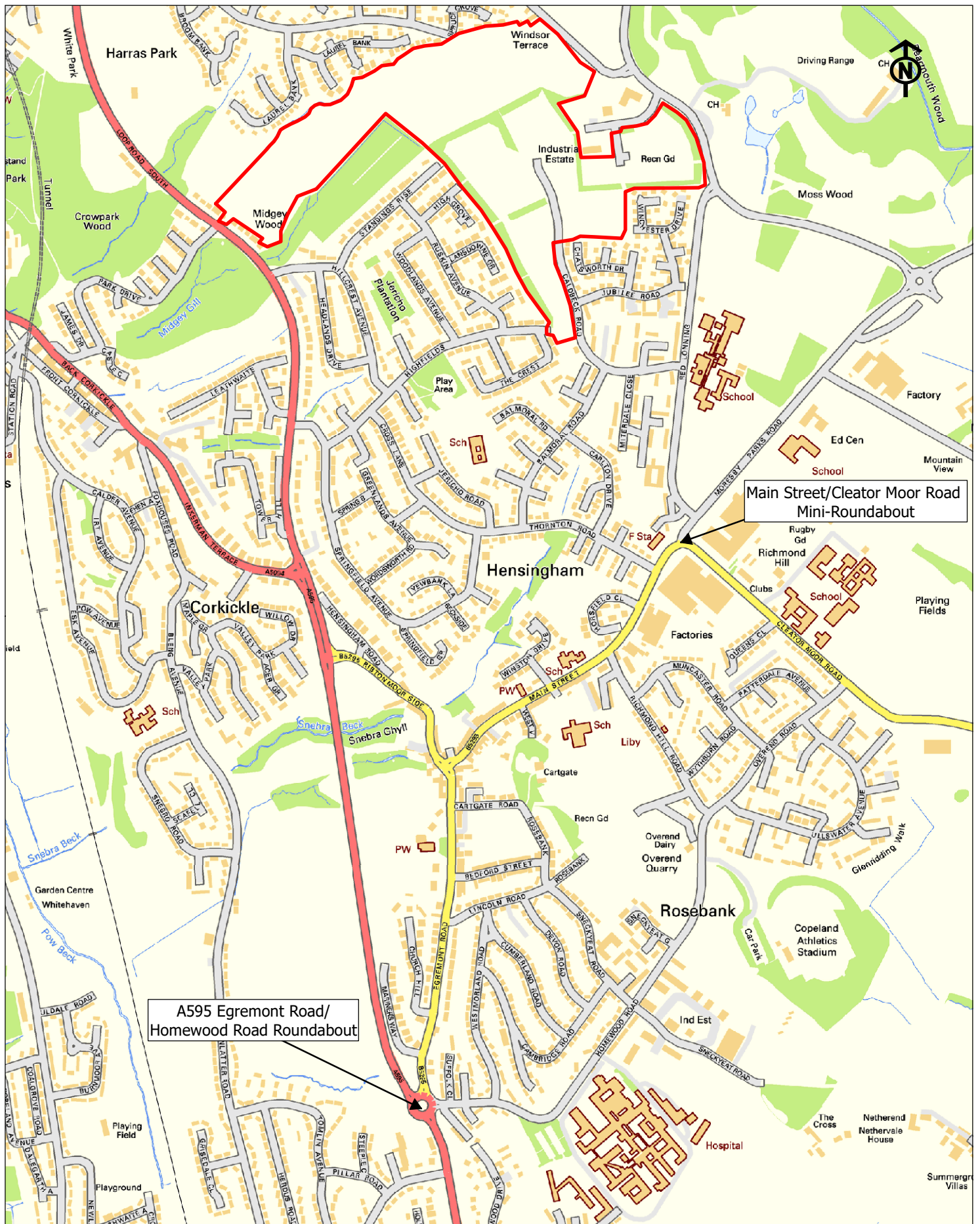
- 3.3.10 In the AM peak hour, the roundabout works within capacity with and without the mitigation measures. However, the average junction delay per vehicle is much lower with the proposed improvements. Similarly, the queue on the A595 Egremont Road arm has reduced from 45 vehicles to only 4 vehicles due to the mitigation measures.
- 3.3.11 Given the above results, the mitigation measures will significantly reduce queues and delays in 2028 to the extent that it will operate much better than the existing layout without the development. So, overall the development will provide net benefit to the roundabout.
- 3.3.12 Full capacity assessment outputs for the roundabout are contained in **Appendix F**.

4.0 SUMMARY AND CONCLUSIONS

- 4.1.1 WYG Group, rebranded as Tetra Tech (Tt) in January 2021, has been commissioned by Homes England to provide transport and highways advice in relation to an outline planning application for up to 370 residential units on land at Harras Moor, Whitehaven, Cumbria.
- 4.1.2 The outline application, ref: 4/18/2287/001, has yet to be determined. The initial Planning Panel meeting report is dated 18-09-2019.
- 4.1.3 All the highway and transport matters have been resolved with Cumbria County Council (CCC) and Highways England, subject to conditions.
- 4.1.4 In relation to two off-site roundabouts, pre-commencement conditions were proposed by the LPA in the initial Planning Panel report.
- 4.1.5 Condition 5 required a scheme to be agreed with Highways England for improving the A595 Egremont Road/Homewood Road roundabout junction, prior to the commencement of development.
- 4.1.6 Similarly, Condition 7 required a scheme to be agreed with CCC for improving the Main Street/Cleator Moor Road/ mini roundabout junction, before prior to the commencement of development.
- 4.1.7 It has been agreed with Highways England and CCC that Tt would carry out preliminary designs for improvements to current standards to both above mentioned roundabouts using a topographical survey, which would be similar to the previous designs carried out using OS mapping. It is expected that once the preliminary design improvements are accepted by Highways England and CCC there would not be any requirement for the pre-commencement conditions in relation to these two roundabouts. The accepted improvements would form the basis of Section 278 detailed design, to be delivered through Conditions 6 and 8 as set out in the Planning Panel report on 18 September 2019.
- 4.1.8 This Technical Note 3 has demonstrated that suitable mitigation measures can be delivered for both roundabouts within the adopted highway, which would also comply with current design guidance in Design Manual for Roads and Bridges (DMRB).
- 4.1.9 Furthermore, capacity assessments have been undertaken for the two roundabouts for the 'without' and 'with' improvements scenarios. The results demonstrate that the mitigation measures will significantly reduce queues and delays in 2028 to the extent that both will operate much better than the existing layouts without the development. Accordingly, overall the development will provide net benefit to the roundabouts.

- 4.1.10 Given the above beneficial findings, it is considered that there is no valid case for stipulating pre-commencement conditions for the two off-site roundabouts. Instead conditions 5 and 7 should be revised to pre-occupation conditions, which would still allow sufficient time for the detailed designs to be submitted to the Council and then agreed and implemented prior to the occupation of 100 and 200 dwellings respectively.
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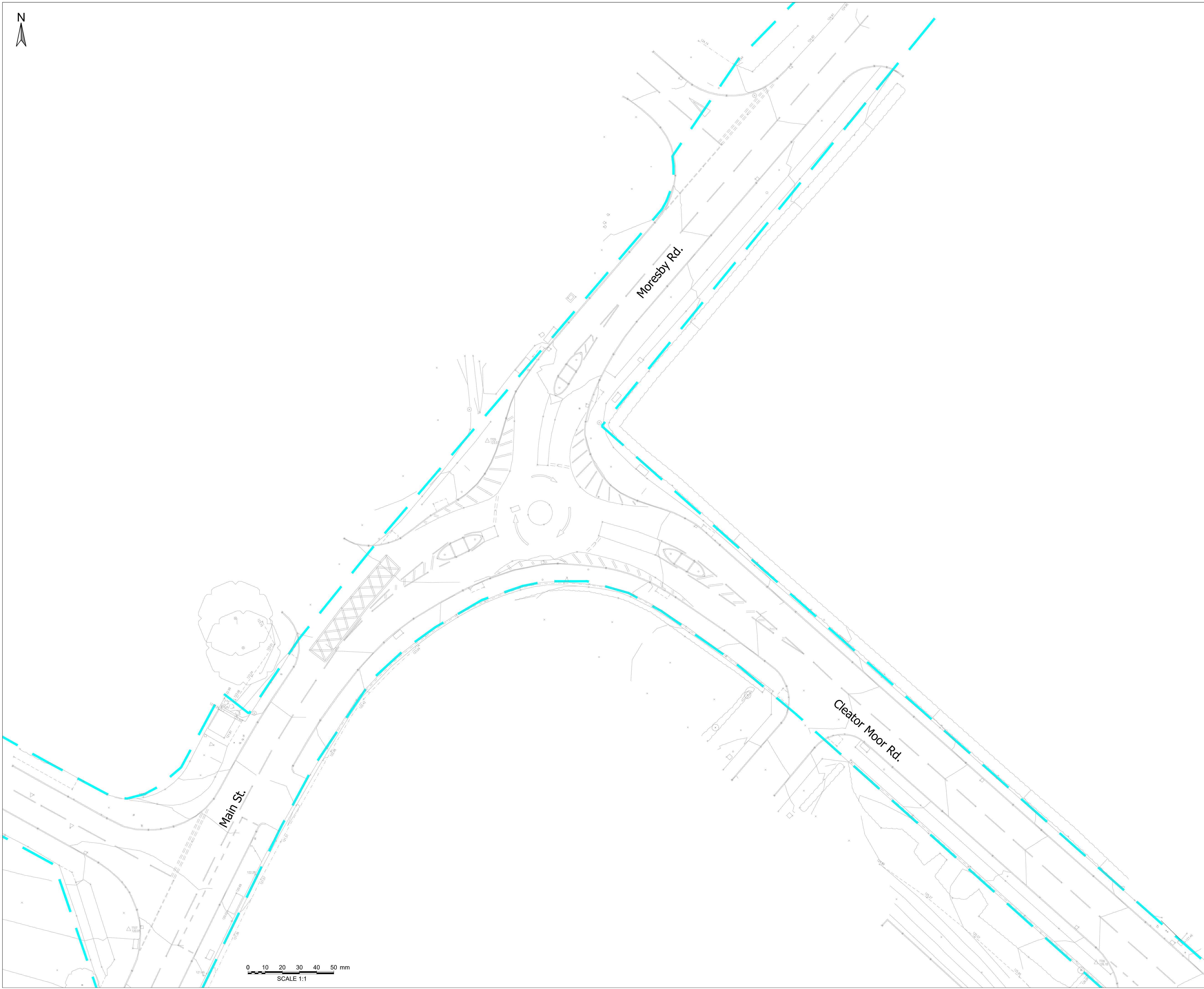
PLANS



© Tetra Tech Limited  TETRA TECH	Plan 1: Site Location Proposal: Residential Development Location: Harras Road, Harras Moor, Whitehaven TT Job No.: A090070 - 410	Legend Site Boundary
0 125 250 375 Meters Scale: 1:10,000 @A4		01 March 2021 NGR: 298,692 E / 517,092 N © Crown Copyright All rights reserved. Licence number:

APPENDICES

APPENDIX A: EXISTING LAYOUT OF MAIN STREET/CLEATOR MOOR ROAD MINI-ROUNDBOUT



- Key:

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Document Control

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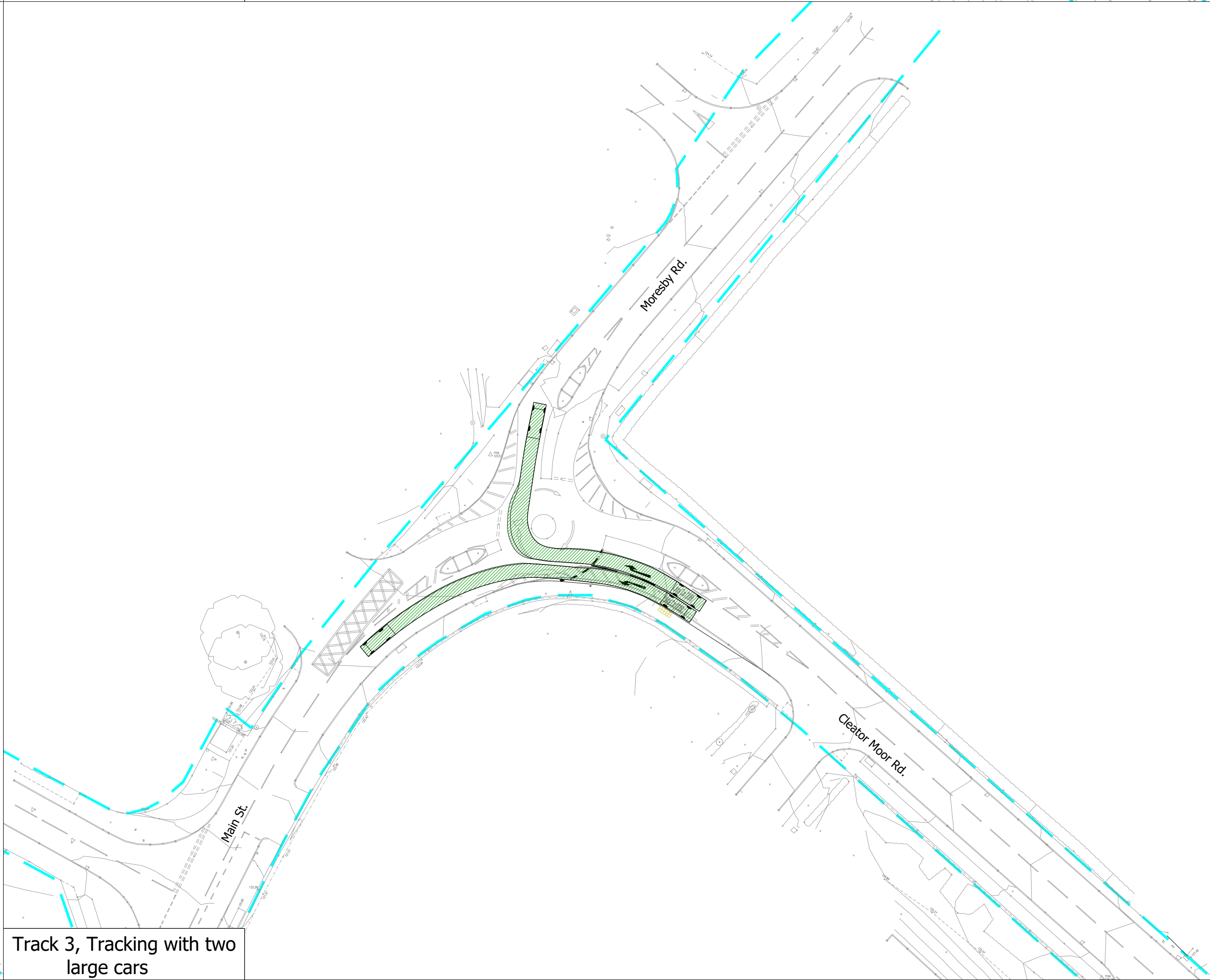
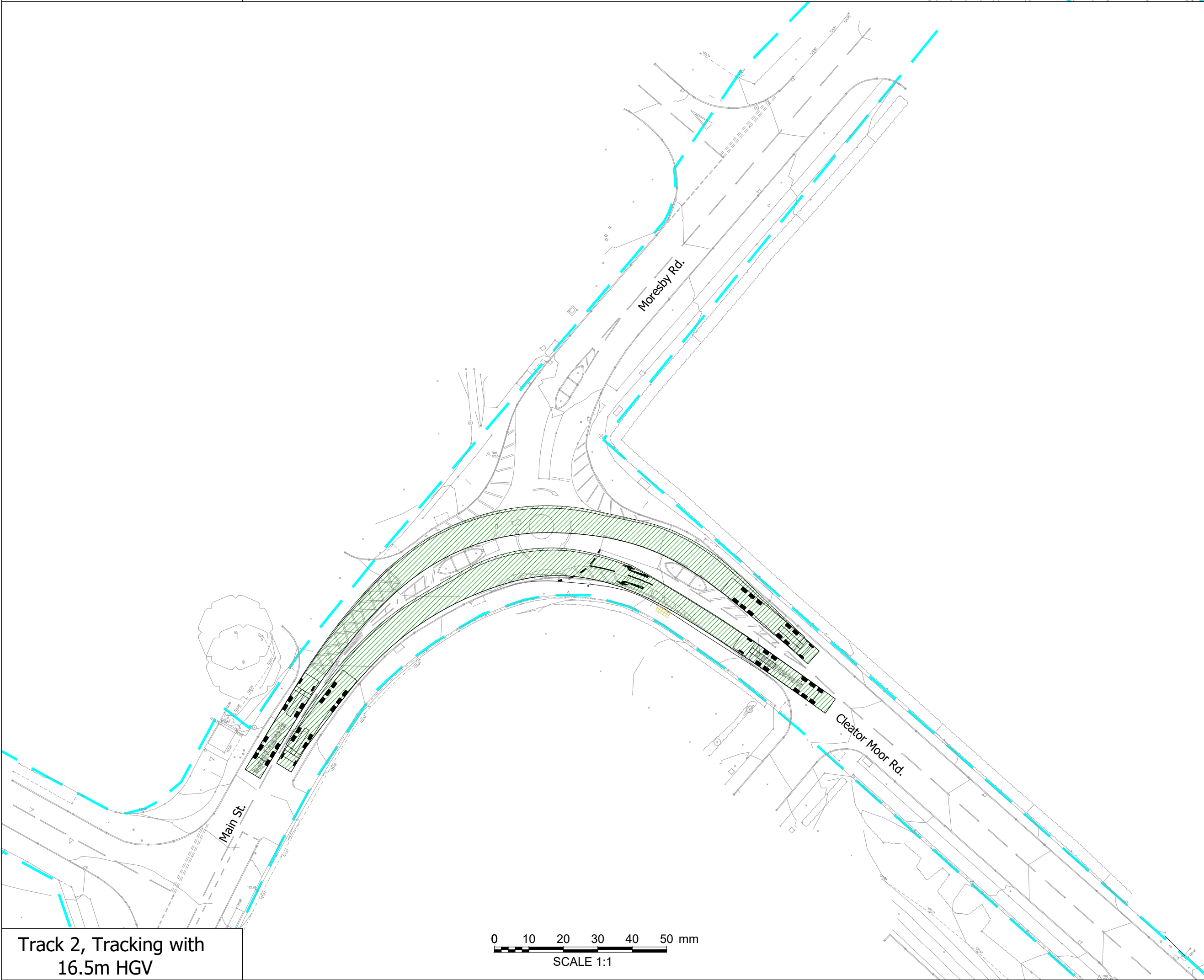
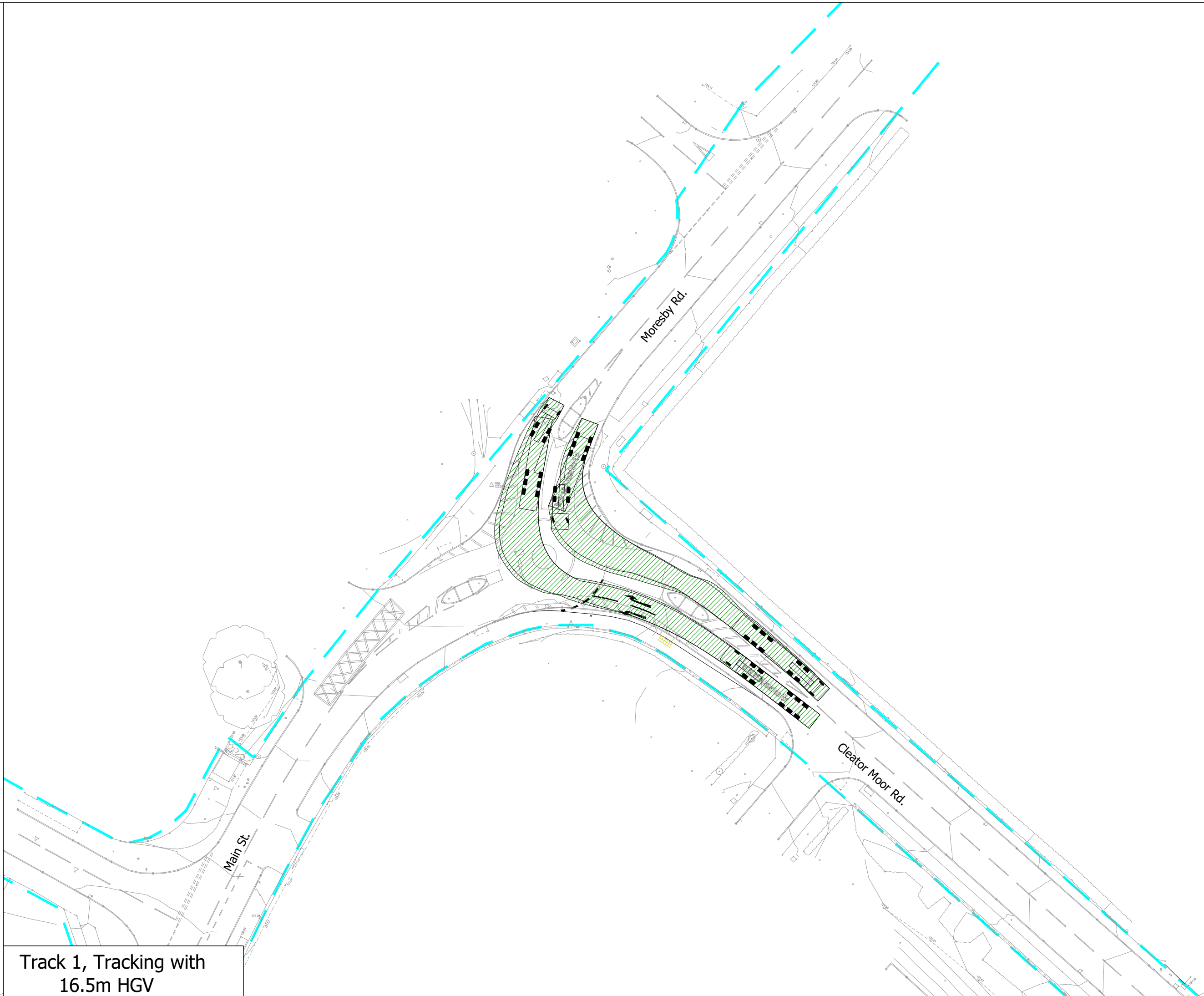
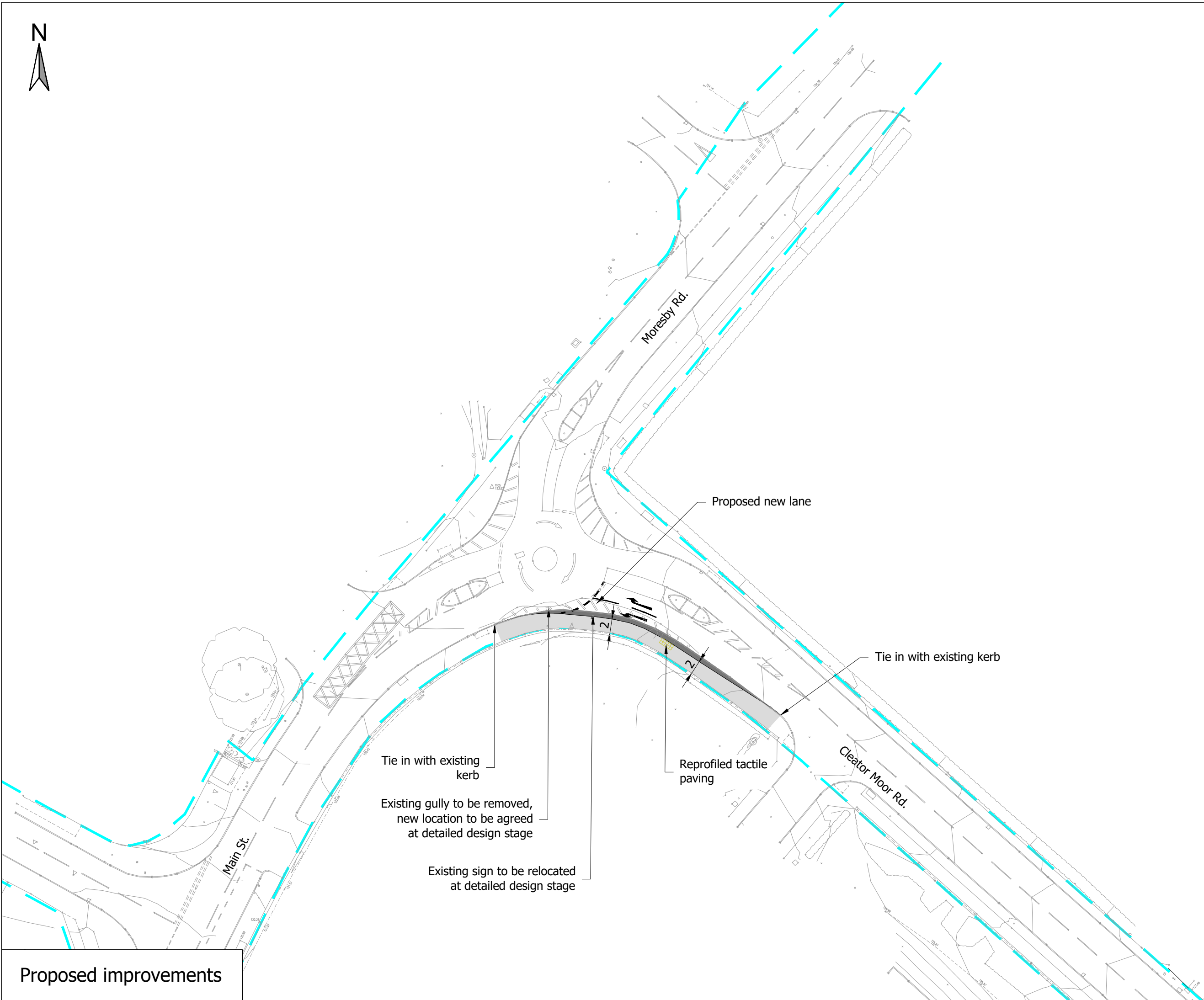
TETRA TECH

Project Name

PROPOSED RESIDENTIAL DEVELOPMENT AT
HARRAS MOOR, WHITEHEAVEN

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A1	Suitability
A090070-410	JG	10/03/21	LB	10/03/21	AK	10/03/21	1:250	S0
Client Project Number	Originator	Volume/System	Level/Location	Type/Code	Role	Number	Revision	
A090070-410 - TTE	- 00	- XX	- DR	- C	- P015	P01		

APPENDIX B: PROPOSED IMPROVEMENTS TO MAIN STREET/CLEATOR MOOR ROAD MINI-ROUNDBOUT



1. This drawing should be read in relation to the subject of the title only. Other information shown on the drawing is to be considered indicative only. Reference should be made to appropriate drawing series/specifications for other information.
2. All dimensions are in metres unless specified otherwise.
3. Original topographical survey provided by TetraTech.

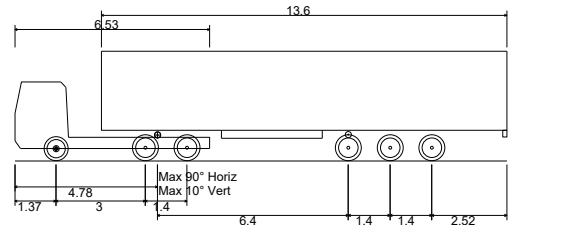
Key:

Approximate extent of highway boundary -

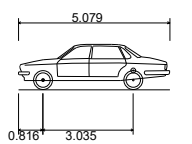
Extent of proposed realigned footway -

Extent of proposed carriageway widening - [REDACTED]

Vehicle profile:



Max Legal Length (UK) Articulated Vehicle (16.5m)	
Overall Length	16.500m
Overall Width	2.550m
Overall Body Height	3.681m
Min Body Ground Clearance	0.411m
Max Track Width	2.500m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.530m



Large Car (2006)	
Overall Length	5.079m
Overall Width	1.872m
Overall Body Height	1.525m
Min Body Ground Clearance	0.310m
Max Track Width	1.831m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	5.900m

5.079m
1.872m
1.525m
0.310m
1.831m
4.00s
5.900m

PRELIMINARY ISSUE

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Rev	Description		Date	Dm / Chk / App					

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HOMES ENGLAND

Project Name	
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PROPOSED RESIDENTIAL DEVELOPMENT AT HARRAS MOOR, WHITEHEAVEN

Sheet Title

PROPOSED IMPROVEMENTS TO MAIN STREET/ CLEATOR MOOR ROAD JUNCTION, AND TRACKING

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A1	Suitability
A090070-410	JG	12/02/21	LB	12/02/21	AK	12/02/21	1:500	S0

Client Project Number	Originator	Volume/System Level/Location	Type/Code	Role	Number	Revision
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APPENDIX C: EXISTING LAYOUT OF A595 EGREMONT ROAD/HOMEWOOD ROAD ROUNDABOUT

- Key:
- Approximate extent of highway boundary

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PROPOSED RESIDENTIAL DEVELOPMENT AT
HARRAS MOOR, WHITEHEAVEN

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A1	Suitability
A090070-410	JG	10/03/21	LB	10/03/21	AK	10/03/21	1:250	S0
Client Project Number	Originator	Volume/System Level/Location			Type/Code	Role	Number	Revision

APPENDIX D: PROPOSED IMPROVEMENTS TO A595 EGREMONT ROAD/HOMEWOOD ROAD ROUNDABOUT

APPENDIX E: CAPACITY RESULTS OUTPUTS FOR MAIN STREET/CLEATOR MOOR ROAD MINI-ROUNDBOUT

Junctions 9						
ARCADY 9 - Roundabout Module						
Version: 9.5.1.7462 © Copyright TRL Limited, 2019						
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Filename: 03 TOPO - J5 (ONE HOUR) Existing Layout.j9

Path: J:\2017\A090070 - 270 and 410 - Harras Road, Harras Moor, Whitehaven\Jun. Ass\2021 Modelling\J5

Report generation date: 01/03/2021 13:37:48

- »Existing Layout - 2018 Surveyed Flows , AM
- »Existing Layout - 2018 Surveyed Flows , PM
- »Existing Layout - 2028 Baseline Flows, AM
- »Existing Layout - 2028 Baseline Flows, PM
- »Existing Layout - 2028 with Dev. Flows, AM
- »Existing Layout - 2028 with Dev. Flows, PM

Summary of junction performance

	AM			PM		
	Q (PCU)	RFC	Junction Delay (s)	Q (PCU)	RFC	Junction Delay (s)
	Existing Layout - 2018 Surveyed Flows					
1 - Moresby Parks Rd	2.3	0.70	22.15	3.5	0.79	78.85
2 - Cleator Moor Rd	5.8	0.86		38.8	1.08	
3 - Main St	2.4	0.70		3.1	0.76	
	Existing Layout - 2028 Baseline Flows					
1 - Moresby Parks Rd	4.2	0.81	44.30	6.6	0.89	177.89
2 - Cleator Moor Rd	15.9	0.98		85.2	1.21	
3 - Main St	3.6	0.79		4.8	0.84	
	Existing Layout - 2028 with Dev. Flows					
1 - Moresby Parks Rd	11.7	0.95	82.37	11.5	0.95	232.91
2 - Cleator Moor Rd	33.9	1.07		104.1	1.26	
3 - Main St	4.3	0.82		10.4	0.94	

Values shown are the highest values encountered over all time segments. Delay is the maximum value of Av. delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted Av.s.

File summary

File Description

Title	(untitled)
Location	Moreby Road / Cleator Moor Road / Main Street Mini Roundabout
Site number	
Date	15/02/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	WYGlyujing.liu
Description	

Units

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

Analysis Options

Mini-roundabout model	Vehicle length (m)	Calculate Q Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Av. Delay threshold (s)	Q threshold (PCU)
JUNCTIONS 9	5.75				0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2018 Surveyed Flows	AM	ONE HOUR	07:45	09:15	15	✓
D2	2018 Surveyed Flows	PM	ONE HOUR	16:00	17:30	15	✓
D7	2028 Baseline Flows	AM	ONE HOUR	07:45	09:15	15	✓
D8	2028 Baseline Flows	PM	ONE HOUR	16:00	17:30	15	✓
D9	2028 with Dev. Flows	AM	ONE HOUR	07:45	09:15	15	✓
D10	2028 with Dev. Flows	PM	ONE HOUR	16:00	17:30	15	✓

Analysis Set Details

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

Existing Layout - 2018 Surveyed Flows , AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Moreby Rd/Cleator Moor Rd/Main St Mini Rbt	Mini-roundabout		1, 2, 3	22.15	C

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Arms

Arms

Arm	Name	Description
1	Moresby Parks Rd	
2	Cleator Moor Rd	
3	Main St	

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
1 - Moresby Parks Rd	3.50	3.21	4.82	5.7	11.42	7.72	0.0	
2 - Cleator Moor Rd	3.65	3.15	3.66	1.6	14.64	12.51	0.0	
3 - Main St	3.68	3.68	5.09	4.0	10.86	7.57	0.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Moresby Parks Rd	0.631	939
2 - Cleator Moor Rd	0.612	902
3 - Main St	0.642	1057

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	2018 Surveyed Flows	AM	ONE HOUR	07:45	09:15	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1 - Moresby Parks Rd		ONE HOUR	✓	516	100.000
2 - Cleator Moor Rd		ONE HOUR	✓	575	100.000
3 - Main St		ONE HOUR	✓	537	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	265	251
	2 - Cleator Moor Rd	302	0	273
	3 - Main St	358	179	0

Vehicle Mix

HV %s

07:45 - 08:00	To			
		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	From			
	1 - Moresby Parks Rd	0	4	2
	2 - Cleator Moor Rd	3	0	4
	3 - Main St	3	1	0

HV %s

08:00 - 08:15	To			
		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	From			
	1 - Moresby Parks Rd	0	2	1
	2 - Cleator Moor Rd	5	0	7
	3 - Main St	4	2	0

HV %s

08:15 - 08:30	To			
		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	From			
	1 - Moresby Parks Rd	0	4	3
	2 - Cleator Moor Rd	2	0	3
	3 - Main St	0	0	0

HV %s

08:30 - 08:45	To			
		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	From			
	1 - Moresby Parks Rd	0	7	0
	2 - Cleator Moor Rd	4	0	5
	3 - Main St	7	0	0

HV %s

08:45 - 09:00	To			
		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	From			
	1 - Moresby Parks Rd	0	5	5
	2 - Cleator Moor Rd	0	0	2
	3 - Main St	4	3	0

HV %s

09:00 - 09:15	To			
		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	From			
	1 - Moresby Parks Rd	0	5	5
	2 - Cleator Moor Rd	0	0	2
	3 - Main St	4	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Moresby Parks Rd	0.70	15.03	2.3	C	473	710
2 - Cleator Moor Rd	0.86	35.39	5.8	E	528	791
3 - Main St	0.70	14.80	2.4	B	493	739

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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	388	97	134	855	0.454	385	492	0.0	0.8	7.845	A
2 - Cleator Moor Rd	433	108	187	787	0.550	428	331	0.0	1.2	10.247	B
3 - Main St	404	101	225	912	0.443	401	391	0.0	0.8	7.162	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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	464	116	160	838	0.553	462	590	0.8	1.2	9.683	A
2 - Cleator Moor Rd	517	129	225	764	0.677	513	398	1.2	2.1	15.018	C
3 - Main St	483	121	270	884	0.546	481	469	0.8	1.2	9.203	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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	568	142	196	816	0.696	564	717	1.2	2.3	14.565	B
2 - Cleator Moor Rd	633	158	274	733	0.863	621	485	2.1	5.2	29.750	D
3 - Main St	591	148	326	847	0.698	587	569	1.2	2.2	13.629	B

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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	568	142	197	815	0.697	568	725	2.3	2.3	15.031	C
2 - Cleator Moor Rd	633	158	276	732	0.864	631	489	5.2	5.8	35.393	E
3 - Main St	591	148	331	844	0.701	591	576	2.2	2.4	14.805	B

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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	464	116	162	837	0.554	468	604	2.3	1.3	10.348	B
2 - Cleator Moor Rd	517	129	228	762	0.678	531	403	5.8	2.2	16.603	C
3 - Main St	483	121	279	877	0.550	487	480	2.4	1.3	9.662	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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	388	97	135	854	0.455	390	500	1.3	0.9	8.184	A
2 - Cleator Moor Rd	433	108	190	785	0.551	437	336	2.2	1.3	10.540	B
3 - Main St	404	101	229	909	0.445	406	397	1.3	0.8	7.444	A

Existing Layout - 2018 Surveyed Flows , PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Moreby Rd/Cleator Moor Rd/Main St Mini Rbt	Mini-roundabout		1, 2, 3	78.85	F

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2018 Surveyed Flows	PM	ONE HOUR	16:00	17:30	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1 - Moresby Parks Rd		ONE HOUR	✓	545	100.000
2 - Cleator Moor Rd		ONE HOUR	✓	725	100.000
3 - Main St		ONE HOUR	✓	529	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
From	1 - Moresby Parks Rd	0	309	236
	2 - Cleator Moor Rd	452	0	273
	3 - Main St	272	257	0

Vehicle Mix

HV %s

16:00 - 16:15

	To			
		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
From	1 - Moresby Parks Rd	0	2	0
	2 - Cleator Moor Rd	1	0	1
	3 - Main St	2	2	0

HV %s
16:15 - 16:30

		To		
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	3	0
	2 - Cleator Moor Rd	2	0	0
	3 - Main St	2	3	0

HV %s
16:30 - 16:45

		To		
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	3	2
	2 - Cleator Moor Rd	1	0	3
	3 - Main St	0	2	0

HV %s
16:45 - 17:00

		To		
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	1	0
	2 - Cleator Moor Rd	1	0	2
	3 - Main St	3	0	0

HV %s
17:00 - 17:15

		To		
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	0	0
	2 - Cleator Moor Rd	0	0	2
	3 - Main St	4	1	0

HV %s
17:15 - 17:30

		To		
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	0	0
	2 - Cleator Moor Rd	0	0	2
	3 - Main St	4	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Moresby Parks Rd	0.79	22.19	3.5	C	500	750
2 - Cleator Moor Rd	1.08	164.31	38.8	F	665	998
3 - Main St	0.76	20.11	3.1	C	485	728

Main Results for each time segment

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	410	103	192	818	0.501	406	538	0.0	1.0	8.754	A
2 - Cleator Moor Rd	546	136	176	794	0.688	537	422	0.0	2.1	13.762	B
3 - Main St	398	100	335	842	0.473	395	378	0.0	0.9	8.153	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	490	122	230	794	0.617	488	643	1.0	1.6	11.845	B
2 - Cleator Moor Rd	652	163	211	772	0.844	642	506	2.1	4.7	26.022	D
3 - Main St	476	119	400	800	0.595	473	453	0.9	1.5	11.219	B

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	600	150	280	763	0.787	593	747	1.6	3.4	20.864	C
2 - Cleator Moor Rd	798	200	257	744	1.072	723	616	4.7	23.3	85.854	F
3 - Main St	582	146	451	767	0.759	577	529	1.5	2.9	18.496	C

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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	600	150	283	761	0.789	600	758	3.4	3.5	22.187	C
2 - Cleator Moor Rd	798	200	260	743	1.075	737	623	23.3	38.8	164.310	F
3 - Main St	582	146	459	762	0.764	582	537	2.9	3.1	20.105	C

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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	490	122	234	792	0.619	497	715	3.5	1.7	12.516	B
2 - Cleator Moor Rd	652	163	215	770	0.847	750	516	38.8	14.2	132.695	F
3 - Main St	476	119	468	757	0.629	481	498	3.1	1.8	13.639	B

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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	410	103	195	816	0.503	413	576	1.7	1.0	8.983	A
2 - Cleator Moor Rd	546	136	179	792	0.689	593	429	14.2	2.4	22.190	C
3 - Main St	398	100	370	819	0.486	401	402	1.8	1.0	8.902	A

Existing Layout - 2028 Baseline Flows, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Moreby Rd/Cleator Moor Rd/Main St Mini Rbt	Mini-roundabout		1, 2, 3	44.30	E

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	2028 Baseline Flows	AM	ONE HOUR	07:45	09:15	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1 - Moresby Parks Rd		ONE HOUR	✓	595	100.000
2 - Cleator Moor Rd		ONE HOUR	✓	631	100.000
3 - Main St		ONE HOUR	✓	590	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
From	1 - Moresby Parks Rd	0	306	289
	2 - Cleator Moor Rd	333	0	298
	3 - Main St	395	195	0

Vehicle Mix

HV %s

07:45 - 08:00

	To			
		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
From	1 - Moresby Parks Rd	0	4	2
	2 - Cleator Moor Rd	3	0	4
	3 - Main St	3	1	0

HV %s
08:00 - 08:15

		To		
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	2	1
	2 - Cleator Moor Rd	5	0	7
	3 - Main St	4	2	0

HV %s
08:15 - 08:30

		To		
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	4	3
	2 - Cleator Moor Rd	2	0	3
	3 - Main St	0	0	0

HV %s
08:30 - 08:45

		To		
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	7	0
	2 - Cleator Moor Rd	4	0	5
	3 - Main St	7	0	0

HV %s
08:45 - 09:00

		To		
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	5	5
	2 - Cleator Moor Rd	0	0	2
	3 - Main St	4	3	0

HV %s
09:00 - 09:15

		To		
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	5	5
	2 - Cleator Moor Rd	0	0	2
	3 - Main St	4	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Moresby Parks Rd	0.81	24.45	4.2	C	546	819
2 - Cleator Moor Rd	0.98	84.96	15.9	F	579	869
3 - Main St	0.79	20.83	3.6	C	541	812

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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	448	112	146	847	0.529	443	542	0.0	1.1	9.081	A
2 - Cleator Moor Rd	475	119	215	770	0.617	469	374	0.0	1.6	12.133	B
3 - Main St	444	111	247	898	0.495	440	437	0.0	1.0	7.985	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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	535	134	175	829	0.645	532	650	1.1	1.8	12.198	B
2 - Cleator Moor Rd	567	142	259	743	0.763	561	448	1.6	3.1	20.288	C
3 - Main St	530	133	296	867	0.612	528	524	1.0	1.6	10.911	B

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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	655	164	212	805	0.814	646	779	1.8	4.0	22.268	C
2 - Cleator Moor Rd	695	174	314	709	0.979	661	545	3.1	11.6	54.606	F
3 - Main St	650	162	349	833	0.780	643	626	1.6	3.3	18.316	C

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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	655	164	214	804	0.815	654	792	4.0	4.2	24.446	C
2 - Cleator Moor Rd	695	174	318	707	0.983	678	551	11.6	15.9	84.961	F
3 - Main St	650	162	358	827	0.785	648	638	3.3	3.6	20.825	C

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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	535	134	178	827	0.647	544	685	4.2	2.0	13.743	B
2 - Cleator Moor Rd	567	142	264	740	0.767	616	457	15.9	3.8	36.645	E
3 - Main St	530	133	325	848	0.625	538	555	3.6	1.8	12.290	B

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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	448	112	148	846	0.529	451	554	2.0	1.2	9.645	A
2 - Cleator Moor Rd	475	119	219	767	0.619	483	380	3.8	1.7	13.138	B
3 - Main St	444	111	255	893	0.497	447	447	1.8	1.0	8.429	A

Existing Layout - 2028 Baseline Flows, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Moreby Rd/Cleator Moor Rd/Main St Mini Rbt	Mini-roundabout		1, 2, 3	177.89	F

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	2028 Baseline Flows	PM	ONE HOUR	16:00	17:30	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1 - Moresby Parks Rd		ONE HOUR	✓	600	100.000
2 - Cleator Moor Rd		ONE HOUR	✓	797	100.000
3 - Main St		ONE HOUR	✓	580	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
From	1 - Moresby Parks Rd	0	340	260
	2 - Cleator Moor Rd	501	0	296
	3 - Main St	301	279	0

Vehicle Mix

HV %s

16:00 - 16:15

	To			
		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
From	1 - Moresby Parks Rd	0	2	0
	2 - Cleator Moor Rd	1	0	1
	3 - Main St	2	2	0

HV %s
16:15 - 16:30

		To		
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	3	0
	2 - Cleator Moor Rd	2	0	0
	3 - Main St	2	3	0

HV %s
16:30 - 16:45

		To		
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	3	2
	2 - Cleator Moor Rd	1	0	3
	3 - Main St	0	2	0

HV %s
16:45 - 17:00

		To		
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	1	0
	2 - Cleator Moor Rd	1	0	2
	3 - Main St	3	0	0

HV %s
17:00 - 17:15

		To		
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	0	0
	2 - Cleator Moor Rd	0	0	2
	3 - Main St	4	1	0

HV %s
17:15 - 17:30

		To		
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	0	0
	2 - Cleator Moor Rd	0	0	2
	3 - Main St	4	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Moresby Parks Rd	0.89	38.52	6.6	E	551	826
2 - Cleator Moor Rd	1.21	391.73	85.2	F	731	1097
3 - Main St	0.84	28.23	4.8	D	532	798

Main Results for each time segment

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	452	113	208	808	0.559	447	594	0.0	1.2	9.941	A
2 - Cleator Moor Rd	600	150	194	783	0.766	588	461	0.0	3.0	17.682	C
3 - Main St	437	109	370	819	0.533	432	412	0.0	1.1	9.375	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	539	135	249	782	0.690	536	704	1.2	2.2	14.642	B
2 - Cleator Moor Rd	716	179	232	759	0.944	692	553	3.0	9.1	43.505	E
3 - Main St	521	130	435	777	0.671	518	489	1.1	2.0	14.039	B

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	661	165	303	748	0.883	645	782	2.2	5.9	31.969	D
2 - Cleator Moor Rd	878	219	280	730	1.202	724	668	9.1	47.3	155.145	F
3 - Main St	639	160	455	764	0.835	629	549	2.0	4.4	25.153	D

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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	661	165	307	746	0.886	658	787	5.9	6.6	38.520	E
2 - Cleator Moor Rd	878	219	285	727	1.207	726	679	47.3	85.2	335.779	F
3 - Main St	639	160	456	764	0.836	637	555	4.4	4.8	28.226	D

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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	539	135	255	778	0.693	556	744	6.6	2.4	17.312	C
2 - Cleator Moor Rd	716	179	241	754	0.950	745	571	85.2	78.1	391.730	F
3 - Main St	521	130	468	756	0.690	531	518	4.8	2.4	17.018	C

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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	452	113	212	806	0.561	456	713	2.4	1.3	10.417	B
2 - Cleator Moor Rd	600	150	198	781	0.769	771	470	78.1	35.4	268.492	F
3 - Main St	437	109	484	746	0.586	440	484	2.4	1.5	12.225	B

Existing Layout - 2028 with Dev. Flows, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Moreby Rd/Cleator Moor Rd/Main St Mini Rbt	Mini-roundabout		1, 2, 3	82.37	F

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D9	2028 with Dev. Flows	AM	ONE HOUR	07:45	09:15	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1 - Moresby Parks Rd		ONE HOUR	✓	692	100.000
2 - Cleator Moor Rd		ONE HOUR	✓	634	100.000
3 - Main St		ONE HOUR	✓	621	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
From	1 - Moresby Parks Rd	0	315	377
	2 - Cleator Moor Rd	336	0	298
	3 - Main St	426	195	0

Vehicle Mix

HV %s

07:45 - 08:00

	To			
		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
From	1 - Moresby Parks Rd	0	4	2
	2 - Cleator Moor Rd	3	0	4
	3 - Main St	3	1	0

HV %s
08:00 - 08:15

		To		
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	2	1
	2 - Cleator Moor Rd	5	0	7
	3 - Main St	4	2	0

HV %s
08:15 - 08:30

		To		
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	4	3
	2 - Cleator Moor Rd	2	0	3
	3 - Main St	0	0	0

HV %s
08:30 - 08:45

		To		
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	7	0
	2 - Cleator Moor Rd	4	0	5
	3 - Main St	7	0	0

HV %s
08:45 - 09:00

		To		
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	5	5
	2 - Cleator Moor Rd	0	0	2
	3 - Main St	4	3	0

HV %s
09:00 - 09:15

		To		
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	5	5
	2 - Cleator Moor Rd	0	0	2
	3 - Main St	4	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Moresby Parks Rd	0.95	58.72	11.7	F	635	952
2 - Cleator Moor Rd	1.07	165.55	33.9	F	582	873
3 - Main St	0.82	23.82	4.3	C	570	855

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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	521	130	145	848	0.615	515	567	0.0	1.6	10.931	B
2 - Cleator Moor Rd	477	119	280	730	0.654	470	380	0.0	1.9	13.957	B
3 - Main St	468	117	249	897	0.521	463	501	0.0	1.1	8.417	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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	622	156	174	829	0.750	617	678	1.6	2.8	16.805	C
2 - Cleator Moor Rd	570	142	336	696	0.819	561	455	1.9	4.1	26.618	D
3 - Main St	558	140	297	866	0.645	555	600	1.1	1.8	11.876	B

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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	762	190	212	805	0.946	735	799	2.8	9.5	42.299	E
2 - Cleator Moor Rd	698	175	401	656	1.064	634	547	4.1	20.2	86.387	F
3 - Main St	684	171	336	841	0.813	675	699	1.8	3.9	20.729	C

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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	762	190	214	804	0.947	753	809	9.5	11.7	58.722	F
2 - Cleator Moor Rd	698	175	410	650	1.074	643	557	20.2	33.9	165.545	F
3 - Main St	684	171	341	838	0.816	682	713	3.9	4.3	23.817	C

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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	622	156	178	827	0.752	655	740	11.7	3.4	25.363	D
2 - Cleator Moor Rd	570	142	357	683	0.835	662	476	33.9	10.8	126.218	F
3 - Main St	558	140	351	831	0.672	567	668	4.3	2.2	14.523	B

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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	521	130	148	846	0.616	528	595	3.4	1.7	12.126	B
2 - Cleator Moor Rd	477	119	288	725	0.658	512	388	10.8	2.0	19.584	C
3 - Main St	468	117	271	882	0.530	472	528	2.2	1.2	9.176	A

Existing Layout - 2028 with Dev. Flows, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Moreby Rd/Cleator Moor Rd/Main St Mini Rbt	Mini-roundabout		1, 2, 3	232.91	F

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D10	2028 with Dev. Flows	PM	ONE HOUR	16:00	17:30	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1 - Moresby Parks Rd		ONE HOUR	✓	645	100.000
2 - Cleator Moor Rd		ONE HOUR	✓	805	100.000
3 - Main St		ONE HOUR	✓	657	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
From	1 - Moresby Parks Rd	0	345	300
	2 - Cleator Moor Rd	509	0	296
	3 - Main St	378	279	0

Vehicle Mix

HV %s

16:00 - 16:15

	To			
		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
From	1 - Moresby Parks Rd	0	2	0
	2 - Cleator Moor Rd	1	0	1
	3 - Main St	2	2	0

HV %s
16:15 - 16:30

		To		
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	3	0
	2 - Cleator Moor Rd	2	0	0
	3 - Main St	2	3	0

HV %s
16:30 - 16:45

		To		
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	3	2
	2 - Cleator Moor Rd	1	0	3
	3 - Main St	0	2	0

HV %s
16:45 - 17:00

		To		
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	1	0
	2 - Cleator Moor Rd	1	0	2
	3 - Main St	3	0	0

HV %s
17:00 - 17:15

		To		
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	0	0
	2 - Cleator Moor Rd	0	0	2
	3 - Main St	4	1	0

HV %s
17:15 - 17:30

		To		
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	0	0
	2 - Cleator Moor Rd	0	0	2
	3 - Main St	4	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Moresby Parks Rd	0.95	61.48	11.5	F	592	888
2 - Cleator Moor Rd	1.26	515.00	104.1	F	739	1108
3 - Main St	0.94	55.59	10.4	F	603	904

Main Results for each time segment

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	486	121	207	808	0.601	480	656	0.0	1.5	10.884	B
2 - Cleator Moor Rd	606	152	223	765	0.792	592	464	0.0	3.5	19.729	C
3 - Main St	495	124	374	816	0.606	489	441	0.0	1.5	11.011	B

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	580	145	248	783	0.741	575	773	1.5	2.7	17.189	C
2 - Cleator Moor Rd	724	181	267	738	0.981	690	556	3.5	11.9	54.359	F
3 - Main St	591	148	436	777	0.760	585	521	1.5	3.0	18.641	C

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	710	178	297	752	0.945	684	848	2.7	9.1	43.707	E
2 - Cleator Moor Rd	886	222	318	707	1.254	703	664	11.9	57.7	192.770	F
3 - Main St	723	181	445	771	0.938	701	577	3.0	8.7	41.601	E

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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	710	178	304	747	0.950	701	856	9.1	11.5	61.479	F
2 - Cleator Moor Rd	886	222	326	702	1.263	701	679	57.7	104.0	420.044	F
3 - Main St	723	181	443	772	0.937	716	584	8.7	10.4	55.586	F

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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	580	145	262	774	0.749	613	812	11.5	3.2	25.867	D
2 - Cleator Moor Rd	724	181	285	727	0.995	723	590	104.0	104.1	514.997	F
3 - Main St	591	148	457	763	0.774	617	551	10.4	3.9	28.659	D

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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	486	121	213	805	0.603	492	765	3.2	1.6	11.754	B
2 - Cleator Moor Rd	606	152	229	761	0.796	754	476	104.1	67.1	410.298	F
3 - Main St	495	124	477	751	0.659	502	506	3.9	2.1	15.257	C

Junctions 9						
ARCADY 9 - Roundabout Module						
Version: 9.5.1.7462 © Copyright TRL Limited, 2019						
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Filename: 04 TOPO - J5 (ONE HOUR) Proposed Mitigation.j9

Path: J:\2017\A090070 - 270 and 410 - Harras Road, Harras Moor, Whitehaven\Jun. Ass\2021 Modelling\J5

Report generation date: 01/03/2021 13:39:17

»Proposed Mitigation (P012) - 2028 with Dev. Flows, AM

»Proposed Mitigation (P012) - 2028 with Dev. Flows, PM

Summary of junction performance

	AM			PM		
	Q (PCU)	RFC	Junction Delay (s)	Q (PCU)	RFC	Junction Delay (s)
Proposed Mitigation (P012) - 2028 with Dev. Flows						
1 - Moresby Parks Rd	11.7	0.95	36.02	10.5	0.94	74.43
2 - Cleator Moor Rd	3.8	0.79		12.1	0.95	
3 - Main St	4.8	0.83		24.6	1.03	

Values shown are the highest values encountered over all time segments. Delay is the maximum value of Av. delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted Av.s.

File summary

File Description

Title	(untitled)
Location	Moreby Road / Cleator Moor Road / Main Street Mini Roundabout
Site number	
Date	15/02/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	WYGlyujing.liu
Description	

Units

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

Analysis Options

Mini-roundabout model	Vehicle length (m)	Calculate Q Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Av. Delay threshold (s)	Q threshold (PCU)
JUNCTIONS 9	5.75				0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D9	2028 with Dev. Flows	AM	ONE HOUR	07:45	09:15	15	✓
D10	2028 with Dev. Flows	PM	ONE HOUR	16:00	17:30	15	✓

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Proposed Mitigation (P012)	✓	100.000	100.000

Proposed Mitigation (P012) - 2028 with Dev. Flows, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Moreby Rd/Cleator Moor Rd/Main St Mini Rbt	Mini-roundabout		1, 2, 3	36.02	E

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Arms

Arms

Arm	Name	Description
1	Moresby Parks Rd	
2	Cleator Moor Rd	
3	Main St	

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
1 - Moresby Parks Rd	3.50	3.21	4.82	5.7	11.42	7.72	0.0	
2 - Cleator Moor Rd	3.65	3.65	5.16	10.8	14.64	12.56	0.0	
3 - Main St	3.68	3.68	5.09	4.0	10.86	7.57	0.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Moresby Parks Rd	0.631	939
2 - Cleator Moor Rd	0.662	1150
3 - Main St	0.642	1056

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
D9	2028 with Dev. Flows	AM	ONE HOUR	07:45	09:15	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1 - Moresby Parks Rd		ONE HOUR	✓	692	100.000
2 - Cleator Moor Rd		ONE HOUR	✓	634	100.000
3 - Main St		ONE HOUR	✓	621	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	315	377
	2 - Cleator Moor Rd	336	0	298
	3 - Main St	426	195	0

Vehicle Mix

HV %s

	To			
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	4	2
	2 - Cleator Moor Rd	3	0	4
	3 - Main St	3	1	0

HV %s

	To			
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	2	1
	2 - Cleator Moor Rd	5	0	7
	3 - Main St	4	2	0

HV %s

	To			
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	4	3
	2 - Cleator Moor Rd	2	0	3
	3 - Main St	0	0	0

HV %s

	To			
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	7	0
	2 - Cleator Moor Rd	4	0	5
	3 - Main St	7	0	0

HV %s

	To			
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	5	5
	2 - Cleator Moor Rd	0	0	2
	3 - Main St	4	3	0

HV %s

	To			
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	5	5
	2 - Cleator Moor Rd	0	0	2
	3 - Main St	4	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Moresby Parks Rd	0.95	58.58	11.7	F	635	952
2 - Cleator Moor Rd	0.79	20.47	3.8	C	582	873
3 - Main St	0.83	26.76	4.8	D	570	855

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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	521	130	145	848	0.615	515	569	0.0	1.6	10.929	B
2 - Cleator Moor Rd	477	119	280	964	0.495	473	380	0.0	1.0	7.527	A
3 - Main St	468	117	251	896	0.522	463	503	0.0	1.1	8.441	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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	622	156	174	829	0.750	617	682	1.6	2.8	16.800	C
2 - Cleator Moor Rd	570	142	336	927	0.615	567	455	1.0	1.6	10.514	B
3 - Main St	558	140	301	864	0.646	555	603	1.1	1.8	11.960	B

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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	762	190	212	806	0.945	735	828	2.8	9.4	42.182	E
2 - Cleator Moor Rd	698	175	401	885	0.789	691	546	1.6	3.5	18.308	C
3 - Main St	684	171	366	822	0.832	674	725	1.8	4.3	22.889	C

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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	762	190	214	804	0.947	753	837	9.4	11.7	58.577	F
2 - Cleator Moor Rd	698	175	410	878	0.795	697	557	3.5	3.8	20.474	C
3 - Main St	684	171	369	820	0.834	682	738	4.3	4.8	26.759	D

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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	622	156	179	827	0.753	655	697	11.7	3.4	25.402	D
2 - Cleator Moor Rd	570	142	357	914	0.624	578	477	3.8	1.7	11.078	B
3 - Main St	558	140	306	860	0.649	570	629	4.8	2.0	13.323	B

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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	521	130	148	846	0.616	528	577	3.4	1.7	12.118	B
2 - Cleator Moor Rd	477	119	288	960	0.497	480	388	1.7	1.0	7.621	A
3 - Main St	468	117	254	893	0.523	471	513	2.0	1.2	8.907	A

Proposed Mitigation (P012) - 2028 with Dev. Flows, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Moreby Rd/Cleator Moor Rd/Main St Mini Rbt	Mini-roundabout		1, 2, 3	74.43	F

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D10	2028 with Dev. Flows	PM	ONE HOUR	16:00	17:30	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1 - Moresby Parks Rd		ONE HOUR	✓	645	100.000
2 - Cleator Moor Rd		ONE HOUR	✓	805	100.000
3 - Main St		ONE HOUR	✓	657	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
From	1 - Moresby Parks Rd	0	345	300
	2 - Cleator Moor Rd	509	0	296
	3 - Main St	378	279	0

Vehicle Mix

HV %s

16:00 - 16:15

	To			
		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
From	1 - Moresby Parks Rd	0	2	0
	2 - Cleator Moor Rd	1	0	1
	3 - Main St	2	2	0

HV %s
16:15 - 16:30

		To		
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	3	0
	2 - Cleator Moor Rd	2	0	0
	3 - Main St	2	3	0

HV %s
16:30 - 16:45

		To		
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	3	2
	2 - Cleator Moor Rd	1	0	3
	3 - Main St	0	2	0

HV %s
16:45 - 17:00

		To		
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	1	0
	2 - Cleator Moor Rd	1	0	2
	3 - Main St	3	0	0

HV %s
17:00 - 17:15

		To		
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	0	0
	2 - Cleator Moor Rd	0	0	2
	3 - Main St	4	1	0

HV %s
17:15 - 17:30

		To		
From		1 - Moresby Parks Rd	2 - Cleator Moor Rd	3 - Main St
	1 - Moresby Parks Rd	0	0	0
	2 - Cleator Moor Rd	0	0	2
	3 - Main St	4	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Moresby Parks Rd	0.94	56.64	10.5	F	592	888
2 - Cleator Moor Rd	0.95	52.18	12.1	F	739	1108
3 - Main St	1.03	119.15	24.6	F	603	904

Main Results for each time segment

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	486	121	207	808	0.601	480	660	0.0	1.5	10.881	B
2 - Cleator Moor Rd	606	152	223	1002	0.605	600	464	0.0	1.5	8.913	A
3 - Main St	495	124	379	813	0.608	488	444	0.0	1.5	11.116	B

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	580	145	248	783	0.741	575	790	1.5	2.7	17.171	C
2 - Cleator Moor Rd	724	181	267	973	0.744	719	556	1.5	2.8	14.047	B
3 - Main St	591	148	454	765	0.772	584	532	1.5	3.2	19.688	C

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	710	178	286	759	0.936	687	931	2.7	8.6	41.575	E
2 - Cleator Moor Rd	886	222	319	939	0.944	859	653	2.8	9.7	36.996	E
3 - Main St	723	181	543	708	1.022	674	635	3.2	15.6	65.955	F

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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	710	178	292	755	0.940	703	950	8.6	10.5	56.642	F
2 - Cleator Moor Rd	886	222	327	934	0.949	877	668	9.7	12.1	52.179	F
3 - Main St	723	181	554	701	1.032	687	649	15.6	24.6	119.149	F

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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	580	145	285	760	0.763	608	866	10.5	3.5	26.956	D
2 - Cleator Moor Rd	724	181	283	963	0.752	759	610	12.1	3.3	20.357	C
3 - Main St	591	148	480	749	0.789	671	562	24.6	4.5	63.695	F

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) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Moresby Parks Rd	486	121	215	804	0.604	493	679	3.5	1.6	11.873	B
2 - Cleator Moor Rd	606	152	229	998	0.607	613	479	3.3	1.6	9.568	A
3 - Main St	495	124	387	808	0.612	506	455	4.5	1.7	12.676	B

APPENDIX F: CAPACITY RESULTS OUTPUTS FOR A595 EGREMONT ROAD/HOMEWOOD ROAD ROUNDABOUT

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.1.7462

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Filename: 03 Topo - J9 Existing Layout (Direct).j9

Path: J:\2017\A090070 - 270 and 410 - Harras Road, Harras Moor, Whitehaven\Jun. Ass\2021 Modelling\J9

Report generation date: 01/03/2021 13:42:05

»Existing Layout - 2018 Surveyed Flows , AM

»Existing Layout - 2018 Surveyed Flows , PM

»Existing Layout - 2028 Baseline Flows, AM

»Existing Layout - 2028 Baseline Flows, PM

»Existing Layout - 2028 with Dev. Flows, AM

»Existing Layout - 2028 with Dev. Flows, PM

Summary of junction performance

	AM			PM		
	Q (PCU)	RFC	Junction Delay (s)	Q (PCU)	RFC	Junction Delay (s)
	Existing Layout - 2018 Surveyed Flows					
1 - B5295 Egremont Rd	0.3	0.25	15.49	0.3	0.23	27.21
2 - Homewood Rd	1.1	0.53		2.2	0.69	
3 - A595 Egremont Rd	6.1	0.87		14.7	0.97	
4 - A595	3.2	0.76		2.7	0.73	
	Existing Layout - 2028 Baseline Flows					
1 - B5295 Egremont Rd	0.5	0.31	25.71	0.4	0.27	61.17
2 - Homewood Rd	1.6	0.62		3.9	0.81	
3 - A595 Egremont Rd	12.6	0.96		45.4	1.06	
4 - A595	5.2	0.85		3.8	0.81	
	Existing Layout - 2028 with Dev. Flows					
1 - B5295 Egremont Rd	0.7	0.40	29.47	0.4	0.31	104.89
2 - Homewood Rd	1.9	0.66		4.4	0.83	
3 - A595 Egremont Rd	15.9	0.98		85.4	1.12	
4 - A595	5.7	0.86		4.3	0.82	

Values shown are the highest values encountered over all time segments. Delay is the maximum value of Av. delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted Av.s.

File summary

File Description

Title	(untitled)
Location	A595 / B5295 Egremont Road / Homewood Road roundabout
Site number	
Date	16/02/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	WYGlyujing.liu
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Av. delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perTimeSegment	s	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Q Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Av. Delay threshold (s)	Q threshold (PCU)
5.75				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	2018 Surveyed Flows	AM	DIRECT	08:00	09:00	60	15	✓
D2	2018 Surveyed Flows	PM	DIRECT	16:15	17:15	60	15	✓
D7	2028 Baseline Flows	AM	DIRECT	08:00	09:00	60	15	✓
D8	2028 Baseline Flows	PM	DIRECT	16:15	17:15	60	15	✓
D9	2028 with Dev. Flows	AM	DIRECT	08:00	09:00	60	15	✓
D10	2028 with Dev. Flows	PM	DIRECT	16:15	17:15	60	15	✓

Analysis Set Details

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

Existing Layout - 2018 Surveyed Flows , AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A595/B5295 Egremont Rd/Homewood Rd rdt	Standard Roundabout		1, 2, 3, 4	15.49	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	B5295 Egremont Rd	
2	Homewood Rd	
3	A595 Egremont Rd	
4	A595	

Roundabout Geometry

Arm	V (m)	E (m)	I' (m)	R (m)	D (m)	PHI (deg)	Exit only
1 - B5295 Egremont Rd	3.94	5.50	6.5	49.6	49.0	26.8	
2 - Homewood Rd	3.03	4.87	4.2	12.1	49.0	44.8	
3 - A595 Egremont Rd	3.97	4.98	18.6	9.9	49.0	36.0	
4 - A595	3.63	5.91	7.4	10.5	49.0	44.2	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/TS)
1 - B5295 Egremont Rd	0.590	379.830
2 - Homewood Rd	0.465	263.212
3 - A595 Egremont Rd	0.528	340.002
4 - A595	0.512	328.075

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	2018 Surveyed Flows	AM	DIRECT	08:00	09:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1 - B5295 Egremont Rd		DIRECT	✓	100.000
2 - Homewood Rd		DIRECT	✓	100.000
3 - A595 Egremont Rd		DIRECT	✓	100.000
4 - A595		DIRECT	✓	100.000

Origin-Destination Data

Demand (PCU/TS)

08:00 - 08:15		To				
	From		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
		1 - B5295 Egremont Rd	1.00	2.00	42.00	0.00
		2 - Homewood Rd	2.00	0.00	51.00	19.00
		3 - A595 Egremont Rd	51.00	17.00	4.00	142.00
		4 - A595	2.00	15.00	168.00	0.00

Demand (PCU/TS)

08:15 - 08:30		To				
	From		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
		1 - B5295 Egremont Rd	1.00	3.00	52.00	1.00
		2 - Homewood Rd	1.00	0.00	44.00	17.00
		3 - A595 Egremont Rd	74.00	28.00	1.00	164.00
		4 - A595	1.00	35.00	167.00	0.00

Demand (PCU/TS)

08:30 - 08:45		To				
	From		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
		1 - B5295 Egremont Rd	0.00	0.00	57.00	0.00
		2 - Homewood Rd	0.00	0.00	60.00	21.00
		3 - A595 Egremont Rd	74.00	42.00	4.00	167.00
		4 - A595	1.00	24.00	146.00	0.00

Demand (PCU/TS)

08:45 - 09:00		To				
	From		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
		1 - B5295 Egremont Rd	0.00	1.00	57.00	0.00
		2 - Homewood Rd	3.00	0.00	58.00	21.00
		3 - A595 Egremont Rd	55.00	42.00	6.00	130.00
		4 - A595	1.00	38.00	168.00	0.00

Vehicle Mix

HV %s

08:00 - 08:15		To				
	From		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
		1 - B5295 Egremont Rd	0	0	0	0
		2 - Homewood Rd	0	10	2	6
		3 - A595 Egremont Rd	2	0	0	2
		4 - A595	100	0	4	10

HV %s

08:15 - 08:30

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0	0	0	0
	2 - Homewood Rd	0	10	2	6
	3 - A595 Egremont Rd	3	4	0	5
	4 - A595	0	0	5	10

HV %s

08:30 - 08:45

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0	0	5	0
	2 - Homewood Rd	0	10	9	11
	3 - A595 Egremont Rd	0	2	0	2
	4 - A595	0	9	8	10

HV %s

08:45 - 09:00

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0	0	2	0
	2 - Homewood Rd	0	10	2	0
	3 - A595 Egremont Rd	6	2	0	5
	4 - A595	0	3	8	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/TS)	Total Junction Arrivals (PCU)
1 - B5295 Egremont Rd	0.25	5.32	0.3	A	54.25	217.00
2 - Homewood Rd	0.53	12.28	1.1	B	74.25	297.00
3 - A595 Egremont Rd	0.87	19.76	6.1	C	250.25	1001.00
4 - A595	0.76	14.04	3.2	B	191.50	766.00

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - B5295 Egremont Rd	45.00	45.00	202.05	260.62	0.173	44.79	55.51	0.0	0.2	4.167	A
2 - Homewood Rd	72.00	72.00	213.14	164.03	0.439	71.21	33.70	0.0	0.8	9.904	A
3 - A595 Egremont Rd	214.00	214.00	21.76	328.52	0.651	212.14	262.59	0.0	1.9	7.754	A
4 - A595	185.00	185.00	74.35	290.02	0.638	183.21	159.56	0.0	1.8	8.643	A

08:15 - 08:30

Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - B5295 Egremont Rd	57.00	57.00	229.72	244.30	0.233	56.91	76.31	0.2	0.3	4.801	A
2 - Homewood Rd	62.00	62.00	221.25	160.25	0.387	62.13	65.37	0.8	0.7	9.463	A
3 - A595 Egremont Rd	267.00	267.00	20.03	329.43	0.810	264.73	263.35	1.9	4.1	14.037	B
4 - A595	203.00	203.00	104.04	274.83	0.739	201.99	180.72	1.8	2.8	12.673	B

08:30 - 08:45

Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - B5295 Egremont Rd	57.00	57.00	216.30	252.21	0.226	56.99	74.60	0.3	0.3	4.841	A
2 - Homewood Rd	81.00	81.00	207.53	166.64	0.486	80.65	65.77	0.7	1.0	11.413	B
3 - A595 Egremont Rd	287.00	287.00	20.94	328.95	0.872	285.05	267.24	4.1	6.1	19.760	C
4 - A595	171.00	171.00	119.07	267.14	0.640	171.82	186.92	2.8	2.0	10.303	B

08:45 - 09:00

Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - B5295 Egremont Rd	58.00	58.00	253.24	230.41	0.252	57.97	59.89	0.3	0.3	5.321	A
2 - Homewood Rd	82.00	82.00	230.11	156.13	0.525	81.91	81.10	1.0	1.1	12.277	B
3 - A595 Egremont Rd	233.00	233.00	23.94	327.37	0.712	236.41	288.08	6.1	2.7	10.719	B
4 - A595	207.00	207.00	107.32	273.15	0.758	205.82	153.03	2.0	3.2	14.041	B

Existing Layout - 2018 Surveyed Flows , PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A595/B5295 Egremont Rd/Homewood Rd rdt	Standard Roundabout		1, 2, 3, 4	27.21	D

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D2	2018 Surveyed Flows	PM	DIRECT	16:15	17:15	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1 - B5295 Egremont Rd		DIRECT	✓	100.000
2 - Homewood Rd		DIRECT	✓	100.000
3 - A595 Egremont Rd		DIRECT	✓	100.000
4 - A595		DIRECT	✓	100.000

Origin-Destination Data

Demand (PCU/TS)

16:15 - 16:30

		To			
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0.00	0.00	37.00	0.00
	2 - Homewood Rd	5.00	0.00	63.00	44.00
	3 - A595 Egremont Rd	69.00	39.00	5.00	173.00
	4 - A595	0.00	10.00	166.00	0.00

Demand (PCU/TS)

16:30 - 16:45

		To			
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0.00	4.00	43.00	0.00
	2 - Homewood Rd	1.00	0.00	71.00	39.00
	3 - A595 Egremont Rd	56.00	27.00	3.00	184.00
	4 - A595	1.00	14.00	170.00	0.00

Demand (PCU/TS)

16:45 - 17:00

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0.00	3.00	45.00	1.00
	2 - Homewood Rd	0.00	0.00	81.00	31.00
	3 - A595 Egremont Rd	56.00	43.00	3.00	192.00
	4 - A595	2.00	11.00	164.00	0.00

Demand (PCU/TS)

17:00 - 17:15

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0.00	3.00	53.00	1.00
	2 - Homewood Rd	4.00	0.00	59.00	42.00
	3 - A595 Egremont Rd	65.00	27.00	4.00	210.00
	4 - A595	3.00	18.00	183.00	0.00

Vehicle Mix

HV %s

16:15 - 16:30

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0	0	3	0
	2 - Homewood Rd	67	0	2	2
	3 - A595 Egremont Rd	3	3	0	3
	4 - A595	0	0	2	0

HV %s

16:30 - 16:45

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0	33	0	0
	2 - Homewood Rd	0	0	1	0
	3 - A595 Egremont Rd	2	0	0	3
	4 - A595	0	0	4	0

HV %s

16:45 - 17:00

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0	0	0	0
	2 - Homewood Rd	0	0	0	0
	3 - A595 Egremont Rd	2	2	50	2
	4 - A595	0	0	1	0

HV %s

17:00 - 17:15

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0	0	0	0
	2 - Homewood Rd	0	0	5	0
	3 - A595 Egremont Rd	3	0	0	2
	4 - A595	50	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/TS)	Total Junction Arrivals (PCU)
1 - B5295 Egremont Rd	0.23	4.82	0.3	A	47.50	190.00
2 - Homewood Rd	0.69	19.76	2.2	C	110.00	440.00
3 - A595 Egremont Rd	0.97	43.50	14.7	E	289.00	1156.00
4 - A595	0.73	11.97	2.7	B	185.50	742.00

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - B5295 Egremont Rd	37.00	37.00	216.93	251.84	0.147	36.82	72.02	0.0	0.2	4.307	A
2 - Homewood Rd	112.00	112.00	205.93	167.39	0.669	110.01	47.82	0.0	2.0	15.787	C
3 - A595 Egremont Rd	286.00	286.00	48.13	314.61	0.909	278.15	267.81	0.0	7.9	22.070	C
4 - A595	176.00	176.00	114.81	269.32	0.654	174.14	211.47	0.0	1.9	9.459	A

16:30 - 16:45

Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - B5295 Egremont Rd	47.00	47.00	214.46	253.29	0.186	46.95	58.66	0.2	0.2	4.454	A
2 - Homewood Rd	111.00	111.00	216.02	162.69	0.682	110.91	45.39	2.0	2.1	17.400	C
3 - A595 Egremont Rd	270.00	270.00	40.12	318.84	0.847	271.63	286.81	7.9	6.2	20.273	C
4 - A595	185.00	185.00	88.19	282.94	0.654	184.94	223.56	1.9	1.9	9.512	A

16:45 - 17:00

Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - B5295 Egremont Rd	49.00	49.00	220.49	249.74	0.196	48.99	57.70	0.2	0.2	4.483	A
2 - Homewood Rd	112.00	112.00	213.04	164.07	0.683	111.98	56.43	2.1	2.1	17.239	C
3 - A595 Egremont Rd	294.00	294.00	32.16	323.03	0.910	291.84	292.86	6.2	8.4	27.097	D
4 - A595	177.00	177.00	101.09	276.34	0.641	177.10	222.91	1.9	1.8	9.164	A

17:00 - 17:15

Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - B5295 Egremont Rd	57.00	57.00	231.01	243.53	0.234	56.94	70.36	0.2	0.3	4.822	A
2 - Homewood Rd	105.00	105.00	240.15	151.46	0.693	104.86	47.80	2.1	2.2	19.760	C
3 - A595 Egremont Rd	306.00	306.00	46.60	315.42	0.970	299.65	298.41	8.4	14.7	43.504	E
4 - A595	204.00	204.00	98.20	277.82	0.734	203.18	248.05	1.8	2.7	11.973	B

Existing Layout - 2028 Baseline Flows, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A595/B5295 Egremont Rd/Homewood Rd rdt	Standard Roundabout		1, 2, 3, 4	25.71	D

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D7	2028 Baseline Flows	AM	DIRECT	08:00	09:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1 - B5295 Egremont Rd		DIRECT	✓	100.000
2 - Homewood Rd		DIRECT	✓	100.000
3 - A595 Egremont Rd		DIRECT	✓	100.000
4 - A595		DIRECT	✓	100.000

Origin-Destination Data

Demand (PCU/TS)

		To			
08:00 - 08:15	From		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd
		1 - B5295 Egremont Rd	1.00	2.00	50.00
		2 - Homewood Rd	2.00	0.00	56.00
		3 - A595 Egremont Rd	57.00	19.00	4.00
		4 - A595	2.00	16.00	183.00

Demand (PCU/TS)

		To			
08:15 - 08:30	From		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd
		1 - B5295 Egremont Rd	1.00	3.00	61.00
		2 - Homewood Rd	1.00	0.00	47.00
		3 - A595 Egremont Rd	82.00	31.00	1.00
		4 - A595	1.00	38.00	182.00

Demand (PCU/TS)

08:30 - 08:45

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0.00	0.00	66.00	0.00
	2 - Homewood Rd	0.00	0.00	65.00	22.00
	3 - A595 Egremont Rd	82.00	46.00	4.00	182.00
	4 - A595	1.00	26.00	159.00	0.00

Demand (PCU/TS)

08:45 - 09:00

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0.00	1.00	66.00	0.00
	2 - Homewood Rd	3.00	0.00	63.00	23.00
	3 - A595 Egremont Rd	61.00	46.00	7.00	142.00
	4 - A595	1.00	41.00	184.00	0.00

Vehicle Mix

HV %s

08:00 - 08:15

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0	0	0	0
	2 - Homewood Rd	0	10	2	6
	3 - A595 Egremont Rd	2	0	0	2
	4 - A595	100	0	4	10

HV %s

08:15 - 08:30

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0	0	0	0
	2 - Homewood Rd	0	10	2	6
	3 - A595 Egremont Rd	3	4	0	5
	4 - A595	0	0	5	10

HV %s

08:30 - 08:45

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0	0	5	0
	2 - Homewood Rd	0	10	9	11
	3 - A595 Egremont Rd	0	2	0	2
	4 - A595	0	9	8	10

HV %s

08:45 - 09:00

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0	0	2	0
	2 - Homewood Rd	0	10	2	0
	3 - A595 Egremont Rd	6	2	0	5
	4 - A595	0	3	8	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/TS)	Total Junction Arrivals (PCU)
1 - B5295 Egremont Rd	0.31	6.13	0.5	A	63.00	252.00
2 - Homewood Rd	0.62	16.28	1.6	C	80.00	320.00
3 - A595 Egremont Rd	0.96	36.35	12.6	E	274.50	1098.00
4 - A595	0.85	21.24	5.2	C	208.50	834.00

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - B5295 Egremont Rd	53.00	53.00	219.41	250.37	0.212	52.73	61.34	0.0	0.3	4.548	A
2 - Homewood Rd	78.00	78.00	235.55	153.60	0.508	76.97	36.60	0.0	1.0	11.938	B
3 - A595 Egremont Rd	235.00	235.00	22.70	328.02	0.716	232.52	289.81	0.0	2.5	9.367	A
4 - A595	201.00	201.00	82.12	286.05	0.703	198.63	173.10	0.0	2.4	10.463	B

08:15 - 08:30

Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - B5295 Egremont Rd	66.00	66.00	249.55	232.59	0.284	65.87	83.66	0.3	0.4	5.395	A
2 - Homewood Rd	66.00	66.00	244.52	149.43	0.442	66.20	70.90	1.0	0.8	11.170	B
3 - A595 Egremont Rd	293.00	293.00	21.05	328.90	0.891	288.48	289.68	2.5	7.0	21.193	C
4 - A595	221.00	221.00	114.13	269.66	0.820	219.08	195.39	2.4	4.3	17.830	C

08:30 - 08:45

Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - B5295 Egremont Rd	66.00	66.00	235.28	241.01	0.274	65.99	81.68	0.4	0.4	5.399	A
2 - Homewood Rd	87.00	87.00	230.01	156.18	0.557	86.50	71.26	0.8	1.3	14.042	B
3 - A595 Egremont Rd	314.00	314.00	21.91	328.44	0.956	308.37	294.60	7.0	12.6	36.355	E
4 - A595	186.00	186.00	129.43	261.83	0.710	187.53	200.85	4.3	2.8	13.369	B

08:45 - 09:00

Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - B5295 Egremont Rd	67.00	67.00	276.71	216.57	0.309	66.95	67.27	0.4	0.5	6.131	A
2 - Homewood Rd	89.00	89.00	255.10	144.50	0.616	88.76	88.55	1.3	1.6	16.279	C
3 - A595 Egremont Rd	256.00	256.00	25.88	326.35	0.784	264.58	317.99	12.6	4.0	17.083	C
4 - A595	226.00	226.00	120.46	266.43	0.848	223.53	170.01	2.8	5.2	21.240	C

Existing Layout - 2028 Baseline Flows, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A595/B5295 Egremont Rd/Homewood Rd rdt	Standard Roundabout		1, 2, 3, 4	61.17	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D8	2028 Baseline Flows	PM	DIRECT	16:15	17:15	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1 - B5295 Egremont Rd		DIRECT	✓	100.000
2 - Homewood Rd		DIRECT	✓	100.000
3 - A595 Egremont Rd		DIRECT	✓	100.000
4 - A595		DIRECT	✓	100.000

Origin-Destination Data

Demand (PCU/TS)

		To			
From		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
	1 - B5295 Egremont Rd	0.00	0.00	41.00	0.00
	2 - Homewood Rd	5.00	0.00	68.00	48.00
	3 - A595 Egremont Rd	77.00	42.00	5.00	188.00
	4 - A595	0.00	11.00	180.00	0.00

Demand (PCU/TS)

		To			
From		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
	1 - B5295 Egremont Rd	0.00	4.00	48.00	0.00
	2 - Homewood Rd	1.00	0.00	77.00	42.00
	3 - A595 Egremont Rd	62.00	29.00	3.00	200.00
	4 - A595	1.00	15.00	184.00	0.00

Demand (PCU/TS)

16:45 - 17:00

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0.00	3.00	50.00	1.00
	2 - Homewood Rd	0.00	0.00	88.00	34.00
	3 - A595 Egremont Rd	62.00	47.00	3.00	209.00
	4 - A595	2.00	12.00	178.00	0.00

Demand (PCU/TS)

17:00 - 17:15

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0.00	3.00	59.00	1.00
	2 - Homewood Rd	4.00	0.00	64.00	46.00
	3 - A595 Egremont Rd	72.00	29.00	4.00	228.00
	4 - A595	3.00	20.00	199.00	0.00

Vehicle Mix

HV %s

16:15 - 16:30

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0	0	3	0
	2 - Homewood Rd	67	0	2	2
	3 - A595 Egremont Rd	3	3	0	3
	4 - A595	0	0	2	0

HV %s

16:30 - 16:45

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0	33	0	0
	2 - Homewood Rd	0	0	1	0
	3 - A595 Egremont Rd	2	0	0	3
	4 - A595	0	0	4	0

HV %s

16:45 - 17:00

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0	0	0	0
	2 - Homewood Rd	0	0	0	0
	3 - A595 Egremont Rd	2	2	50	2
	4 - A595	0	0	1	0

HV %s

17:00 - 17:15

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0	0	0	0
	2 - Homewood Rd	0	0	5	0
	3 - A595 Egremont Rd	3	0	0	2
	4 - A595	50	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/TS)	Total Junction Arrivals (PCU)
1 - B5295 Egremont Rd	0.27	5.31	0.4	A	52.50	210.00
2 - Homewood Rd	0.81	32.27	3.9	D	119.25	477.00
3 - A595 Egremont Rd	1.06	110.25	45.4	F	315.00	1260.00
4 - A595	0.81	16.03	3.8	C	201.25	805.00

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - B5295 Egremont Rd	41.00	41.00	232.94	242.39	0.169	40.79	77.67	0.0	0.2	4.593	A
2 - Homewood Rd	121.00	121.00	223.17	159.36	0.759	118.04	50.56	0.0	3.0	21.287	C
3 - A595 Egremont Rd	312.00	312.00	51.70	312.73	0.998	294.93	289.51	0.0	17.1	37.460	E
4 - A595	191.00	191.00	122.09	265.59	0.719	188.51	224.54	0.0	2.5	11.553	B

16:30 - 16:45

Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - B5295 Egremont Rd	52.00	52.00	231.80	243.07	0.214	51.93	65.01	0.2	0.3	4.799	A
2 - Homewood Rd	120.00	120.00	235.04	153.84	0.780	119.67	48.69	3.0	3.3	25.968	D
3 - A595 Egremont Rd	294.00	294.00	43.12	317.25	0.927	295.48	311.59	17.1	15.6	46.393	E
4 - A595	200.00	200.00	96.90	278.49	0.718	199.91	241.70	2.5	2.6	11.850	B

16:45 - 17:00

Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - B5295 Egremont Rd	54.00	54.00	238.17	239.31	0.226	53.99	62.77	0.3	0.3	4.856	A
2 - Homewood Rd	122.00	122.00	232.01	155.25	0.786	121.84	60.15	3.3	3.4	26.590	D
3 - A595 Egremont Rd	321.00	321.00	35.21	321.42	0.999	313.12	318.64	15.6	23.5	65.617	F
4 - A595	192.00	192.00	108.82	272.38	0.705	192.12	239.51	2.6	2.5	11.340	B

17:00 - 17:15

Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - B5295 Egremont Rd	63.00	63.00	249.79	232.45	0.271	62.92	73.54	0.3	0.4	5.306	A
2 - Homewood Rd	114.00	114.00	261.43	141.56	0.805	113.58	51.28	3.4	3.9	32.270	D
3 - A595 Egremont Rd	333.00	333.00	50.26	313.48	1.062	311.02	324.75	23.5	45.4	110.250	F
4 - A595	222.00	222.00	102.72	275.50	0.806	220.62	258.56	2.5	3.8	16.033	C

Existing Layout - 2028 with Dev. Flows, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A595/B5295 Egremont Rd/Homewood Rd rdt	Standard Roundabout		1, 2, 3, 4	29.47	D

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D9	2028 with Dev. Flows	AM	DIRECT	08:00	09:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1 - B5295 Egremont Rd		DIRECT	✓	100.000
2 - Homewood Rd		DIRECT	✓	100.000
3 - A595 Egremont Rd		DIRECT	✓	100.000
4 - A595		DIRECT	✓	100.000

Origin-Destination Data

Demand (PCU/TS)

		To			
08:00 - 08:15	From		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd
		1 - B5295 Egremont Rd	1.00	2.00	70.00
		2 - Homewood Rd	2.00	0.00	56.00
		3 - A595 Egremont Rd	64.00	19.00	4.00
		4 - A595	2.00	16.00	183.00

Demand (PCU/TS)

		To			
08:15 - 08:30	From		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd
		1 - B5295 Egremont Rd	1.00	3.00	80.00
		2 - Homewood Rd	1.00	0.00	47.00
		3 - A595 Egremont Rd	89.00	31.00	1.00
		4 - A595	1.00	38.00	182.00

Demand (PCU/TS)

08:30 - 08:45

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0.00	0.00	86.00	0.00
	2 - Homewood Rd	0.00	0.00	65.00	22.00
	3 - A595 Egremont Rd	89.00	46.00	4.00	182.00
	4 - A595	1.00	26.00	159.00	0.00

Demand (PCU/TS)

08:45 - 09:00

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0.00	1.00	86.00	0.00
	2 - Homewood Rd	3.00	0.00	63.00	23.00
	3 - A595 Egremont Rd	68.00	46.00	7.00	142.00
	4 - A595	1.00	41.00	184.00	0.00

Vehicle Mix

HV %s

08:00 - 08:15

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0	0	0	0
	2 - Homewood Rd	0	10	2	6
	3 - A595 Egremont Rd	2	0	0	2
	4 - A595	100	0	4	10

HV %s

08:15 - 08:30

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0	0	0	0
	2 - Homewood Rd	0	10	2	6
	3 - A595 Egremont Rd	3	4	0	5
	4 - A595	0	0	5	10

HV %s

08:30 - 08:45

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0	0	5	0
	2 - Homewood Rd	0	10	9	11
	3 - A595 Egremont Rd	0	2	0	2
	4 - A595	0	9	8	10

HV %s

08:45 - 09:00

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0	0	2	0
	2 - Homewood Rd	0	10	2	0
	3 - A595 Egremont Rd	6	2	0	5
	4 - A595	0	3	8	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/TS)	Total Junction Arrivals (PCU)
1 - B5295 Egremont Rd	0.40	7.07	0.7	A	82.75	331.00
2 - Homewood Rd	0.66	19.37	1.9	C	80.00	320.00
3 - A595 Egremont Rd	0.98	43.66	15.9	E	281.50	1126.00
4 - A595	0.86	23.06	5.7	C	208.50	834.00

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - B5295 Egremont Rd	73.00	73.00	219.30	250.44	0.291	72.59	68.21	0.0	0.4	5.049	A
2 - Homewood Rd	78.00	78.00	255.32	144.40	0.540	76.83	36.58	0.0	1.2	13.491	B
3 - A595 Egremont Rd	242.00	242.00	22.66	328.04	0.738	239.26	309.48	0.0	2.7	10.034	B
4 - A595	201.00	201.00	88.98	282.54	0.711	198.54	172.94	0.0	2.5	10.866	B

08:15 - 08:30

Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - B5295 Egremont Rd	85.00	85.00	249.29	232.75	0.365	84.84	90.29	0.4	0.6	6.078	A
2 - Homewood Rd	66.00	66.00	263.36	140.66	0.469	66.24	70.77	1.2	0.9	12.501	B
3 - A595 Egremont Rd	300.00	300.00	21.05	328.89	0.912	294.48	308.54	2.7	8.3	24.126	C
4 - A595	221.00	221.00	120.67	266.32	0.830	218.91	194.87	2.5	4.6	18.920	C

08:30 - 08:45

Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - B5295 Egremont Rd	86.00	86.00	235.07	241.14	0.357	85.98	88.07	0.6	0.6	6.091	A
2 - Homewood Rd	87.00	87.00	250.07	146.84	0.592	86.41	70.98	0.9	1.5	16.145	C
3 - A595 Egremont Rd	321.00	321.00	21.90	328.45	0.977	313.38	314.58	8.3	15.9	43.664	E
4 - A595	186.00	186.00	135.48	258.74	0.719	187.66	199.80	4.6	2.9	14.017	B

08:45 - 09:00

Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - B5295 Egremont Rd	87.00	87.00	276.73	216.56	0.402	86.91	75.12	0.6	0.7	7.074	A
2 - Homewood Rd	89.00	89.00	274.82	135.33	0.658	88.67	88.82	1.5	1.9	19.373	C
3 - A595 Egremont Rd	263.00	263.00	25.84	326.37	0.806	274.21	337.65	15.9	4.7	21.179	C
4 - A595	226.00	226.00	128.66	262.23	0.862	223.19	171.39	2.9	5.7	23.064	C

Existing Layout - 2028 with Dev. Flows, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A595/B5295 Egremont Rd/Homewood Rd rdt	Standard Roundabout		1, 2, 3, 4	104.89	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D10	2028 with Dev. Flows	PM	DIRECT	16:15	17:15	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1 - B5295 Egremont Rd		DIRECT	✓	100.000
2 - Homewood Rd		DIRECT	✓	100.000
3 - A595 Egremont Rd		DIRECT	✓	100.000
4 - A595		DIRECT	✓	100.000

Origin-Destination Data

Demand (PCU/TS)

		To			
From		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
	1 - B5295 Egremont Rd	0.00	0.00	50.00	0.00
	2 - Homewood Rd	5.00	0.00	68.00	48.00
	3 - A595 Egremont Rd	94.00	42.00	5.00	188.00
	4 - A595	0.00	11.00	180.00	0.00

Demand (PCU/TS)

		To			
From		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
	1 - B5295 Egremont Rd	0.00	4.00	57.00	0.00
	2 - Homewood Rd	1.00	0.00	77.00	42.00
	3 - A595 Egremont Rd	80.00	29.00	3.00	200.00
	4 - A595	1.00	15.00	184.00	0.00

Demand (PCU/TS)

16:45 - 17:00

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0.00	3.00	59.00	1.00
	2 - Homewood Rd	0.00	0.00	88.00	34.00
	3 - A595 Egremont Rd	79.00	47.00	3.00	209.00
	4 - A595	2.00	12.00	178.00	0.00

Demand (PCU/TS)

17:00 - 17:15

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0.00	3.00	67.00	1.00
	2 - Homewood Rd	4.00	0.00	64.00	46.00
	3 - A595 Egremont Rd	89.00	29.00	4.00	228.00
	4 - A595	3.00	20.00	199.00	0.00

Vehicle Mix

HV %s

16:15 - 16:30

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0	0	3	0
	2 - Homewood Rd	67	0	2	2
	3 - A595 Egremont Rd	3	3	0	3
	4 - A595	0	0	2	0

HV %s

16:30 - 16:45

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0	33	0	0
	2 - Homewood Rd	0	0	1	0
	3 - A595 Egremont Rd	2	0	0	3
	4 - A595	0	0	4	0

HV %s

16:45 - 17:00

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0	0	0	0
	2 - Homewood Rd	0	0	0	0
	3 - A595 Egremont Rd	2	2	50	2
	4 - A595	0	0	1	0

HV %s

17:00 - 17:15

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0	0	0	0
	2 - Homewood Rd	0	0	5	0
	3 - A595 Egremont Rd	3	0	0	2
	4 - A595	50	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/TS)	Total Junction Arrivals (PCU)
1 - B5295 Egremont Rd	0.31	5.56	0.4	A	61.25	245.00
2 - Homewood Rd	0.83	36.57	4.4	E	119.25	477.00
3 - A595 Egremont Rd	1.12	200.45	85.4	F	332.25	1329.00
4 - A595	0.82	17.82	4.3	C	201.25	805.00

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - B5295 Egremont Rd	50.00	50.00	231.38	243.32	0.205	49.74	91.01	0.0	0.3	4.783	A
2 - Homewood Rd	121.00	121.00	231.78	155.36	0.779	117.75	49.33	0.0	3.2	23.164	C
3 - A595 Egremont Rd	329.00	329.00	51.58	312.79	1.052	301.50	297.95	0.0	27.5	51.879	F
4 - A595	191.00	191.00	134.08	259.45	0.736	188.30	219.00	0.0	2.7	12.460	B

16:30 - 16:45

Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - B5295 Egremont Rd	61.00	61.00	231.74	243.10	0.251	60.93	82.39	0.3	0.3	5.019	A
2 - Homewood Rd	120.00	120.00	243.98	149.68	0.802	119.56	48.69	3.2	3.7	29.217	D
3 - A595 Egremont Rd	312.00	312.00	43.10	317.26	0.983	310.05	320.44	27.5	29.5	88.019	F
4 - A595	200.00	200.00	114.32	269.57	0.742	199.82	238.83	2.7	2.9	13.320	B

16:45 - 17:00

Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - B5295 Egremont Rd	63.00	63.00	236.08	240.54	0.262	62.99	77.28	0.3	0.4	5.069	A
2 - Homewood Rd	122.00	122.00	240.98	151.07	0.808	121.80	58.08	3.7	3.9	30.159	D
3 - A595 Egremont Rd	338.00	338.00	35.23	321.42	1.052	319.17	327.55	29.5	48.3	119.580	F
4 - A595	192.00	192.00	121.18	266.06	0.722	192.18	233.23	2.9	2.7	12.340	B

17:00 - 17:15

Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - B5295 Egremont Rd	71.00	71.00	249.55	232.59	0.305	70.92	85.39	0.4	0.4	5.564	A
2 - Homewood Rd	114.00	114.00	269.04	138.02	0.826	113.53	51.42	3.9	4.4	36.573	E
3 - A595 Egremont Rd	350.00	350.00	50.17	313.53	1.116	312.90	332.40	48.3	85.4	200.454	F
4 - A595	222.00	222.00	114.51	269.47	0.824	220.43	248.56	2.7	4.3	17.816	C

Junctions 9						
ARCADY 9 - Roundabout Module						
Version: 9.5.1.7462 © Copyright TRL Limited, 2019						
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Filename: 04 Topo - J9 Mitigation Layout (Direct).j9

Path: J:\2017\A090070 - 270 and 410 - Harras Road, Harras Moor, Whitehaven\Jun. Ass\2021 Modelling\J9

Report generation date: 01/03/2021 13:43:58

»Mitigation Layout P013 - 2028 with Dev. Flows, AM

»Mitigation Layout P013 - 2028 with Dev. Flows, PM

Summary of junction performance

	AM			PM		
	Q (PCU)	RFC	Junction Delay (s)	Q (PCU)	RFC	Junction Delay (s)
Mitigation Layout P013 - 2028 with Dev. Flows						
1 - B5295 Egremont Rd	0.7	0.40	13.15	0.4	0.31	16.74
2 - Homewood Rd	1.9	0.66		4.4	0.83	
3 - A595 Egremont Rd	2.3	0.70		3.7	0.79	
4 - A595	5.4	0.85		4.7	0.84	

Values shown are the highest values encountered over all time segments. Delay is the maximum value of Av. delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted Av.s.

File summary

File Description

Title	(untitled)
Location	A595 / B5295 Egremont Road / Homewood Road roundabout
Site number	
Date	16/02/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	WYGlyujing.liu
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Av. delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perTimeSegment	s	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Q Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Av. Delay threshold (s)	Q threshold (PCU)
5.75				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
D9	2028 with Dev. Flows	AM	DIRECT	08:00	09:00	60	15	✓
D10	2028 with Dev. Flows	PM	DIRECT	16:15	17:15	60	15	✓

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Mitigation Layout P013	✓	100.000	100.000

Mitigation Layout P013 - 2028 with Dev. Flows, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A595/B5295 Egremont Rd/Homewood Rd rdt	Standard Roundabout		1, 2, 3, 4	13.15	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	B5295 Egremont Rd	
2	Homewood Rd	
3	A595 Egremont Rd	
4	A595	

Roundabout Geometry

Arm	V (m)	E (m)	I' (m)	R (m)	D (m)	PHI (deg)	Exit only
1 - B5295 Egremont Rd	3.94	5.50	6.5	49.6	49.0	26.8	
2 - Homewood Rd	3.03	4.87	4.2	12.1	49.0	44.8	
3 - A595 Egremont Rd	3.97	7.07	30.0	18.1	49.0	30.0	
4 - A595	3.63	5.91	7.4	10.5	49.0	44.2	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/TS)
1 - B5295 Egremont Rd	0.590	379.830
2 - Homewood Rd	0.465	263.212
3 - A595 Egremont Rd	0.649	474.764
4 - A595	0.512	328.075

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
D9	2028 with Dev. Flows	AM	DIRECT	08:00	09:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1 - B5295 Egremont Rd		DIRECT	✓	100.000
2 - Homewood Rd		DIRECT	✓	100.000
3 - A595 Egremont Rd		DIRECT	✓	100.000
4 - A595		DIRECT	✓	100.000

Origin-Destination Data

Demand (PCU/TS)

08:00 - 08:15		To				
	From		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
		1 - B5295 Egremont Rd	1.00	2.00	70.00	0.00
		2 - Homewood Rd	2.00	0.00	56.00	20.00
		3 - A595 Egremont Rd	64.00	19.00	4.00	155.00
		4 - A595	2.00	16.00	183.00	0.00

Demand (PCU/TS)

08:15 - 08:30		To				
	From		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
		1 - B5295 Egremont Rd	1.00	3.00	80.00	1.00
		2 - Homewood Rd	1.00	0.00	47.00	18.00
		3 - A595 Egremont Rd	89.00	31.00	1.00	179.00
		4 - A595	1.00	38.00	182.00	0.00

Demand (PCU/TS)

08:30 - 08:45		To				
	From		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
		1 - B5295 Egremont Rd	0.00	0.00	86.00	0.00
		2 - Homewood Rd	0.00	0.00	65.00	22.00
		3 - A595 Egremont Rd	89.00	46.00	4.00	182.00
		4 - A595	1.00	26.00	159.00	0.00

Demand (PCU/TS)

08:45 - 09:00		To				
	From		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
		1 - B5295 Egremont Rd	0.00	1.00	86.00	0.00
		2 - Homewood Rd	3.00	0.00	63.00	23.00
		3 - A595 Egremont Rd	68.00	46.00	7.00	142.00
		4 - A595	1.00	41.00	184.00	0.00

Vehicle Mix

HV %s

08:00 - 08:15		To				
	From		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
		1 - B5295 Egremont Rd	0	0	0	0
		2 - Homewood Rd	0	10	2	6
		3 - A595 Egremont Rd	2	0	0	2
		4 - A595	100	0	4	10

HV %s
08:15 - 08:30

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0	0	0	0
	2 - Homewood Rd	0	10	2	6
	3 - A595 Egremont Rd	3	4	0	5
	4 - A595	0	0	5	10

HV %s
08:30 - 08:45

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0	0	5	0
	2 - Homewood Rd	0	10	9	11
	3 - A595 Egremont Rd	0	2	0	2
	4 - A595	0	9	8	10

HV %s
08:45 - 09:00

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0	0	2	0
	2 - Homewood Rd	0	10	2	0
	3 - A595 Egremont Rd	6	2	0	5
	4 - A595	0	3	8	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/TS)	Total Junction Arrivals (PCU)
1 - B5295 Egremont Rd	0.40	7.04	0.7	A	82.75	331.00
2 - Homewood Rd	0.66	19.41	1.9	C	80.00	320.00
3 - A595 Egremont Rd	0.70	6.50	2.3	A	281.50	1126.00
4 - A595	0.85	22.17	5.4	C	208.50	834.00

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - B5295 Egremont Rd	73.00	73.00	219.45	250.35	0.292	72.59	68.64	0.0	0.4	5.052	A
2 - Homewood Rd	78.00	78.00	255.34	144.39	0.540	76.83	36.70	0.0	1.2	13.492	B
3 - A595 Egremont Rd	242.00	242.00	22.66	460.05	0.526	240.88	309.50	0.0	1.1	4.160	A
4 - A595	201.00	201.00	89.56	282.24	0.712	198.53	173.98	0.0	2.5	10.901	B

08:15 - 08:30

Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - B5295 Egremont Rd	85.00	85.00	249.73	232.49	0.366	84.84	91.75	0.4	0.6	6.089	A
2 - Homewood Rd	66.00	66.00	263.29	140.69	0.469	66.24	71.28	1.2	0.9	12.496	B
3 - A595 Egremont Rd	300.00	300.00	21.05	461.09	0.651	299.21	308.47	1.1	1.9	5.769	A
4 - A595	221.00	221.00	122.65	265.31	0.833	218.83	197.62	2.5	4.6	19.260	C

08:30 - 08:45

Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - B5295 Egremont Rd	86.00	86.00	236.52	240.28	0.358	85.98	89.96	0.6	0.6	6.122	A
2 - Homewood Rd	87.00	87.00	250.23	146.77	0.593	86.40	72.27	0.9	1.5	16.163	C
3 - A595 Egremont Rd	321.00	321.00	21.90	460.55	0.697	320.62	314.74	1.9	2.3	6.502	A
4 - A595	186.00	186.00	138.80	257.04	0.724	187.68	203.72	4.6	3.0	14.374	B

08:45 - 09:00

Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - B5295 Egremont Rd	87.00	87.00	275.59	217.23	0.401	86.92	72.19	0.6	0.7	7.037	A
2 - Homewood Rd	89.00	89.00	275.01	135.24	0.658	88.67	87.50	1.5	1.9	19.409	C
3 - A595 Egremont Rd	263.00	263.00	25.84	457.98	0.574	263.86	337.84	2.3	1.4	4.869	A
4 - A595	226.00	226.00	124.27	264.48	0.855	223.51	165.43	3.0	5.4	22.166	C

Mitigation Layout P013 - 2028 with Dev. Flows, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A595/B5295 Egremont Rd/Homewood Rd rdt	Standard Roundabout		1, 2, 3, 4	16.74	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D10	2028 with Dev. Flows	PM	DIRECT	16:15	17:15	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1 - B5295 Egremont Rd		DIRECT	✓	100.000
2 - Homewood Rd		DIRECT	✓	100.000
3 - A595 Egremont Rd		DIRECT	✓	100.000
4 - A595		DIRECT	✓	100.000

Origin-Destination Data

Demand (PCU/TS)

16:15 - 16:30

		To			
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0.00	0.00	50.00	0.00
	2 - Homewood Rd	5.00	0.00	68.00	48.00
	3 - A595 Egremont Rd	94.00	42.00	5.00	188.00
	4 - A595	0.00	11.00	180.00	0.00

Demand (PCU/TS)

16:30 - 16:45

		To			
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0.00	4.00	57.00	0.00
	2 - Homewood Rd	1.00	0.00	77.00	42.00
	3 - A595 Egremont Rd	80.00	29.00	3.00	200.00
	4 - A595	1.00	15.00	184.00	0.00

Demand (PCU/TS)

16:45 - 17:00

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0.00	3.00	59.00	1.00
	2 - Homewood Rd	0.00	0.00	88.00	34.00
	3 - A595 Egremont Rd	79.00	47.00	3.00	209.00
	4 - A595	2.00	12.00	178.00	0.00

Demand (PCU/TS)

17:00 - 17:15

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0.00	3.00	67.00	1.00
	2 - Homewood Rd	4.00	0.00	64.00	46.00
	3 - A595 Egremont Rd	89.00	29.00	4.00	228.00
	4 - A595	3.00	20.00	199.00	0.00

Vehicle Mix

HV %s

16:15 - 16:30

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0	0	3	0
	2 - Homewood Rd	67	0	2	2
	3 - A595 Egremont Rd	3	3	0	3
	4 - A595	0	0	2	0

HV %s

16:30 - 16:45

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0	33	0	0
	2 - Homewood Rd	0	0	1	0
	3 - A595 Egremont Rd	2	0	0	3
	4 - A595	0	0	4	0

HV %s

16:45 - 17:00

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0	0	0	0
	2 - Homewood Rd	0	0	0	0
	3 - A595 Egremont Rd	2	2	50	2
	4 - A595	0	0	1	0

HV %s

17:00 - 17:15

	To				
		1 - B5295 Egremont Rd	2 - Homewood Rd	3 - A595 Egremont Rd	4 - A595
From	1 - B5295 Egremont Rd	0	0	0	0
	2 - Homewood Rd	0	0	5	0
	3 - A595 Egremont Rd	3	0	0	2
	4 - A595	50	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/TS)	Total Junction Arrivals (PCU)
1 - B5295 Egremont Rd	0.31	5.58	0.4	A	61.25	245.00
2 - Homewood Rd	0.83	36.70	4.4	E	119.25	477.00
3 - A595 Egremont Rd	0.79	9.78	3.7	A	332.25	1329.00
4 - A595	0.84	19.79	4.7	C	201.25	805.00

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - B5295 Egremont Rd	50.00	50.00	234.68	241.37	0.207	49.73	98.03	0.0	0.3	4.830	A
2 - Homewood Rd	121.00	121.00	231.95	155.28	0.779	117.75	52.46	0.0	3.3	23.203	C
3 - A595 Egremont Rd	329.00	329.00	51.58	441.28	0.746	326.09	298.12	0.0	2.9	7.857	A
4 - A595	191.00	191.00	144.62	254.06	0.752	188.10	233.04	0.0	2.9	13.371	B

16:30 - 16:45

Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - B5295 Egremont Rd	61.00	61.00	231.13	243.46	0.251	60.93	82.30	0.3	0.3	5.009	A
2 - Homewood Rd	120.00	120.00	243.99	149.67	0.802	119.57	48.07	3.3	3.7	29.230	D
3 - A595 Egremont Rd	312.00	312.00	43.10	446.78	0.698	312.49	320.45	2.9	2.4	6.891	A
4 - A595	200.00	200.00	113.48	270.00	0.741	199.95	242.11	2.9	3.0	13.316	B

16:45 - 17:00

Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - B5295 Egremont Rd	63.00	63.00	239.95	238.25	0.264	62.98	80.95	0.3	0.4	5.135	A
2 - Homewood Rd	122.00	122.00	241.07	151.03	0.808	121.79	61.87	3.7	3.9	30.194	D
3 - A595 Egremont Rd	338.00	338.00	35.23	451.89	0.748	337.48	327.63	2.4	2.9	8.002	A
4 - A595	192.00	192.00	128.78	262.17	0.732	192.13	243.93	3.0	2.8	13.004	B

17:00 - 17:15

Arm	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Circulating flow (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Throughput (exit) (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - B5295 Egremont Rd	71.00	71.00	250.20	232.21	0.306	70.92	95.56	0.4	0.4	5.577	A
2 - Homewood Rd	114.00	114.00	269.27	137.91	0.827	113.52	51.85	3.9	4.4	36.698	E
3 - A595 Egremont Rd	350.00	350.00	50.16	442.19	0.792	349.24	332.62	2.9	3.7	9.785	A
4 - A595	222.00	222.00	125.68	263.76	0.842	220.08	273.72	2.8	4.7	19.785	C