

East Lancashire Paper Mill, Radcliffe

Highways Response

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Client:	Morris Homes	Job No:	327112
Date:	08 July 2024	File Name:	TN02
Prepared by:	LJ	Approved by:	ME

1. Introduction

- 1.1.1 This Technical Note (TN) has been produced by Mode Transport Planning ('Mode'), on behalf of Morris Homes, in relation to a reserved matters application (ref 70284) for 400 residential dwellings at the former East Lancs Paper Mill (ELPM) in Radcliffe.
- 1.1.2 This note (TN02) has been prepared in response to comments received from Bury Metropolitan Borough Council (BMBC) Highways in an email dated 4th March 2024, specifically relating to the location of the proposed private accesses under plots 136 and 205.

2. BMBC Highways Comments

2.1 BMBC Highways Comment

"The accesses under Plots 136 & 205 are located too close to the Cross Lane junction and would conflict with right turn queuing traffic and the proposed hatching, and therefore need to be reconsidered."

3. Mode Response

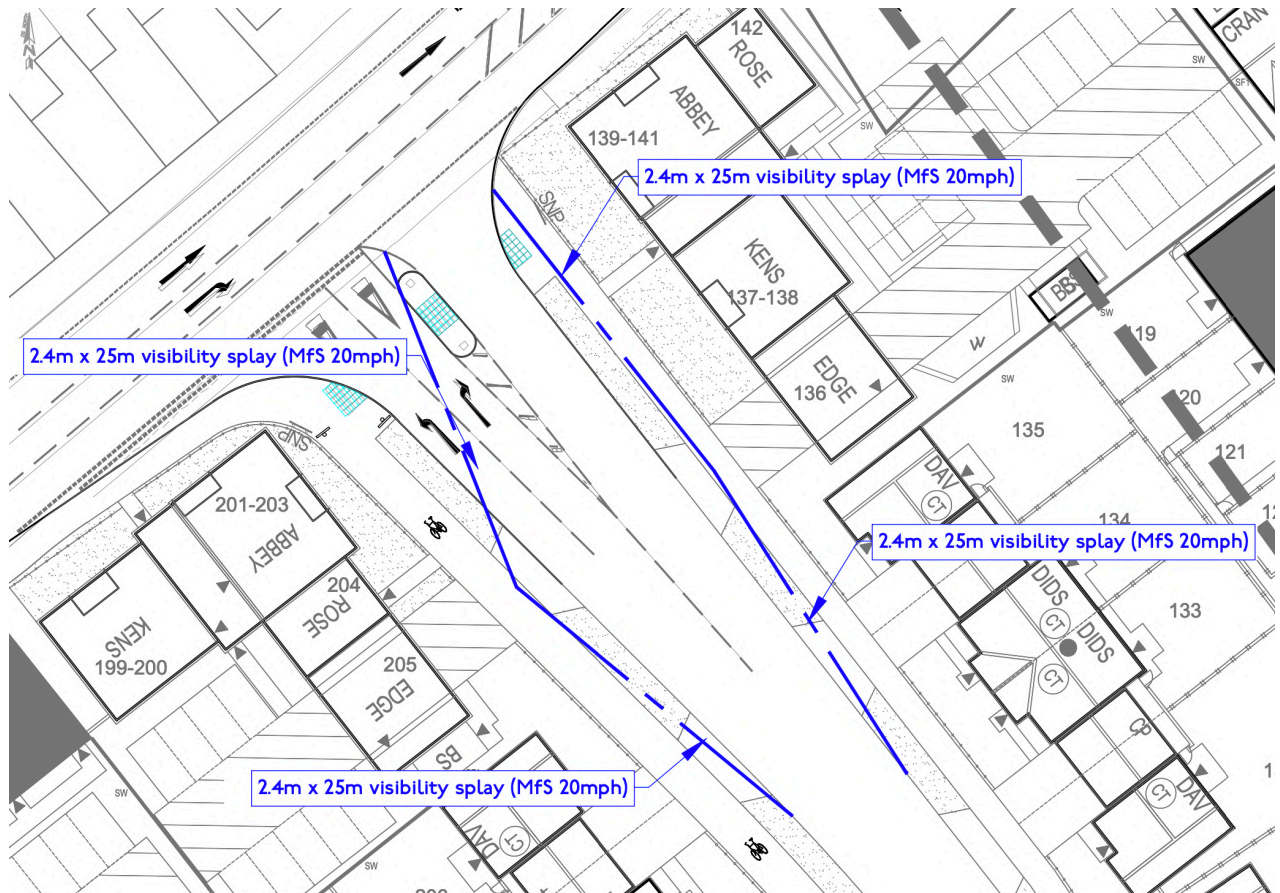
3.1 Introduction

- 3.1.1 A review of the proposed site access location has been undertaken in respect of visibility splays and expected levels of queueing at the access during the AM and PM peak periods.

3.2 Visibility Assessment

- 3.2.1 For the design speed of 20mph, the required visibility splays of 2.4m x 25m in accordance with Manual for Streets (MfS) can be achieved. The required visibility splays are shown in [Figure 3.1](#) and attached in **Drawing J32-7122-PS-004** attached in [Appendix A](#).

Figure 3.1 : Visibility Splays for Access under Plot 136 & 205



3.2.2 Furthermore, the extremity of the splays towards the Cross Lane Access are close to the junction where it is likely that vehicles will be travelling below the design speed of 20mph, thereby making the achievable visibility splays more than adequate and preventing any concerns with regards to highways safety.

3.3 Junction Capacity Assessment

3.3.1 A PICADY assessment has been undertaken at the proposed site access / Cross Lane priority junction to demonstrate that the impact of queueing traffic from the give way line would have a negligible impact on vehicles accessing / egressing the proposed accesses under plots 136 and 205.

Trip Generation

3.3.2 The traffic impact of the development was included in the Transport Assessment (TA), produced by WYG, submitted in support of the approved outline planning application (ref 62969). The TA included a trip generation assessment to quantify the number vehicle trips generated by 440 residential dwellings during the AM and PM peak periods.

3.3.3 The approved trip rates have been replicated in [Table 3.1](#).

Table 3.1 : Approved Trip Rates

TRICS Land Use Category	AM Peak Hour (08:00-09:00)			PM Peak Hour (17:00-18:00)		
	Arrive	Depart	Total	Arrive	Depart	Total
Approved Trip Rates <i>Residential – Houses Privately Owned</i>	0.157	0.338	0.495	0.301	0.179	0.480
Proposed Development (440no. units)	69	149	218	132	79	211

3.3.4 The approved future year with development traffic flows at the proposed site access were attached in Figure 8 and Figure 9 in the approved TA and have been utilised for this assessment.

3.3.5 It should be noted that each of the accesses under plots 136 and 205 are expected to serve 4no. dwellings each. Based on the approved trip rates in [Table 3.1](#), it is anticipated that each access would generate 2no. two-way trips during each peak hour. As such, it is expected that the access would generate a combined total of 4no. two-way trips during each peak period. This equates to 1 trip every 15 minutes on average during the peak hours.

3.3.6 It should also be noted that the junction capacity assessment does not consider the presence of the western site access, with no reduction accounted for in the trip generation. It is reasonable to assume that the western access would remove a proportion of the overall traffic generated at the site and as such, this represents a robust worse-case assessment whereby all traffic would route via the eastern access on Cross Lane.

Assessment Scenarios

3.3.7 For the purposes of this assessment, the junction capacity analysis considered the following scenarios during the weekday AM and PM peak hours.

- 2023 base + development (approved);
- 2029 base + development (sensitivity);

Future Year Traffic Growth

3.3.8 To robustly represent future traffic conditions on the local highway network, TEMPRO v8.0 calibrated with the Regional Transport Model (RTM 18) dataset has been used to generate traffic growth factors specific to the site's MSOA, 'Bury 015' for the weekday AM and PM peak periods.

3.3.9 Future year growth factors were applied to the 2023 base flows to generate future baseline flows for 2029.

3.3.10 A summary of the AM and PM peak period TEMPRO growth factors is shown in [Table 3.2](#).

Table 3.2 : TEMPRO Growth Factors (Bury 015 MSOA)

Day / Time Period	2023 - 2029
Weekday AM Period	1.0517
Weekday PM Period	1.0512

Assessment Tools

3.3.11 The industry standard traffic software package Junctions 9 (PICADY) has been used to model the site access / Cross Lane

3.3.12 As an assessment tool, PICADY results are typically reported for the following performance statistics:

- Ratio of Flow to Capacity (RFC):
- Max Queue in PCUs; and
- Delay in seconds per PCU

3.3.13 A Ratio of Flow to Capacity (RFC) value of 0.85 or less typically demonstrates that a junction arm or turning movement is operating within practical capacity and is therefore unlikely to experience regular queuing. However, junctions that are operating between 0.85 and 1.00 are considered to be operating within theoretical capacity. Any junction operating over 1.00 is considered to be operating outside of typically acceptable thresholds of capacity.

3.3.14 The queue results are measured in Passenger Car Units (PCU) and the delay results are measured in seconds per vehicle.

Assessment Results

3.3.15 A summary of the junction capacity results at the site access / Cross Lane junction for the are summarised in [Table 3.3](#), with the full PICADY outputs included in [Appendix B](#).

Table 3.3 : Site Access / Cross Lane – Capacity Assessment Results

Arm	Weekday AM Peak			Weekday PM Peak		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
2023 base + development (approved)						
Site Access	0.5	10.18	0.32	0.2	8.28	0.17
Cross Lane	0.1	5.92	0.07	0.2	6.32	0.13
2029 base + development (sensitivity)						
Site Access	0.5	10.36	0.32	0.2	8.38	0.17
Cross Lane	0.1	5.96	0.07	0.2	6.36	0.13

3.3.16 As shown in **Table 3.3**, in the worst case 2029 with development scenarios for the proposed access, both the right and left turn movements from the site access are expected to result in a maximum queue of 0.5 PCU. This equates to c.3m. On the basis that the proposed accesses under plots 136 and 205 are located c.25m from the give way line, it is not anticipated that the forecast queue from the site access / Cross Lane junction would impact vehicle movements or visibility splays from these proposed private accesses.

3.3.17 As such, it is considered that the location of the proposed accesses under plots 136 and 205 remains acceptable.

4. Summary

4.1 Summary

4.1.1 In response to comments by BMBC Highways, this note demonstrates that the private accesses under plots 136 and 205 achieve the required visibility splays.

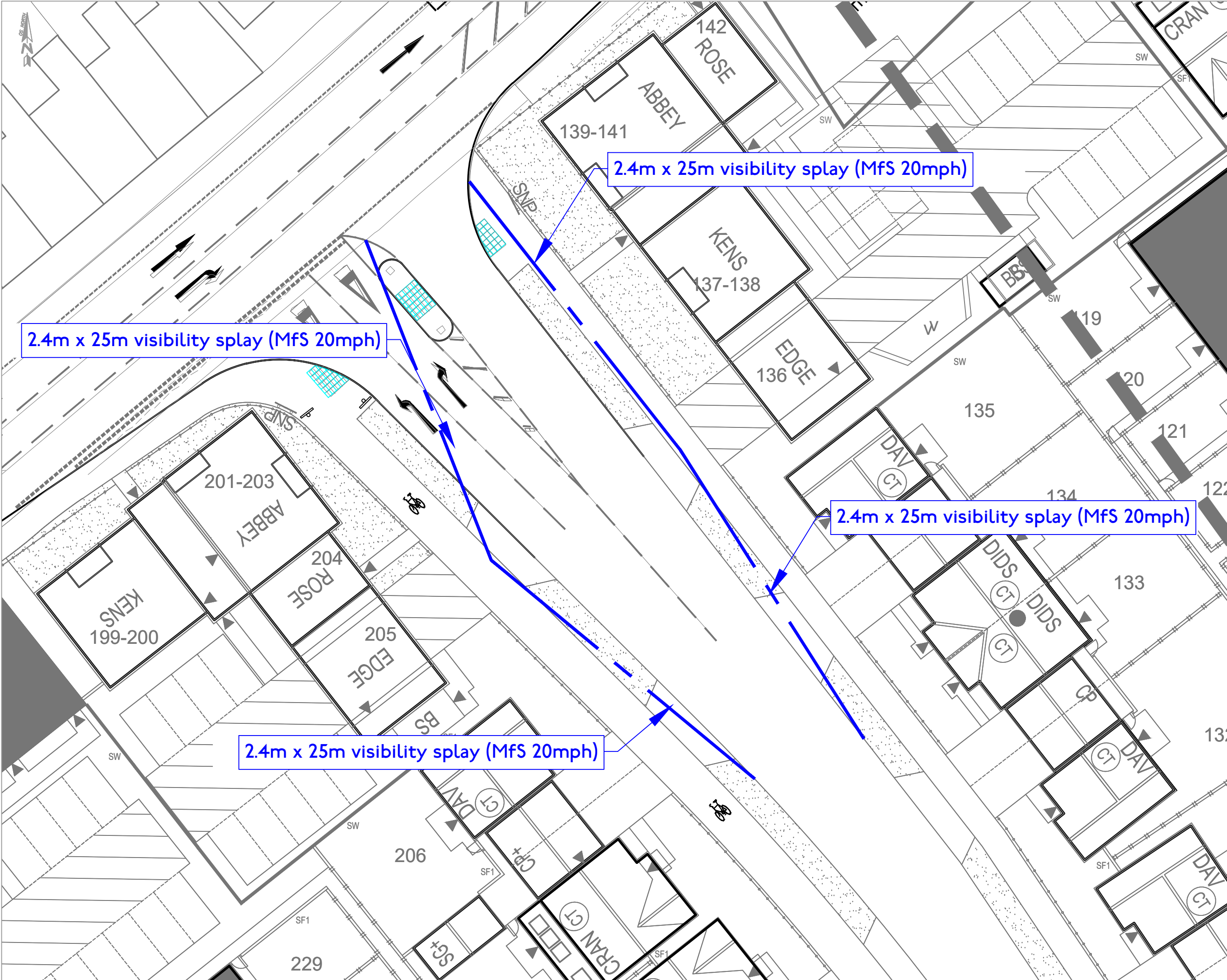
4.1.2 Junction modelling of the site access junction demonstrates that queuing at the site access junction is not anticipated to impact the required visibility splays or result in conflicts between queueing traffic at the access and vehicles egressing / accessing via the private accesses under plots 136 and 205.

4.1.3 It is therefore considered that the proposed accesses are in a safe and suitable location.

APPENDIX A

Visibility Splays

File name: C:\Users\WINDOWS\mode\PROJECTS\J327112_EAST LANCASHIRE PAPER MILL\1.5 GRAPHICS\J327112_PS-001 REV B.DWG
Last saved by: WINDOWS
Last plotted: 2024-07-08
Project Management Initials: Designer: LCW Checked: MA Approved: ME
ISO A3 297mm x 420mm



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- notes:
1. this drawing is to be read in conjunction with all other relevant drawings, any discrepancies, errors or omissions to be brought to the attention of overseeing organisation.
 2. all dimensions to be checked before commencement of work on site.
 3. all dimensions in metres unless otherwise stated.
 4. the design is subject to approval of bury council.
 5. drawing based on topographical survey.

issue/revision		
-	08/07/2024	issued
l/r	date	description

client: morris homes
project: east lancashire paper mill
project number: J327112
scale: 1:200@A3
drawing title:
plot 136 & 205 junction visibility splays
drawing number:
J32-7112-PS-004

APPENDIX B

PICADY Outputs

Junctions 9											
PICADY 9 - Priority Intersection Module											
Version: 9.5.1.7462 © Copyright TRL Limited, 2019											
For sales and distribution information, program advice and maintenance, contact TRL: +44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk											
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution											

Filename: Site Access_Cross Lane.j9

Path: C:\Users\Windows\mode Dropbox\Project\Manchester\2. Projects\J327112_East Lancs Paper Mill\4. Data\6. Junction Capacity Assessments

Report generation date: 05/07/2024 15:49:27

«2029 Base + Dev, AM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Results

Summary of junction performance

	AM						PM					
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
	2023 Base + Dev											
Stream B-AC	D1	0.5	10.18	0.32	B	83 %	D2	0.2	8.28	0.17	A	143 %
Stream C-B		0.1	5.92	0.07	A	[Stream B-AC]		0.2	6.32	0.13	A	[Stream B-AC]
	2029 Base + Dev											
Stream B-AC	D3	0.5	10.36	0.32	B	79 %	D4	0.2	8.38	0.17	A	137 %
Stream C-B		0.1	5.96	0.07	A	[Stream B-AC]		0.2	6.36	0.13	A	[Stream B-AC]

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	
Location	
Site number	
Date	05/07/2024
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	DESKTOP-P980MS0\Windows
Description	

Units

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

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75			✓	Delay	0.85	36.00	20.00

Analysis Set Details

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

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2029 Base + Dev	AM	ONE HOUR	07:30	09:00	15	✓

2029 Base + Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		2.11	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	79	Stream B-AC

Arms

Arms

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

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	6.00		✓	2.50	250.0		-

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	4.00	26	44

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	558	0.102	0.257	0.162	0.367
B-C	717	0.110	0.278	-	-
C-B	742	0.288	0.288	-	-

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

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

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

Traffic Demand

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	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	293	100.000
B		ONE HOUR	✓	149	100.000
C		ONE HOUR	✓	406	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	28	265
	B	60	0	89
	C	365	41	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.32	10.36	0.5	B	137	205
C-A					335	502
C-B	0.07	5.96	0.1	A	38	56
A-B					26	39
A-C					243	365

Main Results for each time segment

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	112	28	555	0.202	111	0.0	0.3	8.098	A
C-A	275	69			275				
C-B	31	8	679	0.045	31	0.0	0.0	5.553	A
A-B	21	5			21				
A-C	200	50			200				

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	134	33	537	0.250	134	0.3	0.3	8.921	A
C-A	328	82			328				
C-B	37	9	666	0.055	37	0.0	0.1	5.717	A
A-B	25	6			25				
A-C	238	60			238				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	164	41	512	0.321	164	0.3	0.5	10.325	B
C-A	402	100			402				
C-B	45	11	649	0.070	45	0.1	0.1	5.956	A
A-B	31	8			31				
A-C	292	73			292				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	164	41	512	0.321	164	0.5	0.5	10.357	B
C-A	402	100			402				
C-B	45	11	649	0.070	45	0.1	0.1	5.956	A
A-B	31	8			31				
A-C	292	73			292				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	134	33	537	0.250	134	0.5	0.3	8.961	A
C-A	328	82			328				
C-B	37	9	666	0.055	37	0.1	0.1	5.718	A
A-B	25	6			25				
A-C	238	60			238				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	112	28	555	0.202	112	0.3	0.3	8.148	A
C-A	275	69			275				
C-B	31	8	679	0.045	31	0.1	0.0	5.558	A
A-B	21	5			21				
A-C	200	50			200				