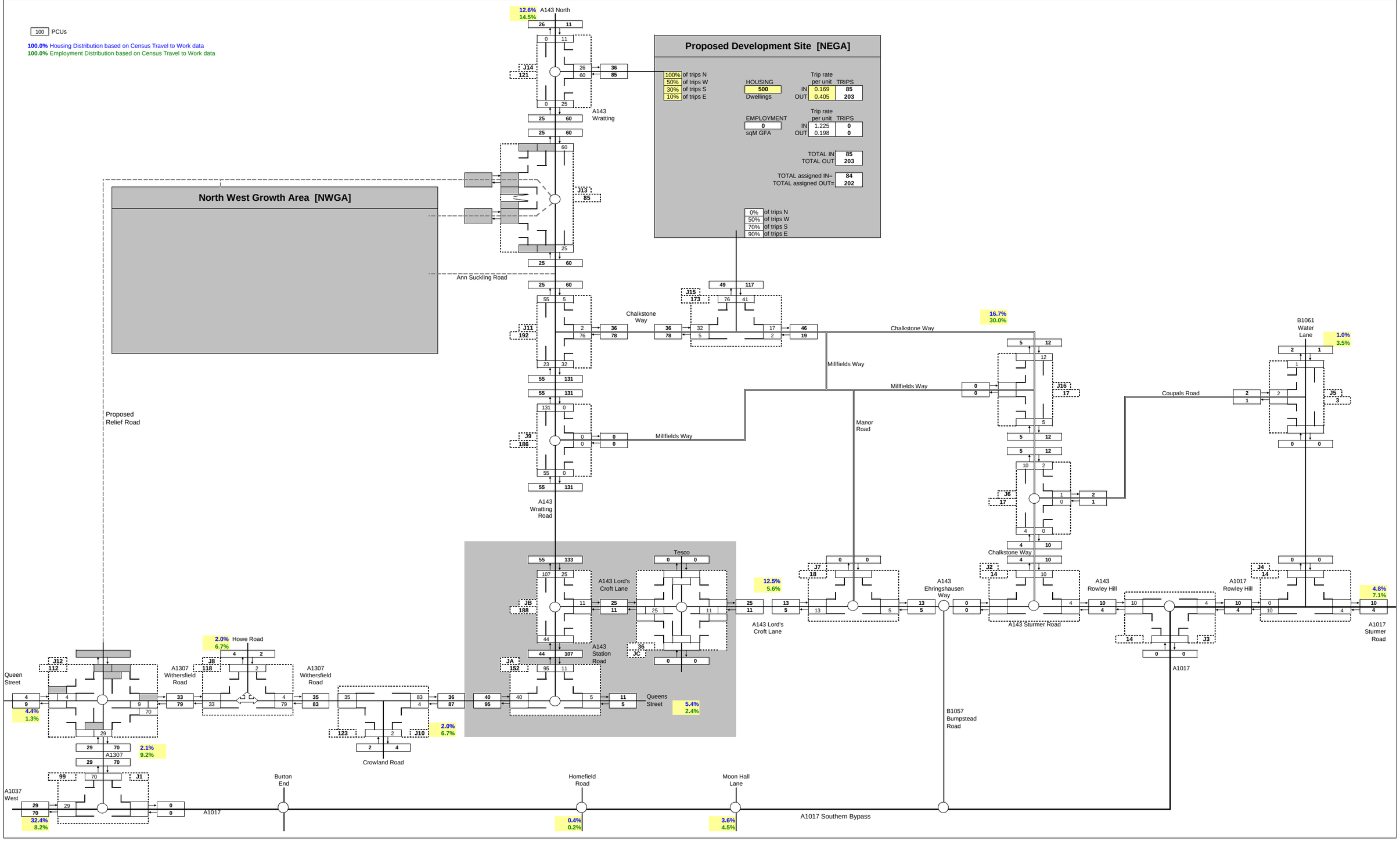
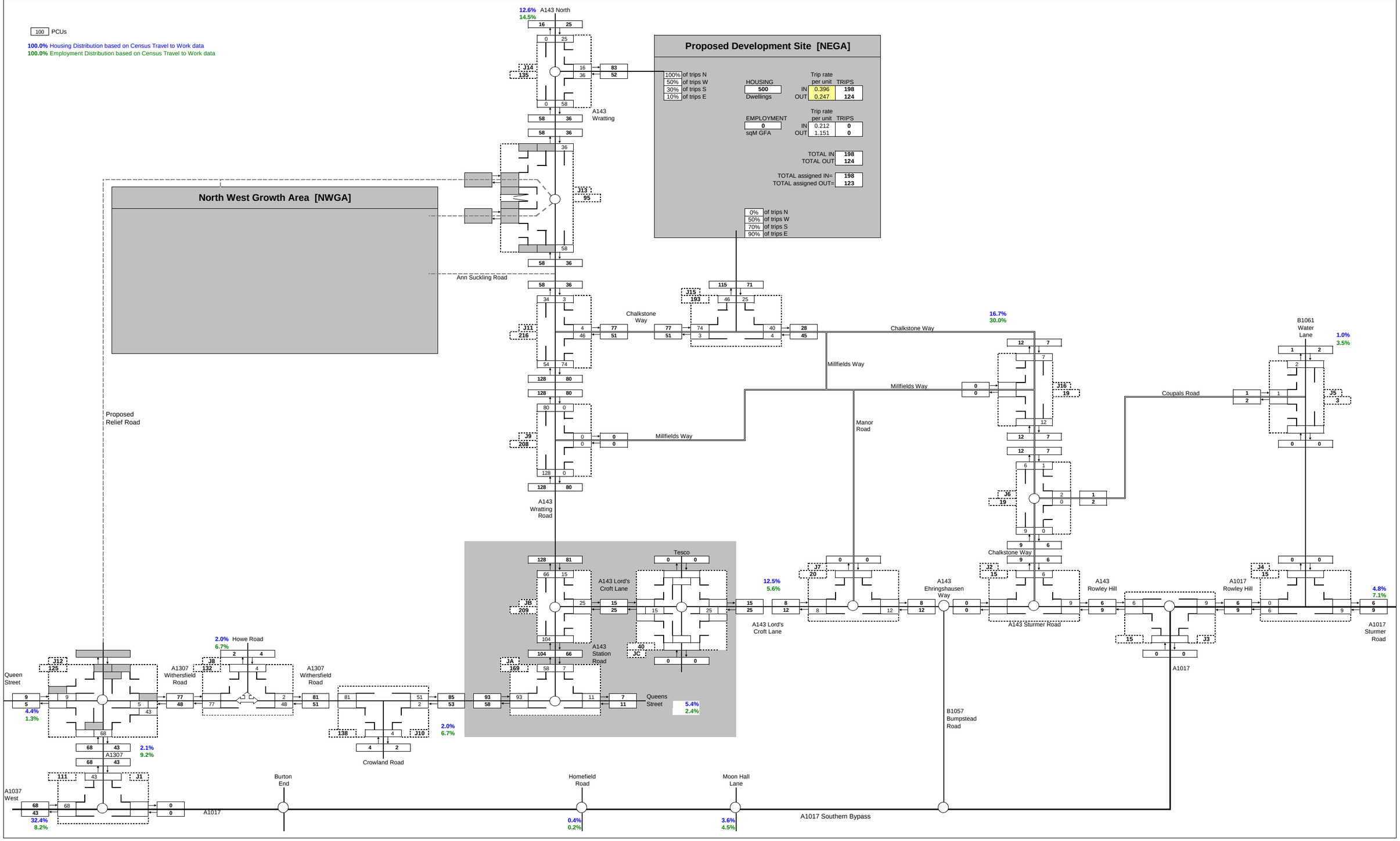
Client:	**Hallam Land Management & Commercial Estates Group**	Prepared by: S.M.T.	Brookbanks Consulting
Job:	**10173 Land at Haverhill**	16/04/2015	
Title:	**AM Peak NEGA Traffic Flows [PCUs]**	**Figure 11a**	© Brookbanks Consulting Limited 2015



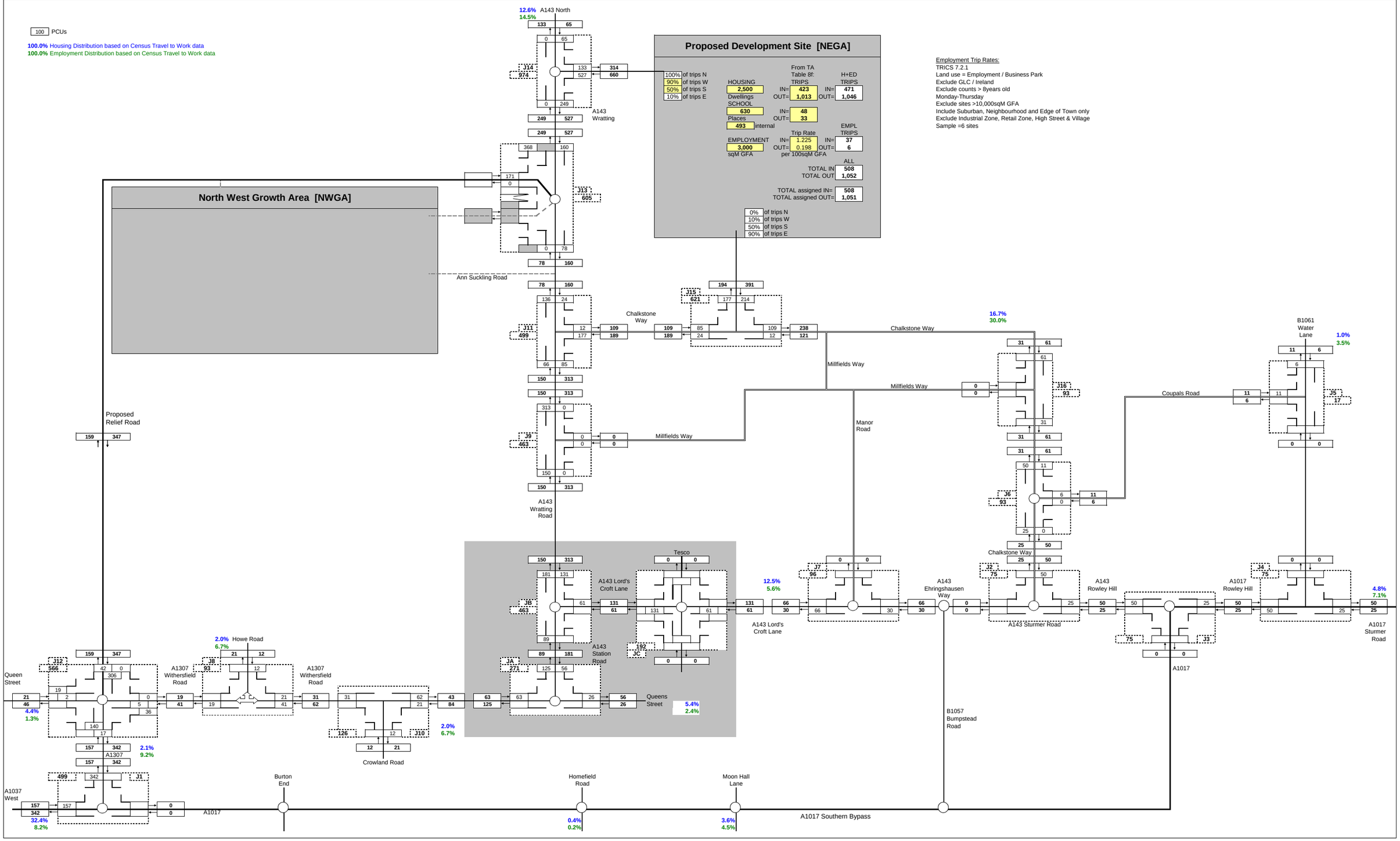
FILE="10173x07-TA Traffic Flows Rev3b~NEGA Ph1" SMT 16/04/2015

Client:	**Hallam Land Management & Commercial Estates Group**	Prepared by: S.M.T.	Brookbanks Consulting
Job:	**10173 Land at Haverhill**	16/04/2015	
Title:	**PM Peak NEGA Traffic Flows [PCUs]**	**Figure 11p**	

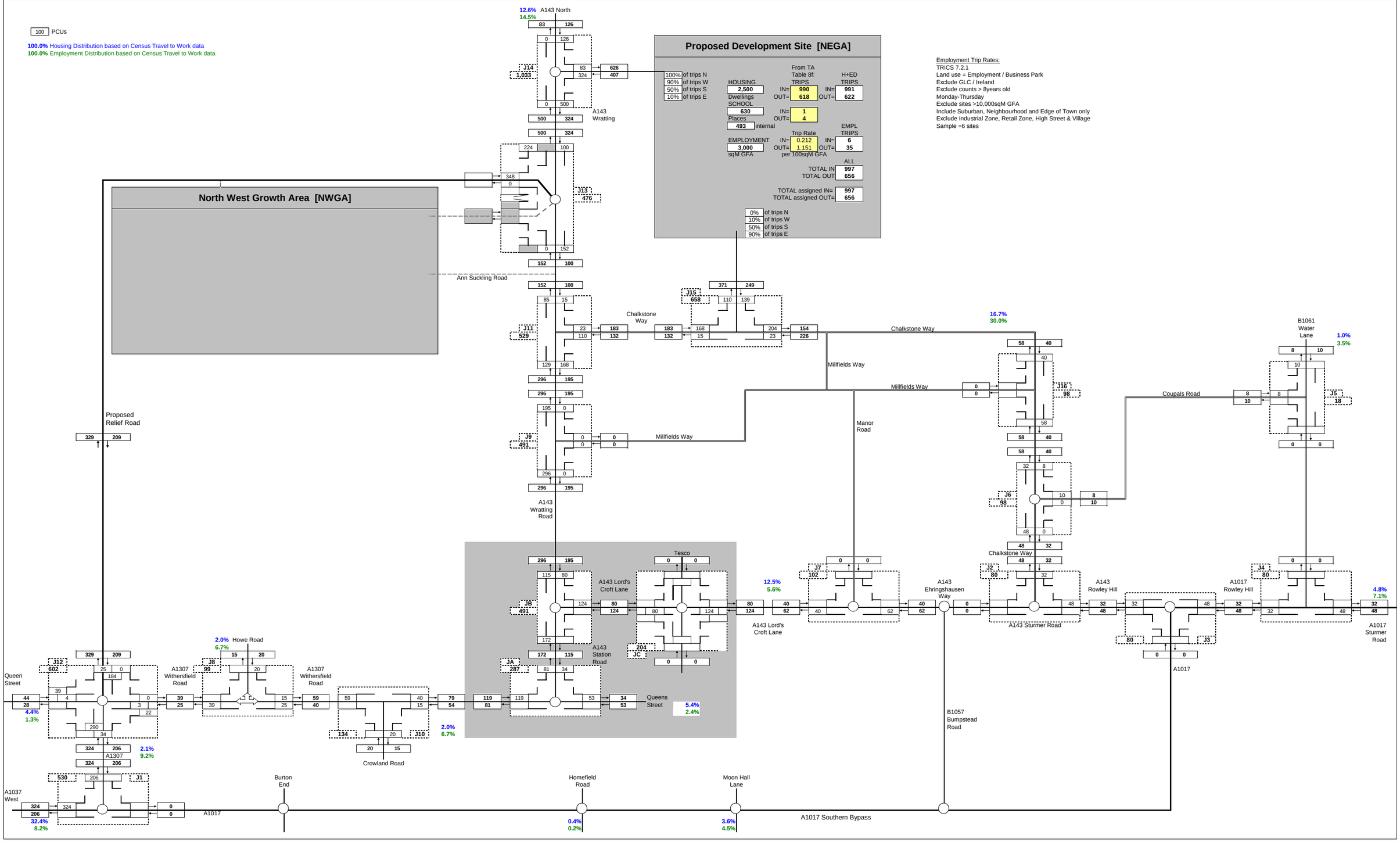


FILE="10173x07-TA Traffic Flows Rev3b~NEGA Ph1" SMT 16/04/2015

Client:	**Hallam Land Management & Commercial Estates Group**	Prepared by: S.M.T.	Brookbanks Consulting
Job:	**10173 Land at Haverhill**	16/04/2015	
Title:	**AM Peak NEGA Traffic Flows With Relief Road [PCUs]**	**Figure 12a**	

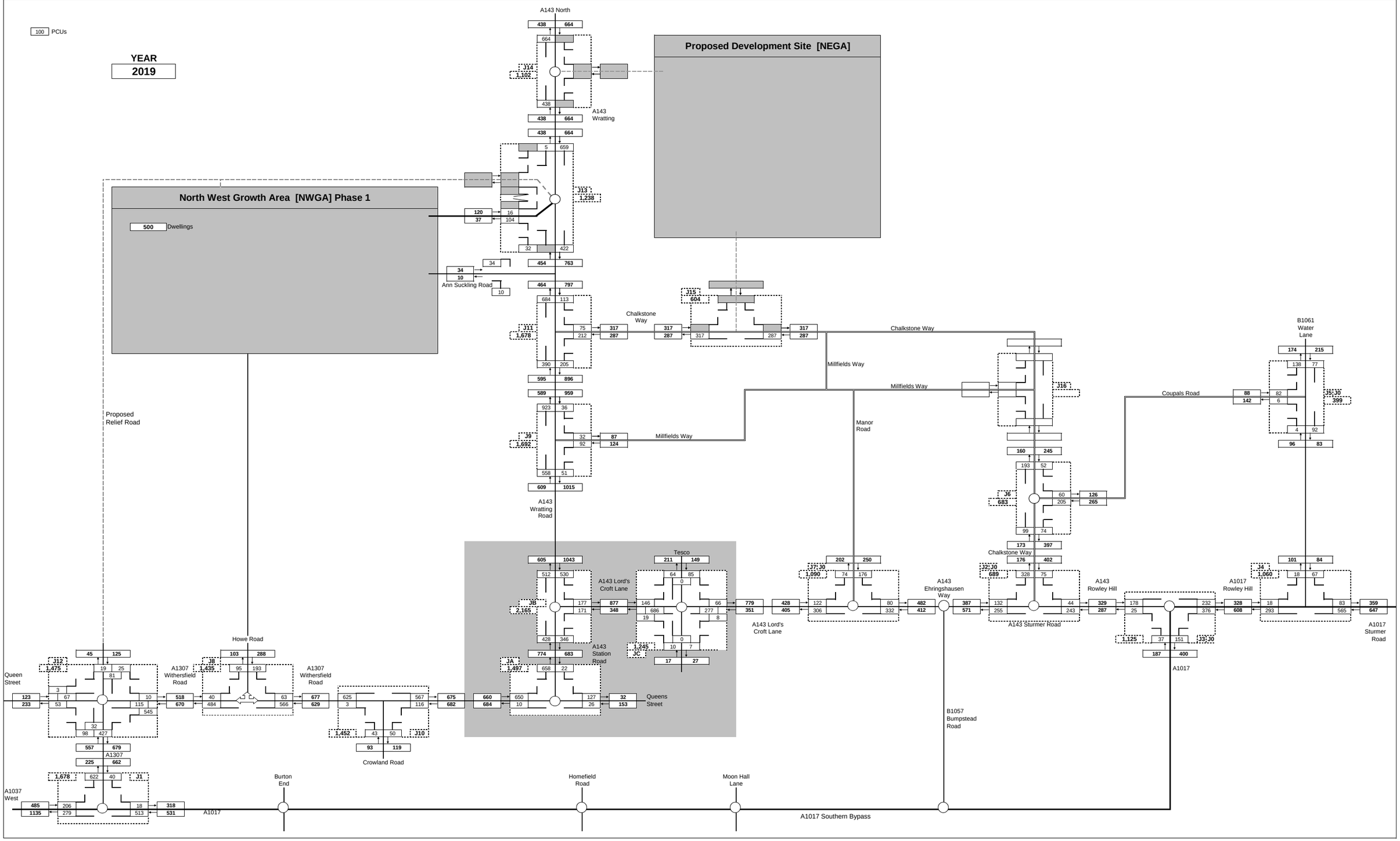


Client:	**Hallam Land Management & Commercial Estates Group**	Prepared by: S.M.T.	Brookbanks Consulting
Job:	**10173 Land at Haverhill**	16/04/2015	
Title:	**PM Peak NEGA Traffic Flows With Relief Road [PCUs]**	**Figure 12p**	



FILE="10173x07-TA Traffic Flows Rev3b~NEGAR Ph2" SMT 16/04/2015

Client:	**Hallam Land Management & Commercial Estates Group**	Prepared by: S.M.T.	Brookbanks Consulting
Job:	**10173 Land at Haverhill**	16/04/2015	
Title:	**2019 AM Peak Future Year Traffic Flows with NW Phase 1 Development but no Relief Road [PCUs]**	**Figure 13a**	



Client:	**Hallam Land Management & Commercial Estates Group**	Prepared by: S.M.T.	Brookbanks Consulting
Job:	**10173 Land at Haverhill**	16/04/2015	
Title:	**2019 PM Peak Future Year Traffic Flows with NW Phase 1 Development but no Relief Road [PCUs]**	**Figure 13p**	

100 PCUs

YEAR
2019

Proposed Development Site [NEGA]

North West Growth Area [NWGA] Phase 1

500 Dwellings

Proposed Relief Road

A143 North

A143 Wratting

A143 Wratting Road

Ann Suckling Road

Chalkstone Way

Millfields Way

Manor Road

B1061 Water Lane

Coupals Road

A143 Lord's Croft Lane

Tesco

A143 Station Road

Queens Street

A143 Ehringshausen Way

A143 Rowley Hill

A143 Sturmer Road

A1017 Rowley Hill

A1017 Sturmer Road

A1017

B1057 Bumpstead Road

Howe Road

A1307 Withersfield Road

Queen Street

A1307

A1037 West

Burton End

Crowland Road

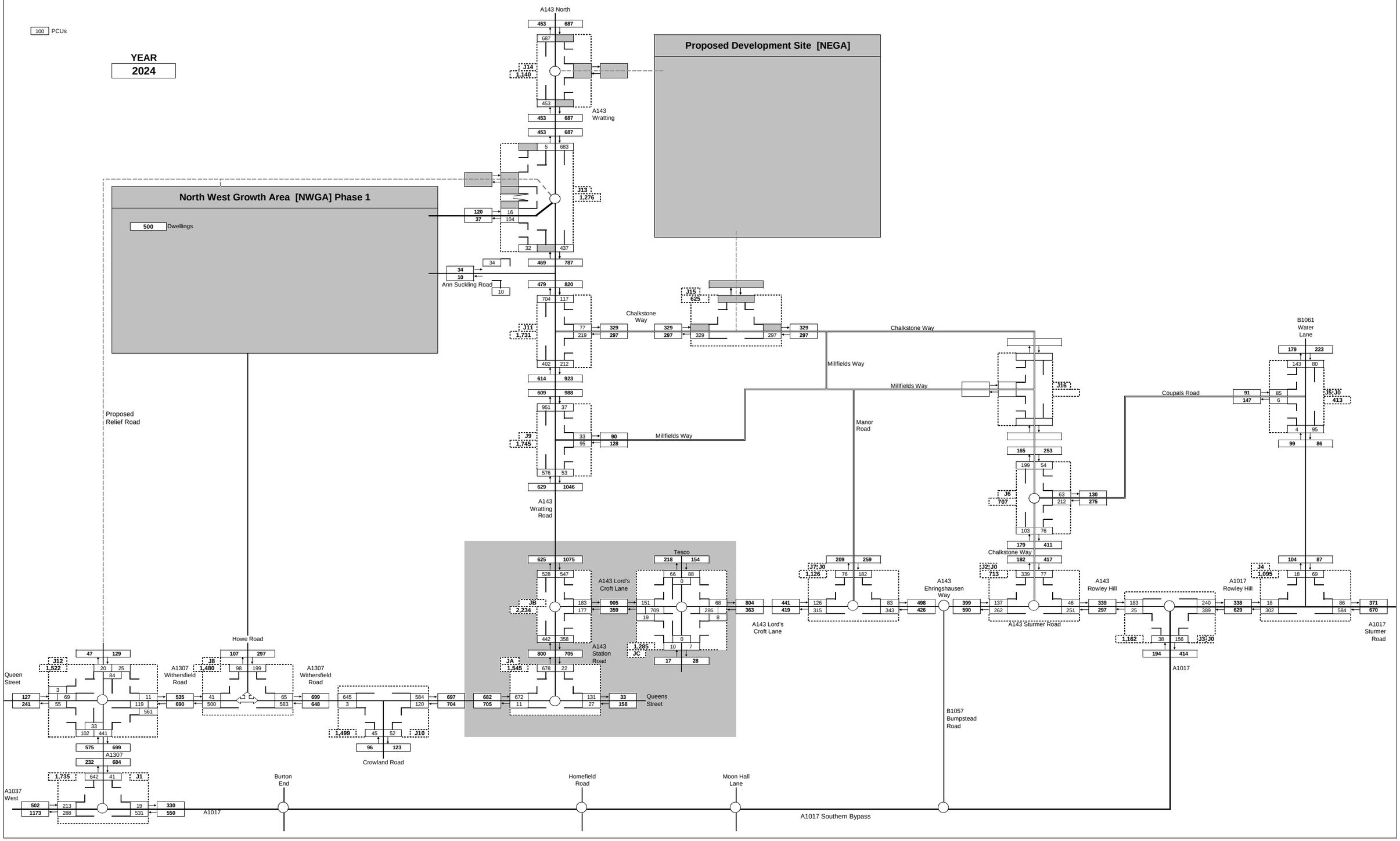
Homefield Road

Moon Hall Lane

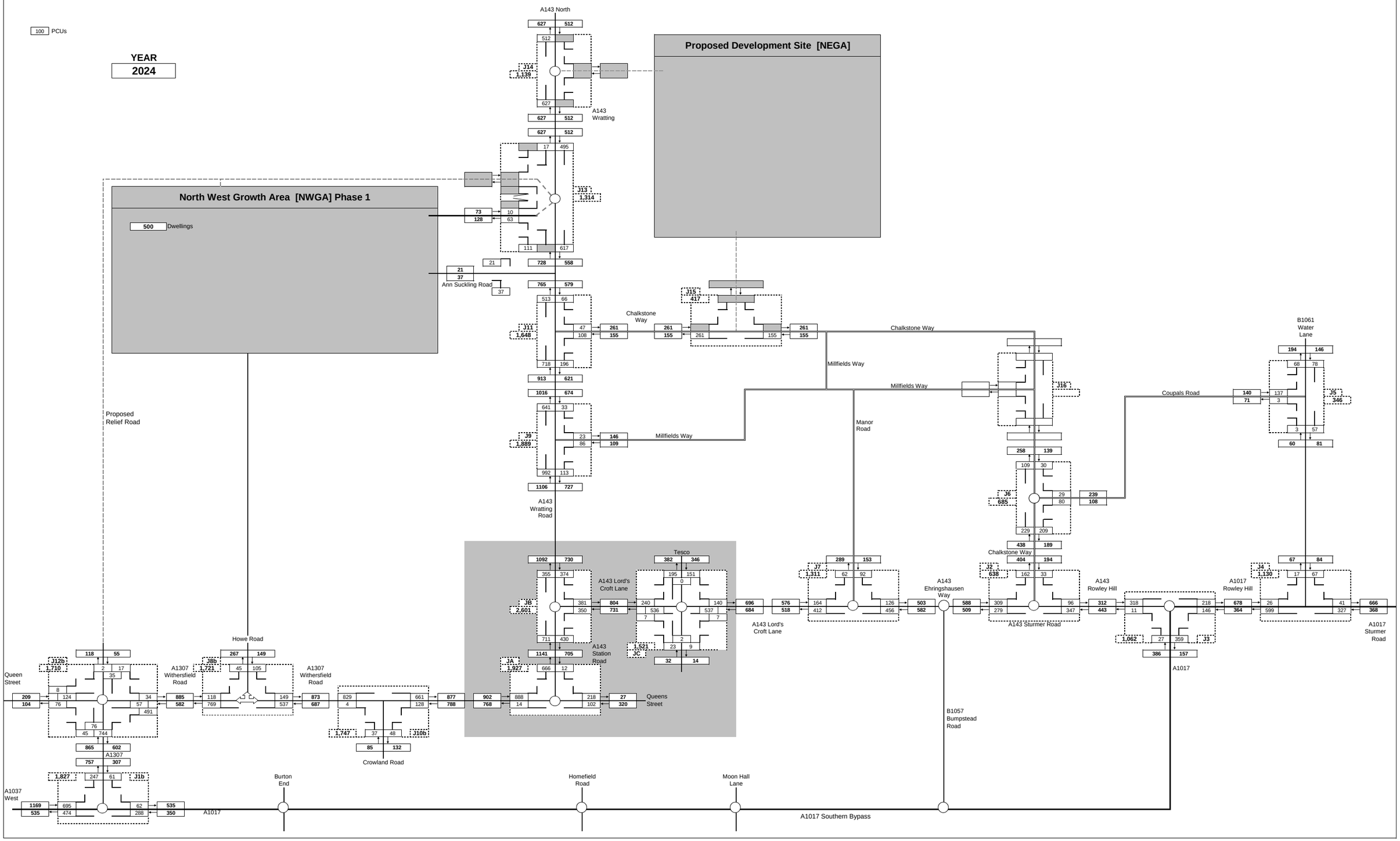
A1017

A1017 Southern Bypass

Client:	**Hallam Land Management & Commercial Estates Group**	Prepared by: S.M.T.	Brookbanks Consulting
Job:	**10173 Land at Haverhill**	16/04/2015	
Title:	**2024 AM Peak Future Year Traffic Flows with NW Phase 1 Development but no Relief Road [PCUs]**	**Figure 15a**	



Client:	**Hallam Land Management & Commercial Estates Group**	Prepared by: S.M.T.	Brookbanks Consulting
Job:	**10173 Land at Haverhill**	16/04/2015	
Title:	**2024 PM Peak Future Year Traffic Flows with NW Phase 1 Development but no Relief Road [PCUs]**	**Figure 15p**	



FILE="10173x07-TA Traffic Flows Rev3b~2024+NW1" SMT 16/04/2015

Client:	**Hallam Land Management & Commercial Estates Group**	Prepared by: S.M.T.	Brookbanks Consulting
Job:	**10173 Land at Haverhill**	16/04/2015	
Title:	**2029 AM Peak Future Year Traffic Flows with NW Phase 1 Development but no Relief Road [PCUs]**	**Figure 17a**	

100 PCUs

YEAR
2029

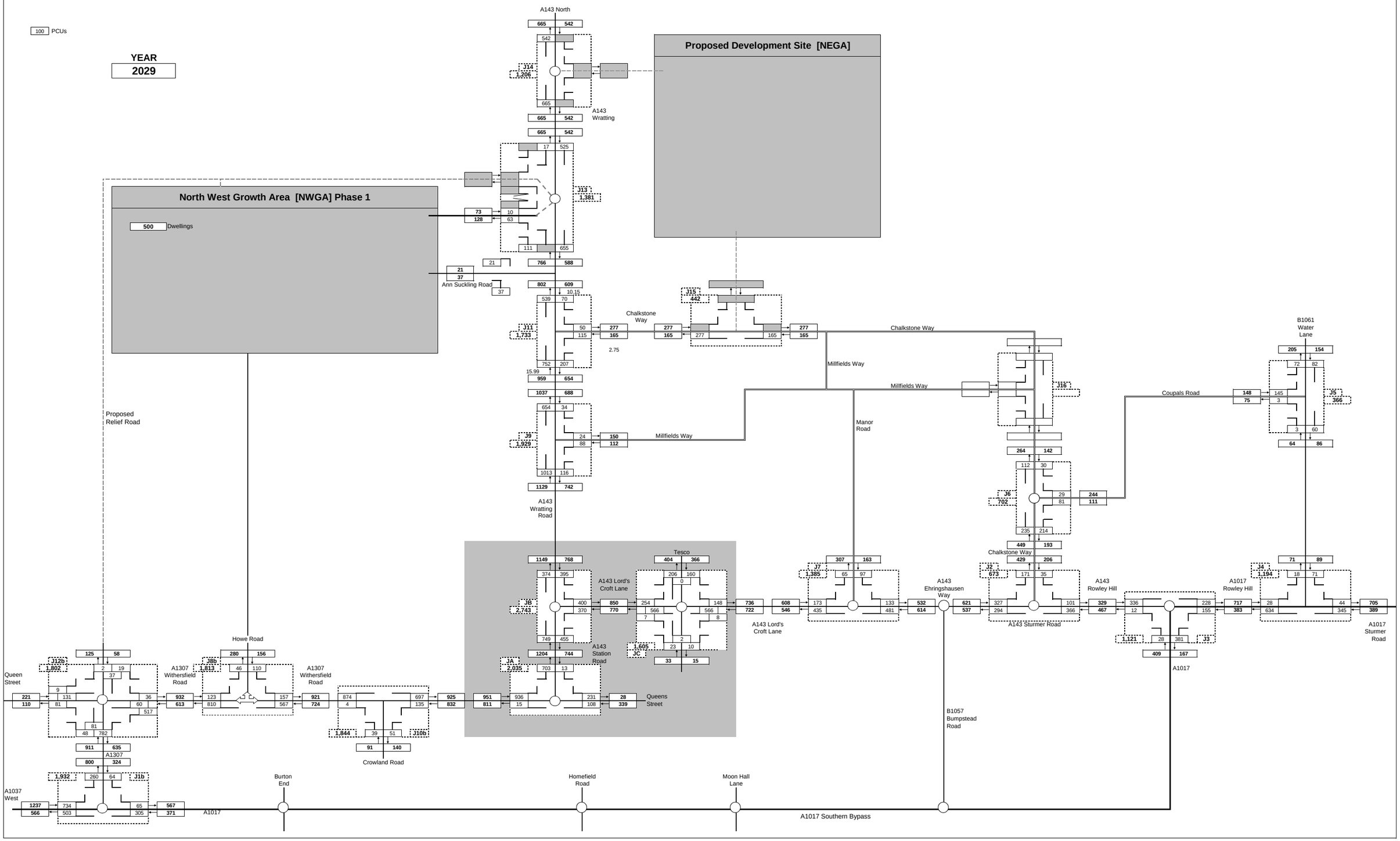
Proposed Development Site [NEGA]

North West Growth Area [NWGA] Phase 1

500 Dwellings

A143 North
A143 Wratting
A143 Wratting Road
Ann Suckling Road
Chalkstone Way
Millfields Way
Manor Road
Proposed Relief Road
Coupals Road
B1061 Water Lane
A143 Lord's Croft Lane
Tesco
A143 Station Road
A143 Ehringshausen Way
A143 Rowley Hill
A143 Sturmer Road
A1017 Rowley Hill
A1017 Sturmer Road
Howe Road
A1307 Withersfield Road
Queen Street
Queens Street
A1307
A1037 West
Burton End
Crowland Road
Homefield Road
Moon Hall Lane
A1017
A1017 Southern Bypass
B1057 Bumpstead Road

Client:	**Hallam Land Management & Commercial Estates Group**	Prepared by: S.M.T.	Brookbanks Consulting
Job:	**10173 Land at Haverhill**	16/04/2015	
Title:	**2029 PM Peak Future Year Traffic Flows with NW Phase 1 Development but no Relief Road [PCUs]**	**Figure 17p**	



Client:	**Hallam Land Management & Commercial Estates Group**	Prepared by: S.M.T.	Brookbanks Consulting
Job:	**10173 Land at Haverhill**	16/04/2015	
Title:	**2019 AM Peak Future Year Traffic Flows with NW+NE Phase 1 Developments but no Relief Road [PCUs]**	**Figure 14a**	

100 PCUs
5.0% Percentage impact of development i.e. with/without NEGA Phase 1

YEAR
2019

Proposed Development Site [NEGA] Phase 1
500 Dwellings
0 Place School
0 sqM GFA Employment

North West Growth Area [NWGA] Phase 1
500 Dwellings

A143 North
A143 Wratting
A143 Wratting Road
Ann Suckling Road
Chalkstone Way
Millfields Way
Proposed Relief Road
Manor Road
Coupals Road
B1061 Water Lane
Howe Road
A1307 Withersfield Road
Queen Street
A1307
A1037 West
A1017
Burton End
Homefield Road
Moon Hall Lane
A1017 Southern Bypass
A143 Lord's Croft Lane
Tesco
Queens Street
A143 Station Road
A143 Ehringshausen Way
B1057 Bumpstead Road
A143 Rowley Hill
A143 Sturmer Road
A1017 Rowley Hill
A1017 Sturmer Road
Crowland Road

Client:	**Hallam Land Management & Commercial Estates Group**	Prepared by: S.M.T.	Brookbanks Consulting
Job:	**10173 Land at Haverhill**	16/04/2015	
Title:	**2019 PM Peak Future Year Traffic Flows with NW+NE Phase 1 Developments but no Relief Road [PCUs]**	**Figure 14p**	

100 PCUs
5.0% Percentage impact of development i.e. with/without NEGA Phase 1

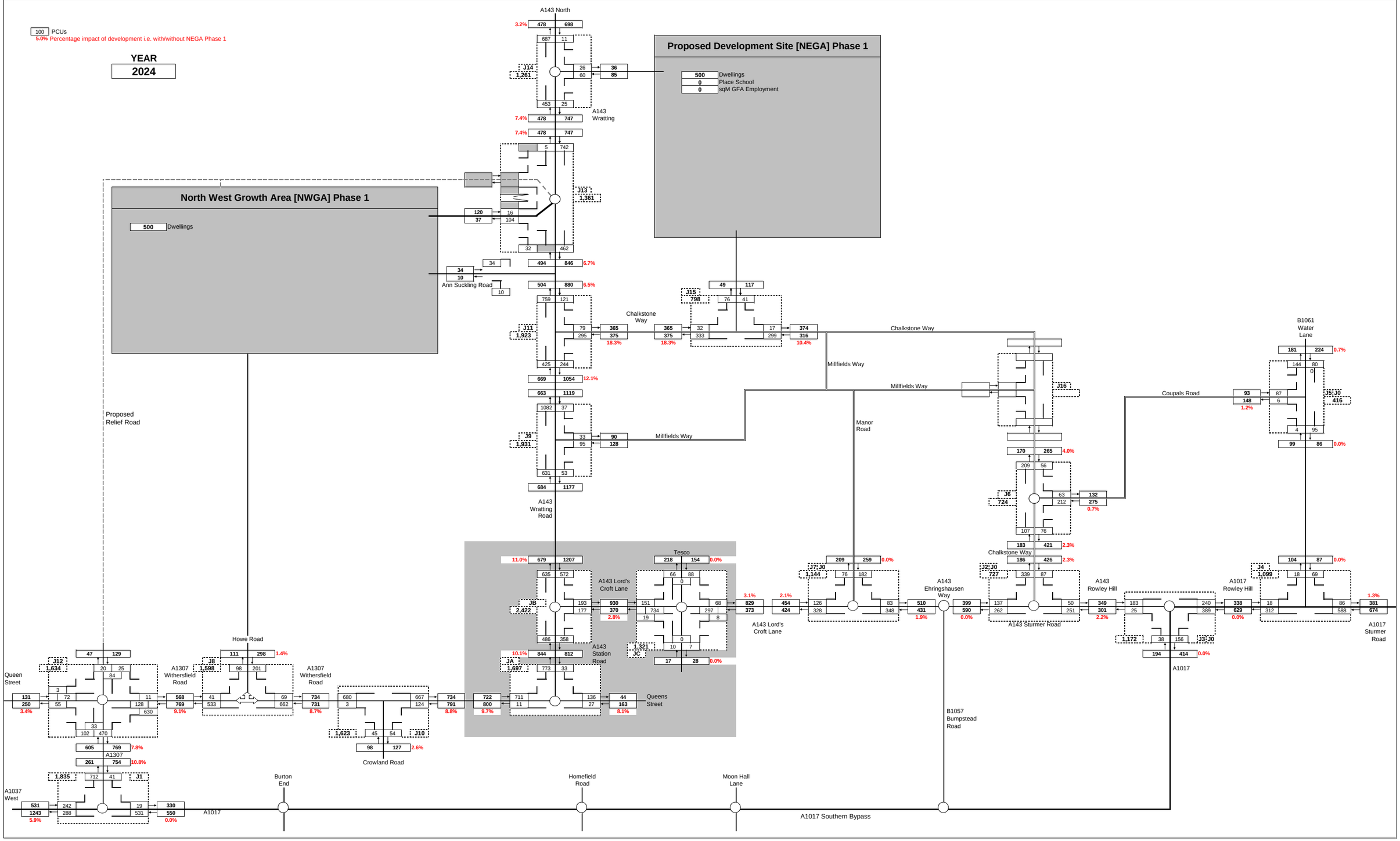
YEAR
2019

Proposed Development Site [NEGA] Phase 1
500 Dwellings
0 sqM GFA Employment

North West Growth Area [NWGA] Phase 1
500 Dwellings

A143 North
A143 Wratting
A143 Wratting Road
Proposed Relief Road
Ann Suckling Road
Chalkstone Way
Millfields Way
Manor Road
Howe Road
A1307 Withersfield Road
Queen Street
Queens Street
Crowland Road
A1037 West
A1017
Burton End
Homefield Road
Moon Hall Lane
A1017 Southern Bypass
A143 Lord's Croft Lane
Tesco
A143 Station Road
A143 Ehringshausen Way
A143 Sturmer Road
A143 Rowley Hill
A1017 Rowley Hill
A1017 Sturmer Road
B1057 Bumpstead Road
B1061 Water Lane
Coupals Road

Client:	**Hallam Land Management & Commercial Estates Group**	Prepared by: S.M.T.	Brookbanks Consulting
Job:	**10173 Land at Haverhill**	16/04/2015	
Title:	**2024 AM Peak Future Year Traffic Flows with NW+NE Phase 1 Developments but no Relief Road [PCUs]**	**Figure 16a**	



FILE="10173x07-TA Traffic Flows Rev3b~2024+NW1+NE1" SMT 16/04/2015

Client:	**Hallam Land Management & Commercial Estates Group**	Prepared by: S.M.T.	Brookbanks Consulting
Job:	**10173 Land at Haverhill**	16/04/2015	
Title:	**2024 PM Peak Future Year Traffic Flows with NW+NE Phase 1 Developments but no Relief Road [PCUs]**	**Figure 16p**	

100 PCUs
5.0% Percentage impact of development i.e. with/without NEGA Phase 1

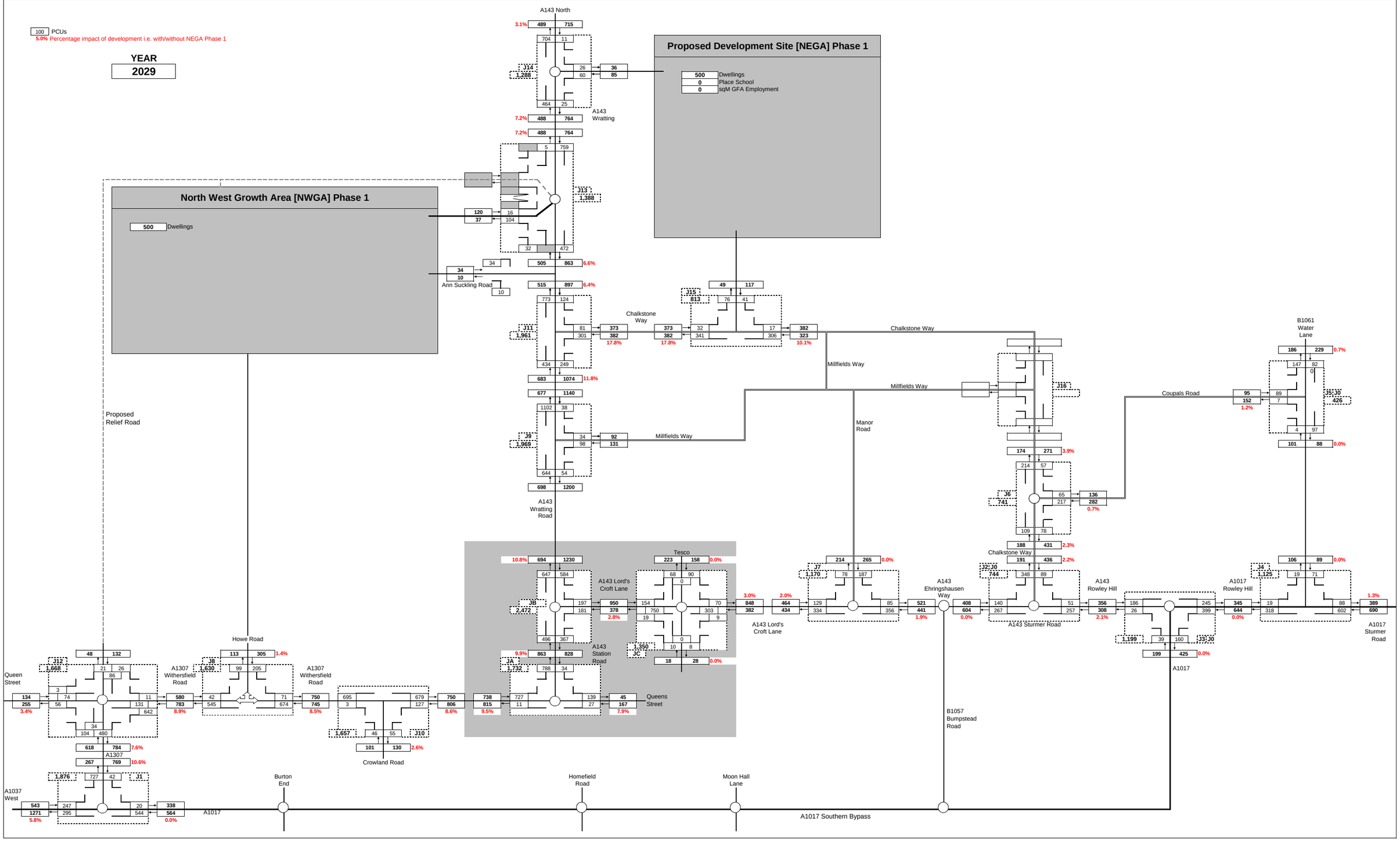
YEAR 2024

Proposed Development Site [NEGA] Phase 1
500 Dwellings
0 sqM GFA Employment

North West Growth Area [NWGA] Phase 1
500 Dwellings

A143 North
A143 Wratting
A143 Wratting Road
Ann Suckling Road
Chalkstone Way
Millfields Way
Manor Road
Proposed Relief Road
Howe Road
A1307 Withersfield Road
Queen Street
A1307
A1037 West
A1017
Burton End
Crowland Road
Homefield Road
Moon Hall Lane
A1017 Southern Bypass
Tesco
A143 Lord's Croft Lane
A143 Station Road
Queens Street
B1057 Bumpstead Road
A143 Ehringshausen Way
A143 Sturmer Road
A143 Rowley Hill
A1017 Rowley Hill
A1017 Sturmer Road
B1061 Water Lane
Coupals Road

Client:	**Hallam Land Management & Commercial Estates Group**	Prepared by: S.M.T.	Brookbanks Consulting
Job:	**10173 Land at Haverhill**	16/04/2015	
Title:	**2029 AM Peak Future Year Traffic Flows with NW+NE Phase 1 Developments but no Relief Road [PCUs]**	**Figure 18a**	



FILE="10173x07-TA Traffic Flows Rev3b~2029+NW1+NE1" SMT 16/04/2015

Client:	**Hallam Land Management & Commercial Estates Group**	Prepared by: S.M.T.	Brookbanks Consulting
Job:	**10173 Land at Haverhill**	16/04/2015	
Title:	**2029 PM Peak Future Year Traffic Flows with NW+NE Phase 1 Developments but no Relief Road [PCUs]**	**Figure 18p**	

100 PCUs
5.0% Percentage impact of development i.e. with/without NEGA Phase 1

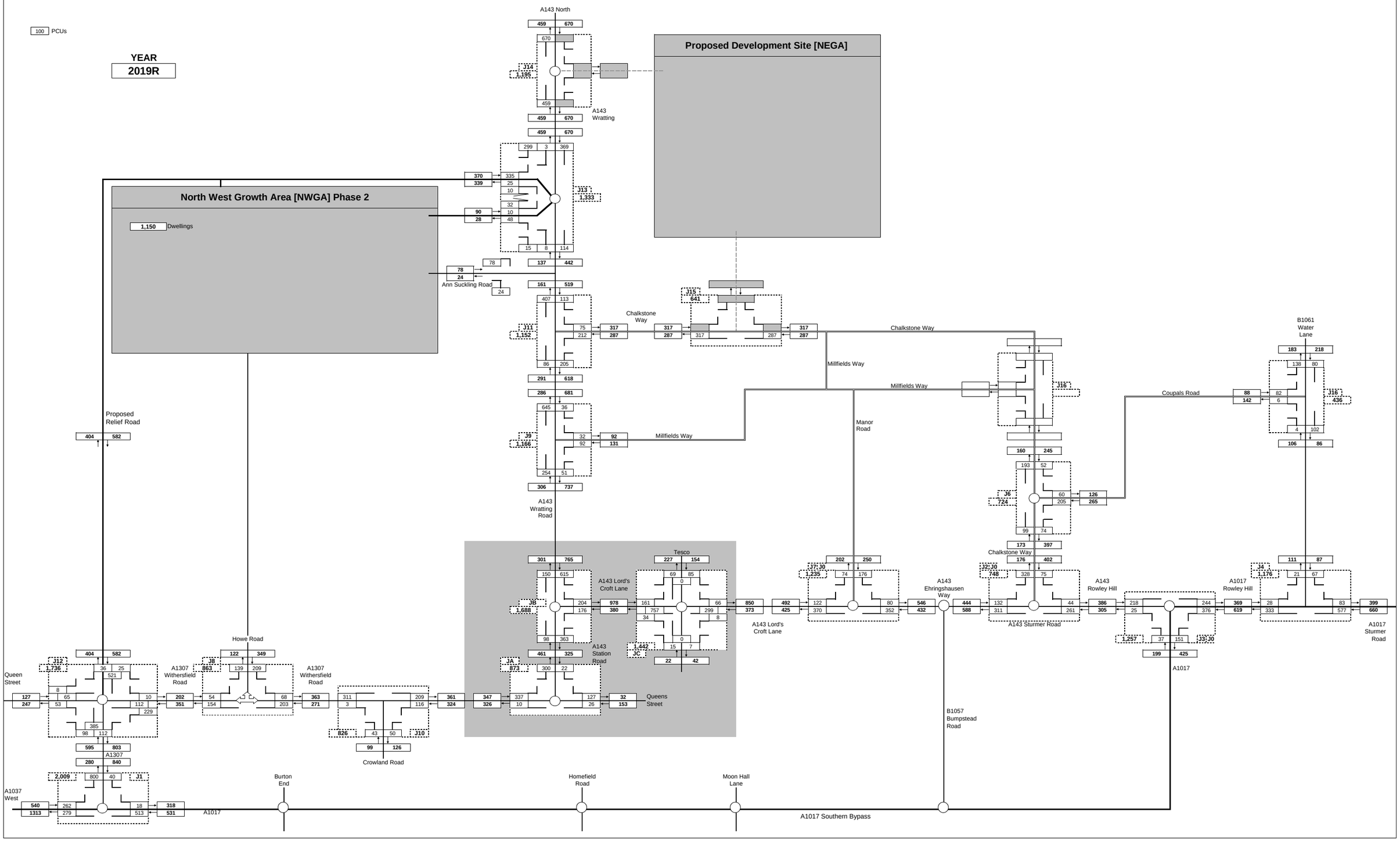
YEAR 2029

Proposed Development Site [NEGA] Phase 1
500 Dwellings
0 sqM GFA Employment

North West Growth Area [NWGA] Phase 1
500 Dwellings

A143 North
A143 Wratting
A143 Wratting Road
Ann Suckling Road
Chalkstone Way
Millfields Way
Manor Road
Proposed Relief Road
Howe Road
A1307 Withersfield Road
Queen Street
Queens Street
Crowland Road
A1037 West
A1017
Burton End
Homefield Road
Moon Hall Lane
A1017 Southern Bypass
Tesco
A143 Lord's Croft Lane
A143 Station Road
A143 Ehringshausen Way
A143 Sturmer Road
A143 Rowley Hill
A1017 Rowley Hill
A1017 Sturmer Road
B1057 Bumpstead Road
B1061 Water Lane
Coupals Road

Client:	**Hallam Land Management & Commercial Estates Group**	Prepared by: S.M.T.	Brookbanks Consulting
Job:	**10173 Land at Haverhill**	16/04/2015	
Title:	**2019 AM Peak Future Year Traffic Flows with NW Phase 2 Development and Relief Road [PCUs]**	**Figure 19a**	



FILE="10173x07-TA Traffic Flows Rev3b~2019R+NW2" SMT 16/04/2015

Client:	**Hallam Land Management & Commercial Estates Group**	Prepared by: S.M.T.	Brookbanks Consulting
Job:	**10173 Land at Haverhill**	12/03/2015	
Title:	**2019 PM Peak Future Year Traffic Flows with NW Phase 2 Development and Relief Road [PCUs]**	**Figure 14p**	

100 PCUs

YEAR
2019R

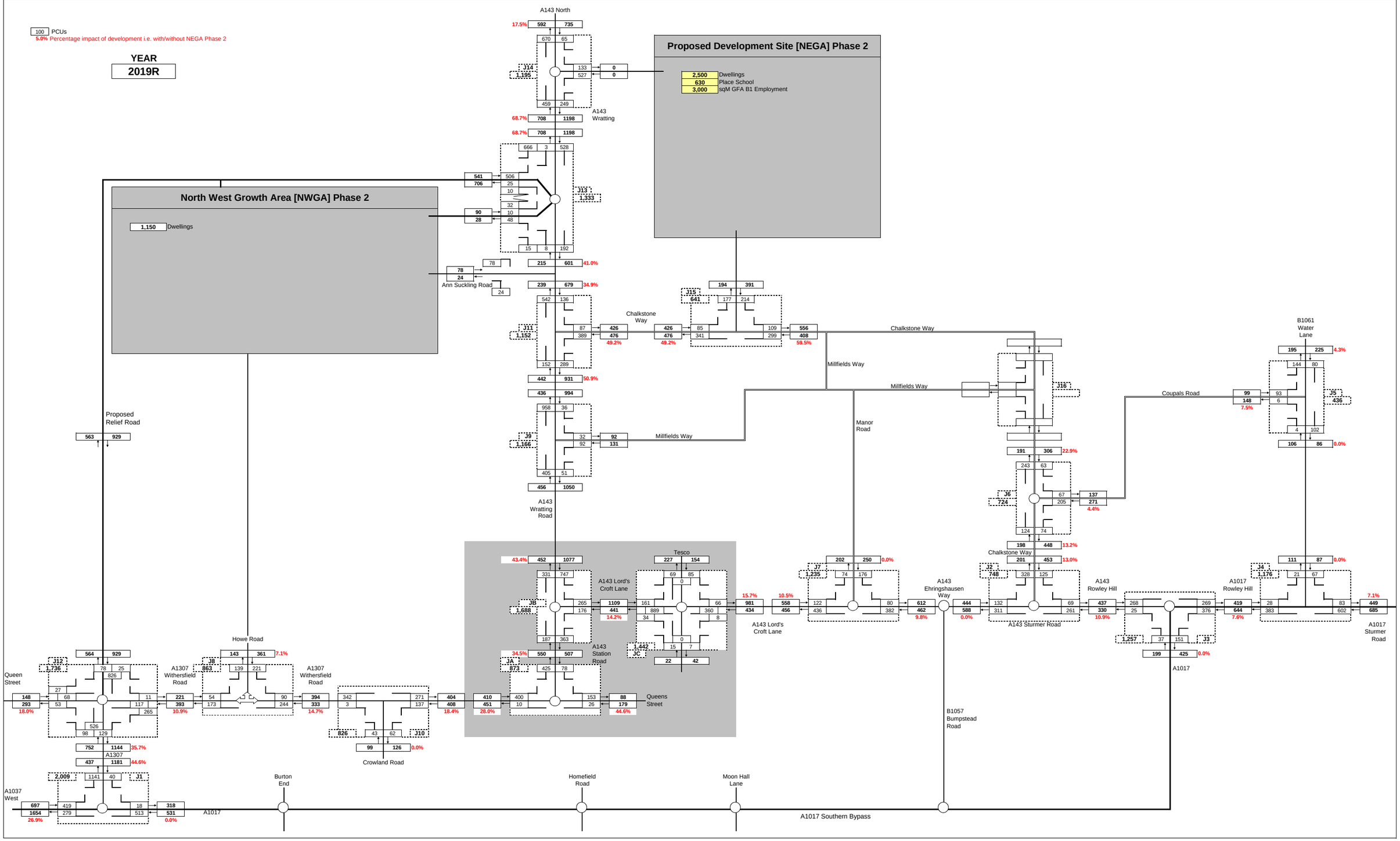
North West Growth Area [NWGA] Phase 2

1,150 Dwellings

Proposed Development Site [NEGA]

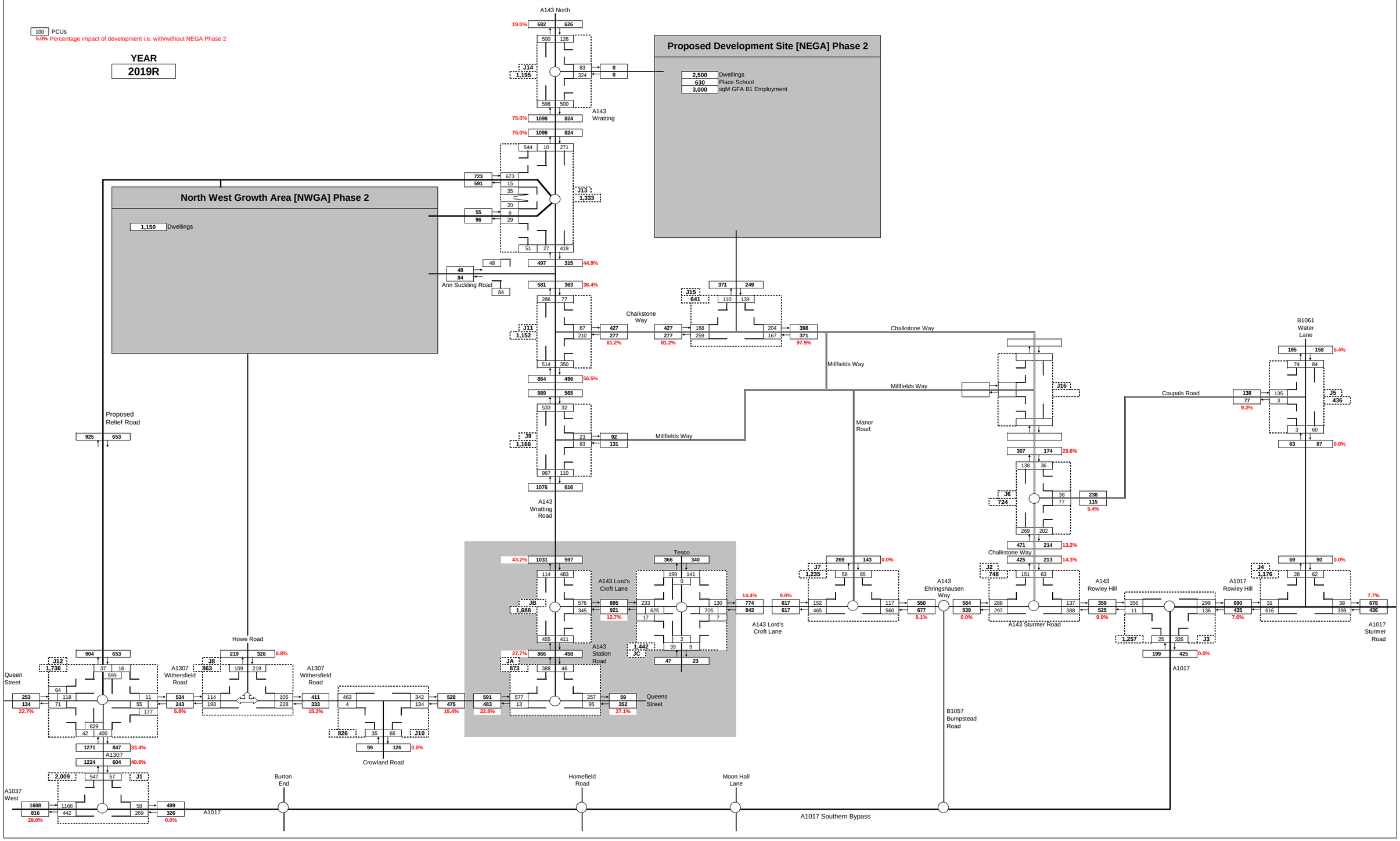
A143 North
A143 Wratting
A143 Wratting Road
Proposed Relief Road
Ann Suckling Road
Chalkstone Way
Millfields Way
Manor Road
A143 Lord's Croft Lane
A143 Station Road
Tesco
A143 Ehringshausen Way
A143 Rowley Hill
A143 Sturmer Road
A1017 Rowley Hill
A1017 Sturmer Road
B1061 Water Lane
Coupals Road
A1017
B1057 Bumpstead Road
Howe Road
A1307 Withersfield Road
Queen Street
Queens Street
A1307
A1037 West
A1017
Burton End
Crowland Road
Homefield Road
Moon Hall Lane
A1017 Southern Bypass

Client:	**Hallam Land Management & Commercial Estates Group**	Prepared by: S.M.T.	Brookbanks Consulting
Job:	**10173 Land at Haverhill**	16/04/2015	
Title:	**2019 AM Peak Future Year Traffic Flows with NW+NE Phase 2 Developments and Relief Road [PCUs]**	**Figure 20a**	



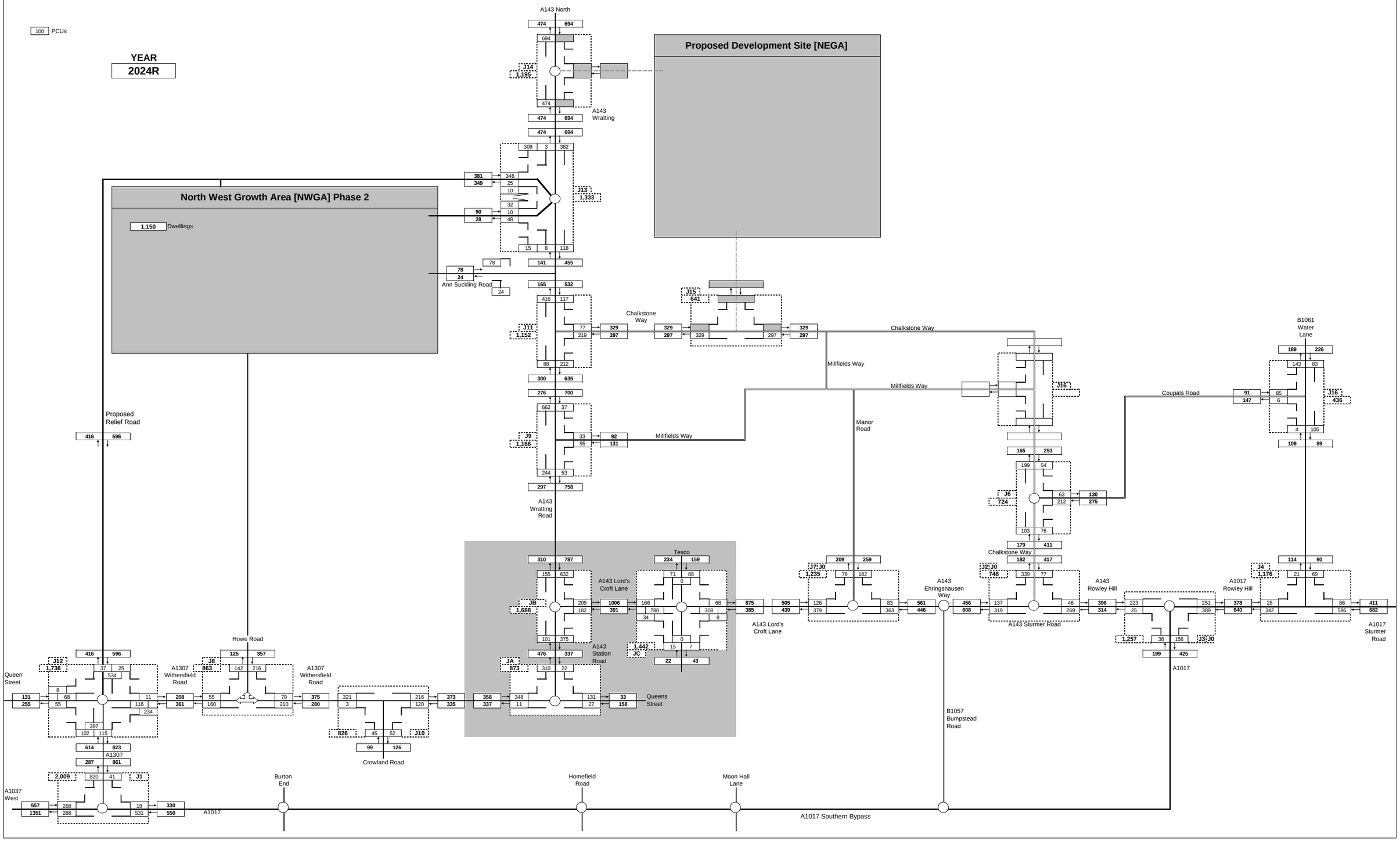
FILE="10173x07-TA Traffic Flows Rev3b~2019R+NW2+NE2" SMT 16/04/2015

Client:	**Hallam Land Management & Commercial Estates Group**	Prepared by: S.M.T.	Brookbanks Consulting
Job:	**10173 Land at Haverhill**	12/03/2015	
Title:	**2019 PM Peak Future Year Traffic Flows with Relief Road [PCUs]**	**Figure 14p**	



FILE="10173x07-TA Traffic Flows Rev3b~2019R+NW2+NE2" SMT 16/04/2015

Client:	**Hallam Land Management & Commercial Estates Group**	Prepared by: S.M.T.	Brookbanks Consulting
Job:	**10173 Land at Haverhill**	16/04/2015	
Title:	**2024 AM Peak Future Year Traffic Flows with NW Phase 2 Development and Relief Road [PCUs]**	**Figure 21a**	



FILE="10173x07-TA Traffic Flows Rev3b~2024R+NW2" SMT 16/04/2015

Client:	**Hallam Land Management & Commercial Estates Group**	Prepared by: S.M.T.	Brookbanks Consulting
Job:	**10173 Land at Haverhill**	12/03/2015	
Title:	**2024 PM Peak Future Year Traffic Flows with NW Phase 2 Development and Relief Road [PCUs]**	**Figure 14p**	

100 PCUs

YEAR
2024R

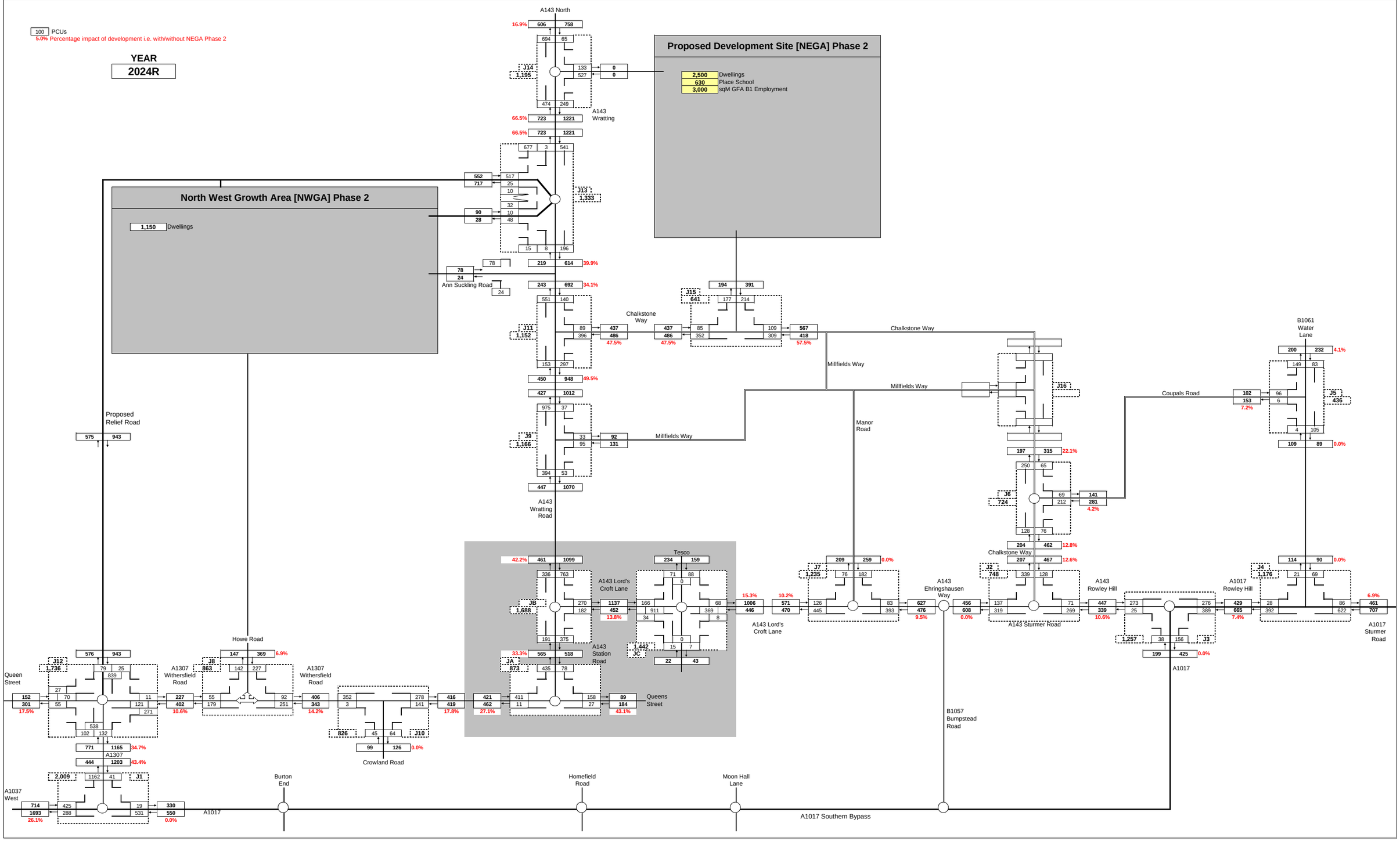
Proposed Development Site [NEGA]

North West Growth Area [NWGA] Phase 2

1,150 Dwellings

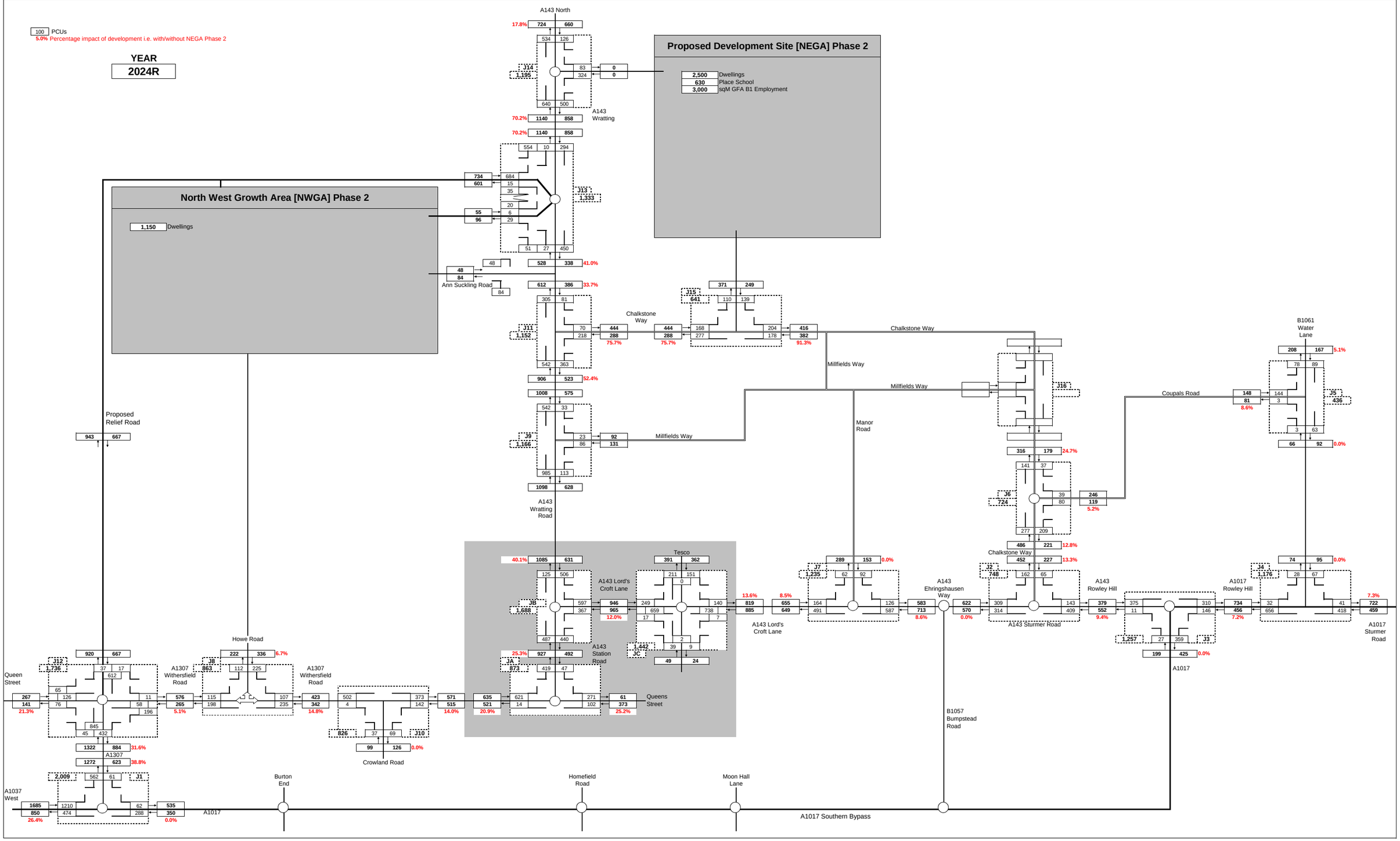
A143 North
A143 Wratting
A143 Wratting Road
Ann Suckling Road
Chalkstone Way
Millfields Way
Manor Road
Proposed Relief Road
Howe Road
A1307 Withersfield Road
Queen Street
Queens Street
A1037 West
A1017
Burton End
Crowland Road
Homefield Road
Moon Hall Lane
A1017 Southern Bypass
A143 Lord's Croft Lane
Tesco
A143 Station Road
A143 Ehringshausen Way
A143 Sturmer Road
A143 Rowley Hill
B1057 Bumpstead Road
B1061 Water Lane
Coupals Road
A1017 Rowley Hill
A1017 Sturmer Road

Client:	**Hallam Land Management & Commercial Estates Group**	Prepared by: S.M.T.	Brookbanks Consulting
Job:	**10173 Land at Haverhill**	16/04/2015	
Title:	**2024 AM Peak Future Year Traffic Flows with NW+NE Phase 2 Developments and Relief Road [PCUs]**	**Figure 22a**	



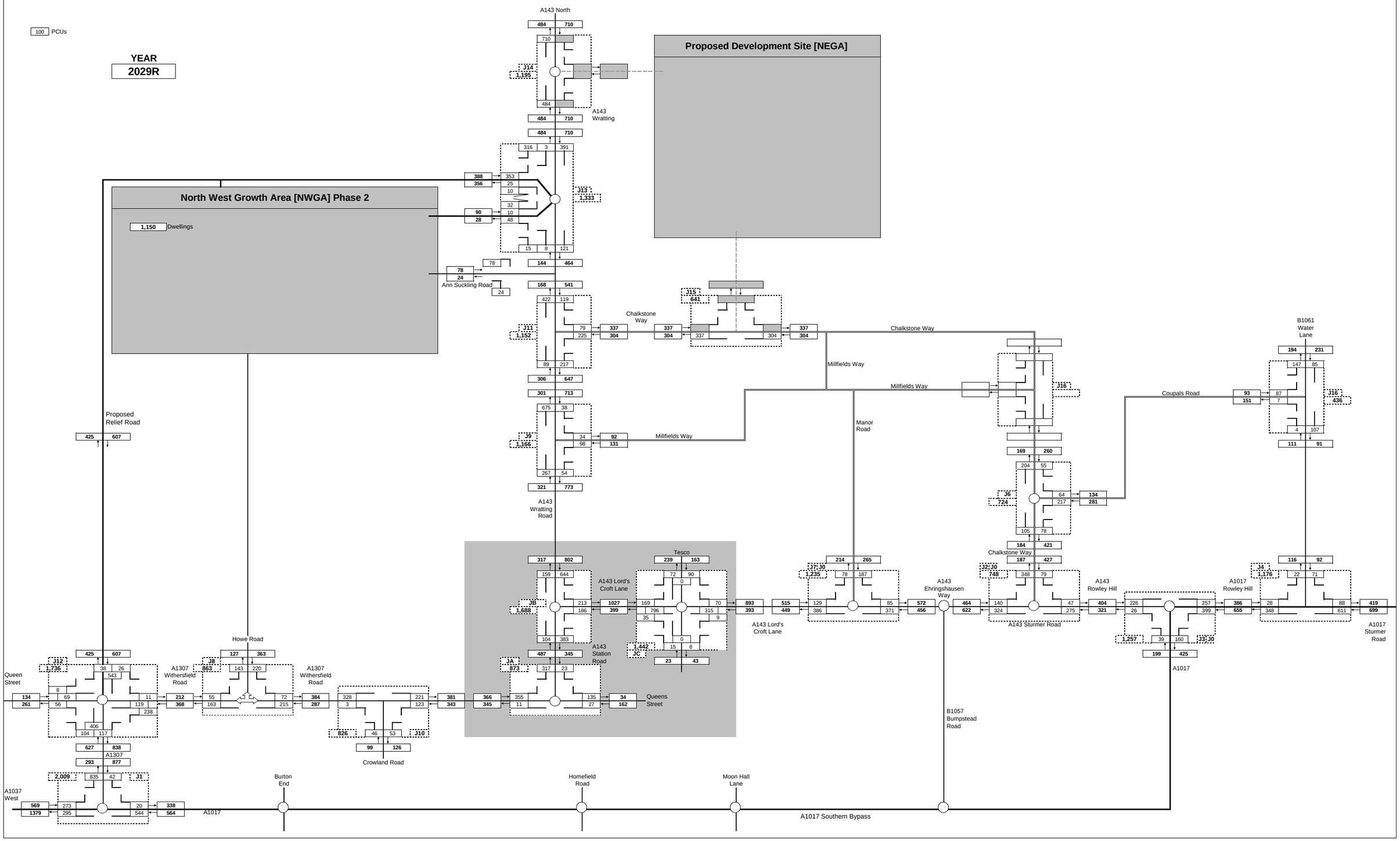
FILE="10173x07-TA Traffic Flows Rev3b~2024R+NW2+NE2" SMT 16/04/2015

Client:	**Hallam Land Management & Commercial Estates Group**	Prepared by: S.M.T.	Brookbanks Consulting
Job:	**10173 Land at Haverhill**	12/03/2015	
Title:	**2024 PM Peak Future Year Traffic Flows with Relief Road [PCUs]**	**Figure 14p**	

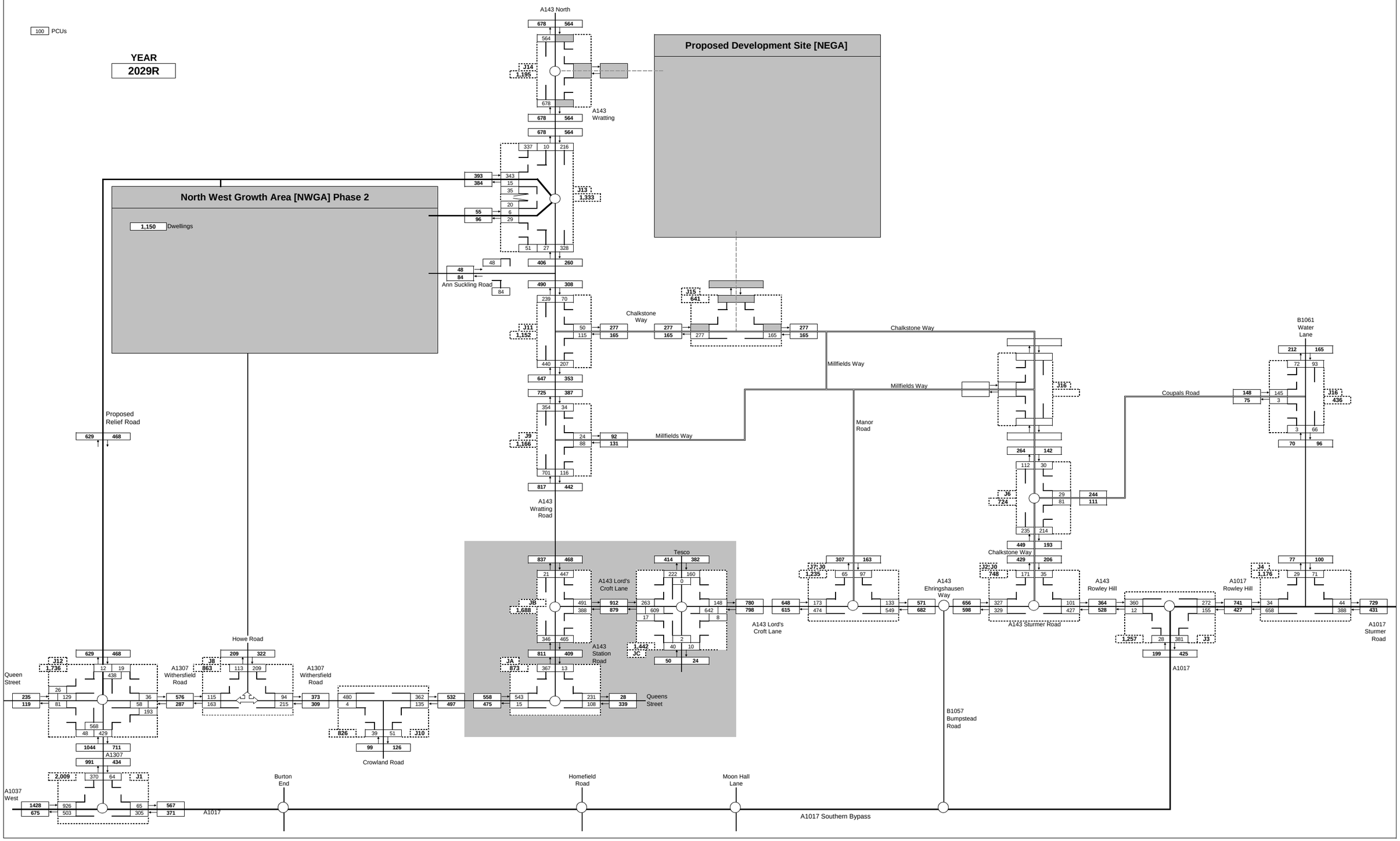


FILE="10173x07-TA Traffic Flows Rev3b~2024R+NW2+NE2" SMT 16/04/2015

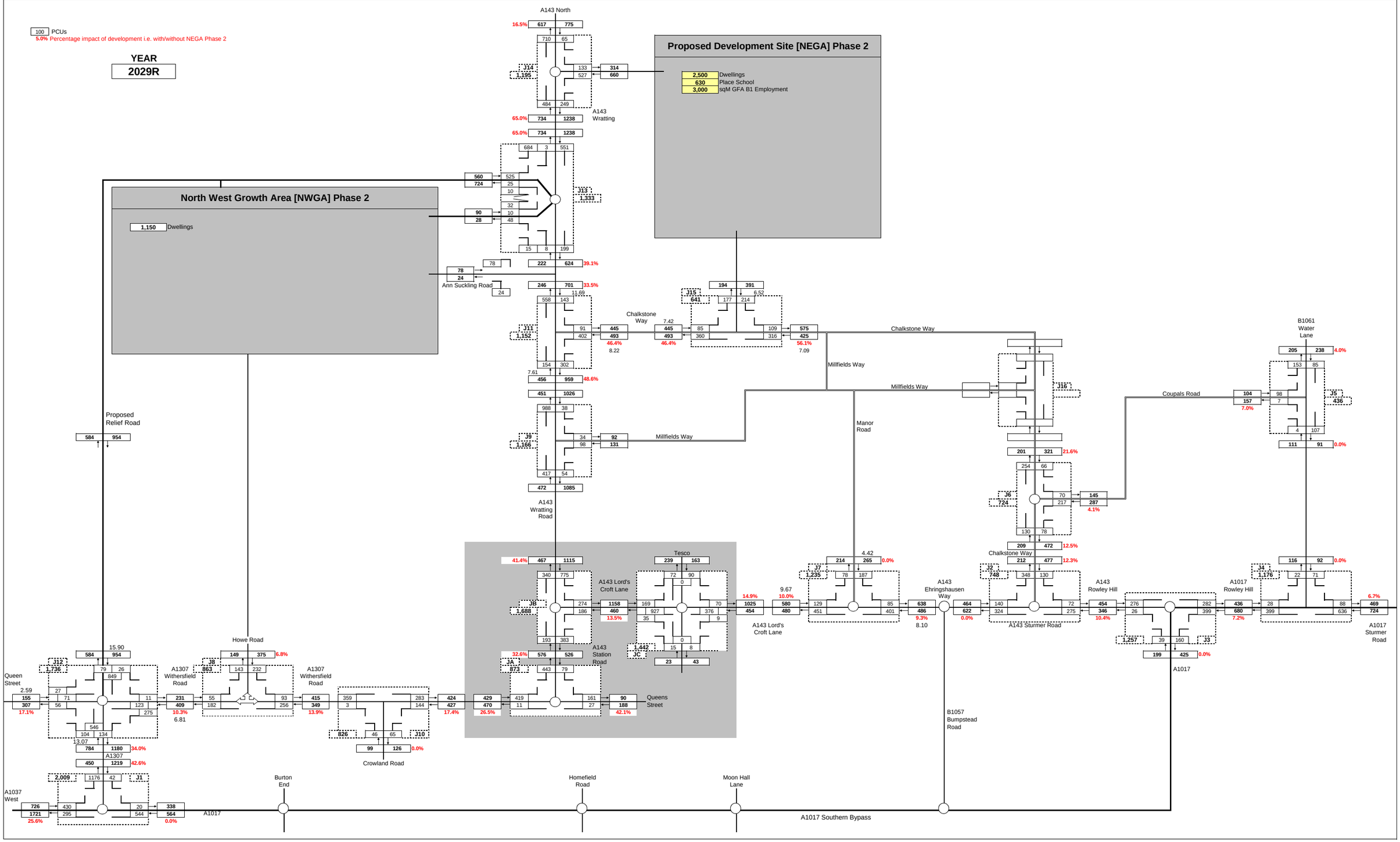
Client:	**Hallam Land Management & Commercial Estates Group**	Prepared by: S.M.T.	Brookbanks Consulting
Job:	**10173 Land at Haverhill**	16/04/2015	
Title:	**2029 AM Peak Future Year Traffic Flows with NW Phase 2 Development and Relief Road [PCUs]**	**Figure 23a**	



Client:	**Hallam Land Management & Commercial Estates Group**	Prepared by: S.M.T.	Brookbanks Consulting
Job:	**10173 Land at Haverhill**	12/03/2015	
Title:	**2029 PM Peak Future Year Traffic Flows with NW Phase 2 Development and Relief Road [PCUs]**	**Figure 14p**	



Client:	**Hallam Land Management & Commercial Estates Group**	Prepared by: S.M.T.	Brookbanks Consulting
Job:	**10173 Land at Haverhill**	16/04/2015	
Title:	**2029 AM Peak Future Year Traffic Flows with NW+NE Phase 2 Developments and Relief Road [PCUs]**	**Figure 24a**	



FILE="10173x07-TA Traffic Flows Rev3b~2029R+NW2+NE2" SMT 16/04/2015

Client:	**Hallam Land Management & Commercial Estates Group**	Prepared by: S.M.T.	Brookbanks Consulting
Job:	**10173 Land at Haverhill**	12/03/2015	
Title:	**2029 PM Peak Future Year Traffic Flows with Relief Road [PCUs]**	**Figure 14p**	

100 PCUs
5.0% Percentage impact of development i.e. with/without NEGA Phase 2

YEAR
2029R

Proposed Development Site [NEGA] Phase 2
2,500 Dwellings
630 Place School
3,000 sqM GFA B1 Employment

North West Growth Area [NWGA] Phase 2
1,150 Dwellings

A143 North
A143 Wratting
A143 Wratting Road
A143 Lord's Croft Lane
A143 Station Road
A143 Ehringshausen Way
A143 Rowley Hill
A143 Sturmer Road
A1307 Withersfield Road
A1037 West
A1017
A1017 Rowley Hill
A1017 Sturmer Road
A1017 Southern Bypass
B1061 Water Lane
B1057 Bumpstead Road
Ann Suckling Road
Howe Road
Crowland Road
Queen Street
Queens Street
Chalkstone Way
Millfields Way
Manor Road
Coupals Road
Proposed Relief Road
Tesco
Burton End
Homefield Road
Moon Hall Lane

Client:	**Hallam Land Management & Commercial Estates Group**	Prepared by: S.M.T.	Brookbanks Consulting
Job:	**10173 Land at Haverhill**	16/04/2015	
Title:	**2029 Noise / Air Quality Traffic Flows with Phase 2 Development and Relief Road [PCUs]**	**Figure 25a**	

YEAR
2029R

	2014	2029+Relief Road		
	No dev	No NEGA	+NEGA	HGVs
AADT 0-24hrs				5.7%
AAWT 6-24hrs				5.9%
AAWT ave hr 7-23hrs				5.8%
AAWT ave hr 23-7hrs				12.8%

factor (AM+PM) by

AADT 0-24hrs	6.704	
AAWT 6-24hrs	6.017	from ATC
AAWT ave hr 7-23hrs	0.344	Nov 2014 on
AAWT ave hr 23-7hrs	0.045	Withersfield Rd

Proposed Development Site [NEGA]

2,500	Dwellings
630	School Places
3,000	sqM GFA B1 Employment

North West Growth Area [NWGA]

1,150	Dwellings

A143 North
A143 Wratting
A143 Wratting Road
Ann Suckling Road
Chalkstone Way
Millfields Way
Manor Road
Coupals Road
B1061 Water Lane
Proposed Relief Road
Howe Road
Queen Street
A1307 Withersfield Road
A1307
A1037 West
A1017
Burton End
Crowland Road
Homefield Road
Moon Hall Lane
A1017 Southern Bypass
Tesco
A143 Lord's Croft Lane
A143 Station Road
Queens Street
A143 Ehringshausen Way
A143 Rowley Hill
A143 Sturmer Road
A1017 Rowley Hill
A1017 Sturmer Road
B1057 Bumpstead Road

J1 J2 J3 J4 J5 J6 J7 J8 J9 J10 J11 J12 J13 J14 J15 J16 JA JC

Appendix G – Junction Assessment Outputs

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)
Patch 15 Apr 2011

_____

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"p:\10173\Traffic\Junctions - Rev3\J1 A1307 jw A1017\10173a - J1 A1017 jw A1307 - Rev3 2019 AM +NW1+NE1.vai"
(drive-on-the-left) at 14:41:50 on Wednesday, 8 April 2015

.FILE PROPERTIES
****

RUN TITLE: J1 A1017 jw A1307 - 2019 +NW1+NE1 Rev3 AM
LOCATION: Haverhill
DATE: 08/04/15
CLIENT: Hallam
ENUMERATOR: sue.tadman [BCL25]
JOB NUMBER: 10173
STATUS: Preliminary
DESCRIPTION:

.INPUT DATA
****
ARM A - A1307 East
ARM B - A1017 South
ARM C - A1017 North

.GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
A	3.00	8.00	12.00	15.00	40.00	30.0	0.604	25.548
B	3.60	6.00	10.00	25.00	40.00	25.0	0.619	25.714
C	3.60	8.30	6.00	30.00	40.00	25.0	0.622	25.788

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown
.SCALING FACTORS

IARM	FLOW SCALE(%)
A	100
B	100
C	100

TIME PERIOD BEGINS(07.45)AND ENDS(09.15)
.LENGTH OF TIME PERIOD -(90) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

.DEMAND SET TITLE: as above

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
A	15.00	45.00	75.00	9.61	14.42	9.61
B	15.00	45.00	75.00	6.64	9.96	6.64
C	15.00	45.00	75.00	6.57	9.86	6.57

DEMAND SET TITLE: as above

T33

TIME	FROM/T	TURNING PROPORTIONS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.052	0.948
		0.0	40.0	729.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.034	0.000	0.966
		18.0	0.0	513.0

```
 I                  I         I (  0.0)I (  0.0)I (  0.0)I
 I                  I         I        I        I        I
 I                  I  ARM  C I  0.470 I  0.530 I  0.000 I
 I                  I         I  247.0 I  279.0 I    0.0 I
 I                  I         I (  0.0)I (  0.0)I (  0.0)I
 I                  I         I        I        I        I
 ------------------------------------------------------------
```

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

I TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)	GEOMETRIC DELAY (VEH.MIN/	AVERAGE DELAY PER ARRIVING	I TIME SEGMENT)
I 07.45-08.00										
I ARM A	9.65	23.44	0.412	- -	-	0.0	0.7	10.1	0.072	I
I ARM B	6.66	20.08	0.332	- -	-	0.0	0.5	7.2	0.074	I
I ARM C	6.60	25.65	0.257	- -	-	0.0	0.3	5.1	0.052	I
I 08.00-08.15										
I ARM A	11.52	23.03	0.500	- -	-	0.7	1.0	14.4	0.087	I
I ARM B	7.96	18.97	0.419	- -	-	0.5	0.7	10.4	0.090	I
I ARM C	7.88	25.62	0.308	- -	-	0.3	0.4	6.5	0.056	I

I TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)	GEOMETRIC DELAY (VEH.MIN/	AVERAGE DELAY PER ARRIVING	I TIME SEGMENT)
I 08.15-08.30										
I ARM A	14.11	22.46	0.628	- -	-	1.0	1.7	23.7	0.118	I
I ARM B	9.74	17.46	0.558	- -	-	0.7	1.2	17.8	0.128	I
I ARM C	9.65	25.58	0.377	- -	-	0.4	0.6	8.9	0.063	I
I 08.30-08.45										
I ARM A	14.11	22.46	0.628	- -	-	1.7	1.7	25.0	0.120	I
I ARM B	9.74	17.44	0.559	- -	-	1.2	1.3	18.7	0.130	I
I ARM C	9.65	25.58	0.377	- -	-	0.6	0.6	9.0	0.063	I
I 08.45-09.00										
I ARM A	11.52	23.02	0.500	- -	-	1.7	1.0	15.7	0.088	I
I ARM B	7.96	18.93	0.420	- -	-	1.3	0.7	11.3	0.092	I
I ARM C	7.88	25.62	0.308	- -	-	0.6	0.4	6.8	0.056	I

```
                                -
 I 09.00-09.15                  I
                                I
 I ARM A       9.65     23.43   0.412   - -       -    1.0    0.7       10.8
         -              0.073     I
 I ARM B       6.66     20.04   0.332   - -       -    0.7    0.5        7.7
         -              0.075     I
 I ARM C       6.60     25.65   0.257   - -       -    0.4    0.3        5.3
         -              0.052     I
 I                              I
                                I
```

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.7	*
08.15	1.0	*
08.30	1.7	**
08.45	1.7	**
09.00	1.0	*
09.15	0.7	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.5	
08.15	0.7	*
08.30	1.2	*
08.45	1.3	*
09.00	0.7	*
09.15	0.5	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.3	
08.15	0.4	
08.30	0.6	*
08.45	0.6	*
09.00	0.4	
09.15	0.3	

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)

A	1058.5	705.6	99.8	0.09	99.9	0.09		
B	730.9	487.3	73.2	0.10	73.2	0.10		
C	724.0	482.7	41.6	0.06	41.6	0.06		
ALL	2513.4	1675.6	214.6	0.09	214.7	0.09		

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)
Patch 15 Apr 2011

_____

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"p:\10173\Traffic\Junctions - Rev3\J1 A1307 jw A1017\10173a - J1 A1017 jw A1307 - Rev3 2019 PM +NW1+NE1.vai"
(drive-on-the-left) at 14:42:20 on Wednesday, 8 April 2015

.FILE PROPERTIES
****

RUN TITLE: J1 A1017 jw A1307 - 2019 +NW1+NE1 Rev3 PM
LOCATION: Haverhill
DATE: 08/04/15
CLIENT: Hallam
ENUMERATOR: sue.tadman [BCL25]
JOB NUMBER: 10173
STATUS: Preliminary
DESCRIPTION:

.INPUT DATA
****
ARM A - A1307 East
ARM B - A1017 South
ARM C - A1017 North

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
A	3.00	8.00	12.00	15.00	40.00	30.0	0.604	25.548
B	3.60	6.00	10.00	25.00	40.00	25.0	0.619	25.714
C	3.60	8.30	6.00	30.00	40.00	25.0	0.622	25.788

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown
.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100

TIME PERIOD BEGINS(16.45)AND ENDS(18.15)
.LENGTH OF TIME PERIOD -(90) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

.DEMAND SET TITLE: as above

T15

ARM	FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
A	15.00	45.00	75.00	4.43	6.64	4.43
B	15.00	45.00	75.00	4.09	6.13	4.09
C	15.00	45.00	75.00	15.01	22.52	15.01

DEMAND SET TITLE: as above

T33

TIME	FROM/T	ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.161	0.839
		0.0	57.0	297.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.177	0.000	0.823
		58.0	0.0	269.0

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

```
 I                  I         I (  0.0)I (  0.0)I (  0.0)I
 I                  I         I        I        I        I
 I                  I  ARM  C I  0.632 I  0.368 I  0.000 I
 I                  I         I  759.0 I  442.0 I    0.0 I
 I                  I         I (  0.0)I (  0.0)I (  0.0)I
 I                  I         I        I        I        I
 ------------------------------------------------------------
```

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

```
.-------------------------------------------------------------------------------------------
---------------------------------- T70
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 -                                                                    -
                                -
 I 16.45-17.00                                                        I
                                I
 I ARM A       4.44     22.22   0.200   - -       -    0.0    0.2        3.7
         -              0.056     I
 I ARM B       4.10     23.42   0.175   - -       -    0.0    0.2        3.1
         -              0.052     I
 I ARM C      15.07     25.34   0.595   - -       -    0.0    1.4       20.7
         -              0.096     I
 I                                                                    I
                                I

-------------------------------------------------------------------------------------------
----------------------------------
.-------------------------------------------------------------------------------------------
----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 -                                                                    -
                                -
 I 17.00-17.15                                                        I
                                I
 I ARM A       5.30     21.56   0.246   - -       -    0.2    0.3        4.8
         -              0.061     I
 I ARM B       4.90     22.96   0.213   - -       -    0.2    0.3        4.0
         -              0.055     I
 I ARM C      17.99     25.25   0.713   - -       -    1.4    2.4       34.1
         -              0.135     I
 I                                                                    I
                                I

-------------------------------------------------------------------------------------------
----------------------------------
.-------------------------------------------------------------------------------------------
----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 -                                                                    -
                                -
```



```
 I 17.15-17.30                                                        I
                                I
 I ARM A       6.50     20.71   0.314   - -       -    0.3    0.5        6.7
         -              0.070     I
 I ARM B       6.00     22.35   0.269   - -       -    0.3    0.4        5.4
         -              0.061     I
 I ARM C      22.04     25.13   0.877   - -       -    2.4    6.2       80.0
         -              0.280     I
 I                                                                    I
                                I

-------------------------------------------------------------------------------------------
----------------------------------
.-------------------------------------------------------------------------------------------
----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 -                                                                    -
                                -
 I 17.30-17.45                                                        I
                                I
 I ARM A       6.50     20.66   0.314   - -       -    0.5    0.5        6.8
         -              0.071     I
 I ARM B       6.00     22.34   0.269   - -       -    0.4    0.4        5.5
         -              0.061     I
 I ARM C      22.04     25.13   0.877   - -       -    6.2    6.6       96.6
         -              0.314     I
 I                                                                    I
                                I

-------------------------------------------------------------------------------------------
----------------------------------
.-------------------------------------------------------------------------------------------
----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 -                                                                    -
                                -
 I 17.45-18.00                                                        I
                                I
 I ARM A       5.30     21.49   0.247   - -       -    0.5    0.3        5.0
         -              0.062     I
 I ARM B       4.90     22.96   0.213   - -       -    0.4    0.3        4.2
         -              0.055     I
 I ARM C      17.99     25.25   0.713   - -       -    6.6    2.6       42.3
         -              0.149     I
 I                                                                    I
                                I

-------------------------------------------------------------------------------------------
----------------------------------
.-------------------------------------------------------------------------------------------
----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 -                                                                    -
```

```
                                -
 I 18.00-18.15                  I
 I ARM A       4.44     22.18   0.200   - -       -    0.3    0.3        3.8
         -              0.056     I
 I ARM B       4.10     23.41   0.175   - -       -    0.3    0.2        3.2
         -              0.052     I
 I ARM C      15.07     25.34   0.595   - -       -    2.6    1.5       23.3
         -              0.099     I
 I                              I
```

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.2	
17.15	0.3	
17.30	0.5	
17.45	0.5	
18.00	0.3	
18.15	0.3	

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.2	
17.15	0.3	
17.30	0.4	
17.45	0.4	
18.00	0.3	
18.15	0.2	

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	1.4	*
17.15	2.4	**
17.30	6.2	******
17.45	6.6	*******
18.00	2.6	***
18.15	1.5	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	487.3	324.8	30.8	0.06	30.8	0.06
B	450.1	300.1	25.4	0.06	25.4	0.06
C	1653.1	1102.1	297.0	0.18	297.0	0.18
ALL	2590.4	1727.0	353.2	0.14	353.3	0.14

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

10173a - J1 A1017 jw A1307 - Rev3 2019 PM +NW1+NE1

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)
Patch 15 Apr 2011

_____

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"p:\10173\Traffic\Junctions - Rev3\J1 A1307 jw A1017\
10173a - J1 A1017 jw A1307 - Rev3 2029R AM +NW2+NE2 +Impr1.vai"
(drive-on-the-left) at 14:43:17 on Wednesday, 8 April 2015

.FILE PROPERTIES
****

RUN TITLE: J1 A1017 jw A1307 - 2029R +NW2+NE2 +Impr1 Rev3 AM
LOCATION: Haverhill
DATE: 08/04/15
CLIENT: Hallam
ENUMERATOR: sue.tadman [BCL25]
JOB NUMBER: 10173
STATUS: Preliminary
DESCRIPTION:

.INPUT DATA
****
ARM A - A1307 East
ARM B - A1017 South
ARM C - A1017 North

.GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
A	3.00	8.00	12.00	15.00	40.00	30.0	0.604	25.548
B	3.60	6.00	10.00	25.00	40.00	25.0	0.619	25.714
C	3.60	9.30	10.00	30.00	40.00	25.0	0.664	29.328

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown
.SCALING FACTORS

IARM	FLOW SCALE(%)
A	100
B	100
C	100

TIME PERIOD BEGINS(07.45)AND ENDS(09.15)
.LENGTH OF TIME PERIOD -(90) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

.DEMAND SET TITLE: as above

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
A	15.00	45.00	75.00	15.23	22.84	15.23
B	15.00	45.00	75.00	7.05	10.58	7.05
C	15.00	45.00	75.00	9.06	13.59	9.06

DEMAND SET TITLE: as above

T33

TIME	FROM/T	ARM A	ARM B	ARM C
07.45 - 09.15				
	ARM A	0.000	0.034	0.966
		0.0	42.0	1176.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.035	0.000	0.965
		20.0	0.0	544.0

		I (0.0)I (0.0)I (0.0)I		
		I I I I		
	ARM C	I 0.593 I 0.407 I 0.000 I		
		I 430.0 I 295.0 I 0.0 I		
		I (0.0)I (0.0)I (0.0)I		
		I I I I		

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)	GEOMETRIC DELAY (VEH.MIN/ TIME	AVERAGE DELAY PER ARRIVING
07.45-08.00									
ARM A	15.28	23.32	0.655	- -	-	0.0	1.9	26.2	- 0.121
ARM B	7.08	16.66	0.425	- -	-	0.0	0.7	10.5	- 0.103
ARM C	9.10	29.16	0.312	- -	-	0.0	0.5	6.6	- 0.050
08.00-08.15									
ARM A	18.25	22.88	0.798	- -	-	1.9	3.7	50.5	- 0.206
ARM B	8.45	14.89	0.568	- -	-	0.7	1.3	18.3	- 0.154
ARM C	10.86	29.13	0.373	- -	-	0.5	0.6	8.7	- 0.055
08.15-08.30									
ARM A	22.35	22.28	1.003	- -	-	3.7	18.8	191.9	- 0.709
ARM B	10.35	12.96	0.798	- -	-	1.3	3.6	46.5	- 0.344
ARM C	13.30	29.09	0.457	- -	-	0.6	0.8	12.3	- 0.063

TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)	GEOMETRIC DELAY (VEH.MIN/ TIME	AVERAGE DELAY PER ARRIVING
08.30-08.45									
ARM A	22.35	22.28	1.003	- -	-	18.8	26.8	344.9	- 1.192
ARM B	10.35	12.68	0.816	- -	-	3.6	4.1	58.1	- 0.413
ARM C	13.30	29.08	0.457	- -	-	0.8	0.8	12.6	- 0.063
08.45-09.00									
ARM A	18.25	22.88	0.798	- -	-	26.8	4.3	134.2	- 0.442
ARM B	8.45	13.92	0.607	- -	-	4.1	1.6	26.2	- 0.194
ARM C	10.86	29.12	0.373	- -	-	0.8	0.6	9.1	- 0.055

```
                                 -
 I 09.00-09.15                   I
                                 I
 I ARM A      15.28     23.31    0.656   - -       -    4.3    1.9       31.2
         -              0.130     I
 I ARM B       7.08     16.49    0.429   - -       -    1.6    0.8       11.9
         -              0.107     I
 I ARM C       9.10     29.16    0.312   - -       -    0.6    0.5        6.9
         -              0.050     I
 I                               I
```

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.9	**
08.15	3.7	****
08.30	18.8	******************
08.45	26.8	**************************
09.00	4.3	****
09.15	1.9	**

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.7	*
08.15	1.3	*
08.30	3.6	****
08.45	4.1	****
09.00	1.6	**
09.15	0.8	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.5	
08.15	0.6	*
08.30	0.8	*
08.45	0.8	*
09.00	0.6	*
09.15	0.5	

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
A	1676.5	1117.7	778.9	0.46	779.0	0.46
B	776.3	517.5	171.5	0.22	171.6	0.22
C	997.9	665.3	56.3	0.06	56.3	0.06
ALL	3450.7	2300.5	1006.7	0.29	1006.8	0.29

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)
Patch 15 Apr 2011

_____

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"p:\10173\Traffic\Junctions - Rev3\J1 A1307 jw A1017\
10173a - J1 A1017 jw A1307 - Rev3 2029R PM +NW2+NE2 +Impr1.vai"
(drive-on-the-left) at 14:44:20 on Wednesday, 8 April 2015

.FILE PROPERTIES
****

RUN TITLE: J1 A1017 jw A1307 - 2029R +NW2+NE2 +Impr1 Rev3 PM
LOCATION: Haverhill
DATE: 08/04/15
CLIENT: Hallam
ENUMERATOR: sue.tadman [BCL25]
JOB NUMBER: 10173
STATUS: Preliminary
DESCRIPTION:

.INPUT DATA
****
ARM A - A1307 East
ARM B - A1017 South
ARM C - A1017 North

.GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
A	3.00	8.00	12.00	15.00	40.00	30.0	0.604	25.548
B	3.60	6.00	10.00	25.00	40.00	25.0	0.619	25.714
C	3.60	9.30	10.00	30.00	40.00	25.0	0.664	29.328

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown
.SCALING FACTORS

IARM	FLOW SCALE(%)
A	100
B	100
C	100

TIME PERIOD BEGINS(16.45)AND ENDS(18.15)
.LENGTH OF TIME PERIOD -(90) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

.DEMAND SET TITLE: as above

T15

ARM	FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
A	15.00	45.00	75.00	8.00	12.00	8.00
B	15.00	45.00	75.00	4.63	6.94	4.63
C	15.00	45.00	75.00	21.90	32.85	21.90

DEMAND SET TITLE: as above

T33

TIME	FROM/T	ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.100	0.900
		0.0	64.0	576.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.176	0.000	0.824
		65.0	0.0	305.0

		I (0.0)I	(0.0)I	(0.0)I
		I	I	I
	ARM C	I 0.713 I	0.287 I	0.000 I
		I 1249.0 I	503.0 I	0.0 I
		I (0.0)I	(0.0)I	(0.0)I
		I	I	I

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME SEGMENT		DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)	GEOMETRIC DELAY (VEH.MIN/ TIME	AVERAGE DELAY PER ARRIVING
16.45-17.00										
ARM A		8.03	21.77	0.369	- -	-	0.0	0.6	8.4	
	-		0.072							
ARM B		4.64	21.26	0.218	- -	-	0.0	0.3	4.1	
	-		0.060							
ARM C		21.98	28.79	0.764	- -	-	0.0	3.1	42.7	
	-		0.139							

TIME SEGMENT		DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)	GEOMETRIC DELAY (VEH.MIN/ TIME	AVERAGE DELAY PER ARRIVING
17.00-17.15										
ARM A		9.59	21.06	0.455	- -	-	0.6	0.8	12.1	
	-		0.087							
ARM B		5.54	20.38	0.272	- -	-	0.3	0.4	5.5	
	-		0.067							
ARM C		26.25	28.68	0.915	- -	-	3.1	8.6	107.0	
	-		0.321							

TIME SEGMENT		DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)	GEOMETRIC DELAY (VEH.MIN/ TIME	AVERAGE DELAY PER ARRIVING
17.15-17.30										
ARM A		11.74	20.64	0.569	- -	-	0.8	1.3	18.7	
	-		0.112							
ARM B		6.79	19.19	0.354	- -	-	0.4	0.5	8.0	
	-		0.081							
ARM C		32.15	28.54	1.127	- -	-	8.6	65.9	569.8	
	-		1.468							

TIME SEGMENT		DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)	GEOMETRIC DELAY (VEH.MIN/ TIME	AVERAGE DELAY PER ARRIVING
17.30-17.45										
ARM A		11.74	20.61	0.570	- -	-	1.3	1.3	19.6	
	-		0.113							
ARM B		6.79	19.18	0.354	- -	-	0.5	0.5	8.2	
	-		0.081							
ARM C		32.15	28.54	1.127	- -	-	65.9	120.5	1398.3	
	-		3.372							

TIME SEGMENT		DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)	GEOMETRIC DELAY (VEH.MIN/ TIME	AVERAGE DELAY PER ARRIVING
17.45-18.00										
ARM A		9.59	20.62	0.465	- -	-	1.3	0.9	13.6	
	-		0.091							
ARM B		5.54	20.36	0.272	- -	-	0.5	0.4	5.8	
	-		0.068							
ARM C		26.25	28.68	0.915	- -	-	120.5	87.6	1560.6	
	-		3.669							

```
                                  -
 I 18.00-18.15                                                                  
                                  I
 I ARM A       8.03     20.77   0.387   - -       -    0.9    0.6        9.8
         -               0.079     I
 I ARM B       4.64     21.23   0.219   - -       -    0.4    0.3        4.3
         -               0.060     I
 I ARM C      21.98     28.79   0.764   - -       -   87.6    3.8      599.7
         -               1.483     I
 I
                                  I

--------------------------------------------------------------------------------
----------------------------------

.QUEUE AT ARM A
 --------------

  TIME SEGMENT NO. OF
   ENDING      VEHICLES
               IN QUEUE

    17.00           0.6  *
    17.15           0.8  *
    17.30           1.3  *
    17.45           1.3  *
    18.00           0.9  *
    18.15           0.6  *


.QUEUE AT ARM B
 --------------

  TIME SEGMENT NO. OF
   ENDING      VEHICLES
               IN QUEUE

    17.00           0.3
    17.15           0.4
    17.30           0.5  *
    17.45           0.5  *
    18.00           0.4
    18.15           0.3


.QUEUE AT ARM C
 --------------

  TIME SEGMENT NO. OF
   ENDING      VEHICLES
               IN QUEUE

    17.00           3.1  ***
    17.15           8.6  *********
    17.30          65.9
**********************************************************************
    17.45         120.5
********************************************************************************
**********
    18.00          87.6
********************************************************************************
********
    18.15           3.8  ****

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                 -------------------------------------------

 --------------------------------------------------------------------------------
```


T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	880.9	587.3	82.3	0.09	82.3	0.09
B	509.3	339.5	35.7	0.07	35.7	0.07
C	2411.5	1607.7	4278.1	1.77	4278.3	1.77
ALL	3801.7	2534.5	4396.1	1.16	4396.3	1.16

 * DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
 * INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING
AFTER THE END OF THE TIME PERIOD.
 * THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE
REMAINING AT THE END OF THE TIME PERIOD.

 END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)
Patch 15 Apr 2011

_____

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"p:\10173\Traffic\Junctions - Rev3\J1 A1307 jw A1017\
10173a - J1 A1017 jw A1307 - Rev3 2029R AM +NW2+NE2 +Impr2.vai"
(drive-on-the-left) at 14:43:49 on Wednesday, 8 April 2015

.FILE PROPERTIES
****

RUN TITLE: J1 A1017 jw A1307 - 2029R +NW2+NE2 +Impr2 Rev3 AM
LOCATION: Haverhill
DATE: 08/04/15
CLIENT: Hallam
ENUMERATOR: sue.tadman [BCL25]
JOB NUMBER: 10173
STATUS: Preliminary
DESCRIPTION:

.INPUT DATA
****
ARM A - A1307 East
ARM B - A1017 South
ARM C - A1017 North

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
A	3.00	11.00	15.00	15.00	60.00	30.0	0.566	29.586
B	3.60	6.00	10.00	25.00	60.00	25.0	0.537	25.714
C	7.00	9.00	15.00	30.00	60.00	25.0	0.727	43.857

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown
.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100

TIME PERIOD BEGINS(07.45)AND ENDS(09.15)
.LENGTH OF TIME PERIOD -(90) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

.DEMAND SET TITLE: as above

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
A	15.00	45.00	75.00	15.23	22.84	15.23
B	15.00	45.00	75.00	7.05	10.58	7.05
C	15.00	45.00	75.00	9.06	13.59	9.06

DEMAND SET TITLE: as above

T33

TIME	FROM/T	ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.034	0.966
		0.0	42.0	1176.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.035	0.000	0.965
		20.0	0.0	544.0

		I (0.0)I (0.0)I (0.0)I		
		I I I I		
	ARM C	I 0.593 I 0.407 I 0.000 I		
		I 430.0 I 295.0 I 0.0 I		
		I (0.0)I (0.0)I (0.0)I		
		I I I I		

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)	GEOMETRIC DELAY (VEH.MIN/ TIME	AVERAGE DELAY PER ARRIVING
07.45-08.00									
ARM A	15.28	27.50	0.556	- -	-	0.0	1.2	17.8	
	-		0.081						
ARM B	7.08	17.83	0.397	- -	-	0.0	0.7	9.4	
	-		0.092						
ARM C	9.10	43.68	0.208	- -	-	0.0	0.3	3.9	
	-		0.029						
08.00-08.15									
ARM A	18.25	27.09	0.674	- -	-	1.2	2.0	28.9	
	-		0.112						
ARM B	8.45	16.28	0.519	- -	-	0.7	1.1	15.3	
	-		0.127						
ARM C	10.86	43.64	0.249	- -	-	0.3	0.3	4.9	
	-		0.031						

TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)	GEOMETRIC DELAY (VEH.MIN/ TIME	AVERAGE DELAY PER ARRIVING
08.15-08.30									
ARM A	22.35	26.52	0.843	- -	-	2.0	4.9	65.3	
	-		0.220						
ARM B	10.35	14.23	0.727	- -	-	1.1	2.5	34.4	
	-		0.246						
ARM C	13.30	43.59	0.305	- -	-	0.3	0.4	6.5	
	-		0.033						
08.30-08.45									
ARM A	22.35	26.52	0.843	- -	-	4.9	5.1	75.4	
	-		0.237						
ARM B	10.35	14.13	0.732	- -	-	2.5	2.6	38.9	
	-		0.262						
ARM C	13.30	43.59	0.305	- -	-	0.4	0.4	6.6	
	-		0.033						
08.45-09.00									
ARM A	18.25	27.08	0.674	- -	-	5.1	2.1	34.0	
	-		0.118						
ARM B	8.45	16.15	0.523	- -	-	2.6	1.1	17.8	
	-		0.133						
ARM C	10.86	43.64	0.249	- -	-	0.4	0.3	5.0	
	-		0.031						

```
                                  -
 I 09.00-09.15                    I
 I ARM A      15.28     27.49   0.556   - -       -    2.1    1.3       19.7
         -              0.083     I
 I ARM B       7.08     17.76   0.398   - -       -    1.1    0.7       10.4
         -              0.094     I
 I ARM C       9.10     43.67   0.208   - -       -    0.3    0.3        4.0
         -              0.029     I
 I                                I
                                  I
```

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.2	*
08.15	2.0	**
08.30	4.9	*****
08.45	5.1	*****
09.00	2.1	**
09.15	1.3	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.7	*
08.15	1.1	*
08.30	2.5	***
08.45	2.6	***
09.00	1.1	*
09.15	0.7	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.3
08.15	0.3
08.30	0.4
08.45	0.4
09.00	0.3
09.15	0.3

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
T75						

A	1676.5	1117.7	241.2	0.14	241.2	0.14
B	776.3	517.5	126.1	0.16	126.1	0.16
C	997.9	665.3	30.9	0.03	30.9	0.03
ALL	3450.7	2300.5	398.2	0.12	398.2	0.12

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)
Patch 15 Apr 2011

_____

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"p:\10173\Traffic\Junctions - Rev3\J1 A1307 jw A1017\
10173a - J1 A1017 jw A1307 - Rev3 2029R PM +NW2+NE2 +Impr2.vai"
(drive-on-the-left) at 14:44:49 on Wednesday, 8 April 2015

.FILE PROPERTIES
****

RUN TITLE: J1 A1017 jw A1307 - 2029R +NW2+NE2 +Impr2 Rev3 PM
LOCATION: Haverhill
DATE: 08/04/15
CLIENT: Hallam
ENUMERATOR: sue.tadman [BCL25]
JOB NUMBER: 10173
STATUS: Preliminary
DESCRIPTION:

.INPUT DATA
****
ARM A - A1307 East
ARM B - A1017 South
ARM C - A1017 North

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
A	3.00	11.00	15.00	15.00	60.00	30.0	0.566	29.586
B	3.60	6.00	10.00	25.00	60.00	25.0	0.537	25.714
C	7.00	9.00	15.00	30.00	60.00	25.0	0.727	43.857

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown
.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100

TIME PERIOD BEGINS(16.45)AND ENDS(18.15)
.LENGTH OF TIME PERIOD -(90) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

.DEMAND SET TITLE: as above

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
A	15.00	45.00	75.00	8.00	12.00	8.00
B	15.00	45.00	75.00	4.63	6.94	4.63
C	15.00	45.00	75.00	21.90	32.85	21.90

DEMAND SET TITLE: as above

T33

TIME	FROM/T	TURNING PROPORTIONS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.100	0.900
		0.0	64.0	576.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.176	0.000	0.824
		65.0	0.0	305.0

		I (0.0)I (0.0)I (0.0)I		
		I I I I		
	ARM C	I 0.713 I 0.287 I 0.000 I		
		I 1249.0 I 503.0 I 0.0 I		
		I (0.0)I (0.0)I (0.0)I		
		I I I I		

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)	GEOMETRIC DELAY (VEH.MIN/ SEGMENT)	AVERAGE DELAY PER ARRIVING TIME
16.45-17.00									
ARM A	8.03	26.03	0.309	- -	-	0.0	0.4	6.5	
	-		0.055						
ARM B	4.64	21.85	0.212	- -	-	0.0	0.3	3.9	
	-		0.058						
ARM C	21.98	43.27	0.508	- -	-	0.0	1.0	15.0	
	-		0.047						
17.00-17.15									
ARM A	9.59	25.33	0.379	- -	-	0.4	0.6	8.9	
	-		0.063						
ARM B	5.54	21.09	0.263	- -	-	0.3	0.4	5.2	
	-		0.064						
ARM C	26.25	43.15	0.608	- -	-	1.0	1.5	22.5	
	-		0.059						

TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)	GEOMETRIC DELAY (VEH.MIN/ SEGMENT)	AVERAGE DELAY PER ARRIVING TIME
17.15-17.30									
ARM A	11.74	24.38	0.482	- -	-	0.6	0.9	13.4	
	-		0.079						
ARM B	6.79	20.05	0.339	- -	-	0.4	0.5	7.5	
	-		0.075						
ARM C	32.15	42.99	0.748	- -	-	1.5	2.9	41.3	
	-		0.091						
17.30-17.45									
ARM A	11.74	24.36	0.482	- -	-	0.9	0.9	13.9	
	-		0.079						
ARM B	6.79	20.04	0.339	- -	-	0.5	0.5	7.6	
	-		0.075						
ARM C	32.15	42.99	0.748	- -	-	2.9	2.9	43.8	
	-		0.092						
17.45-18.00									
ARM A	9.59	25.31	0.379	- -	-	0.9	0.6	9.4	
	-		0.064						
ARM B	5.54	21.07	0.263	- -	-	0.5	0.4	5.5	
	-		0.064						
ARM C	26.25	43.15	0.608	- -	-	2.9	1.6	24.3	
	-		0.060						

```
                                  -
 I 18.00-18.15                    I
 I ARM A       8.03     26.01   0.309   - -       -    0.6    0.4        6.9
         -             0.056     I
 I ARM B       4.64     21.83   0.213   - -       -    0.4    0.3        4.1
         -             0.058     I
 I ARM C      21.98     43.26   0.508   - -       -    1.6    1.0       15.9
         -             0.047     I
 I                                I
```

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.4	
17.15	0.6	*
17.30	0.9	*
17.45	0.9	*
18.00	0.6	*
18.15	0.4	

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.3	
17.15	0.4	
17.30	0.5	*
17.45	0.5	*
18.00	0.4	
18.15	0.3	

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	1.0	*
17.15	1.5	**
17.30	2.9	***
17.45	2.9	***
18.00	1.6	**
18.15	1.0	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
A	880.9	587.3	59.0	0.07	59.0	0.07
B	509.3	339.5	33.9	0.07	33.9	0.07
C	2411.5	1607.7	162.8	0.07	162.8	0.07
ALL	3801.7	2534.5	255.7	0.07	255.7	0.07

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

10173a - J2 A143 jw Chalkstone Way - Rev3 2019 +NW1+NE1 AM

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)
Patch 15 Apr 2011
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TRL Limited Tel: +44 (0) 1344 770758
Crowthorne House Fax: +44 (0) 1344 770356
Nine Mile Ride Email: software@trl.co.uk
Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

Run with file:-
"p:\10173\Traffic\Junctions - Rev3\J2 A143 Sturner Road jw Chalkstone way\10173a - J2 A143 jw Chalkstone Way - Rev3 2019 +NW1+NE1 AM.vai"
(drive-on-the-left) at 14:11:30 on Wednesday, 8 April 2015

.FILE PROPERTIES
****

RUN TITLE: J2 A143 jw Chalkstone Way - Rev3 2019 +NW1+NE1 AM
LOCATION: Haverhill
DATE: 08/04/15
CLIENT: Hallam
ENUMERATOR: sue.tadman [BCL25]
JOB NUMBER: 10173
STATUS: Preliminary
DESCRIPTION:

.INPUT DATA
****
ARM A - Chalkstone Way
ARM B - A143 Rowley Hill
ARM C - A143 Ehringhausen Way

.MINI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
LIGHTING CONDITIONS : NORMAL
ROAD SURFACE CONDITION: NORMAL

---------- T5

ARM	V (M)	E (M)	Lm(M)	Vm(M)	A (M)	K (M)	G (%)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.00	4.50	3.00	3.00	8.50	6.00	0.00	0.533	13.460
ARM B	3.20	4.00	2.00	3.20	13.00	14.00	0.00	0.560	14.321
ARM C	3.20	6.00	5.00	3.20	11.00	8.00	0.00	0.566	17.016

V = approach half-width Lm = effective flare length A = distance between arms
E = entry width Vm = minimum approach half-width K= entry corner kerb line G=gradient over 50 m

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown
.SCALING FACTORS
---------- T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100

TIME PERIOD BEGINS(07.45)AND ENDS(09.15)
.LENGTH OF TIME PERIOD -(90) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

.DEMAND SET TITLE: as above

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	5.15	7.73	5.15
ARM B	15.00	45.00	75.00	3.64	5.46	3.64
ARM C	15.00	45.00	75.00	4.84	7.26	4.84

DEMAND SET TITLE: as above
---------- T33

TIME	FROM/T	ARM A	ARM B	ARM C
07.45 - 09.15	TURNING PROPORTIONS			
	TURNING COUNTS (PERCENTAGE OF H.V.S)			
	ARM A	0.000	0.204	0.796
		0.0	84.0	328.0

```
 I                  I        I (  0.0)I (  0.0)I (  0.0)I
 I                  I        I        I        I        I
 I                  I  ARM  B I  0.165 I  0.000 I  0.835 I
 I                  I        I   48.0 I    0.0 I  243.0 I
 I                  I        I (  0.0)I (  0.0)I (  0.0)I
 I                  I        I        I        I        I
 I                  I  ARM  C I  0.341 I  0.659 I  0.000 I
 I                  I        I  132.0 I  255.0 I    0.0 I
 I                  I        I (  0.0)I (  0.0)I (  0.0)I
 I                  I        I        I        I        I
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. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

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.-------------------------------------------------------------------------------
---------------------------------- T70
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                  AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
                  PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)                   VEHICLE (MIN) I
 -                                 -
 I 07.45-08.00                     I
 I ARM A       5.17     11.76   0.439   - -       -    0.0    0.8       11.0
         -              0.149     I
 I ARM B       3.65     12.04   0.303   - -       -    0.0    0.4        6.2
         -              0.118     I
 I ARM C       4.86     16.68   0.291   - -       -    0.0    0.4        5.9
         -              0.084     I
 I                                 I

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----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                  AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
                  PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)                   VEHICLE (MIN) I
 -                                 -
 I 08.00-08.15                     I
 I ARM A       6.17     11.42   0.540   - -       -    0.8    1.1       16.4
         -              0.189     I
 I ARM B       4.36     11.58   0.377   - -       -    0.4    0.6        8.7
         -              0.138     I
 I ARM C       5.80     16.61   0.349   - -       -    0.4    0.5        7.8
         -              0.092     I
 I                                 I

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----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                  AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
                  PER ARRIVING  I
```



```
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)                   VEHICLE (MIN) I
 -                                 -
 I 08.15-08.30                     I
 I ARM A       7.56     10.97   0.689   - -       -    1.1    2.1       28.9
         -              0.282     I
 I ARM B       5.34     10.98   0.486   - -       -    0.6    0.9       13.3
         -              0.176     I
 I ARM C       7.10     16.52   0.430   - -       -    0.5    0.7       10.9
         -              0.106     I
 I                                 I

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----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                  AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
                  PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)                   VEHICLE (MIN) I
 -                                 -
 I 08.30-08.45                     I
 I ARM A       7.56     10.96   0.690   - -       -    2.1    2.2       32.0
         -              0.293     I
 I ARM B       5.34     10.95   0.488   - -       -    0.9    0.9       14.0
         -              0.178     I
 I ARM C       7.10     16.52   0.430   - -       -    0.7    0.7       11.2
         -              0.106     I
 I                                 I

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.-------------------------------------------------------------------------------
----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                  AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
                  PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)                   VEHICLE (MIN) I
 -                                 -
 I 08.45-09.00                     I
 I ARM A       6.17     11.42   0.541   - -       -    2.2    1.2       19.2
         -              0.196     I
 I ARM B       4.36     11.54   0.378   - -       -    0.9    0.6        9.6
         -              0.140     I
 I ARM C       5.80     16.61   0.349   - -       -    0.7    0.5        8.3
         -              0.093     I
 I                                 I

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.-------------------------------------------------------------------------------
----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                  AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
```

```
                PER ARRIVING  I
 I                            (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)                  VEHICLE (MIN) I
 -                                                                    -
                                                                      -
 I 09.00-09.15                                                        I
                                                                      I
 I ARM A       5.17     11.75   0.440   - -       -    1.2    0.8       12.5
         -              0.153     I
 I ARM B       3.65     12.00   0.304   - -       -    0.6    0.4        6.8
         -              0.120     I
 I ARM C       4.86     16.67   0.291   - -       -    0.5    0.4        6.3
         -              0.085     I
 I                                                                    I
                                                                      I
```

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.8	*
08.15	1.1	*
08.30	2.1	**
08.45	2.2	**
09.00	1.2	*
09.15	0.8	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.4	
08.15	0.6	*
08.30	0.9	*
08.45	0.9	*
09.00	0.6	*
09.15	0.4	

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.4	
08.15	0.5	*
08.30	0.7	*
08.45	0.7	*
09.00	0.5	*
09.15	0.4	

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
A	567.1	378.1	119.9	0.21	120.0	0.21
B	400.5	267.0	58.6	0.15	58.6	0.15
C	532.7	355.1	50.5	0.09	50.5	0.09
ALL	1500.3	1000.2	229.0	0.15	229.1	0.15

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)
Patch 15 Apr 2011
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Run with file:-
"p:\10173\Traffic\Junctions - Rev3\J2 A143 Sturner Road jw Chalkstone way\
10173a - J2 A143 jw Chalkstone Way - Rev3 2019 +NW1+NE1 PM.vai"
(drive-on-the-left) at 14:12:10 on Wednesday, 8 April 2015

.FILE PROPERTIES
****

RUN TITLE: J2 A143 jw Chalkstone Way - Rev3 2019 +NW1+NE1 PM
LOCATION: Haverhill
DATE: 08/04/15
CLIENT: Hallam
ENUMERATOR: sue.tadman [BCL25]
JOB NUMBER: 10173
STATUS: Preliminary
DESCRIPTION:

.INPUT DATA
****
ARM A - Chalkstone Way
ARM B - A143 Rowley Hill
ARM C - A143 Ehringhausen Way

.MINI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
LIGHTING CONDITIONS : NORMAL
ROAD SURFACE CONDITION: NORMAL

---------- T5

ARM	V (M)	E (M)	Lm(M)	Vm(M)	A (M)	K (M)	G (%)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.00	4.50	3.00	3.00	8.50	6.00	0.00	0.533	13.460
ARM B	3.20	4.00	2.00	3.20	13.00	14.00	0.00	0.560	14.321
ARM C	3.20	6.00	5.00	3.20	11.00	8.00	0.00	0.566	17.016

V = approach half-width Lm = effective flare length A = distance between arms
E = entry width Vm = minimum approach half-width K= entry corner kerb line G=gradient over 50 m

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown
.SCALING FACTORS
---------- T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100

TIME PERIOD BEGINS(16.45)AND ENDS(18.15)
.LENGTH OF TIME PERIOD -(90) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

.DEMAND SET TITLE: as above

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	2.35	3.52	2.35
ARM B	15.00	45.00	75.00	5.32	7.99	5.32
ARM C	15.00	45.00	75.00	6.88	10.31	6.88

DEMAND SET TITLE: as above
---------- T33

TIME	FROM/T	ARM A	ARM B	ARM C
16.45 - 18.15				
	ARM A	0.000	0.197	0.803
		0.0	37.0	151.0

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

```
 I                   I        I (  0.0)I (  0.0)I (  0.0)I
 I                   I        I        I        I        I
 I                   I  ARM  B I  0.232 I  0.000 I  0.768 I
 I                   I        I   99.0 I    0.0 I  327.0 I
 I                   I        I (  0.0)I (  0.0)I (  0.0)I
 I                   I        I        I        I        I
 I                   I  ARM  C I  0.524 I  0.476 I  0.000 I
 I                   I        I  288.0 I  262.0 I    0.0 I
 I                   I        I (  0.0)I (  0.0)I (  0.0)I
 I                   I        I        I        I        I
 ------------------------------------------------------------
```

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

```
.-------------------------------------------------------------------------------
---------------------------------- T70
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                  AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
                  PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)                  VEHICLE (MIN) I
 -                                 -
 I 16.45-17.00                     I
 I ARM A       2.36     11.72   0.201   - -       -    0.0    0.2        3.6
         -             0.106     I
 I ARM B       5.35     13.27   0.403   - -       -    0.0    0.7        9.5
         -             0.125     I
 I ARM C       6.90     16.32   0.423   - -       -    0.0    0.7       10.4
         -             0.105     I
 I                               I

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.-------------------------------------------------------------------------------
---------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                  AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
                  PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)                  VEHICLE (MIN) I
 -                                 -
 I 17.00-17.15                     I
 I ARM A       2.82     11.37   0.248   - -       -    0.2    0.3        4.8
         -             0.117     I
 I ARM B       6.38     13.06   0.489   - -       -    0.7    0.9       13.6
         -             0.149     I
 I ARM C       8.24     16.18   0.509   - -       -    0.7    1.0       14.8
         -             0.125     I
 I                               I

-------------------------------------------------------------------------------
---------------------------------
.-------------------------------------------------------------------------------
---------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                  AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
                  PER ARRIVING  I
```



```
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)                  VEHICLE (MIN) I
 -                                 -
 I 17.15-17.30                     I
 I ARM A       3.45     10.91   0.316   - -       -    0.3    0.5        6.7
         -             0.134     I
 I ARM B       7.82     12.77   0.612   - -       -    0.9    1.5       21.6
         -             0.198     I
 I ARM C      10.09     15.99   0.631   - -       -    1.0    1.7       23.6
         -             0.167     I
 I                               I

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---------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                  AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
                  PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)                  VEHICLE (MIN) I
 -                                 -
 I 17.30-17.45                     I
 I ARM A       3.45     10.90   0.317   - -       -    0.5    0.5        6.9
         -             0.134     I
 I ARM B       7.82     12.77   0.612   - -       -    1.5    1.6       23.1
         -             0.201     I
 I ARM C      10.09     15.99   0.631   - -       -    1.7    1.7       25.2
         -             0.169     I
 I                               I

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---------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                  AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
                  PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)                  VEHICLE (MIN) I
 -                                 -
 I 17.45-18.00                     I
 I ARM A       2.82     11.36   0.248   - -       -    0.5    0.3        5.1
         -             0.117     I
 I ARM B       6.38     13.05   0.489   - -       -    1.6    1.0       15.3
         -             0.152     I
 I ARM C       8.24     16.17   0.510   - -       -    1.7    1.1       16.5
         -             0.128     I
 I                               I

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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                  AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
```

```
                PER ARRIVING  I
 I                            (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)                  VEHICLE (MIN) I
 -                                                                    -
                                                                      -
 I 18.00-18.15                                                        I
 I ARM A       2.36     11.70   0.202   - -       -    0.3    0.3        3.9
         -              0.107     I
 I ARM B       5.35     13.26   0.403   - -       -    1.0    0.7       10.6
         -              0.127     I
 I ARM C       6.90     16.31   0.423   - -       -    1.1    0.7       11.5
         -              0.107     I
 I                                                                    I
                                  I
```

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.2	
17.15	0.3	
17.30	0.5	
17.45	0.5	
18.00	0.3	
18.15	0.3	

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.7	*
17.15	0.9	*
17.30	1.5	**
17.45	1.6	**
18.00	1.0	*
18.15	0.7	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.7	*
17.15	1.0	*
17.30	1.7	**
17.45	1.7	**
18.00	1.1	*
18.15	0.7	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	258.8	172.5	31.0	0.12	31.0	0.12
B	586.4	390.9	93.8	0.16	93.8	0.16
C	757.0	504.7	102.0	0.13	102.0	0.13
ALL	1602.2	1068.1	226.8	0.14	226.8	0.14

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)
Patch 15 Apr 2011

_____

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"p:\10173\Traffic\Junctions - Rev3\J2 A143 Sturner Road jw Chalkstone way\
10173a - J2 A143 jw Chalkstone Way - Rev3 2029R +NW2+NE2 AM.vai"
(drive-on-the-left) at 14:12:59 on Wednesday, 8 April 2015

.FILE PROPERTIES
****

RUN TITLE: J2 A143 jw Chalkstone Way - Rev3 2029R +NW2+NE2 AM
LOCATION: Haverhill
DATE: 08/04/15
CLIENT: Hallam
ENUMERATOR: sue.tadman [BCL25]
JOB NUMBER: 10173
STATUS: Preliminary
DESCRIPTION:

.INPUT DATA
****
ARM A - Chalkstone Way
ARM B - A143 Rowley Hill
ARM C - A143 Ehringhausen Way

.MINI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
LIGHTING CONDITIONS : NORMAL
ROAD SURFACE CONDITION: NORMAL

T5

ARM	V (M)	E (M)	Lm(M)	Vm(M)	A (M)	K (M)	G (%)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.00	4.50	3.00	3.00	8.50	6.00	0.00	0.533	13.460
ARM B	3.20	4.00	2.00	3.20	13.00	14.00	0.00	0.560	14.321
ARM C	3.20	6.00	5.00	3.20	11.00	8.00	0.00	0.566	17.016

V = approach half-width Lm = effective flare length A = distance between arms
E = entry width Vm = minimum approach half-width K= entry corner kerb line G=gradient over 50 m

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown
.SCALING FACTORS
---- T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100

TIME PERIOD BEGINS(07.45)AND ENDS(09.15)
.LENGTH OF TIME PERIOD -(90) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

.DEMAND SET TITLE: as above

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	5.97	8.96	5.97
ARM B	15.00	45.00	75.00	4.34	6.51	4.34
ARM C	15.00	45.00	75.00	5.80	8.70	5.80

DEMAND SET TITLE: as above
---- T33

TIME	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) FROM/T	ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.272	0.728
		0.0	130.0	348.0

```
 I                   I         I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I         I         I         I
 I                   I  ARM  B I  0.207 I  0.000 I  0.793 I
 I                   I         I   72.0 I    0.0 I  275.0 I
 I                   I         I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I         I         I         I
 I                   I  ARM  C I  0.302 I  0.698 I  0.000 I
 I                   I         I  140.0 I  324.0 I    0.0 I
 I                   I         I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I         I         I         I
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. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

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---------------------------------- T70
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                    AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
                    PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)                  VEHICLE (MIN) I
 -                                 -
 I 07.45-08.00                     I
 I ARM A       6.00     11.30   0.531   - -       -    0.0    1.1       15.4
         -              0.184     I
 I ARM B       4.35     11.90   0.366   - -       -    0.0    0.6        8.2
         -              0.131     I
 I ARM C       5.82     16.51   0.353   - -       -    0.0    0.5        7.8
         -              0.093     I
 I                                 I

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---------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                    AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
                    PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)                  VEHICLE (MIN) I
 -                                 -
 I 08.00-08.15                     I
 I ARM A       7.16     10.88   0.659   - -       -    1.1    1.8       25.6
         -              0.262     I
 I ARM B       5.20     11.42   0.455   - -       -    0.6    0.8       11.8
         -              0.160     I
 I ARM C       6.95     16.41   0.424   - -       -    0.5    0.7       10.6
         -              0.105     I
 I                                 I

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---------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                    AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
                    PER ARRIVING  I
```



```
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)                  VEHICLE (MIN) I
 -                                 -
 I 08.15-08.30                     I
 I ARM A       8.77     10.30   0.852   - -       -    1.8    4.7       58.3
         -              0.532     I
 I ARM B       6.37     10.82   0.588   - -       -    0.8    1.4       19.5
         -              0.220     I
 I ARM C       8.51     16.27   0.523   - -       -    0.7    1.1       15.6
         -              0.128     I
 I                                 I

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---------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                    AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
                    PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)                  VEHICLE (MIN) I
 -                                 -
 I 08.30-08.45                     I
 I ARM A       8.77     10.29   0.853   - -       -    4.7    5.1       73.8
         -              0.622     I
 I ARM B       6.37     10.76   0.592   - -       -    1.4    1.4       21.1
         -              0.227     I
 I ARM C       8.51     16.27   0.523   - -       -    1.1    1.1       16.3
         -              0.129     I
 I                                 I

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---------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                    AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
                    PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)                  VEHICLE (MIN) I
 -                                 -
 I 08.45-09.00                     I
 I ARM A       7.16     10.86   0.659   - -       -    5.1    2.0       34.7
         -              0.301     I
 I ARM B       5.20     11.32   0.459   - -       -    1.4    0.9       13.6
         -              0.165     I
 I ARM C       6.95     16.40   0.424   - -       -    1.1    0.7       11.5
         -              0.106     I
 I                                 I

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---------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                    AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
```

SEGMENT)		PER ARRIVING (RFC)	(PEDS/MIN)	(VEHS)	(VEHS)	TIME
09.00-09.15						
ARM A	6.00	11.29	0.531	2.0	1.2	18.5
		0.193				
ARM B	4.35	11.85	0.367	0.9	0.6	9.1
		0.134				
ARM C	5.82	16.50	0.353	0.7	0.6	8.5
		0.094				

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.1	*
08.15	1.8	**
08.30	4.7	*****
08.45	5.1	*****
09.00	2.0	**
09.15	1.2	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.6	*
08.15	0.8	*
08.30	1.4	*
08.45	1.4	*
09.00	0.9	*
09.15	0.6	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.5	*
08.15	0.7	*
08.30	1.1	*
08.45	1.1	*
09.00	0.7	*
09.15	0.6	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	657.9	438.6	226.5	0.34	226.5	0.34
B	477.6	318.4	83.4	0.17	83.4	0.17
C	638.7	425.8	70.3	0.11	70.3	0.11
ALL	1774.2	1182.8	380.1	0.21	380.2	0.21

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)
Patch 15 Apr 2011

_____

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited Tel: +44 (0) 1344 770758
Crowthorne House Fax: +44 (0) 1344 770356
Nine Mile Ride Email: software@trl.co.uk
Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

Run with file:-
"p:\10173\Traffic\Junctions - Rev3\J2 A143 Sturner Road jw Chalkstone way\
10173a - J2 A143 jw Chalkstone Way - Rev3 2029R +NW2+NE2 PM.vai"
(drive-on-the-left) at 14:13:42 on Wednesday, 8 April 2015

.FILE PROPERTIES
****

RUN TITLE: J2 A143 jw Chalkstone Way - Rev3 2029R +NW2+NE2 PM
LOCATION: Haverhill
DATE: 08/04/15
CLIENT: Hallam
ENUMERATOR: sue.tadman [BCL25]
JOB NUMBER: 10173
STATUS: Preliminary
DESCRIPTION:

.INPUT DATA
****
ARM A - Chalkstone Way
ARM B - A143 Rowley Hill
ARM C - A143 Ehringhausen Way

.MINI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
LIGHTING CONDITIONS : NORMAL
ROAD SURFACE CONDITION: NORMAL

T5

ARM	V (M)	E (M)	Lm(M)	Vm(M)	A (M)	K (M)	G (%)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.00	4.50	3.00	3.00	8.50	6.00	0.00	0.533	13.460
ARM B	3.20	4.00	2.00	3.20	13.00	14.00	0.00	0.560	14.321
ARM C	3.20	6.00	5.00	3.20	11.00	8.00	0.00	0.566	17.016

V = approach half-width Lm = effective flare length A = distance between arms
E = entry width Vm = minimum approach half-width K= entry corner kerb line G=gradient over 50 m

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown
.SCALING FACTORS
---- T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100

TIME PERIOD BEGINS(16.45)AND ENDS(18.15)
.LENGTH OF TIME PERIOD -(90) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

.DEMAND SET TITLE: as above

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	2.97	4.46	2.97
ARM B	15.00	45.00	75.00	7.20	10.80	7.20
ARM C	15.00	45.00	75.00	8.20	12.30	8.20

DEMAND SET TITLE: as above
---- T33

TIME	FROM/T	ARM A	ARM B	ARM C
		TURNING PROPORTIONS		
		TURNING COUNTS		
		(PERCENTAGE OF H.V.S)		
16.45 - 18.15				
	ARM A	0.000	0.282	0.718
		0.0	67.0	171.0

```
 I                   I         I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I         I         I         I
 I                   I  ARM  B I  0.259 I  0.000 I  0.741 I
 I                   I         I  149.0 I    0.0 I  427.0 I
 I                   I         I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I         I         I         I
 I                   I  ARM  C I  0.498 I  0.502 I  0.000 I
 I                   I         I  327.0 I  329.0 I    0.0 I
 I                   I         I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I         I         I         I
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. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

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---------------------------------- T70
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                    AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
                    PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)                   VEHICLE (MIN) I
 -                                 -
 I 16.45-17.00                     I
 I ARM A       2.99     11.28   0.265   - -       -    0.0    0.4        5.1
         -              0.120     I
 I ARM B       7.23     13.13   0.551   - -       -    0.0    1.2       16.8
         -              0.165     I
 I ARM C       8.23     15.97   0.515   - -       -    0.0    1.0       14.9
         -              0.127     I
 I                                 I

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---------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                    AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
                    PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)                   VEHICLE (MIN) I
 -                                 -
 I 17.00-17.15                     I
 I ARM A       3.57     10.84   0.329   - -       -    0.4    0.5        7.0
         -              0.137     I
 I ARM B       8.63     12.89   0.670   - -       -    1.2    1.9       27.2
         -              0.230     I
 I ARM C       9.83     15.76   0.624   - -       -    1.0    1.6       23.0
         -              0.166     I
 I                                 I

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---------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                    AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
                    PER ARRIVING  I
```



```
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)                   VEHICLE (MIN) I
 -                                 -
 I 17.15-17.30                     I
 I ARM A       4.37     10.27   0.425   - -       -    0.5    0.7       10.5
         -              0.168     I
 I ARM B      10.57     12.57   0.841   - -       -    1.9    4.5       57.8
         -              0.429     I
 I ARM C      12.04     15.49   0.777   - -       -    1.6    3.2       43.7
         -              0.272     I
 I                                 I

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---------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                    AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
                    PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)                   VEHICLE (MIN) I
 -                                 -
 I 17.30-17.45                     I
 I ARM A       4.37     10.24   0.426   - -       -    0.7    0.7       11.0
         -              0.170     I
 I ARM B      10.57     12.56   0.841   - -       -    4.5    4.8       70.5
         -              0.483     I
 I ARM C      12.04     15.47   0.778   - -       -    3.2    3.4       49.6
         -              0.288     I
 I                                 I

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---------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                    AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
                    PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)                   VEHICLE (MIN) I
 -                                 -
 I 17.45-18.00                     I
 I ARM A       3.57     10.80   0.330   - -       -    0.7    0.5        7.8
         -              0.139     I
 I ARM B       8.63     12.88   0.670   - -       -    4.8    2.1       35.4
         -              0.255     I
 I ARM C       9.83     15.73   0.625   - -       -    3.4    1.7       27.5
         -              0.176     I
 I                                 I

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.-------------------------------------------------------------------------------
---------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                    AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
```

SEGMENT)		PER ARRIVING VEHICLE (MIN)	(RFC)	(PEDS/MIN)	(VEHS)	(VEHS)	TIME
I 18.00-18.15							
I ARM A	2.99	11.25	0.266	- -	-	0.5	0.4	5.6
	-	0.121						
I ARM B	7.23	13.11	0.551	- -	-	2.1	1.3	19.9
	-	0.173						
I ARM C	8.23	15.95	0.516	- -	-	1.7	1.1	17.0
	-	0.131						

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.4	
17.15	0.5	
17.30	0.7	*
17.45	0.7	*
18.00	0.5	
18.15	0.4	

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	1.2	*
17.15	1.9	**
17.30	4.5	*****
17.45	4.8	*****
18.00	2.1	**
18.15	1.3	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	1.0	*
17.15	1.6	**
17.30	3.2	***
17.45	3.4	***
18.00	1.7	**
18.15	1.1	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
A	327.6	218.4	47.0	0.14	47.0	0.14
B	792.8	528.5	227.6	0.29	227.7	0.29
C	902.9	602.0	175.6	0.19	175.6	0.19
ALL	2023.3	1348.9	450.2	0.22	450.3	0.22

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)
Patch 15 Apr 2011

_____

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited Tel: +44 (0) 1344 770758
Crowthorne House Fax: +44 (0) 1344 770356
Nine Mile Ride Email: software@trl.co.uk
Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

Run with file:-
"p:\10173\Traffic\Junctions - Rev3\J3 A1017 jw A143 Rowley Hill\
10173a - J3 A1017 jw A143 Rowley Hill - Rev3 2019 +NW1+NE1 AM.vai"
(drive-on-the-left) at 14:06:53 on Wednesday, 8 April 2015

.FILE PROPERTIES
****

RUN TITLE: J3 A1017 jw A143 Rowley Hill - Rev3 2019AM +NW1+NE1
LOCATION: Haverhill
DATE: 08/04/15
CLIENT: Hallam
ENUMERATOR: sue.tadman [BCL25]
JOB NUMBER: 10173
STATUS: Preliminary
DESCRIPTION:

.INPUT DATA
****
ARM A - A143 Rowley Hill
ARM B - A1017 Rowley Hill
ARM C - A1017 South

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
A	3.00	8.00	12.00	15.00	40.00	30.0	0.604	25.548
B	3.60	6.00	10.00	25.00	40.00	25.0	0.619	25.714
C	3.60	8.30	6.00	30.00	40.00	25.0	0.622	25.788

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown
.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100

TIME PERIOD BEGINS(07.45)AND ENDS(09.15)
.LENGTH OF TIME PERIOD -(90) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

.DEMAND SET TITLE: as above

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
A		15.00	45.00	75.00	2.54	3.81	2.54
B		15.00	45.00	75.00	7.60	11.40	7.60
C		15.00	45.00	75.00	2.35	3.52	2.35

DEMAND SET TITLE: as above

T33

TIME	FROM/T	ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.877	0.123
		0.0	178.0	25.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.382	0.000	0.618
		232.0	0.0	376.0

		(0.0)	(0.0)	(0.0)
ARM C		0.197	0.803	0.000
		37.0	151.0	0.0
		(0.0)	(0.0)	(0.0)

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)
GEOMETRIC DELAY (VEH.MIN/ (RFC)	AVERAGE DELAY PER ARRIVING						
07.45-08.00							
ARM A	2.55	24.41	0.104	- -	-	0.0	0.1	1.7
-		0.046						
ARM B	7.63	25.52	0.299	- -	-	0.0	0.4	6.2
-		0.056						
ARM C	2.36	23.99	0.098	- -	-	0.0	0.1	1.6
-		0.046						
08.00-08.15							
ARM A	3.04	24.18	0.126	- -	-	0.1	0.1	2.1
-		0.047						
ARM B	9.11	25.48	0.357	- -	-	0.4	0.6	8.2
-		0.061						
ARM C	2.82	23.63	0.119	- -	-	0.1	0.1	2.0
-		0.048						

TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)
GEOMETRIC DELAY (VEH.MIN/ (RFC)	AVERAGE DELAY PER ARRIVING						
08.15-08.30							
ARM A	3.73	23.88	0.156	- -	-	0.1	0.2	2.7
-		0.050						
ARM B	11.16	25.43	0.439	- -	-	0.6	0.8	11.4
-		0.070						
ARM C	3.45	23.15	0.149	- -	-	0.1	0.2	2.6
-		0.051						
08.30-08.45							
ARM A	3.73	23.88	0.156	- -	-	0.2	0.2	2.8
-		0.050						
ARM B	11.16	25.43	0.439	- -	-	0.8	0.8	11.7
-		0.070						
ARM C	3.45	23.14	0.149	- -	-	0.2	0.2	2.6
-		0.051						
08.45-09.00							
ARM A	3.04	24.18	0.126	- -	-	0.2	0.1	2.2
-		0.047						
ARM B	9.11	25.48	0.357	- -	-	0.8	0.6	8.6
-		0.061						
ARM C	2.82	23.62	0.119	- -	-	0.2	0.1	2.1
-		0.048						

```
                                  -
 I 09.00-09.15                    I
                                  I
 I ARM A       2.55     24.40   0.104   - -       -    0.1    0.1        1.8
         -              0.046     I
 I ARM B       7.63     25.52   0.299   - -       -    0.6    0.4        6.5
         -              0.056     I
 I ARM C       2.36     23.98   0.098   - -       -    0.1    0.1        1.7
         -              0.046     I
 I
                                  I
```

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.1	
08.15	0.1	
08.30	0.2	
08.45	0.2	
09.00	0.1	
09.15	0.1	

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.4	
08.15	0.6	*
08.30	0.8	*
08.45	0.8	*
09.00	0.6	*
09.15	0.4	

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.1
08.15	0.1
08.30	0.2
08.45	0.2
09.00	0.1
09.15	0.1

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)

A	279.4	186.3	13.3	0.05	13.3	0.05		
B	836.9	557.9	52.5	0.06	52.5	0.06		
C	258.8	172.5	12.5	0.05	12.5	0.05		
ALL	1375.0	916.7	78.3	0.06	78.3	0.06		

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)
Patch 15 Apr 2011

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Nine Mile Ride Email: software@trl.co.uk
Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

Run with file:-
"p:\10173\Traffic\Junctions - Rev3\J3 A1017 jw A143 Rowley Hill\
10173a - J3 A1017 jw A143 Rowley Hill - Rev3 2019 +NW1+NE1 PM.vai"
(drive-on-the-left) at 14:06:57 on Wednesday, 8 April 2015

.FILE PROPERTIES
****

RUN TITLE: J3 A1017 jw A143 Rowley Hill - Rev3 2019PM +NW1+NE1
LOCATION: Haverhill
DATE: 08/04/15
CLIENT: Hallam
ENUMERATOR: sue.tadman [BCL25]
JOB NUMBER: 10173
STATUS: Preliminary
DESCRIPTION:

.INPUT DATA
****
ARM A - A143 Rowley Hill
ARM B - A1017 Rowley Hill
ARM C - A1017 South

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
A	3.00	8.00	12.00	15.00	40.00	30.0	0.604	25.548
B	3.60	6.00	10.00	25.00	40.00	25.0	0.619	25.714
C	3.60	8.30	6.00	30.00	40.00	25.0	0.622	25.788

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown
.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100

TIME PERIOD BEGINS(16.45)AND ENDS(18.15)
.LENGTH OF TIME PERIOD -(90) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

.DEMAND SET TITLE: as above

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
A	15.00	45.00	75.00	3.88	5.81	3.88
B	15.00	45.00	75.00	4.29	6.43	4.29
C	15.00	45.00	75.00	4.50	6.75	4.50

DEMAND SET TITLE: as above

T33

TIME	FROM/T	TURNING PROPORTIONS (PERCENTAGE OF H.V.S) TURNING COUNTS ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.965	0.035
		0.0	299.0	11.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.603	0.000	0.397
		207.0	0.0	136.0

		(0.0)	(0.0)	(0.0)
ARM C		0.069	0.931	0.000
		25.0	335.0	0.0
		(0.0)	(0.0)	(0.0)

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)	GEOMETRIC DELAY (VEH.MIN/ TIME	AVERAGE DELAY PER ARRIVING
16.45-17.00									
ARM A	3.89	23.01	0.169	- -	-	0.0	0.2	3.0	0.052
ARM B	4.30	25.63	0.168	- -	-	0.0	0.2	3.0	0.047
ARM C	4.52	24.17	0.187	- -	-	0.0	0.2	3.4	0.051
17.00-17.15									
ARM A	4.64	22.51	0.206	- -	-	0.2	0.3	3.8	0.056
ARM B	5.14	25.61	0.201	- -	-	0.2	0.3	3.7	0.049
ARM C	5.39	23.86	0.226	- -	-	0.2	0.3	4.3	0.054

TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)	GEOMETRIC DELAY (VEH.MIN/ TIME	AVERAGE DELAY PER ARRIVING
17.15-17.30									
ARM A	5.69	21.84	0.260	- -	-	0.3	0.4	5.2	0.062
ARM B	6.29	25.59	0.246	- -	-	0.3	0.3	4.8	0.052
ARM C	6.61	23.43	0.282	- -	-	0.3	0.4	5.8	0.059
17.30-17.45									
ARM A	5.69	21.84	0.260	- -	-	0.4	0.4	5.3	0.062
ARM B	6.29	25.59	0.246	- -	-	0.3	0.3	4.9	0.052
ARM C	6.61	23.43	0.282	- -	-	0.4	0.4	5.9	0.059
17.45-18.00									
ARM A	4.64	22.50	0.206	- -	-	0.4	0.3	4.0	0.056
ARM B	5.14	25.61	0.201	- -	-	0.3	0.3	3.8	0.049
ARM C	5.39	23.85	0.226	- -	-	0.4	0.3	4.5	0.054

```
                                  -
 I 18.00-18.15                                                                  
                                  I
 I ARM A       3.89     23.00   0.169   - -       -    0.3    0.2        3.1
         -              0.052     I
 I ARM B       4.30     25.63   0.168   - -       -    0.3    0.2        3.1
         -              0.047     I
 I ARM C       4.52     24.17   0.187   - -       -    0.3    0.2        3.5
         -              0.051     I
 I
                                  I
```

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.2
17.15	0.3
17.30	0.4
17.45	0.4
18.00	0.3
18.15	0.2

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.2
17.15	0.3
17.30	0.3
17.45	0.3
18.00	0.3
18.15	0.2

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.2
17.15	0.3
17.30	0.4
17.45	0.4
18.00	0.3
18.15	0.2

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)

A	426.7	284.5	24.3	0.06	24.3	0.06
B	472.1	314.7	23.3	0.05	23.3	0.05
C	495.5	330.3	27.3	0.06	27.3	0.06
ALL	1394.3	929.5	74.9	0.05	74.9	0.05

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
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* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)
Patch 15 Apr 2011

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RG40 3GA,UK

Run with file:-
"p:\10173\Traffic\Junctions - Rev3\J3 A1017 jw A143 Rowley Hill\
10173a - J3 A1017 jw A143 Rowley Hill - Rev3 2029R +NW2+NE2 AM.vai"
(drive-on-the-left) at 14:07:33 on Wednesday, 8 April 2015

.FILE PROPERTIES
****

RUN TITLE: J3 A1017 jw A143 Rowley Hill - Rev3 2029R +NW2+NE2 AM
LOCATION: Haverhill
DATE: 08/04/15
CLIENT: Hallam
ENUMERATOR: sue.tadman [BCL25]
JOB NUMBER: 10173
STATUS: Preliminary
DESCRIPTION:

.INPUT DATA
****
ARM A - A143 Rowley Hill
ARM B - A1017 Rowley Hill
ARM C - A1017 South

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
A	3.00	8.00	12.00	15.00	40.00	30.0	0.604	25.548
B	3.60	6.00	10.00	25.00	40.00	25.0	0.619	25.714
C	3.60	8.30	6.00	30.00	40.00	25.0	0.622	25.788

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown
.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100

TIME PERIOD BEGINS(07.45)AND ENDS(09.15)
.LENGTH OF TIME PERIOD -(90) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

.DEMAND SET TITLE: as above

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
A	15.00	45.00	75.00	3.78	5.66	3.78
B	15.00	45.00	75.00	8.51	12.77	8.51
C	15.00	45.00	75.00	2.49	3.73	2.49

DEMAND SET TITLE: as above

T33

TIME	FROM/T	ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.914	0.086
		0.0	276.0	26.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.414	0.000	0.586
		282.0	0.0	399.0

		(0.0)	(0.0)	(0.0)
ARM C	0.196	0.804	0.000	
	39.0	160.0	0.0	
		(0.0)	(0.0)	(0.0)

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)	GEOMETRIC DELAY (VEH.MIN/	AVERAGE DELAY PER ARRIVING
07.45-08.00									
ARM A	3.79	24.34	0.156	- -	-	0.0	0.2	2.7	0.049
ARM B	8.54	25.51	0.335	- -	-	0.0	0.5	7.3	0.059
ARM C	2.50	23.60	0.106	- -	-	0.0	0.1	1.7	0.047
08.00-08.15									
ARM A	4.52	24.10	0.188	- -	-	0.2	0.2	3.4	0.051
ARM B	10.20	25.47	0.401	- -	-	0.5	0.7	9.8	0.065
ARM C	2.98	23.16	0.129	- -	-	0.1	0.1	2.2	0.050

TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)	GEOMETRIC DELAY (VEH.MIN/	AVERAGE DELAY PER ARRIVING
08.15-08.30									
ARM A	5.54	23.78	0.233	- -	-	0.2	0.3	4.5	0.055
ARM B	12.50	25.42	0.492	- -	-	0.7	1.0	14.0	0.077
ARM C	3.65	22.58	0.162	- -	-	0.1	0.2	2.8	0.053
08.30-08.45									
ARM A	5.54	23.78	0.233	- -	-	0.3	0.3	4.5	0.055
ARM B	12.50	25.42	0.492	- -	-	1.0	1.0	14.4	0.077
ARM C	3.65	22.57	0.162	- -	-	0.2	0.2	2.9	0.053
08.45-09.00									
ARM A	4.52	24.10	0.188	- -	-	0.3	0.2	3.5	0.051
ARM B	10.20	25.47	0.401	- -	-	1.0	0.7	10.3	0.066
ARM C	2.98	23.16	0.129	- -	-	0.2	0.1	2.3	0.050

```
                                  -
 I 09.00-09.15                    I
                                  I
 I ARM A       3.79     24.34   0.156   - -       -    0.2    0.2        2.8
         -              0.049     I
 I ARM B       8.54     25.51   0.335   - -       -    0.7    0.5        7.7
         -              0.059     I
 I ARM C       2.50     23.59   0.106   - -       -    0.1    0.1        1.8
         -              0.047     I
 I                                I
                                  I
```

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.2	
08.15	0.2	
08.30	0.3	
08.45	0.3	
09.00	0.2	
09.15	0.2	

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.5	*
08.15	0.7	*
08.30	1.0	*
08.45	1.0	*
09.00	0.7	*
09.15	0.5	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.1
08.15	0.1
08.30	0.2
08.45	0.2
09.00	0.1
09.15	0.1

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)

A	415.7	277.1	21.5	0.05	21.5	0.05
B	937.3	624.9	63.6	0.07	63.6	0.07
C	273.9	182.6	13.7	0.05	13.7	0.05
ALL	1626.9	1084.6	98.7	0.06	98.7	0.06

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)
Patch 15 Apr 2011

_____

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited Tel: +44 (0) 1344 770758
Crowthorne House Fax: +44 (0) 1344 770356
Nine Mile Ride Email: software@trl.co.uk
Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

Run with file:-
"p:\10173\Traffic\Junctions - Rev3\J3 A1017 jw A143 Rowley Hill\
10173a - J3 A1017 jw A143 Rowley Hill - Rev3 2029R +NW2+NE2 PM.vai"
(drive-on-the-left) at 14:07:59 on Wednesday, 8 April 2015

.FILE PROPERTIES
****

RUN TITLE: J3 A1017 jw A143 Rowley Hill - Rev3 2029R +NW2+NE2 PM
LOCATION: Haverhill
DATE: 08/04/15
CLIENT: Hallam
ENUMERATOR: sue.tadman [BCL25]
JOB NUMBER: 10173
STATUS: Preliminary
DESCRIPTION:

.INPUT DATA
****
ARM A - A143 Rowley Hill
ARM B - A1017 Rowley Hill
ARM C - A1017 South

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
A	3.00	8.00	12.00	15.00	40.00	30.0	0.604	25.548
B	3.60	6.00	10.00	25.00	40.00	25.0	0.619	25.714
C	3.60	8.30	6.00	30.00	40.00	25.0	0.622	25.788

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown
.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100

TIME PERIOD BEGINS(16.45)AND ENDS(18.15)
.LENGTH OF TIME PERIOD -(90) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

.DEMAND SET TITLE: as above

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
A	15.00	45.00	75.00	5.06	7.59	5.06
B	15.00	45.00	75.00	5.94	8.91	5.94
C	15.00	45.00	75.00	5.11	7.67	5.11

DEMAND SET TITLE: as above

T33

TIME	FROM/T	ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.970	0.030
		0.0	393.0	12.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.674	0.000	0.326
		320.0	0.0	155.0

		(0.0)	(0.0)	(0.0)
ARM C	0.068	0.932	0.000	
	28.0	381.0	0.0	
		(0.0)	(0.0)	(0.0)

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY PER ARRIVING (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)	GEOMETRIC DELAY (VEH.MIN/	AVERAGE DELAY TIME
16.45-17.00									
ARM A	5.08	22.67	0.224	- -	-	0.0	0.3	4.2	- 0.057
ARM B	5.96	25.62	0.233	- -	-	0.0	0.3	4.4	- 0.051
ARM C	5.13	23.30	0.220	- -	-	0.0	0.3	4.1	- 0.055
17.00-17.15									
ARM A	6.07	22.11	0.275	- -	-	0.3	0.4	5.6	- 0.062
ARM B	7.12	25.60	0.278	- -	-	0.3	0.4	5.7	- 0.054
ARM C	6.13	22.81	0.269	- -	-	0.3	0.4	5.4	- 0.060
17.15-17.30									
ARM A	7.43	21.33	0.348	- -	-	0.4	0.5	7.8	- 0.072
ARM B	8.72	25.58	0.341	- -	-	0.4	0.5	7.6	- 0.059
ARM C	7.51	22.14	0.339	- -	-	0.4	0.5	7.5	- 0.068

TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY PER ARRIVING (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)	GEOMETRIC DELAY (VEH.MIN/	AVERAGE DELAY TIME
17.30-17.45									
ARM A	7.43	21.33	0.348	- -	-	0.5	0.5	8.0	- 0.072
ARM B	8.72	25.58	0.341	- -	-	0.5	0.5	7.7	- 0.059
ARM C	7.51	22.14	0.339	- -	-	0.5	0.5	7.7	- 0.068
17.45-18.00									
ARM A	6.07	22.10	0.275	- -	-	0.5	0.4	5.8	- 0.062
ARM B	7.12	25.60	0.278	- -	-	0.5	0.4	5.9	- 0.054
ARM C	6.13	22.80	0.269	- -	-	0.5	0.4	5.6	- 0.060

```
                                  -
 I 18.00-18.15                    I
                                  I
 I ARM A       5.08     22.66   0.224   - -       -    0.4    0.3        4.4
         -              0.057     I
 I ARM B       5.96     25.62   0.233   - -       -    0.4    0.3        4.6
         -              0.051     I
 I ARM C       5.13     23.29   0.220   - -       -    0.4    0.3        4.3
         -              0.055     I
 I                                I
                                  I
```

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.3	
17.15	0.4	
17.30	0.5	*
17.45	0.5	*
18.00	0.4	
18.15	0.3	

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.3	
17.15	0.4	
17.30	0.5	*
17.45	0.5	*
18.00	0.4	
18.15	0.3	

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.3	
17.15	0.4	
17.30	0.5	*
17.45	0.5	*
18.00	0.4	
18.15	0.3	

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)

A	557.5	371.6	35.8	0.06	35.8	0.06	
B	653.8	435.9	35.9	0.05	35.9	0.05	
C	563.0	375.3	34.6	0.06	34.6	0.06	
ALL	1774.2	1182.8	106.4	0.06	106.4	0.06	

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

TRL LIMITED

CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 5.0 (JUNE 2010)

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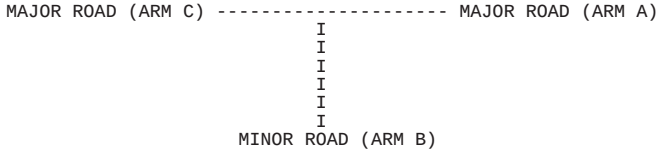
Run with file:-
"P:\10173\Traffic\Junctions - Rev3\J4 A1017 jw B1061 Water Lane\
10173 J4 A1017 jw B1061 Water Lane - Rev3 2019+NW1+NE1 AM.vpi"
(drive-on-the-left) at 15:06:38 on Wednesday, 8 April 2015

.RUN INFORMATION

RUN TITLE	: 10173 J4 A1017 jw B1061 Water Lane - Rev3 2019+NW1+NE1 AM
LOCATION	: Haverhill
DATE	: 08/04/15
CLIENT	: Hallam
ENUMERATOR	: sue.tadman [BCL25]
JOB NUMBER	: 10173
STATUS	: Preliminary
DESCRIPTION	:

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS A1017 Rowley Hill
ARM B IS Water Lane
ARM C IS A1017 Sturmer Road

.STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C
ETC.

.GEOMETRIC DATA

DATA ITEM		
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W)	7.00
CENTRAL RESERVE WIDTH	(WCR)	0.00
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B)	2.20
- VISIBILITY	(VC-B)	100.00
- BLOCKS TRAFFIC (SPACES)		YES (0)
MINOR ROAD - VISIBILITY TO LEFT	(VB-C)	30.0
- VISIBILITY TO RIGHT	(VB-A)	25.0
- LANE 1 WIDTH	(WB-C)	3.00
- LANE 2 WIDTH	(WB-A)	0.00

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
639.67	0.24	0.09

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
499.60	0.22	0.09	0.14	0.31

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
631.87	0.23	0.23

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

.Demand set: as above

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	4.00	6.00	4.00
ARM B	15.00	45.00	75.00	1.06	1.59	1.06
ARM C	15.00	45.00	75.00	8.15	12.22	8.15

.Demand set: as above

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.056	0.944
		0.0	18.0	302.0
		(0.0)%	(0.0)%	(0.0)%
	ARM B	0.212	0.000	0.788
		18.0	0.0	67.0
		(0.0)%	(0.0)%	(0.0)%
	ARM C	0.873	0.127	0.000
		569.0	83.0	0.0
		(0.0)%	(0.0)%	(0.0)%

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 1

TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN) (RFC)	DEMAND/ CAPACITY	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)
07.45-08.00							
B-AC	1.07	8.67	0.123		0.00	0.14	2.0
			0.13				
C-AB	2.02	14.40	0.141		0.00	0.30	4.4
			0.08				
C-A	6.16						
A-B	0.23						
A-C	3.79						

TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN) (RFC)	DEMAND/ CAPACITY	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)
08.00-08.15							
B-AC	1.27	8.38	0.152		0.14	0.18	2.6
			0.14				
C-AB	2.81	15.24	0.184		0.30	0.43	6.5
			0.08				
C-A	6.96						
A-B	0.27						
A-C	4.52						

TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY	PEDESTRIAN FLOW	START QUEUE	END QUEUE	DELAY (VEH.MIN/

```
   (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 08.15-08.30                          I
 I   B-AC      1.56      7.95    0.196                0.18   0.24        3.5
                     0.16      I
 I   C-AB      4.13     16.35    0.253                0.43   0.69       10.3
                     0.08      I
 I   C-A       7.83                                                          
                                I
 I   A-B       0.33                                                          
                                I
 I   A-C       5.54                                                          
                                I
 I                                                                            
                                I
.-------------------------------------------------------------------------------
-----------------------------------

.-------------------------------------------------------------------------------
-----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 08.30-08.45                          I
 I   B-AC      1.56      7.95    0.196                0.24   0.24        3.6
                     0.16      I
 I   C-AB      4.14     16.36    0.253                0.69   0.69       10.5
                     0.08      I
 I   C-A       7.82                                                          
                                I
 I   A-B       0.33                                                          
                                I
 I   A-C       5.54                                                          
                                I
 I                                                                            
                                I
.-------------------------------------------------------------------------------
-----------------------------------

.-------------------------------------------------------------------------------
-----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 08.45-09.00                          I
 I   B-AC      1.27      8.38    0.152                0.24   0.18        2.8
                     0.14      I
 I   C-AB      2.82     15.25    0.185                0.69   0.45        6.8
                     0.08      I
 I   C-A       6.95                                                          
                                I
 I   A-B       0.27                                                          
                                I
 I   A-C       4.52                                                          
                                I
 I                                                                            
                                I
.-------------------------------------------------------------------------------
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.-------------------------------------------------------------------------------
-----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 09.00-09.15                          I
 I   B-AC      1.07      8.67    0.123                0.18   0.14        2.2
                     0.13      I
 I   C-AB      2.04     14.41    0.141                0.45   0.31        4.7
                     0.08      I
 I   C-A       6.14                                                          
                                I
 I   A-B       0.23                                                          
                                I
 I   A-C       3.79                                                          
                                I
 I                                                                            
                                I
.-------------------------------------------------------------------------------
-----------------------------------
*WARNING* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR
.
 QUEUE FOR STREAM    B-AC
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.00           0.1
   08.15           0.2
   08.30           0.2
   08.45           0.2
   09.00           0.2
   09.15           0.1
.
 QUEUE FOR STREAM    C-AB
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.00           0.3
   08.15           0.4
   08.30           0.7    *
   08.45           0.7    *
   09.00           0.4
   09.15           0.3
.
                QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                --------------------------------------------
 ---------------------------------------------------------------------------
 I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
 I        I                 I    * DELAY *        I       * DELAY *        I
 I        I-----------------------------------------------------------------I
 I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
 ---------------------------------------------------------------------------
 I  B-AC  I  117.0 I   78.0 I    16.7 I    0.14   I      16.7  I    0.14   I
 I  C-AB  I  269.4 I  179.6 I    43.2 I    0.16   I      43.2  I    0.16   I
 I  C-A   I  628.1 I  418.7 I         I           I            I           I
 I  A-B   I   24.8 I   16.5 I         I           I            I           I
 I  A-C   I  415.7 I  277.1 I         I           I            I           I
 ---------------------------------------------------------------------------
 I  ALL   I 1454.9 I  969.9 I    59.9 I    0.04   I      59.9  I    0.04   I
 ---------------------------------------------------------------------------
```

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
 A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

TRL LIMITED

CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 5.0 (JUNE 2010)

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EMAIL: software@trl.co.uk

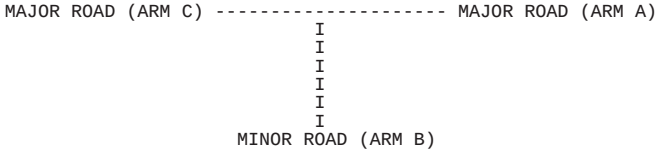
Run with file:-
"P:\10173\Traffic\Junctions - Rev3\J4 A1017 jw B1061 Water Lane\
10173 J4 A1017 jw B1061 Water Lane - Rev3 2019+NW1+NE1 PM.vpi"
(drive-on-the-left) at 15:07:17 on Wednesday, 8 April 2015

.RUN INFORMATION
****

RUN TITLE	: 10173 J4 A1017 jw B1061 Water Lane - Rev3 2019+NW1+NE1 AM
LOCATION	: Haverhill
DATE	: 08/04/15
CLIENT	: Hallam
ENUMERATOR	: sue.tadman [BCL25]
JOB NUMBER	: 10173
STATUS	: Preliminary
DESCRIPTION	:

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY
****

INPUT DATA



ARM A IS A1017 Rowley Hill
ARM B IS Water Lane
ARM C IS A1017 Sturmer Road

.STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C
ETC.

.GEOMETRIC DATA

DATA ITEM	MINOR ROAD
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH (W)	7.00
CENTRAL RESERVE WIDTH (WCR)	0.00
MAJOR ROAD RIGHT TURN - WIDTH (WC-B)	2.20
- VISIBILITY (VC-B)	100.00
- BLOCKS TRAFFIC (SPACES)	YES (0)
MINOR ROAD - VISIBILITY TO LEFT (VB-C)	30.0
- VISIBILITY TO RIGHT (VB-A)	25.0
- LANE 1 WIDTH (WB-C)	3.00
- LANE 2 WIDTH (WB-A)	0.00

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
639.67	0.24	0.09

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A
499.60	0.22	0.09	0.14
0.31			

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
631.87	0.23	0.23

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

.Demand set: as above

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
A	15.00	45.00	75.00	7.39	11.08	7.39
B	15.00	45.00	75.00	0.99	1.48	0.99
C	15.00	45.00	75.00	4.44	6.66	4.44

.Demand set: as above

TIME	TURNING PROPORTIONS (PERCENTAGE OF H.V.S) FROM/TO	ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.042	0.958
		0.0	25.0	566.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.215	0.000	0.785
		17.0	0.0	62.0
		(0.0)	(0.0)	(0.0)

```
 I                   I         I        I        I        I
 I                   I ARM  C  I  0.893 I  0.107 I  0.000 I
 I                   I         I  317.0 I   38.0 I    0.0 I
 I                   I         I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I        I        I        I
 ------------------------------------------------------------
 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
 THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

.              QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
               ------------------------------------------------------------
                FOR COMBINED DEMAND SETS
                AND FOR TIME PERIOD        1
.-------------------------------------------------------------------------------
-----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 16.45-17.00                  I
 I   B-AC      0.99      8.11    0.122                0.00   0.14        2.0
                     0.14       I
 I   C-AB      0.71     11.56    0.061                0.00   0.10        1.5
                     0.09       I
 I   C-A       3.74               I
 I   A-B       0.31               I
 I   A-C       7.10               I
 I                              I
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-----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 17.00-17.15                  I
 I   B-AC      1.18      7.72    0.153                0.14   0.18        2.6
                     0.15       I
 I   C-AB      0.95     11.86    0.080                0.10   0.15        2.2
                     0.09       I
 I   C-A       4.37               I
 I   A-B       0.37               I
 I   A-C       8.48               I
 I                              I
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-----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
```



```
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 17.15-17.30                  I
 I   B-AC      1.45      7.17    0.202                0.18   0.25        3.6
                     0.17       I
 I   C-AB      1.32     12.24    0.108                0.15   0.23        3.5
                     0.09       I
 I   C-A       5.19               I
 I   A-B       0.46               I
 I   A-C      10.39               I
 I                              I
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.-------------------------------------------------------------------------------
-----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 17.30-17.45                  I
 I   B-AC      1.45      7.17    0.202                0.25   0.25        3.8
                     0.17       I
 I   C-AB      1.32     12.24    0.108                0.23   0.23        3.5
                     0.09       I
 I   C-A       5.19               I
 I   A-B       0.46               I
 I   A-C      10.39               I
 I                              I
.-------------------------------------------------------------------------------
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.-------------------------------------------------------------------------------
-----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 17.45-18.00                  I
 I   B-AC      1.18      7.72    0.153                0.25   0.18        2.8
                     0.15       I
 I   C-AB      0.95     11.86    0.080                0.23   0.15        2.3
                     0.09       I
 I   C-A       4.37               I
 I   A-B       0.37               I
 I   A-C       8.48               I
 I                              I
.-------------------------------------------------------------------------------
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I TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)	GEOMETRIC DELAY (VEH.MIN/ PER ARRIVING	AVERAGE DELAY I
I 18.00-18.15									
I B-AC	0.99	8.11	0.122		0.18	0.14	2.2	0.14	I
I C-AB	0.71	11.57	0.062		0.15	0.10	1.6	0.09	I
I C-A	3.74								I
I A-B	0.31								I
I A-C	7.10								I
I									I

WARNING NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.1
17.15	0.2
17.30	0.2
17.45	0.3
18.00	0.2
18.15	0.1

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.1
17.15	0.1
17.30	0.2
17.45	0.2
18.00	0.2
18.15	0.1

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I STREAM I	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *		I
I	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)	I
I B-AC	108.7	72.5	17.0	0.16	17.0	0.16	I
I C-AB	89.4	59.6	14.6	0.16	14.6	0.16	I
I C-A	399.2	266.1					I
I A-B	34.4	22.9					I
I A-C	779.1	519.4					I
I ALL	1410.8	940.6	31.6	0.02	31.6	0.02	I

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

TRL LIMITED

CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 5.0 (JUNE 2010)

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EMAIL: software@trl.co.uk

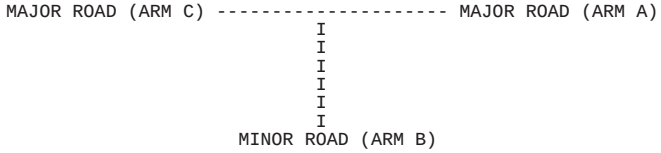
Run with file:-
"P:\10173\Traffic\Junctions - Rev3\J4 A1017 jw B1061 Water Lane\
10173 J4 A1017 jw B1061 Water Lane - Rev3 2029R+NW2+NE2 AM.vpi"
(drive-on-the-left) at 15:08:35 on Wednesday, 8 April 2015

.RUN INFORMATION

RUN TITLE	: 10173 J4 A1017 jw B1061 Water Lane - Rev3 2029R+NW2+NE2 PM
LOCATION	: Haverhill
DATE	: 08/04/15
CLIENT	: Hallam
ENUMERATOR	: sue.tadman [BCL25]
JOB NUMBER	: 10173
STATUS	: Preliminary
DESCRIPTION	:

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS A1017 Rowley Hill
ARM B IS Water Lane
ARM C IS A1017 Sturmer Road

.STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C
ETC.

.GEOMETRIC DATA

DATA ITEM		
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W)	7.00
CENTRAL RESERVE WIDTH	(WCR)	0.00
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B)	2.20
- VISIBILITY	(VC-B)	100.00
- BLOCKS TRAFFIC (SPACES)		YES (0)
MINOR ROAD - VISIBILITY TO LEFT	(VB-C)	30.0
- VISIBILITY TO RIGHT	(VB-A)	25.0
- LANE 1 WIDTH	(WB-C)	3.00
- LANE 2 WIDTH	(WB-A)	0.00

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
639.67	0.24	0.09

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
499.60	0.22	0.09	0.14	0.31

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
631.87	0.23	0.23

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

.Demand set: as above

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
A	15.00	45.00	75.00	5.34	8.01	5.34
B	15.00	45.00	75.00	1.16	1.74	1.16
C	15.00	45.00	75.00	9.05	13.58	9.05

.Demand set: as above

TIME	FROM/TO ARM	A	B	C
07.45 - 09.15	TURNING PROPORTIONS (PERCENTAGE OF H.V.S)			
	ARM A	0.000	0.066	0.934
		0.0	28.0	399.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.237	0.000	0.763
		22.0	0.0	71.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.878	0.122	0.000
		636.0	88.0	0.0
		(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 1

TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)
07.45-08.00							
B-AC	1.17	8.19	0.142		0.00	0.16	2.4
		0.14					
C-AB	2.34	14.71	0.159		0.00	0.36	5.4
		0.08					
C-A	6.74						
A-B	0.35						
A-C	5.01						

GEOMETRIC DELAY 0.16 AVERAGE DELAY 2.4

TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)
08.00-08.15							
B-AC	1.39	7.81	0.179		0.16	0.21	3.1
		0.16					
C-AB	3.33	15.66	0.213		0.36	0.55	8.2
		0.08					
C-A	7.52						
A-B	0.42						
A-C	5.98						

GEOMETRIC DELAY 0.21 AVERAGE DELAY 3.1

TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY	PEDESTRIAN FLOW	START QUEUE	END QUEUE	DELAY (VEH.MIN/

I SEGMENT)	TIME SEGMENT)	(VEH.MIN/ VEHICLE (MIN) I	PER ARRIVING (RFC)	I (PEDS/MIN)	(VEHS)	(VEHS)	TIME
I 08.15-08.30			I				
I	B-AC	1.71	7.24	0.236	0.21	0.30	4.4
		0.18	I				
I	C-AB	5.14	16.95	0.303	0.55	0.93	14.0
		0.08	I				
I	C-A	8.15					
			I				
I	A-B	0.51					
			I				
I	A-C	7.32					
			I				
I							
			I				

GEOMETRIC DELAY	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY	PEDESTRIAN FLOW	START QUEUE	END QUEUE	DELAY (VEH.MIN/
I SEGMENT)	TIME SEGMENT)	(VEH.MIN/ VEHICLE (MIN) I	PER ARRIVING (RFC)	I (PEDS/MIN)	(VEHS)	(VEHS)	TIME	
I 08.30-08.45			I					
I	B-AC	1.71	7.24	0.236	0.30	0.31	4.6	
		0.18	I					
I	C-AB	5.15	16.97	0.304	0.93	0.94	14.3	
		0.09	I					
I	C-A	8.13						
			I					
I	A-B	0.51						
			I					
I	A-C	7.32						
			I					
I								
			I					

GEOMETRIC DELAY	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY	PEDESTRIAN FLOW	START QUEUE	END QUEUE	DELAY (VEH.MIN/
I SEGMENT)	TIME SEGMENT)	(VEH.MIN/ VEHICLE (MIN) I	PER ARRIVING (RFC)	I (PEDS/MIN)	(VEHS)	(VEHS)	TIME	
I 08.45-09.00			I					
I	B-AC	1.39	7.80	0.179	0.31	0.22	3.4	
		0.16	I					
I	C-AB	3.35	15.68	0.213	0.94	0.57	8.6	
		0.08	I					
I	C-A	7.50						
			I					
I	A-B	0.42						
			I					
I	A-C	5.98						
			I					
I								
			I					

GEOMETRIC DELAY	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY	PEDESTRIAN FLOW	START QUEUE	END QUEUE	DELAY (VEH.MIN/
I SEGMENT)	TIME SEGMENT)	(VEH.MIN/ VEHICLE (MIN) I	PER ARRIVING (RFC)	I (PEDS/MIN)	(VEHS)	(VEHS)	TIME	
I 09.00-09.15			I					
I	B-AC	1.17	8.19	0.142	0.22	0.17	2.6	
		0.14	I					
I	C-AB	2.36	14.73	0.160	0.57	0.38	5.7	
		0.08	I					
I	C-A	6.73						
			I					
I	A-B	0.35						
			I					
I	A-C	5.01						
			I					
I								
			I					

WARNING NO MARGINAL analysis OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.2	
08.15	0.2	
08.30	0.3	
08.45	0.3	
09.00	0.2	
09.15	0.2	

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.4	
08.15	0.5	*
08.30	0.9	*
08.45	0.9	*
09.00	0.6	*
09.15	0.4	

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I STREAM	I TOTAL DEMAND		I * QUEUEING * DELAY *		I * INCLUSIVE QUEUEING * DELAY *		I
I	I (VEH)	(VEH/H) I	(MIN)	(MIN/VEH) I	(MIN)	(MIN/VEH)	I
I B-AC	I 128.0	I 85.3 I	20.5	I 0.16 I	20.5	I 0.16	I
I C-AB	I 325.0	I 216.7 I	56.1	I 0.17 I	56.2	I 0.17	I
I C-A	I 671.5	I 447.7 I		I I		I	I
I A-B	I 38.5	I 25.7 I		I I		I	I
I A-C	I 549.2	I 366.1 I		I I		I	I
I ALL	I 1712.3	I 1141.5 I	76.6	I 0.04 I	76.6	I 0.04	I

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
 A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

TRL LIMITED

CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 5.0 (JUNE 2010)

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EMAIL: software@trl.co.uk

Run with file:-
"P:\10173\Traffic\Junctions - Rev3\J4 A1017 jw B1061 Water Lane\
10173 J4 A1017 jw B1061 Water Lane - Rev3 2029R+NW2+NE2 PM.vpi"
(drive-on-the-left) at 15:09:02 on Wednesday, 8 April 2015

.RUN INFORMATION
 ****

RUN TITLE	: 10173 J4 A1017 jw B1061 Water Lane - Rev3 2029R+NW2+NE2 PM
LOCATION	: Haverhill
DATE	: 08/04/15
CLIENT	: Hallam
ENUMERATOR	: sue.tadman [BCL25]
JOB NUMBER	: 10173
STATUS	: Preliminary
DESCRIPTION	:

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY
 ****

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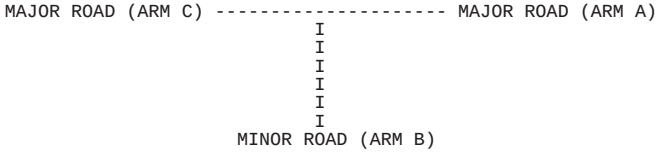

ARM A IS A1017 Rowley Hill
ARM B IS Water Lane
ARM C IS A1017 Sturmer Road

.STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C
ETC.

.GEOMETRIC DATA

DATA ITEM	MINOR ROAD
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH (W)	7.00
CENTRAL RESERVE WIDTH (WCR)	0.00
MAJOR ROAD RIGHT TURN - WIDTH (WC-B)	2.20
- VISIBILITY (VC-B)	100.00
- BLOCKS TRAFFIC (SPACES)	YES (0)
MINOR ROAD - VISIBILITY TO LEFT (VB-C)	30.0
- VISIBILITY TO RIGHT (VB-A)	25.0
- LANE 1 WIDTH (WB-C)	3.00
- LANE 2 WIDTH (WB-A)	0.00

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
639.67	0.24	0.09

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A
499.60	0.22	0.09	0.14
0.31			

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
631.87	0.23	0.23

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

.Demand set: as above

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
A	15.00	45.00	75.00	9.06	13.59	9.06
B	15.00	45.00	75.00	1.25	1.88	1.25
C	15.00	45.00	75.00	5.99	8.98	5.99

.Demand set: as above

TIME	TURNING PROPORTIONS (PERCENTAGE OF H.V.S) FROM/TO	ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.047	0.953
		0.0	34.0	691.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.290	0.000	0.710
		29.0	0.0	71.0
		(0.0)	(0.0)	(0.0)

```
 I                   I         I        I        I        I
 I                   I ARM  C  I  0.908 I  0.092 I  0.000 I
 I                   I         I  435.0 I   44.0 I    0.0 I
 I                   I         I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I        I        I        I
 ------------------------------------------------------------
 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
 THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

.              QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
               ------------------------------------------------------------
                FOR COMBINED DEMAND SETS
                AND FOR TIME PERIOD        1
.-------------------------------------------------------------------------------
-----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 16.45-17.00                  I
 I   B-AC      1.25      7.35    0.171                0.00   0.20        2.9
                      0.16      I
 I   C-AB      0.98     12.31    0.080                0.00   0.15        2.2
                      0.09      I
 I   C-A       5.03             I
 I   A-B       0.43             I
 I   A-C       8.67             I
 I                              I
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-----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 17.00-17.15                  I
 I   B-AC      1.50      6.84    0.219                0.20   0.28        4.0
                      0.19      I
 I   C-AB      1.33     12.73    0.105                0.15   0.22        3.4
                      0.09      I
 I   C-A       5.84             I
 I   A-B       0.51             I
 I   A-C      10.35             I
 I                              I
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-----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
```



```
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 17.15-17.30                  I
 I   B-AC      1.84      6.10    0.301                0.28   0.42        6.0
                      0.23      I
 I   C-AB      1.95     13.35    0.146                0.22   0.38        5.8
                      0.09      I
 I   C-A       6.84             I
 I   A-B       0.62             I
 I   A-C      12.68             I
 I                              I
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.-------------------------------------------------------------------------------
-----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 17.30-17.45                  I
 I   B-AC      1.84      6.10    0.301                0.42   0.43        6.4
                      0.23      I
 I   C-AB      1.96     13.35    0.147                0.38   0.39        5.9
                      0.09      I
 I   C-A       6.83             I
 I   A-B       0.62             I
 I   A-C      12.68             I
 I                              I
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-----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 17.45-18.00                  I
 I   B-AC      1.50      6.83    0.219                0.43   0.29        4.4
                      0.19      I
 I   C-AB      1.34     12.74    0.105                0.39   0.23        3.5
                      0.09      I
 I   C-A       5.84             I
 I   A-B       0.51             I
 I   A-C      10.35             I
 I                              I
.-------------------------------------------------------------------------------
```

I TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)	GEOMETRIC DELAY (VEH.MIN/ PER ARRIVING	AVERAGE DELAY I TIME
I 18.00-18.15									
I B-AC	1.25	7.35	0.171		0.29	0.21	3.2	0.16	I
I C-AB	0.99	12.32	0.080		0.23	0.15	2.3	0.09	I
I C-A	5.02								I
I A-B	0.43								I
I A-C	8.67								I
I									I

WARNING NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.2
17.15	0.3
17.30	0.4
17.45	0.4
18.00	0.3
18.15	0.2

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.1
17.15	0.2
17.30	0.4
17.45	0.4
18.00	0.2
18.15	0.2

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I STREAM I	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *		I
I	I (VEH)	(VEH/H) I	(MIN)	(MIN/VEH) I	(MIN)	(MIN/VEH) I	
I B-AC I	137.6 I	91.8 I	27.0 I	0.20 I	27.0 I	0.20 I	
I C-AB I	128.3 I	85.6 I	23.0 I	0.18 I	23.0 I	0.18 I	
I C-A I	531.0 I	354.0 I	I	I	I	I	
I A-B I	46.8 I	31.2 I	I	I	I	I	
I A-C I	951.1 I	634.1 I	I	I	I	I	
I ALL I	1794.9 I	1196.6 I	50.0 I	0.03 I	50.0 I	0.03 I	

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

TRL LIMITED

CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 5.0 (JUNE 2010)

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EMAIL: software@trl.co.uk

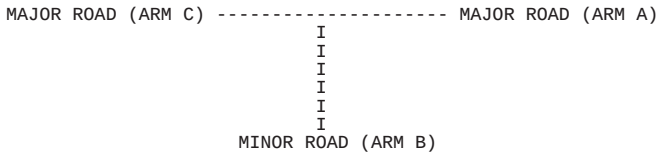
Run with file:-
"P:\10173\Traffic\Junctions - Rev3\J5 B1061 Water Lane jw Coupals Road\
10173 J5 B1061 Water Lane jw Coupals Road - Rev3 2019+NW1+NE1 AM.vpi"
(drive-on-the-left) at 15:03:16 on Wednesday, 8 April 2015

.RUN INFORMATION
****

RUN TITLE	: 10173 J4 B1061 Water Lane jw Coupals Road - Rev3 2019+NW1+NE1 AM
LOCATION	: Haverhill
DATE	: 08/04/15
CLIENT	: Hallam
ENUMERATOR	: sue.tadman [BCL25]
JOB NUMBER	: 10173
STATUS	: Preliminary
DESCRIPTION	:

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY
****

INPUT DATA



ARM A IS B1061 Water Lane (S)
ARM B IS Coupals Road
ARM C IS B1061 Water Lane (N)

.STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

.GEOMETRIC DATA

DATA ITEM	MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 6.50 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.
- VISIBILITY	(VC-B)100.00 M.
- BLOCKS TRAFFIC (SPACES)	YES (0)
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 100.0 M.
- VISIBILITY TO RIGHT	(VB-A) 50.0 M.
- LANE 1 WIDTH	(WB-C) 3.00 M.
- LANE 2 WIDTH	(WB-A) 0.00 M.

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
655.41	0.25	0.10

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
535.05	0.24	0.10	0.15	0.34

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
631.87	0.24	0.24

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

.Demand set: as above

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
A	15.00	45.00	75.00	1.20	1.80	1.20
B	15.00	45.00	75.00	1.13	1.69	1.13
C	15.00	45.00	75.00	2.70	4.05	2.70

.Demand set: as above

TIME	FROM/TO	ARM A	ARM B	ARM C
07.45 - 09.15	TURNING PROPORTIONS			
	TURNING COUNTS			
	(PERCENTAGE OF H.V.S)			
	ARM A	0.000	0.042	0.958
		0.0	4.0	92.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.067	0.000	0.933
		6.0	0.0	84.0

	(0.0)	(0.0)	(0.0)
ARM C	0.356	0.644	0.000
	77.0	139.0	0.0
	(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 1

TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)
07.45-08.00							
B-AC	1.13	10.39	0.109		0.00	0.12	1.8
		0.11					
C-AB	1.91	10.88	0.176		0.00	0.23	3.4
		0.11					
C-A	0.80						
A-B	0.05						
A-C	1.15						

TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)
08.00-08.15							
B-AC	1.35	10.32	0.131		0.12	0.15	2.2
		0.11					
C-AB	2.33	10.95	0.212		0.23	0.29	4.4
		0.12					
C-A	0.91						
A-B	0.06						
A-C	1.38						

TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)

I (VEH/MIN)	(VEH/MIN)	CAPACITY	FLOW	QUEUE	QUEUE	(VEH.MIN/ (VEH.MIN/ PER ARRIVING) I
I SEGMENT) TIME SEGMENT)		VEHICLE (RFC)	(PEDS/MIN)	(VEHS)	(VEHS)	TIME (MIN) I
I 08.15-08.30						I
I B-AC	1.65	10.21	0.162	0.15	0.19	2.8
		0.12				I
I C-AB	2.93	11.05	0.265	0.29	0.40	6.0
		0.12				I
I C-A	1.04					I
I A-B	0.07					I
I A-C	1.69					I
I						I

I TIME	DEMAND	CAPACITY	DEMAND/	PEDESTRIAN	START	END	DELAY
GEOMETRIC DELAY	AVERAGE DELAY I						
I (VEH/MIN)	(VEH/MIN)	CAPACITY	FLOW	QUEUE	QUEUE	(VEH.MIN/ (VEH.MIN/ PER ARRIVING) I	
I SEGMENT) TIME SEGMENT)		VEHICLE	(RFC) (PEDS/MIN)	(VEHS)	(VEHS)	TIME (MIN) I	
I 08.30-08.45						I	
I B-AC	1.65	10.21	0.162	0.19	0.19	2.9	
		0.12				I	
I C-AB	2.93	11.05	0.265	0.40	0.40	6.0	
		0.12				I	
I C-A	1.04					I	
I A-B	0.07					I	
I A-C	1.69					I	
I						I	

I TIME	DEMAND	CAPACITY	DEMAND/	PEDESTRIAN	START	END	DELAY
GEOMETRIC DELAY	AVERAGE DELAY I						
I (VEH/MIN)	(VEH/MIN)	CAPACITY	FLOW	QUEUE	QUEUE	(VEH.MIN/ (VEH.MIN/ PER ARRIVING) I	
I SEGMENT) TIME SEGMENT)		VEHICLE	(RFC) (PEDS/MIN)	(VEHS)	(VEHS)	TIME (MIN) I	
I 08.45-09.00						I	
I B-AC	1.35	10.32	0.131	0.19	0.15	2.3	
		0.11				I	
I C-AB	2.33	10.95	0.213	0.40	0.30	4.5	
		0.12				I	
I C-A	0.91					I	
I A-B	0.06					I	
I A-C	1.38					I	
I						I	

I (VEH/MIN)	(VEH/MIN)	CAPACITY	FLOW	QUEUE	QUEUE	(VEH.MIN/ (VEH.MIN/ PER ARRIVING) I
I SEGMENT) TIME SEGMENT)		VEHICLE (RFC)	(PEDS/MIN)	(VEHS)	(VEHS)	TIME (MIN) I
I 09.00-09.15						I
I B-AC	1.13	10.39	0.109	0.15	0.12	1.9
		0.11				I
I C-AB	1.91	10.88	0.176	0.30	0.23	3.5
		0.11				I
I C-A	0.80					I
I A-B	0.05					I
I A-C	1.15					I
I						I

WARNING NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.1
08.15	0.1
08.30	0.2
08.45	0.2
09.00	0.2
09.15	0.1

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.2
08.15	0.3
08.30	0.4
08.45	0.4
09.00	0.3
09.15	0.2

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I STREAM I	TOTAL DEMAND I		* QUEUEING * DELAY * I		* INCLUSIVE QUEUEING * DELAY * I	
I	I (VEH)	(VEH/H) I	(MIN)	(MIN/VEH) I	(MIN)	(MIN/VEH) I
I B-AC	I 123.9	I 82.6 I	13.8	I 0.11 I	13.8	I 0.11 I
I C-AB	I 215.0	I 143.3 I	27.8	I 0.13 I	27.8	I 0.13 I
I C-A	I 82.3	I 54.9 I		I I		I I
I A-B	I 5.5	I 3.7 I		I I		I I
I A-C	I 126.6	I 84.4 I		I I		I I
I ALL	I 553.3	I 368.9 I	41.6	I 0.08 I	41.6	I 0.08 I

---

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

TRL LIMITED

CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 5.0 (JUNE 2010)

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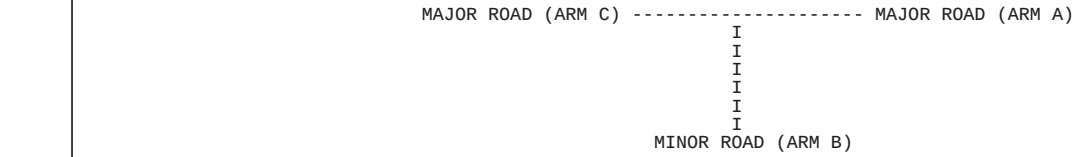
Run with file:-
"P:\10173\Traffic\Junctions - Rev3\J5 B1061 Water Lane jw Coupals Road\
10173 J5 B1061 Water Lane jw Coupals Road - Rev3 2019+NW1+NE1 PM.vpi"
(drive-on-the-left) at 15:03:36 on Wednesday, 8 April 2015

.RUN INFORMATION
****

RUN TITLE : 10173 J4 B1061 Water Lane jw Coupals Road - Rev3 2019+NW1+NE1 PM
LOCATION : Haverhill
DATE : 08/04/15
CLIENT : Hallam
ENUMERATOR : sue.tadman [BCL25]
JOB NUMBER : 10173
STATUS : Preliminary
DESCRIPTION :

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY
****

INPUT DATA



ARM A IS B1061 Water Lane (S)
ARM B IS Coupals Road
ARM C IS B1061 Water Lane (N)

.STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

.GEOMETRIC DATA

DATA ITEM		MINOR ROAD
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W)	6.50
CENTRAL RESERVE WIDTH	(WCR)	0.00
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B)	2.20
- VISIBILITY	(VC-B)	100.00
- BLOCKS TRAFFIC (SPACES)		YES (0)
MINOR ROAD - VISIBILITY TO LEFT	(VB-C)	100.0
- VISIBILITY TO RIGHT	(VB-A)	50.0
- LANE 1 WIDTH	(WB-C)	3.00
- LANE 2 WIDTH	(WB-A)	0.00

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
655.41	0.25	0.10

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
535.05	0.24	0.10	0.15	0.34

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
631.87	0.24	0.24

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

.Demand set: as above

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
A	15.00	45.00	75.00	0.71	1.07	0.71
B	15.00	45.00	75.00	1.65	2.47	1.65
C	15.00	45.00	75.00	1.73	2.59	1.73

.Demand set: as above

TIME	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) FROM/TO	ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.053	0.947
		0.0	3.0	54.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.023	0.000	0.977
		3.0	0.0	129.0

```
 I                   I         I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I        I        I        I
 I                   I ARM  C  I  0.529 I  0.471 I  0.000 I
 I                   I         I   73.0 I   65.0 I    0.0 I
 I                   I         I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I        I        I        I
 ------------------------------------------------------------
 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
 THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

.              QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
               ------------------------------------------------------
                FOR COMBINED DEMAND SETS
                AND FOR TIME PERIOD        1
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 16.45-17.00
                                I
 I   B-AC      1.66     10.68    0.155               0.00   0.18        2.6
                      0.11      I
 I   C-AB      0.89     10.96    0.081               0.00   0.10        1.4
                      0.10      I
 I   C-A       0.84
                                I
 I   A-B       0.04
                                I
 I   A-C       0.68
                                I
 I
                                I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 17.00-17.15
                                I
 I   B-AC      1.98     10.64    0.186               0.18   0.23        3.3
                      0.12      I
 I   C-AB      1.08     11.04    0.098               0.10   0.12        1.8
                      0.10      I
 I   C-A       0.99
                                I
 I   A-B       0.04
                                I
 I   A-C       0.81
                                I
 I
                                I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
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 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 17.15-17.30
                                I
 I   B-AC      2.42     10.59    0.229               0.23   0.29        4.3
                      0.12      I
 I   C-AB      1.35     11.16    0.121               0.12   0.16        2.4
                      0.10      I
 I   C-A       1.18
                                I
 I   A-B       0.06
                                I
 I   A-C       0.99
                                I
 I
                                I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 17.30-17.45
                                I
 I   B-AC      2.42     10.59    0.229               0.29   0.29        4.4
                      0.12      I
 I   C-AB      1.35     11.16    0.121               0.16   0.16        2.4
                      0.10      I
 I   C-A       1.18
                                I
 I   A-B       0.06
                                I
 I   A-C       0.99
                                I
 I
                                I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 17.45-18.00
                                I
 I   B-AC      1.98     10.64    0.186               0.29   0.23        3.5
                      0.12      I
 I   C-AB      1.08     11.04    0.098               0.16   0.12        1.8
                      0.10      I
 I   C-A       0.99
                                I
 I   A-B       0.04
                                I
 I   A-C       0.81
                                I
 I
                                I
```

I TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY I PER ARRIVING I
I 18.00-18.15									
I B-AC	1.66	10.68	0.155		0.23	0.19	2.8		
			0.11						
I C-AB	0.89	10.96	0.081		0.12	0.10	1.5		
			0.10						
I C-A	0.84								
I A-B	0.04								
I A-C	0.68								
I									

WARNING NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.2
17.15	0.2
17.30	0.3
17.45	0.3
18.00	0.2
18.15	0.2

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.1
17.15	0.1
17.30	0.2
17.45	0.2
18.00	0.1
18.15	0.1

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I STREAM I	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
I	I (VEH)	(VEH/H) I	(MIN)	(MIN/VEH) I	(MIN)	(MIN/VEH) I
I B-AC I	181.7 I	121.1 I	21.0 I	0.12 I	21.0 I	0.12 I
I C-AB I	99.7 I	66.5 I	11.3 I	0.11 I	11.3 I	0.11 I
I C-A I	90.2 I	60.2 I	I	I	I	I
I A-B I	4.1 I	2.8 I	I	I	I	I
I A-C I	74.3 I	49.6 I	I	I	I	I
I ALL I	450.1 I	300.1 I	32.4 I	0.07 I	32.4 I	0.07 I

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 5.0 (JUNE 2010)

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EMAIL: software@trl.co.uk

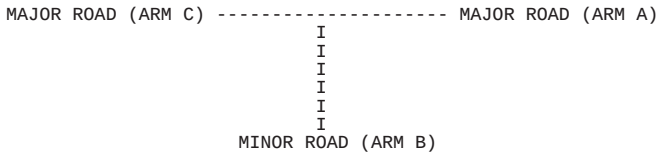
Run with file:-
"P:\10173\Traffic\Junctions - Rev3\J5 B1061 Water Lane jw Coupals Road\10173 J5 B1061 Water Lane jw Coupals Road - Rev3 2029R+NW2+NE2 AM.vpi"
(drive-on-the-left) at 15:04:47 on Wednesday, 8 April 2015

.RUN INFORMATION

RUN TITLE	: 10173 J4 B1061 Water Lane jw Coupals Road - Rev3 2029R+NW2+NE2 AM
LOCATION	: Haverhill
DATE	: 08/04/15
CLIENT	: Hallam
ENUMERATOR	: sue.tadman [BCL25]
JOB NUMBER	: 10173
STATUS	: Preliminary
DESCRIPTION	:

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS B1061 Water Lane (S)
ARM B IS Coupals Road
ARM C IS B1061 Water Lane (N)

.STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

.GEOMETRIC DATA

DATA ITEM	MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 6.50 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.
- VISIBILITY	(VC-B)100.00 M.
- BLOCKS TRAFFIC (SPACES)	YES (0)
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 100.0 M.
- VISIBILITY TO RIGHT	(VB-A) 50.0 M.
- LANE 1 WIDTH	(WB-C) 3.00 M.
- LANE 2 WIDTH	(WB-A) 0.00 M.

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
655.41	0.25	0.10

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
535.05	0.24	0.10	0.15	0.34

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
631.87	0.24	0.24

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

.Demand set: as above

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
A	15.00	45.00	75.00	1.39	2.08	1.39
B	15.00	45.00	75.00	1.31	1.97	1.31
C	15.00	45.00	75.00	2.97	4.46	2.97

.Demand set: as above

TIME	FROM/TO	ARM A	ARM B	ARM C
07.45 - 09.15	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S)			
	ARM A	0.000	0.036	0.964
		0.0	4.0	107.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.067	0.000	0.933
		7.0	0.0	98.0
	ARM C	0.357	0.643	0.000
		85.0	153.0	0.0
		(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 1

TIME SEGMENT	ARM	DEMAND FLOW (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)
07.45-08.00								
	B-AC	1.32	10.34	0.127		0.00	0.14	2.1
			0.11					
	C-AB	2.13	10.90	0.195		0.00	0.26	3.9
			0.11					
	C-A	0.86						
	A-B	0.05						
	A-C	1.34						
08.00-08.15								
	B-AC	1.57	10.25	0.153		0.14	0.18	2.6
			0.12					
	C-AB	2.59	10.98	0.236		0.26	0.34	5.1
			0.12					
	C-A	0.98						
	A-B	0.06						
	A-C	1.60						

TIME SEGMENT	ARM	DEMAND FLOW (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)

I	(VEH/MIN)	(VEH/MIN)	CAPACITY	FLOW	QUEUE	QUEUE	(VEH.MIN/
(VEH.MIN/	PER ARRIVING	I					
I			(RFC)	(PEDS/MIN)	(VEHS)	(VEHS)	TIME
SEGMENT)	TIME SEGMENT)		VEHICLE (MIN)	I			
I 08.15-08.30							
			I				
I B-AC	1.93	10.13	0.190		0.18	0.23	3.4
		0.12	I				
I C-AB	3.27	11.08	0.295		0.34	0.46	7.0
		0.13	I				
I C-A	1.10						
			I				
I A-B	0.07						
			I				
I A-C	1.96						
			I				
I							
			I				

I TIME	DEMAND	CAPACITY	DEMAND/	PEDESTRIAN	START	END	DELAY
GEOMETRIC DELAY	AVERAGE DELAY I						
I	(VEH/MIN)	(VEH/MIN)	CAPACITY	FLOW	QUEUE	QUEUE	(VEH.MIN/
(VEH.MIN/	PER ARRIVING	I					
I			(RFC)	(PEDS/MIN)	(VEHS)	(VEHS)	TIME
SEGMENT)	TIME SEGMENT)		VEHICLE (MIN)	I			
I 08.30-08.45							
			I				
I B-AC	1.93	10.13	0.190		0.23	0.23	3.5
		0.12	I				
I C-AB	3.27	11.08	0.295		0.46	0.47	7.0
		0.13	I				
I C-A	1.10						
			I				
I A-B	0.07						
			I				
I A-C	1.96						
			I				
I							
			I				

I TIME	DEMAND	CAPACITY	DEMAND/	PEDESTRIAN	START	END	DELAY
GEOMETRIC DELAY	AVERAGE DELAY I						
I	(VEH/MIN)	(VEH/MIN)	CAPACITY	FLOW	QUEUE	QUEUE	(VEH.MIN/
(VEH.MIN/	PER ARRIVING	I					
I			(RFC)	(PEDS/MIN)	(VEHS)	(VEHS)	TIME
SEGMENT)	TIME SEGMENT)		VEHICLE (MIN)	I			
I 08.45-09.00							
			I				
I B-AC	1.57	10.25	0.154		0.23	0.18	2.8
		0.12	I				
I C-AB	2.59	10.98	0.236		0.47	0.35	5.2
		0.12	I				
I C-A	0.97						
			I				
I A-B	0.06						
			I				
I A-C	1.60						
			I				
I							
			I				

I	(VEH/MIN)	(VEH/MIN)	CAPACITY	FLOW	QUEUE	QUEUE	(VEH.MIN/
(VEH.MIN/	PER ARRIVING	I					
I			(RFC)	(PEDS/MIN)	(VEHS)	(VEHS)	TIME
SEGMENT)	TIME SEGMENT)		VEHICLE (MIN)	I			
I 09.00-09.15							
			I				
I B-AC	1.32	10.33	0.127		0.18	0.15	2.3
		0.11	I				
I C-AB	2.13	10.90	0.195		0.35	0.27	4.0
		0.11	I				
I C-A	0.86						
			I				
I A-B	0.05						
			I				
I A-C	1.34						
			I				
I							
			I				

WARNING NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.1
08.15	0.2
08.30	0.2
08.45	0.2
09.00	0.2
09.15	0.1

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.3
08.15	0.3
08.30	0.5
08.45	0.5
09.00	0.3
09.15	0.3

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I STREAM I	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
I	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
I B-AC	144.5	96.3	16.7	0.12	16.7	0.12
I C-AB	239.6	159.8	32.2	0.13	32.2	0.13
I C-A	87.9	58.6				
I A-B	5.5	3.7				
I A-C	147.3	98.2				
I ALL	624.9	416.6	48.9	0.08	48.9	0.08

---

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

TRL LIMITED

CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 5.0 (JUNE 2010)

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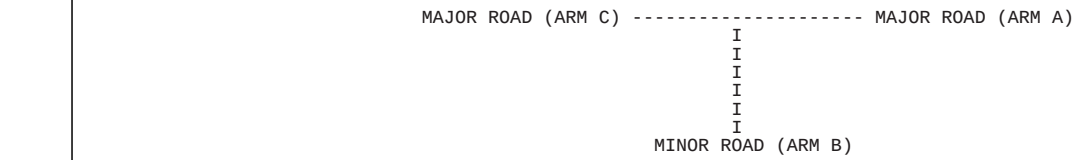
Run with file:-
"P:\10173\Traffic\Junctions - Rev3\J5 B1061 Water Lane jw Coupals Road\
10173 J5 B1061 Water Lane jw Coupals Road - Rev3 2029R+NW2+NE2 PM.vpi"
(drive-on-the-left) at 15:04:41 on Wednesday, 8 April 2015

.RUN INFORMATION
****

RUN TITLE : 10173 J4 B1061 Water Lane jw Coupals Road - Rev3 2029R+NW2+NE2 PM
LOCATION : Haverhill
DATE : 08/04/15
CLIENT : Hallam
ENUMERATOR : sue.tadman [BCL25]
JOB NUMBER : 10173
STATUS : Preliminary
DESCRIPTION :

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY
****

INPUT DATA



ARM A IS B1061 Water Lane (S)
ARM B IS Coupals Road
ARM C IS B1061 Water Lane (N)

.STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

.GEOMETRIC DATA

DATA ITEM	MINOR ROAD
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH (W)	6.50
CENTRAL RESERVE WIDTH (WCR)	0.00
MAJOR ROAD RIGHT TURN - WIDTH (WC-B)	2.20
- VISIBILITY (VC-B)	100.00
- BLOCKS TRAFFIC (SPACES)	YES (0)
MINOR ROAD - VISIBILITY TO LEFT (VB-C)	100.0
- VISIBILITY TO RIGHT (VB-A)	50.0
- LANE 1 WIDTH (WB-C)	3.00
- LANE 2 WIDTH (WB-A)	0.00

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
655.41	0.25	0.10

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
535.05	0.24	0.10	0.15	0.34

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
631.87	0.24	0.24

(NB These values do not allow for any site specific corrections)

.TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

.Demand set: as above

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	0.86	1.29	0.86
ARM B	15.00	45.00	75.00	1.95	2.93	1.95
ARM C	15.00	45.00	75.00	2.19	3.28	2.19

.Demand set: as above

TIME	TURNING PROPORTIONS (PERCENTAGE OF H.V.S) FROM/TO	ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.043	0.957
		0.0	3.0	66.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.019	0.000	0.981
		3.0	0.0	153.0

```
 I                   I         I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I        I        I        I
 I                   I ARM  C  I  0.531 I  0.469 I  0.000 I
 I                   I         I   93.0 I   82.0 I    0.0 I
 I                   I         I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I        I        I        I
 ------------------------------------------------------------
 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
 THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

.              QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
               ------------------------------------------------------
                FOR COMBINED DEMAND SETS
                AND FOR TIME PERIOD        1
.-------------------------------------------------------------------------------
----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 16.45-17.00
                                I
 I   B-AC      1.96     10.65    0.184                0.00   0.22        3.2
                       0.11      I
 I   C-AB      1.15     11.09    0.104                0.00   0.13        1.9
                       0.10      I
 I   C-A       1.05
                                I
 I   A-B       0.04
                                I
 I   A-C       0.83
                                I
 I
                                I
.-------------------------------------------------------------------------------
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.-------------------------------------------------------------------------------
----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 17.00-17.15
                                I
 I   B-AC      2.34     10.61    0.220                0.22   0.28        4.1
                       0.12      I
 I   C-AB      1.40     11.20    0.125                0.13   0.16        2.5
                       0.10      I
 I   C-A       1.22
                                I
 I   A-B       0.04
                                I
 I   A-C       0.99
                                I
 I
                                I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
```



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 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 17.15-17.30
                                I
 I   B-AC      2.86     10.55    0.271                0.28   0.37        5.4
                       0.13      I
 I   C-AB      1.77     11.35    0.156                0.16   0.21        3.2
                       0.10      I
 I   C-A       1.44
                                I
 I   A-B       0.06
                                I
 I   A-C       1.21
                                I
 I
                                I
.-------------------------------------------------------------------------------
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.-------------------------------------------------------------------------------
----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 17.30-17.45
                                I
 I   B-AC      2.86     10.55    0.271                0.37   0.37        5.5
                       0.13      I
 I   C-AB      1.77     11.35    0.156                0.21   0.21        3.2
                       0.10      I
 I   C-A       1.44
                                I
 I   A-B       0.06
                                I
 I   A-C       1.21
                                I
 I
                                I
.-------------------------------------------------------------------------------
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.-------------------------------------------------------------------------------
----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 17.45-18.00
                                I
 I   B-AC      2.34     10.61    0.220                0.37   0.29        4.4
                       0.12      I
 I   C-AB      1.40     11.20    0.125                0.21   0.17        2.5
                       0.10      I
 I   C-A       1.22
                                I
 I   A-B       0.04
                                I
 I   A-C       0.99
                                I
 I
                                I
```

I TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)
I 18.00-18.15			I				
I B-AC	1.96	10.65	0.184		0.29	0.23	3.5
		0.12	I				
I C-AB	1.15	11.09	0.104		0.17	0.13	2.0
		0.10	I				
I C-A	1.05		I				
I A-B	0.04		I				
I A-C	0.83		I				
I			I				

WARNING NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.2
17.15	0.3
17.30	0.4
17.45	0.4
18.00	0.3
18.15	0.2

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.1
17.15	0.2
17.30	0.2
17.45	0.2
18.00	0.2
18.15	0.1

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	214.7	143.1	26.1	0.12	26.1	0.12
C-AB	129.5	86.3	15.3	0.12	15.3	0.12
C-A	111.4	74.3				
A-B	4.1	2.8				
A-C	90.8	60.6				
ALL	550.6	367.0	41.4	0.08	41.4	0.08

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)
Patch 15 Apr 2011
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For sales and distribution information,
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TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"p:\10173\Traffic\Junctions - Rev3\J6 Chalkstone Way jw Coupals Road\
10173a - J6 Chalkstone Way jw Coupals Road - Rev3 2019+NW1+NE1 AM.vai"
(drive-on-the-left) at 12:47:00 on Wednesday, 8 April 2015

.FILE PROPERTIES
****

RUN TITLE: J7 Chalkstone Way jw Coupals Road - Rev3 2019+NW1+NE1 AM
LOCATION: Haverhill
DATE: 08/04/15
CLIENT: Hallam
ENUMERATOR: sue.tadman [BCL25]
JOB NUMBER: 10173
STATUS: Preliminary
DESCRIPTION:

.INPUT DATA
****
ARM A - Chalkstone Way (N)
ARM B - Coupals Road
ARM C - Chalkstone Way (S)

.MINI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
LIGHTING CONDITIONS : NORMAL
ROAD SURFACE CONDITION: NORMAL

T5

ARM	V (M)	E (M)	Lm(M)	Vm(M)	A (M)	K (M)	G (%)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.20	3.20	0.00	3.20	10.00	6.00	0.00	0.515	12.941
ARM B	3.20	3.20	0.00	3.20	10.00	6.00	0.00	0.515	12.941
ARM C	3.20	3.20	0.00	3.20	10.00	10.00	0.00	0.518	13.000

V = approach half-width Lm = effective flare length A = distance between arms
E = entry width Vm = minimum approach half-width K= entry corner kerb line G=gradient over 50 m

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown
.SCALING FACTORS
T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100

TIME PERIOD BEGINS(07.45)AND ENDS(09.15)
.LENGTH OF TIME PERIOD -(90) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

.DEMAND SET TITLE: as above
T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	3.20	4.80	3.20
ARM B	15.00	45.00	75.00	3.33	4.99	3.33
ARM C	15.00	45.00	75.00	2.21	3.32	2.21

DEMAND SET TITLE: as above
T33

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/T	ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.211	0.789
		0.0	54.0	202.0

```
 I                   I         I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I       I       I       I
 I                   I  ARM  B I  0.229 I  0.000 I  0.771 I
 I                   I         I   61.0 I    0.0 I  205.0 I
 I                   I         I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I       I       I       I
 I                   I  ARM  C I  0.582 I  0.418 I  0.000 I
 I                   I         I  103.0 I   74.0 I    0.0 I
 I                   I         I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I       I       I       I
 ------------------------------------------------------------
```

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

```
.-------------------------------------------------------------------------------
---------------------------------- T70
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                  AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
                  PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)                  VEHICLE (MIN) I
 -                                -
 I 07.45-08.00                    I
 I ARM A       3.21     12.47   0.258   - -       -    0.0    0.3        5.0
         -              0.108     I
 I ARM B       3.34     11.65   0.287   - -       -    0.0    0.4        5.7
         -              0.120     I
 I ARM C       2.22     12.61   0.176   - -       -    0.0    0.2        3.1
         -              0.096     I
 I                                I
                                  I
-------------------------------------------------------------------------------
----------------------------------
.-------------------------------------------------------------------------------
----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                  AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
                  PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)                  VEHICLE (MIN) I
 -                                -
 I 08.00-08.15                    I
 I ARM A       3.84     12.37   0.310   - -       -    0.3    0.4        6.5
         -              0.117     I
 I ARM B       3.99     11.39   0.350   - -       -    0.4    0.5        7.7
         -              0.135     I
 I ARM C       2.65     12.53   0.212   - -       -    0.2    0.3        3.9
         -              0.101     I
 I                                I
                                  I
-------------------------------------------------------------------------------
----------------------------------
.-------------------------------------------------------------------------------
----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                  AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
                  PER ARRIVING  I
```



```
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)                  VEHICLE (MIN) I
 -                                -
 I 08.15-08.30                    I
 I ARM A       4.70     12.24   0.384   - -       -    0.4    0.6        8.9
         -              0.132     I
 I ARM B       4.88     11.04   0.442   - -       -    0.5    0.8       11.2
         -              0.161     I
 I ARM C       3.25     12.42   0.261   - -       -    0.3    0.4        5.1
         -              0.109     I
 I                                I
                                  I
-------------------------------------------------------------------------------
----------------------------------
.-------------------------------------------------------------------------------
----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                  AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
                  PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)                  VEHICLE (MIN) I
 -                                -
 I 08.30-08.45                    I
 I ARM A       4.70     12.24   0.384   - -       -    0.6    0.6        9.2
         -              0.133     I
 I ARM B       4.88     11.03   0.442   - -       -    0.8    0.8       11.7
         -              0.163     I
 I ARM C       3.25     12.42   0.261   - -       -    0.4    0.4        5.3
         -              0.109     I
 I                                I
                                  I
-------------------------------------------------------------------------------
----------------------------------
.-------------------------------------------------------------------------------
----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                  AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
                  PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)                  VEHICLE (MIN) I
 -                                -
 I 08.45-09.00                    I
 I ARM A       3.84     12.37   0.310   - -       -    0.6    0.5        7.0
         -              0.117     I
 I ARM B       3.99     11.38   0.350   - -       -    0.8    0.5        8.5
         -              0.136     I
 I ARM C       2.65     12.53   0.212   - -       -    0.4    0.3        4.2
         -              0.101     I
 I                                I
                                  I
-------------------------------------------------------------------------------
----------------------------------
.-------------------------------------------------------------------------------
----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                  AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
```

```
                PER ARRIVING  I
 I                            (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)                  VEHICLE (MIN) I
 -                                -
 I 09.00-09.15                    I
 I ARM A       3.21     12.46   0.258   - -       -    0.5    0.4        5.4
         -              0.108     I
 I ARM B       3.34     11.63   0.287   - -       -    0.5    0.4        6.3
         -              0.121     I
 I ARM C       2.22     12.60   0.176   - -       -    0.3    0.2        3.3
         -              0.096     I
 I                                I
```

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.3	
08.15	0.4	
08.30	0.6	*
08.45	0.6	*
09.00	0.5	
09.15	0.4	

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.4	
08.15	0.5	*
08.30	0.8	*
08.45	0.8	*
09.00	0.5	*
09.15	0.4	

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.2
08.15	0.3
08.30	0.4
08.45	0.4
09.00	0.3
09.15	0.2

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	352.4	234.9	42.1	0.12	42.1	0.12
B	366.1	244.1	51.2	0.14	51.2	0.14
C	243.6	162.4	24.9	0.10	24.9	0.10
ALL	962.1	641.4	118.1	0.12	118.1	0.12

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)
Patch 15 Apr 2011
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program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"p:\10173\Traffic\Junctions - Rev3\J6 Chalkstone Way jw Coupals Road\
10173a - J6 Chalkstone Way jw Coupals Road - Rev3 2019+NW1+NE1 PM.vai"
(drive-on-the-left) at 12:56:29 on Wednesday, 8 April 2015

.FILE PROPERTIES
****

RUN TITLE: J7 Chalkstone Way jw Coupals Road - Rev3 2019+NW1+NE1 PM
LOCATION: Haverhill
DATE: 08/04/15
CLIENT: Hallam
ENUMERATOR: sue.tadman [BCL25]
JOB NUMBER: 10173
STATUS: Preliminary
DESCRIPTION:

.INPUT DATA
****
ARM A - Chalkstone Way (N)
ARM B - Coupals Road
ARM C - Chalkstone Way (S)

.MINI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
LIGHTING CONDITIONS : NORMAL
ROAD SURFACE CONDITION: NORMAL

T5

ARM	V (M)	E (M)	Lm(M)	Vm(M)	A (M)	K (M)	G (%)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.20	3.20	0.00	3.20	10.00	6.00	0.00	0.515	12.941
ARM B	3.20	3.20	0.00	3.20	10.00	6.00	0.00	0.515	12.941
ARM C	3.20	3.20	0.00	3.20	10.00	10.00	0.00	0.518	13.000

V = approach half-width Lm = effective flare length A = distance between arms
E = entry width Vm = minimum approach half-width K= entry corner kerb line G=gradient over 50 m

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown
.SCALING FACTORS
T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100

TIME PERIOD BEGINS(16.45)AND ENDS(18.15)
.LENGTH OF TIME PERIOD -(90) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

.DEMAND SET TITLE: as above

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	1.76	2.64	1.76
ARM B	15.00	45.00	75.00	1.34	2.01	1.34
ARM C	15.00	45.00	75.00	5.41	8.12	5.41

DEMAND SET TITLE: as above
T33

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/T	ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.213	0.787
		0.0	30.0	111.0

		(0.0)	(0.0)	(0.0)
ARM B		0.280	0.000	0.720
		30.0	0.0	77.0
		(0.0)	(0.0)	(0.0)
ARM C		0.533	0.467	0.000
		231.0	202.0	0.0
		(0.0)	(0.0)	(0.0)

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME SEGMENT)		DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME
			AVERAGE DELAY PER ARRIVING VEHICLE (MIN)					
16.45-17.00								
ARM A		1.77	11.65	0.152	- -	-	0.0	0.2 2.6
	-		0.101					
ARM B		1.34	12.23	0.110	- -	-	0.0	0.1 1.8
	-		0.092					
ARM C		5.43	12.81	0.424	- -	-	0.0	0.7 10.4
	-		0.134					

TIME SEGMENT)		DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME
			AVERAGE DELAY PER ARRIVING VEHICLE (MIN)					
17.00-17.15								
ARM A		2.11	11.39	0.186	- -	-	0.2	0.2 3.3
	-		0.108					
ARM B		1.60	12.09	0.133	- -	-	0.1	0.2 2.2
	-		0.095					
ARM C		6.49	12.77	0.508	- -	-	0.7	1.0 14.6
	-		0.158					

TIME SEGMENT)		DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME
			AVERAGE DELAY PER ARRIVING VEHICLE (MIN)					

TIME SEGMENT)		DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME
			AVERAGE DELAY PER ARRIVING VEHICLE (MIN)					
17.15-17.30								
ARM A		2.59	11.04	0.234	- -	-	0.2	0.3 4.4
	-		0.118					
ARM B		1.96	11.89	0.165	- -	-	0.2	0.2 2.9
	-		0.101					
ARM C		7.95	12.72	0.625	- -	-	1.0	1.6 22.7
	-		0.206					

TIME SEGMENT)		DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME
			AVERAGE DELAY PER ARRIVING VEHICLE (MIN)					
17.30-17.45								
ARM A		2.59	11.03	0.234	- -	-	0.3	0.3 4.6
	-		0.118					
ARM B		1.96	11.89	0.165	- -	-	0.2	0.2 2.9
	-		0.101					
ARM C		7.95	12.72	0.625	- -	-	1.6	1.6 24.4
	-		0.209					

TIME SEGMENT)		DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME
			AVERAGE DELAY PER ARRIVING VEHICLE (MIN)					
17.45-18.00								
ARM A		2.11	11.37	0.186	- -	-	0.3	0.2 3.5
	-		0.108					
ARM B		1.60	12.08	0.133	- -	-	0.2	0.2 2.4
	-		0.096					
ARM C		6.49	12.77	0.508	- -	-	1.6	1.1 16.6
	-		0.161					

TIME SEGMENT)		DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME
			AVERAGE DELAY PER ARRIVING VEHICLE (MIN)					

```
                PER ARRIVING  I
 I                            (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)                  VEHICLE (MIN) I
 -                                -
 I 18.00-18.15                    I
 I ARM A       1.77     11.63   0.152   - -       -    0.2    0.2        2.8
         -              0.101     I
 I ARM B       1.34     12.22   0.110   - -       -    0.2    0.1        1.9
         -              0.092     I
 I ARM C       5.43     12.81   0.424   - -       -    1.1    0.7       11.6
         -              0.136     I
 I                                I
```

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.2	
17.15	0.2	
17.30	0.3	
17.45	0.3	
18.00	0.2	
18.15	0.2	

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.1	
17.15	0.2	
17.30	0.2	
17.45	0.2	
18.00	0.2	
18.15	0.1	

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.7	*
17.15	1.0	*
17.30	1.6	**
17.45	1.6	**
18.00	1.1	*
18.15	0.7	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	194.1	129.4	21.2	0.11	21.2	0.11
B	147.3	98.2	14.1	0.10	14.1	0.10
C	596.0	397.3	100.3	0.17	100.3	0.17
ALL	937.3	624.9	135.6	0.14	135.7	0.14

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)
Patch 15 Apr 2011
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For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"p:\10173\Traffic\Junctions - Rev3\J6 Chalkstone Way jw Coupals Road\
10173a - J6 Chalkstone Way jw Coupals Road - Rev3 2029+NW2+NE2 AM.vai"
(drive-on-the-left) at 12:57:14 on Wednesday, 8 April 2015

.FILE PROPERTIES
****

RUN TITLE: J7 Chalkstone Way jw Coupals Road - Rev3 2029R+NW2+NE2 AM
LOCATION: Haverhill
DATE: 08/04/15
CLIENT: Hallam
ENUMERATOR: sue.tadman [BCL25]
JOB NUMBER: 10173
STATUS: Preliminary
DESCRIPTION:

.INPUT DATA
****
ARM A - Chalkstone Way (N)
ARM B - Coupals Road
ARM C - Chalkstone Way (S)

.MINI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
LIGHTING CONDITIONS : NORMAL
ROAD SURFACE CONDITION: NORMAL

T5

ARM	V (M)	E (M)	Lm(M)	Vm(M)	A (M)	K (M)	G (%)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.20	3.20	0.00	3.20	10.00	6.00	0.00	0.515	12.941
ARM B	3.20	3.20	0.00	3.20	10.00	6.00	0.00	0.515	12.941
ARM C	3.20	3.20	0.00	3.20	10.00	10.00	0.00	0.518	13.000

V = approach half-width Lm = effective flare length A = distance between arms
E = entry width Vm = minimum approach half-width K= entry corner kerb line G=gradient over 50 m

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown
.SCALING FACTORS
T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100

TIME PERIOD BEGINS(07.45)AND ENDS(09.15)
.LENGTH OF TIME PERIOD -(90) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

.DEMAND SET TITLE: as above
T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	4.00	6.00	4.00
ARM B	15.00	45.00	75.00	3.59	5.38	3.59
ARM C	15.00	45.00	75.00	2.60	3.90	2.60

DEMAND SET TITLE: as above
T33

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/T	ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.206	0.794
		0.0	66.0	254.0

```
 I                   I         I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I       I       I       I
 I                   I  ARM  B I  0.244 I  0.000 I  0.756 I
 I                   I         I   70.0 I    0.0 I  217.0 I
 I                   I         I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I       I       I       I
 I                   I  ARM  C I  0.625 I  0.375 I  0.000 I
 I                   I         I  130.0 I   78.0 I    0.0 I
 I                   I         I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I       I       I       I
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```

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

```
.-------------------------------------------------------------------------------
---------------------------------- T70
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
                   PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)                  VEHICLE (MIN) I
 -                                 -
 I 07.45-08.00                     I
 I ARM A       4.02     12.44   0.323   - -       -    0.0    0.5        6.8
         -              0.118     I
 I ARM B       3.60     11.31   0.318   - -       -    0.0    0.5        6.6
         -              0.129     I
 I ARM C       2.61     12.55   0.208   - -       -    0.0    0.3        3.8
         -              0.100     I
 I                                 I

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.-------------------------------------------------------------------------------
---------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
                   PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)                  VEHICLE (MIN) I
 -                                 -
 I 08.00-08.15                     I
 I ARM A       4.79     12.34   0.389   - -       -    0.5    0.6        9.1
         -              0.132     I
 I ARM B       4.30     10.99   0.391   - -       -    0.5    0.6        9.2
         -              0.149     I
 I ARM C       3.12     12.46   0.250   - -       -    0.3    0.3        4.9
         -              0.107     I
 I                                 I

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.-------------------------------------------------------------------------------
---------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
                   PER ARRIVING  I
```



```
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)                  VEHICLE (MIN) I
 -                                 -
 I 08.15-08.30                     I
 I ARM A       5.87     12.21   0.481   - -       -    0.6    0.9       13.1
         -              0.157     I
 I ARM B       5.27     10.55   0.499   - -       -    0.6    1.0       13.9
         -              0.187     I
 I ARM C       3.82     12.34   0.309   - -       -    0.3    0.4        6.5
         -              0.117     I
 I                                 I
                                   I

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.-------------------------------------------------------------------------------
---------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
                   PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)                  VEHICLE (MIN) I
 -                                 -
 I 08.30-08.45                     I
 I ARM A       5.87     12.20   0.481   - -       -    0.9    0.9       13.7
         -              0.158     I
 I ARM B       5.27     10.54   0.500   - -       -    1.0    1.0       14.7
         -              0.190     I
 I ARM C       3.82     12.34   0.309   - -       -    0.4    0.4        6.7
         -              0.117     I
 I                                 I
                                   I

-------------------------------------------------------------------------------
---------------------------------
.-------------------------------------------------------------------------------
---------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
                   PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)                  VEHICLE (MIN) I
 -                                 -
 I 08.45-09.00                     I
 I ARM A       4.79     12.34   0.389   - -       -    0.9    0.6       10.0
         -              0.133     I
 I ARM B       4.30     10.98   0.392   - -       -    1.0    0.7       10.2
         -              0.151     I
 I ARM C       3.12     12.45   0.250   - -       -    0.4    0.3        5.2
         -              0.107     I
 I                                 I
                                   I

-------------------------------------------------------------------------------
---------------------------------
.-------------------------------------------------------------------------------
---------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
                   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
```

```
                PER ARRIVING  I
 I                            (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)                  VEHICLE (MIN) I
 -                                -
 I 09.00-09.15                    I
 I ARM A       4.02     12.44   0.323   - -       -    0.6    0.5        7.4
         -              0.119     I
 I ARM B       3.60     11.30   0.319   - -       -    0.7    0.5        7.3
         -              0.130     I
 I ARM C       2.61     12.54   0.208   - -       -    0.3    0.3        4.1
         -              0.101     I
 I                                I
```

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.5	
08.15	0.6	*
08.30	0.9	*
08.45	0.9	*
09.00	0.6	*
09.15	0.5	

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.5	
08.15	0.6	*
08.30	1.0	*
08.45	1.0	*
09.00	0.7	*
09.15	0.5	

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.3
08.15	0.3
08.30	0.4
08.45	0.4
09.00	0.3
09.15	0.3

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	440.5	293.6	60.2	0.14	60.2	0.14
B	395.0	263.4	62.0	0.16	62.0	0.16
C	286.3	190.9	31.0	0.11	31.0	0.11
ALL	1121.8	747.9	153.2	0.14	153.2	0.14

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)
Patch 15 Apr 2011

_____

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"p:\10173\Traffic\Junctions - Rev3\J6 Chalkstone Way jw Coupals Road\
10173a - J6 Chalkstone Way jw Coupals Road - Rev3 2029+NW2+NE2 PM.vai"
(drive-on-the-left) at 12:57:39 on Wednesday, 8 April 2015

.FILE PROPERTIES

RUN TITLE: J7 Chalkstone Way jw Coupals Road - Rev3 2029R+NW2+NE2 PM
LOCATION: Haverhill
DATE: 29/01/15
CLIENT: Hallam
ENUMERATOR: sue.tadman [BCL25]
JOB NUMBER: 10173
STATUS: Preliminary
DESCRIPTION:

.INPUT DATA

ARM A - Chalkstone Way (N)
ARM B - Coupals Road
ARM C - Chalkstone Way (S)

.MINI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
LIGHTING CONDITIONS : NORMAL
ROAD SURFACE CONDITION: NORMAL

T5

ARM	V (M)	E (M)	Lm(M)	Vm(M)	A (M)	K (M)	G (%)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.20	3.20	0.00	3.20	10.00	6.00	0.00	0.515	12.941
ARM B	3.20	3.20	0.00	3.20	10.00	6.00	0.00	0.515	12.941
ARM C	3.20	3.20	0.00	3.20	10.00	10.00	0.00	0.518	13.000

V = approach half-width Lm = effective flare length A = distance between arms
E = entry width Vm = minimum approach half-width K= entry corner kerb line G=gradient over 50 m

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown
.SCALING FACTORS
T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100

TIME PERIOD BEGINS(16.45)AND ENDS(18.15)
.LENGTH OF TIME PERIOD -(90) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

.DEMAND SET TITLE: as above
T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	2.28	3.41	2.28
ARM B	15.00	45.00	75.00	1.51	2.27	1.51
ARM C	15.00	45.00	75.00	6.20	9.30	6.20

DEMAND SET TITLE: as above
T33

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/T	ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.209	0.791
		0.0	38.0	144.0

		(0.0)	(0.0)	(0.0)
ARM B	0.331	0.000	0.669	
	40.0	0.0	81.0	
		(0.0)	(0.0)	(0.0)
ARM C	0.569	0.431	0.000	
	282.0	214.0	0.0	
		(0.0)	(0.0)	(0.0)

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME SEGMENT		DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)
16.45-17.00								
	ARM A	2.28	11.57	0.197	- -	-	0.0	0.2	3.5
		-	0.107					
	ARM B	1.52	12.02	0.126	- -	-	0.0	0.1	2.1
		-	0.095					
	ARM C	6.22	12.74	0.488	- -	-	0.0	0.9	13.3
		-	0.150					
17.00-17.15								
	ARM A	2.73	11.30	0.241	- -	-	0.2	0.3	4.6
		-	0.116					
	ARM B	1.81	11.83	0.153	- -	-	0.1	0.2	2.6
		-	0.100					
	ARM C	7.43	12.69	0.586	- -	-	0.9	1.4	19.6
		-	0.188					

TIME SEGMENT		DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)
17.15-17.30								
	ARM A	3.34	10.94	0.305	- -	-	0.3	0.4	6.3
		-	0.131					
	ARM B	2.22	11.58	0.192	- -	-	0.2	0.2	3.5
		-	0.107					
	ARM C	9.10	12.62	0.721	- -	-	1.4	2.4	33.5
		-	0.273					
17.30-17.45								
	ARM A	3.34	10.92	0.306	- -	-	0.4	0.4	6.5
		-	0.132					
	ARM B	2.22	11.58	0.192	- -	-	0.2	0.2	3.5
		-	0.107					
	ARM C	9.10	12.62	0.721	- -	-	2.4	2.5	37.2
		-	0.282					
17.45-18.00								
	ARM A	2.73	11.28	0.242	- -	-	0.4	0.3	5.0
		-	0.117					
	ARM B	1.81	11.83	0.153	- -	-	0.2	0.2	2.8
		-	0.100					
	ARM C	7.43	12.69	0.586	- -	-	2.5	1.5	23.2
		-	0.195					

SEGMENT)		PER ARRIVING (RFC)	(PEDS/MIN)	(VEHS)	(VEHS)	TIME VEHICLE (MIN)
18.00-18.15						
ARM A	2.28	11.55	0.198	- -	0.3	0.2	3.8
		0.108				
ARM B	1.52	12.01	0.126	- -	0.2	0.1	2.2
		0.095				
ARM C	6.22	12.74	0.489	- -	1.5	1.0	15.3
		0.155				

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.2	
17.15	0.3	
17.30	0.4	
17.45	0.4	
18.00	0.3	
18.15	0.2	

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.1	
17.15	0.2	
17.30	0.2	
17.45	0.2	
18.00	0.2	
18.15	0.1	

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.9	*
17.15	1.4	*
17.30	2.4	**
17.45	2.5	***
18.00	1.5	*
18.15	1.0	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
A	250.5	167.0	29.8	0.12	29.8	0.12
B	166.5	111.0	16.7	0.10	16.7	0.10
C	682.7	455.1	142.0	0.21	142.0	0.21
ALL	1099.8	733.2	188.6	0.17	188.6	0.17

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)
Patch 15 Apr 2011

_____

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited Tel: +44 (0) 1344 770758
Crowthorne House Fax: +44 (0) 1344 770356
Nine Mile Ride Email: software@trl.co.uk
Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

Run with file:-
"p:\10173\Traffic\Junctions - Rev3\J7 A143 Lords Croft Lane jw Manor Road\
10173a - J7 A143 jw Manor Road - Rev3 2019+NW1+NE1 [flat] AM.vai"
(drive-on-the-left) at 14:17:19 on Wednesday, 8 April 2015

.FILE PROPERTIES
****

RUN TITLE: J7 A143 jw Manor Road - Rev3 2019+NW1+NE1 [flat] AM
LOCATION: Haverhill
DATE: 08/04/15
CLIENT: Hallam
ENUMERATOR: sue.tadman [BCL25]
JOB NUMBER: 10173
STATUS: Preliminary
DESCRIPTION:

.INPUT DATA
****
ARM A - Manor Road
ARM B - A143 Ehringhausen Way
ARM C - A143 Lord Croft's lane

.MINI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
LIGHTING CONDITIONS : NORMAL
ROAD SURFACE CONDITION: NORMAL

T5

ARM	V (M)	E (M)	Lm(M)	Vm(M)	A (M)	K (M)	G (%)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.00	3.20	0.50	3.00	11.00	6.00	0.00	0.509	11.917
ARM B	3.00	3.00	0.00	3.00	12.50	12.00	0.00	0.515	12.674
ARM C	3.00	4.00	5.00	3.00	10.00	6.00	0.00	0.535	14.285

V = approach half-width Lm = effective flare length A = distance between arms
E = entry width Vm = minimum approach half-width K= entry corner kerb line G=gradient over 50 m

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown
.SCALING FACTORS
---- T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100

TIME PERIOD BEGINS(07.45)AND ENDS(09.15)
.LENGTH OF TIME PERIOD -(90) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

.DEMAND SET TITLE: as above

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE	AT TOP	AFTER
	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK
ARM A	15.00	45.00	75.00	3.13	4.69	3.13
ARM B	15.00	45.00	75.00	5.21	7.82	5.21
ARM C	15.00	45.00	75.00	5.51	8.27	5.51

DEMAND SET TITLE: as above
---- T33

TIME	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) FROM/T	ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.704	0.296
		0.0	176.0	74.0

		(0.0)	(0.0)	(0.0)
ARM B	0.192	0.000	0.808	
	80.0	0.0	337.0	
		(0.0)	(0.0)	(0.0)
ARM C	0.277	0.723	0.000	
	122.0	319.0	0.0	
		(0.0)	(0.0)	(0.0)

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME SEGMENT		DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME
		AVERAGE DELAY PER ARRIVING VEHICLE (MIN)						
07.45-08.00								
	ARM A	3.14	9.90	0.317	- -	-	0.0	0.5	6.5
		-	0.147						
	ARM B	5.23	12.20	0.429	- -	-	0.0	0.7	10.5
		-	0.142						
	ARM C	5.53	13.75	0.402	- -	-	0.0	0.7	9.5
		-	0.120						
08.00-08.15								
	ARM A	3.75	9.49	0.395	- -	-	0.5	0.6	9.3
		-	0.174						
	ARM B	6.25	12.11	0.516	- -	-	0.7	1.0	15.0
		-	0.169						
	ARM C	6.61	13.65	0.484	- -	-	0.7	0.9	13.4
		-	0.141						

TIME SEGMENT		DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME
		AVERAGE DELAY PER ARRIVING VEHICLE (MIN)						
08.15-08.30								
	ARM A	4.59	8.95	0.513	- -	-	0.6	1.0	14.5
		-	0.226						
	ARM B	7.65	11.98	0.639	- -	-	1.0	1.7	23.9
		-	0.226						
	ARM C	8.09	13.50	0.599	- -	-	0.9	1.5	20.7
		-	0.182						
08.30-08.45								
	ARM A	4.59	8.94	0.513	- -	-	1.0	1.0	15.5
		-	0.229						
	ARM B	7.65	11.98	0.639	- -	-	1.7	1.7	25.8
		-	0.231						
	ARM C	8.09	13.50	0.599	- -	-	1.5	1.5	22.0
		-	0.185						
08.45-09.00								
	ARM A	3.75	9.47	0.395	- -	-	1.0	0.7	10.5
		-	0.176						
	ARM B	6.25	12.10	0.516	- -	-	1.7	1.1	17.2
		-	0.173						
	ARM C	6.61	13.64	0.484	- -	-	1.5	1.0	15.0
		-	0.144						

SEGMENT)	PER ARRIVING VEHICLE	(RFC) (MIN)	(PEDS/MIN)	(VEHS)	(VEHS)	TIME
I 09.00-09.15						
I ARM A	3.14	9.87	0.318	- -	-	0.7	0.5	7.3
	-	0.149						
I ARM B	5.23	12.19	0.429	- -	-	1.1	0.8	11.9
	-	0.145						
I ARM C	5.53	13.75	0.403	- -	-	1.0	0.7	10.6
	-	0.122						

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.5	
08.15	0.6	*
08.30	1.0	*
08.45	1.0	*
09.00	0.7	*
09.15	0.5	

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.7	*
08.15	1.0	*
08.30	1.7	**
08.45	1.7	**
09.00	1.1	*
09.15	0.8	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.7	*
08.15	0.9	*
08.30	1.5	*
08.45	1.5	*
09.00	1.0	*
09.15	0.7	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	344.1	229.4	63.6	0.18	63.6	0.18
B	574.0	382.6	104.4	0.18	104.4	0.18
C	607.0	404.7	91.1	0.15	91.1	0.15
ALL	1525.1	1016.7	259.0	0.17	259.1	0.17

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)
Patch 15 Apr 2011
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For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"p:\10173\Traffic\Junctions - Rev3\J7 A143 Lords Croft Lane jw Manor Road\
10173a - J7 A143 jw Manor Road - Rev3 2019+NW1+NE1 [flat] PM.vai"
(drive-on-the-left) at 14:17:42 on Wednesday, 8 April 2015

.FILE PROPERTIES
****

RUN TITLE: J7 A143 jw Manor Road - Rev3 2019+NW1+NE1 [flat] PM
LOCATION: Haverhill
DATE: 08/04/15
CLIENT: Hallam
ENUMERATOR: sue.tadman [BCL25]
JOB NUMBER: 10173
STATUS: Preliminary
DESCRIPTION:

.INPUT DATA
****
ARM A - Manor Road
ARM B - A143 Ehringhausen Way
ARM C - A143 Lord Croft's lane

.MINI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
LIGHTING CONDITIONS : NORMAL
ROAD SURFACE CONDITION: NORMAL

---- T5

ARM	V (M)	E (M)	Lm(M)	Vm(M)	A (M)	K (M)
G (%)	SLOPE	INTERCEPT (PCU/MIN)				
ARM A	3.00	3.20	0.50	3.00	11.00	6.00
	0.00	0.509	11.917			
ARM B	3.00	3.00	0.00	3.00	12.50	12.00
	0.00	0.515	12.674			
ARM C	3.00	4.00	5.00	3.00	10.00	6.00
	0.00	0.535	14.285			

V = approach half-width Lm = effective flare length A = distance between arms
E = entry width Vm = minimum approach half-width K= entry corner kerb line G=gradient over 50 m

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown
.SCALING FACTORS
---- T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100

TIME PERIOD BEGINS(17.00)AND ENDS(18.00)
.LENGTH OF TIME PERIOD -(60) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: as above

DEMAND SET TITLE: as above
---- T33

TIME	FROM/T	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
17.00 - 18.00	ARM A	0.000	0.594	0.406
		0.0	85.0	58.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.210	0.000	0.790
		117.0	0.0	441.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.278	0.722	0.000
		152.0	394.0	0.0
		(0.0)	(0.0)	(0.0)

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME SEGMENT	ARM	DEMAND FLOW (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY RATIO (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	DELAY (VEH.MIN/ TIME)
17.00-17.15	ARM A	2.38	8.63	0.276	- -	0.0	0.4	5.4	
		-	0.159		-				
	ARM B	9.30	12.18	0.763	- -	0.0	3.0	38.5	
		-	0.307		-				
	ARM C	9.10	13.26	0.686	- -	0.0	2.1	28.2	
		-	0.226		-				
17.15-17.30	ARM A	2.38	8.58	0.277	- -	0.4	0.4	5.7	
		-	0.161		-				
	ARM B	9.30	12.18	0.764	- -	0.0	3.1	45.5	
		-	0.345		-				
	ARM C	9.10	13.24	0.687	- -	0.0	2.1	31.8	
		-	0.241		-				
17.30-17.45	ARM A	2.38	8.58	0.278	- -	0.4	0.4	5.7	
		-	0.161		-				
	ARM B	9.30	12.18	0.764	- -	3.1	3.1	46.7	
		-	0.346		-				
	ARM C	9.10	13.24	0.687	- -	2.1	2.2	32.3	
		-	0.241		-				

TIME SEGMENT	ARM	DEMAND FLOW (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY RATIO (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	DELAY (VEH.MIN/ TIME)
17.45-18.00	ARM A	2.38	8.58	0.278	- -	0.4	0.4	5.7	
		-	0.161		-				
	ARM B	9.30	12.18	0.764	- -	3.1	3.2	47.2	
		-	0.346		-				
	ARM C	9.10	13.24	0.687	- -	2.2	2.2	32.5	
		-	0.241		-				

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.15	0.4	
17.30	0.4	
17.45	0.4	
18.00	0.4	

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.15	3.0	***
17.30	3.1	***
17.45	3.1	***
18.00	3.2	***

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.15	2.1	**
17.30	2.1	**
17.45	2.2	**
18.00	2.2	**

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	142.8	142.8	22.5	0.16	22.5	0.16
B	558.0	558.0	177.8	0.32	178.2	0.32
C	546.0	546.0	124.7	0.23	124.9	0.23
ALL	1246.8	1246.8	325.0	0.26	325.6	0.26

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)
Patch 15 Apr 2011

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"p:\10173\Traffic\Junctions - Rev3\J7 A143 Lords Croft Lane jw Manor Road\
10173a - J7 A143 jw Manor Road - Rev3 2029R+NW2+NE2 [flat] AM.vai"
(drive-on-the-left) at 14:18:20 on Wednesday, 8 April 2015

.FILE PROPERTIES
****

RUN TITLE: J7 A143 jw Manor Road - Rev3 2029R+NW2+NE2 [flat] AM
LOCATION: Haverhill
DATE: 08/04/15
CLIENT: Hallam
ENUMERATOR: sue.tadman [BCL25]
JOB NUMBER: 10173
STATUS: Preliminary
DESCRIPTION:

.INPUT DATA
****
ARM A - Manor Road
ARM B - A143 Ehringhausen Way
ARM C - A143 Lord Croft's lane

.MINI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
LIGHTING CONDITIONS : NORMAL
ROAD SURFACE CONDITION: NORMAL

ARM	V (M)	E (M)	Lm(M)	Vm(M)	A (M)	K (M)	G (%)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.00	3.20	0.50	3.00	11.00	6.00	0.00	0.509	11.917
ARM B	3.00	3.00	0.00	3.00	12.50	12.00	0.00	0.515	12.674
ARM C	3.00	4.00	5.00	3.00	10.00	6.00	0.00	0.535	14.285

V = approach half-width Lm = effective flare length A = distance between arms
E = entry width Vm = minimum approach half-width K= entry corner kerb line G=gradient over 50 m

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100

TIME PERIOD BEGINS(08.00)AND ENDS(09.00)
.LENGTH OF TIME PERIOD -(60) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: as above

DEMAND SET TITLE: as above

T33

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/T	ARM A	ARM B	ARM C
08.00 - 09.00	ARM A	0.000	0.706	0.294
		0.0	187.0	78.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.175	0.000	0.825
		85.0	0.0	401.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.222	0.778	0.000
		129.0	451.0	0.0
		(0.0)	(0.0)	(0.0)

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME SEGMENT)	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	PEDESTRIAN CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME
08.00-08.15								
ARM A	4.42	8.15	0.542	- -	-	0.0	1.1	15.7
	-	0.258						
ARM B	8.10	12.02	0.674	- -	-	0.0	2.0	26.7
	-	0.240						
ARM C	9.67	13.54	0.714	- -	-	0.0	2.4	31.7
	-	0.240						
08.15-08.30								
ARM A	4.42	8.09	0.546	- -	-	1.1	1.2	17.4
	-	0.271						
ARM B	8.10	12.01	0.675	- -	-	2.0	2.0	30.0
	-	0.256						
ARM C	9.67	13.53	0.715	- -	-	2.4	2.4	36.1
	-	0.258						
08.30-08.45								
ARM A	4.42	8.09	0.546	- -	-	1.2	1.2	17.7
	-	0.272						
ARM B	8.10	12.01	0.675	- -	-	2.0	2.0	30.5
	-	0.256						
ARM C	9.67	13.53	0.715	- -	-	2.4	2.5	36.7
	-	0.258						

TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)
08.45-09.00							
ARM A	4.42	8.09	0.546	- -	-	1.2	1.2	17.8
	-	0.272						
ARM B	8.10	12.01	0.675	- -	-	2.0	2.0	30.6
	-	0.256						
ARM C	9.67	13.53	0.715	- -	-	2.5	2.5	37.0
	-	0.259						

AVERAGE DELAY PER ARRIVING

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.1	*
08.30	1.2	*
08.45	1.2	*
09.00	1.2	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	2.0	**
08.30	2.0	**
08.45	2.0	**
09.00	2.0	**

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	2.4	**
08.30	2.4	**
08.45	2.5	**
09.00	2.5	**

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
A	265.2	265.2	68.7	0.26	68.8	0.26
B	486.0	486.0	117.8	0.24	117.9	0.24
C	580.2	580.2	141.5	0.24	141.7	0.24
ALL	1331.4	1331.4	327.9	0.25	328.4	0.25

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)
Patch 15 Apr 2011
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program advice and maintenance, contact:

TRL Limited Tel: +44 (0) 1344 770758
Crowthorne House Fax: +44 (0) 1344 770356
Nine Mile Ride Email: software@trl.co.uk
Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

Run with file:-
"p:\10173\Traffic\Junctions - Rev3\J7 A143 Lords Croft Lane jw Manor Road\
10173a - J7 A143 jw Manor Road - Rev3 2029R+NW2+NE2 [flat] PM.vai"
(drive-on-the-left) at 14:18:55 on Wednesday, 8 April 2015

.FILE PROPERTIES
****

RUN TITLE: J7 A143 jw Manor Road - Rev3 2029R+NW2+NE2 [flat] PM
LOCATION: Haverhill
DATE: 08/04/15
CLIENT: Hallam
ENUMERATOR: sue.tadman [BCL25]
JOB NUMBER: 10173
STATUS: Preliminary
DESCRIPTION:

.INPUT DATA
****
ARM A - Manor Road
ARM B - A143 Ehringhausen Way
ARM C - A143 Lord Croft's lane

.MINI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
LIGHTING CONDITIONS : NORMAL
ROAD SURFACE CONDITION: NORMAL

---------- T5

ARM	V (M)	E (M)	Lm(M)	Vm(M)	A (M)	K (M)	G (%)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.00	3.20	0.50	3.00	11.00	6.00	0.00	0.509	11.917
ARM B	3.00	3.00	0.00	3.00	12.50	12.00	0.00	0.515	12.674
ARM C	3.00	4.00	5.00	3.00	10.00	6.00	0.00	0.535	14.285

V = approach half-width Lm = effective flare length A = distance between arms
E = entry width Vm = minimum approach half-width K= entry corner kerb line G=gradient over 50 m

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown
.SCALING FACTORS
---------- T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100

TIME PERIOD BEGINS(17.00)AND ENDS(18.00)
.LENGTH OF TIME PERIOD -(60) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: as above

DEMAND SET TITLE: as above
---------- T33

TIME	FROM/T	TURNING PROPORTIONS / TURNING COUNTS / (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
17.00 - 18.00	ARM A	0.000	0.599	0.401
		0.0	97.0	65.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.179	0.000	0.821
		133.0	0.0	611.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.252	0.748	0.000
		173.0	514.0	0.0
		(0.0)	(0.0)	(0.0)

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME SEGMENT	ARM	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	DELAY (VEH.MIN/ (RFC) TIME
17.00-17.15	ARM A	2.71	7.69	0.352	- -	0.0	0.5	0.198	7.5
	ARM B	12.41	12.12	1.024	- -	0.0	15.4	0.929	145.6
	ARM C	11.46	13.20	0.868	- -	0.0	5.3	0.424	63.9
17.15-17.30	ARM A	2.71	7.57	0.358	- -	0.5	0.5	0.205	8.2
	ARM B	12.41	12.12	1.024	- -	15.4	23.6	1.865	294.5
	ARM C	11.46	13.15	0.871	- -	5.3	5.9	0.550	85.2
17.30-17.45	ARM A	2.71	7.56	0.358	- -	0.5	0.6	0.206	8.3
	ARM B	12.41	12.12	1.024	- -	23.6	30.5	2.461	406.5
	ARM C	11.46	13.14	0.872	- -	5.9	6.2	0.569	91.1

TIME SEGMENT	ARM	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	DELAY (VEH.MIN/ (RFC) TIME
17.45-18.00	ARM A	2.71	7.56	0.359	- -	0.6	0.6	0.207	8.3
	ARM B	12.41	12.12	1.024	- -	30.5	36.8	2.986	505.6
	ARM C	11.46	13.14	0.872	- -	6.2	6.3	0.577	94.1

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.15	0.5	*
17.30	0.5	*
17.45	0.6	*
18.00	0.6	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.15	15.4	***************
17.30	23.6	************************
17.45	30.5	******************************
18.00	36.8	************************************

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.15	5.3	*****
17.30	5.9	******
17.45	6.2	******
18.00	6.3	******

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	162.6	162.6	32.3	0.20	32.3	0.20
B	744.6	744.6	1352.2	1.82	1408.2	1.89
C	687.6	687.6	334.2	0.49	335.7	0.49
ALL	1594.8	1594.8	1718.7	1.08	1776.3	1.11

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)
Patch 15 Apr 2011

_____

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"p:\10173\Traffic\Junctions - Rev3\J7 A143 Lords Croft Lane jw Manor Road\
10173a - J7 A143 jw Manor Road - Impr Rev3 2029R+NW2+NE2 [flat] PM.vai"
(drive-on-the-left) at 14:19:32 on Wednesday, 8 April 2015

.FILE PROPERTIES
****

RUN TITLE: J7 A143 jw Manor Road - Impr Rev3 2029R+NW2+NE2 [flat] PM
LOCATION: Haverhill
DATE: 08/04/15
CLIENT: Hallam
ENUMERATOR: sue.tadman [BCL25]
JOB NUMBER: 10173
STATUS: Preliminary
DESCRIPTION:

.INPUT DATA
****
ARM A - Manor Road
ARM B - A143 Ehringhausen Way
ARM C - A143 Lord Croft's lane

.MINI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON
LIGHTING CONDITIONS : NORMAL
ROAD SURFACE CONDITION: NORMAL

ARM	V (M)	E (M)	Lm(M)	Vm(M)	A (M)	K (M)	G (%)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.00	3.20	0.50	3.00	11.00	6.00	0.00	0.509	11.917
ARM B	3.00	6.00	3.00	3.00	12.50	12.00	0.00	0.550	15.186
ARM C	3.00	5.00	5.00	3.00	10.00	6.00	0.00	0.548	15.226

V = approach half-width Lm = effective flare length A = distance between arms
E = entry width Vm = minimum approach half-width K= entry corner kerb line G=gradient over 50 m

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown
.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100

TIME PERIOD BEGINS(17.00)AND ENDS(18.00)
.LENGTH OF TIME PERIOD -(60) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: as above

DEMAND SET TITLE: as above

T33

TIME	FROM/T	ARM A	ARM B	ARM C
17.00 - 18.00				
	ARM A	0.000	0.599	0.401
		0.0	97.0	65.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.179	0.000	0.821
		133.0	0.0	611.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.252	0.748	0.000
		173.0	514.0	0.0
		(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME SEGMENT	ARM	DEMAND FLOW (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME)
17.00-17.15	ARM A	2.71	7.65	0.354	0.200	-	0.0	0.5	7.6
	ARM B	12.41	14.60	0.850	0.362	-	0.0	4.8	59.6
	ARM C	11.46	14.04	0.816	0.327	-	0.0	3.9	50.0
17.15-17.30	ARM A	2.71	7.56	0.358	0.206	-	0.5	0.6	8.2
	ARM B	12.41	14.59	0.851	0.442	-	4.8	5.2	75.7
	ARM C	11.45	14.01	0.817	0.381	-	3.9	4.2	61.3
17.30-17.45	ARM A	2.71	7.56	0.358	0.206	-	0.6	0.6	8.3
	ARM B	12.41	14.59	0.851	0.450	-	5.2	5.3	79.2
	ARM C	11.45	14.01	0.817	0.386	-	4.2	4.3	63.5

TIME SEGMENT	ARM	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)
		AVERAGE DELAY PER ARRIVING						
17.45-18.00								
	ARM A	2.71	7.56	0.359	- -	0.6	0.6	8.3
		0.207						
	ARM B	12.41	14.59	0.851	- -	5.3	5.4	80.9
		0.452						
	ARM C	11.45	14.01	0.817	- -	4.3	4.3	64.5
		0.387						

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.15	0.5	*
17.30	0.6	*
17.45	0.6	*
18.00	0.6	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.15	4.8	*****
17.30	5.2	*****
17.45	5.3	*****
18.00	5.4	*****

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.15	3.9	****
17.30	4.2	****
17.45	4.3	****
18.00	4.3	****

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

10173a - J7 A143 jw Manor Road - Impr Rev3 2029R+NW2+NE2 [flat] PM

T75

ARM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
A	162.6	162.6	32.4	0.20	32.4	0.20
B	744.6	744.6	295.4	0.40	296.4	0.40
C	687.2	687.2	239.2	0.35	239.9	0.35
ALL	1594.3	1594.3	566.9	0.36	568.6	0.36

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

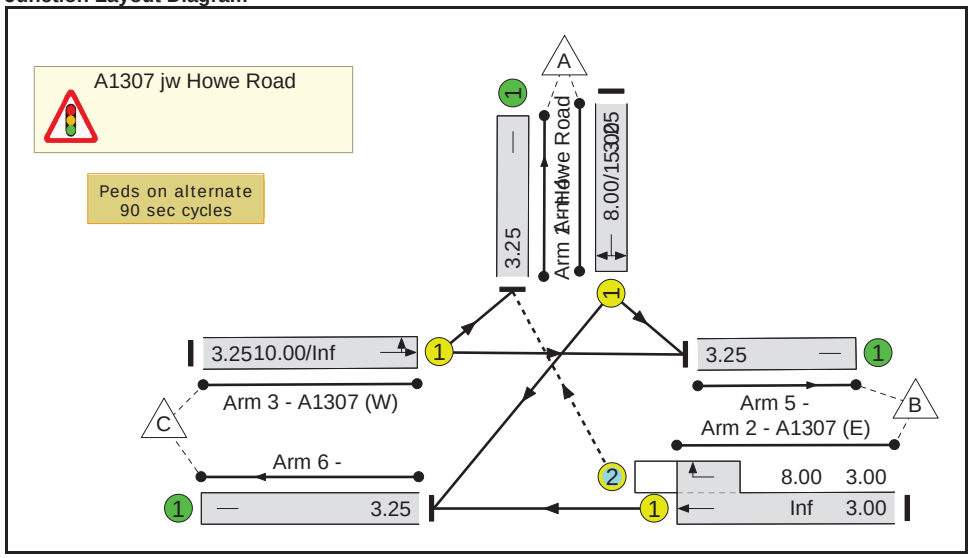
END OF JOB

Linsig Report

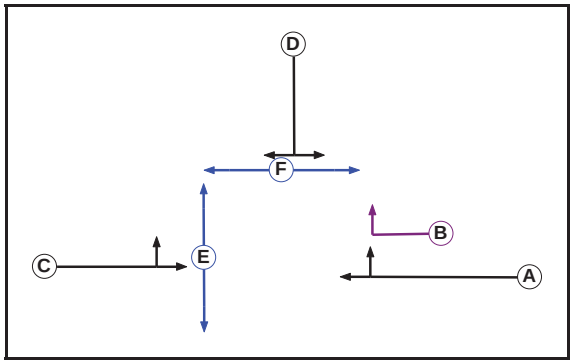
User and Project Details

Project:	**Land at Haverhill**
Title:	**Existing Layout**
Location:	Haverhill
File name:	10173L J8 A1307 jw Howe Road Rev3.lsg3x
Author:	SMT
Company:	Brookbanks Consulting Ltd

Junction Layout Diagram



Phase Diagram

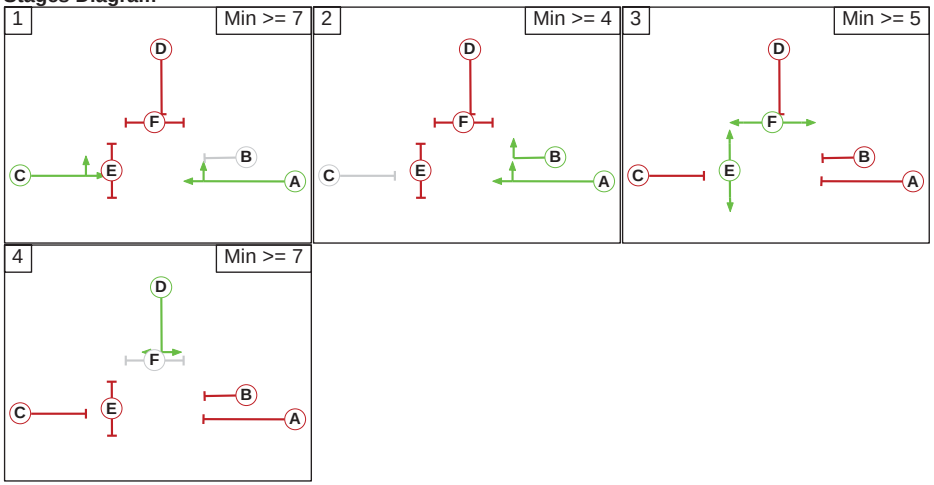


Linsig Report
P:\10173\Traffic\Junctions - Rev3\J8 A1307 jw Howe Road\10173L J8 A1307 jw Howe Road Rev3.lsg3x

Phase Intergreens Matrix

Terminating Phase \ Starting Phase	A	B	C	D	E	F
A		-	-	6	8	9
B	-		-	6	-	9
C	-	-		6	5	-
D	6	6	6		10	-
E	8	-	8	7		-
F	8	8	-	-	-	

Stages Diagram



Lane Input Data

Junction: A1307 jw Howe Road											
Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (Howe Road)	U	D	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 5 Left	8.00
											Arm 6 Right	15.00
2/1 (A1307 (E))	U	A	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 6 Ahead	Inf
2/2 (A1307 (E))	O	A B	2	3	3.0	Geom	-	3.00	0.00	N	Arm 4 Right	8.00
3/1 (A1307 (W))	U	C	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 4 Left	10.00
											Arm 5 Ahead	Inf

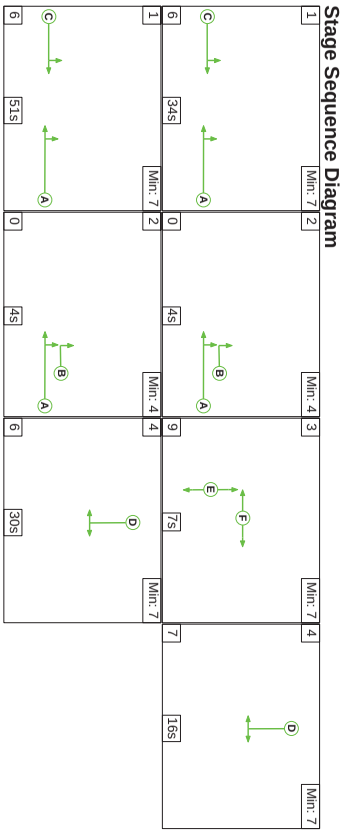
Scenario 1: '2014 AM' (FG1: '2014 AM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Actual

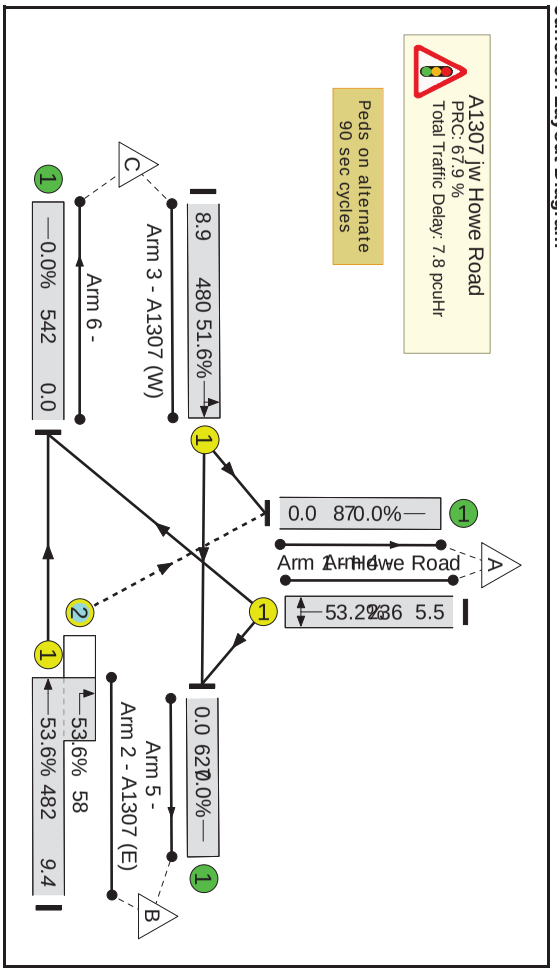
Actual Flow :

Origin \ Destination	A	B	C	Tot.
A	0	176	60	236
B	58	0	482	540
C	29	451	0	480
Tot.	87	627	542	1256

Stage Sequence Diagram



Junction Layout Diagram



Link Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Existing Layout	-	-	-		-	-	-	-	-	-	**53.6%**	**55**	**1**	**1**	**7.8**	-	-
A1307 jw Howe Road	-	-	-		-	-	-	-	-	-	**53.6%**	**55**	**1**	**1**	**7.8**	-	-
1/1	Howe Road Left Right	U	D		2	46	-	236	1665	444	53.2%	-	-	-	2.4	36.8	5.5
2/1+2/2	A1307 (E) Right Ahead	U+O	A	B	2	93	8	540	1915:1731	899+108	53.6 : 53.6%	55	1	1	2.7	18.3	9.4
3/1	A1307 (W) Left Ahead	U	C		2	85	-	480	1923	929	51.6%	-	-	-	2.7	20.0	8.9

C1 PRC for Signalled Lanes (%): 67.9 Total Delay for Signalled Lanes (pcuHr): 7.83 Cycle Time (s): 180
PRC Over All Lanes (%): 67.9 Total Delay Over All Lanes(pcuHr): 7.83

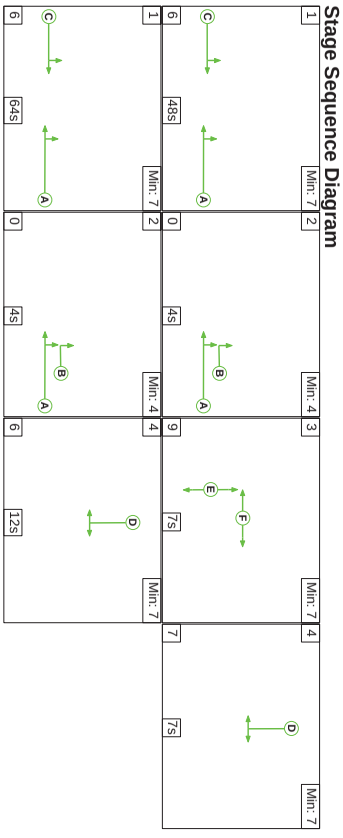
Scenario 2: '2014 PM' (FG2: '2014 PM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Actual

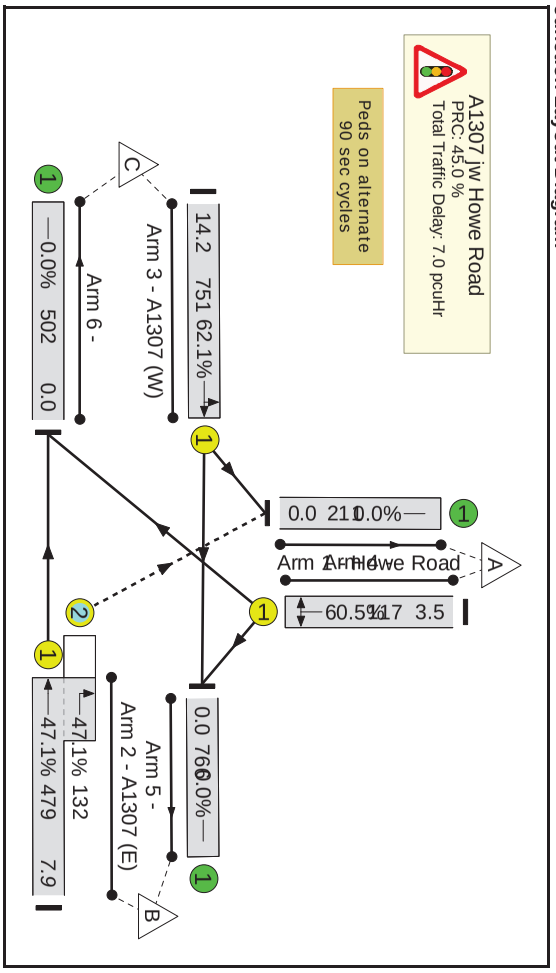
Actual Flow :

Origin \ Destination	A	B	C	Tot.
A	0	94	23	117
B	132	0	479	611
C	79	672	0	751
Tot.	211	766	502	1479

Stage Sequence Diagram



Junction Layout Diagram



Link Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Existing Layout	-	-	-		-	-	-	-	-	-	**62.1%**	**126**	**3**	**3**	**7.0**	-	-
A1307 jw Howe Road	-	-	-		-	-	-	-	-	-	**62.1%**	**126**	**3**	**3**	**7.0**	-	-
1/1	Howe Road Left Right	U	D		2	19	-	117	1658	193	60.5%	-	-	-	2.0	60.9	3.5
2/1+2/2	A1307 (E) Right Ahead	U+O	A	B	2	120	8	611	1915:1731	1017+280	47.1 : 47.1%	126	3	3	2.0	12.0	7.9
3/1	A1307 (W) Left Ahead	U	C		2	112	-	751	1910	1210	62.1%	-	-	-	3.0	14.2	14.2

C1 PRC for Signalled Lanes (%): 45.0 Total Delay for Signalled Lanes (pcuHr): 6.98 Cycle Time (s): 180
PRC Over All Lanes (%): 45.0 Total Delay Over All Lanes(pcuHr): 6.98

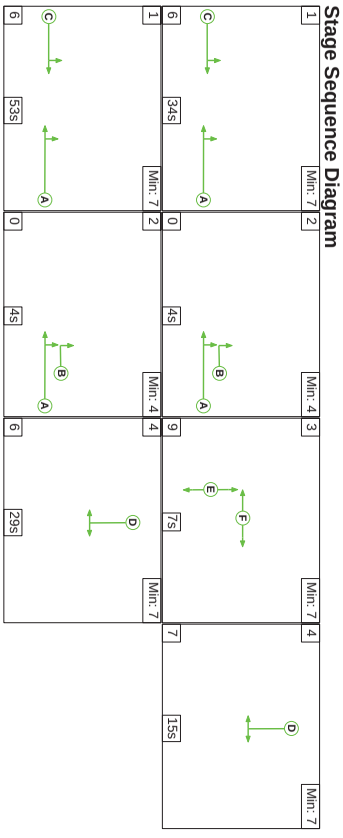
Scenario 3: '2019+Ph1 AM' (FG3: '2019+NW1+NW1 AM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Actual

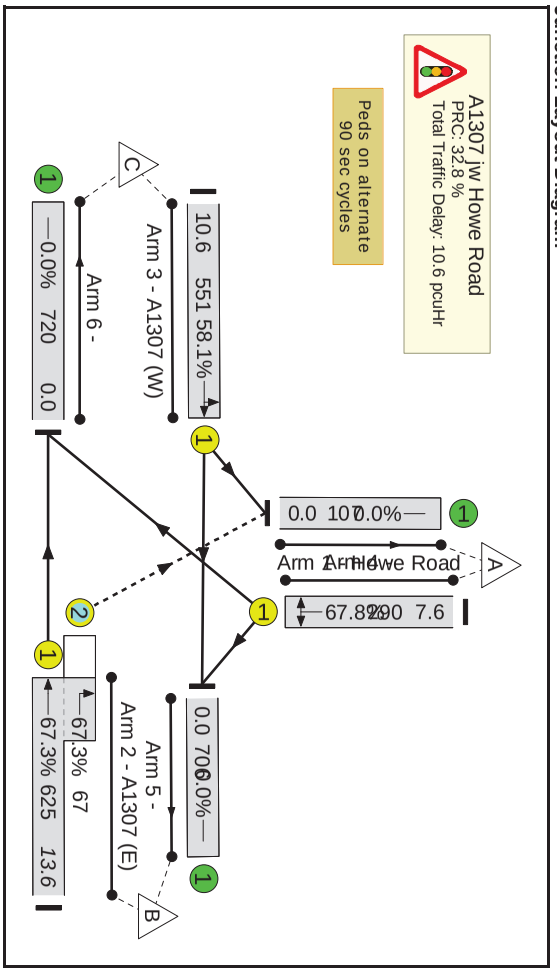
Actual Flow :

Origin \ Destination	A	B	C	Tot.
A	0	195	95	290
B	67	0	625	692
C	40	511	0	551
Tot.	107	706	720	1533

Stage Sequence Diagram



Junction Layout Diagram



Link Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Existing Layout	-	-	-		-	-	-	-	-	-	**67.8%**	**64**	**1**	**1**	**10.6**	-	-
A1307 jw Howe Road	-	-	-		-	-	-	-	-	-	**67.8%**	**64**	**1**	**1**	**10.6**	-	-
1/1	Howe Road Left Right	U	D		2	44	-	290	1674	428	67.8%	-	-	-	3.5	43.0	7.6
2/1+2/2	A1307 (E) Right Ahead	U+O	A	B	2	95	8	692	1915:1731	928+100	67.3 : 67.3%	64	1	1	4.0	20.9	13.6
3/1	A1307 (W) Left Ahead	U	C		2	87	-	551	1919	949	58.1%	-	-	-	3.2	20.7	10.6

C1 PRC for Signalled Lanes (%): 32.8 Total Delay for Signalled Lanes (pcuHr): 10.64 Cycle Time (s): 180
PRC Over All Lanes (%): 32.8 Total Delay Over All Lanes(pcuHr): 10.64

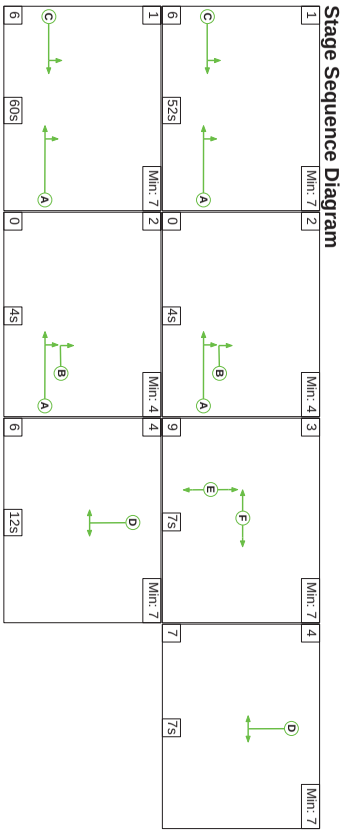
Scenario 4: '2019+Ph1 PM' (FG4: '2019+NW1+NW1 PM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Actual

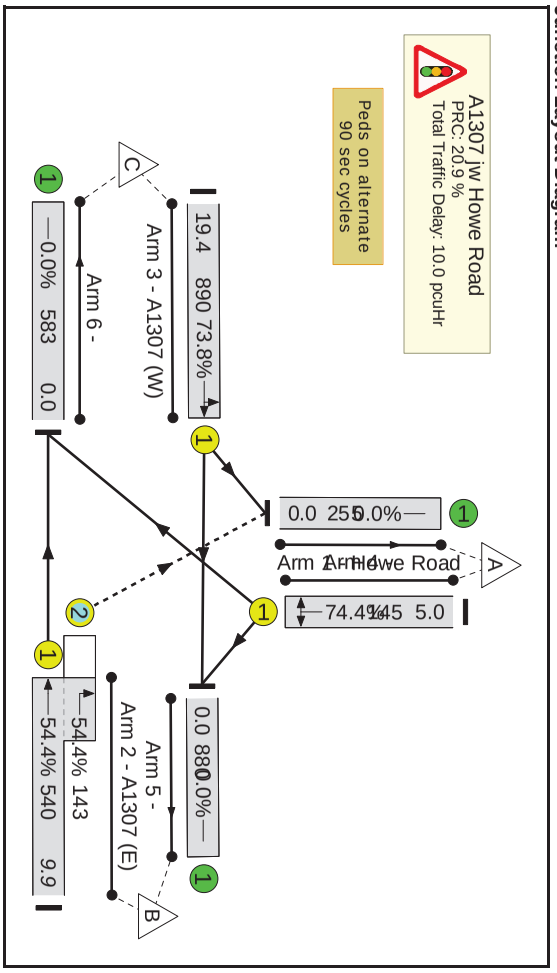
Actual Flow :

Origin \ Destination	A	B	C	Tot.
A	0	102	43	145
B	143	0	540	683
C	112	778	0	890
Tot.	255	880	583	1718

Stage Sequence Diagram



Junction Layout Diagram



Link Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Existing Layout	-	-	-		-	-	-	-	-	-	**74.4%**	**129**	**11**	**3**	**10.0**	-	-
A1307 jw Howe Road	-	-	-		-	-	-	-	-	-	**74.4%**	**129**	**11**	**3**	**10.0**	-	-
1/1	Howe Road Left Right	U	D		2	19	-	145	1670	195	74.4%	-	-	-	2.9	72.8	5.0
2/1+2/2	A1307 (E) Right Ahead	U+O	A	B	2	120	8	683	1915:1731	993+263	54.4 : 54.4%	129	11	3	2.8	14.7	9.9
3/1	A1307 (W) Left Ahead	U	C		2	112	-	890	1904	1206	73.8%	-	-	-	4.3	17.4	19.4

C1 PRC for Signalled Lanes (%): 20.9 Total Delay for Signalled Lanes (pcuHr): 10.01 Cycle Time (s): 180
PRC Over All Lanes (%): 20.9 Total Delay Over All Lanes(pcuHr): 10.01

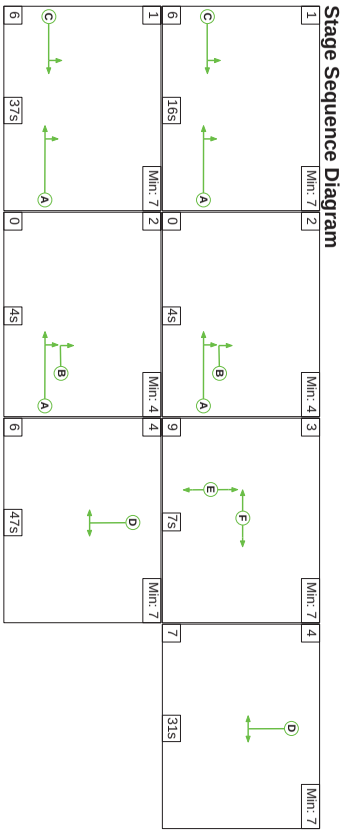
Scenario 5: '2029R+Ph2 AM' (FG5: '2029R+NW2+NE2 AM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Actual

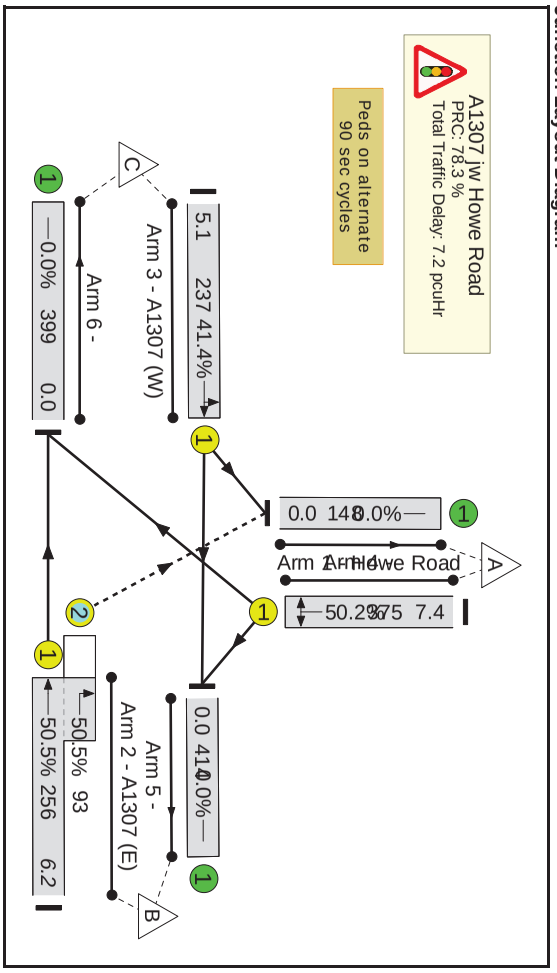
Actual Flow :

Origin \ Destination	A	B	C	Tot.
A	0	232	143	375
B	93	0	256	349
C	55	182	0	237
Tot.	148	414	399	961

Stage Sequence Diagram



Junction Layout Diagram



Link Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Existing Layout	-	-	-		-	-	-	-	-	-	**50.5%**	**89**	**2**	**2**	**7.2**	-	-
A1307 jw Howe Road	-	-	-		-	-	-	-	-	-	**50.5%**	**89**	**2**	**2**	**7.2**	-	-
1/1	Howe Road Left Right	U	D		2	78	-	375	1681	747	50.2%	-	-	-	2.4	22.7	7.4
2/1+2/2	A1307 (E) Right Ahead	U+O	A	B	2	61	8	349	1915:1731	507+184	50.5 : 50.5%	89	2	2	2.8	28.9	6.2
3/1	A1307 (W) Left Ahead	U	C		2	53	-	237	1875	573	41.4%	-	-	-	2.0	30.2	5.1

C1 PRC for Signalled Lanes (%): 78.3 Total Delay for Signalled Lanes (pcuHr): 7.16 Cycle Time (s): 180
PRC Over All Lanes (%): 78.3 Total Delay Over All Lanes(pcuHr): 7.16

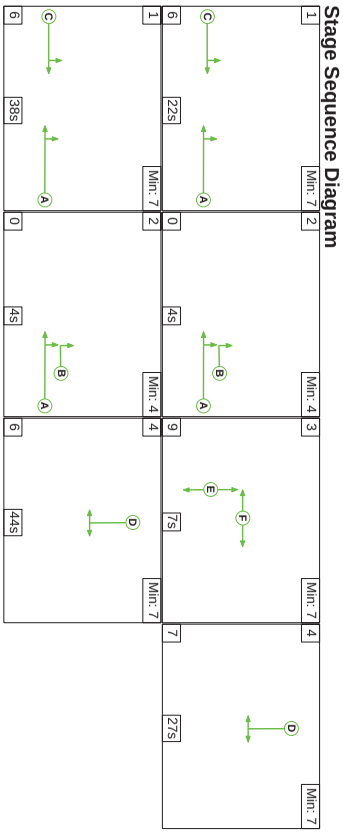
Scenario 6: '2029R+Ph2 PM' (FG6: '2029R+NW2+NE2 PM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Actual

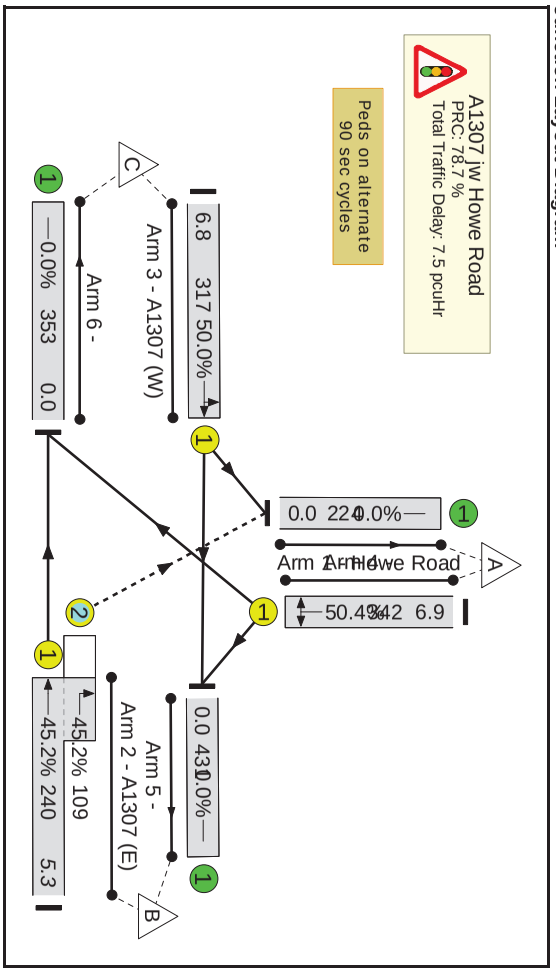
Actual Flow :

Origin \ Destination	A	B	C	Tot.
A	0	229	113	342
B	109	0	240	349
C	115	202	0	317
Tot.	224	431	353	1008

Stage Sequence Diagram



Junction Layout Diagram



Linsig Report
P:\10173\Traffic\Junctions - Rev3\J8 A1307 jw Howe Road\10173L J8 A1307 jw Howe Road Rev3.lsg3x

Link Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Existing Layout	-	-	-		-	-	-	-	-	-	**50.4%**	**104**	**2**	**2**	**7.5**	-	-
A1307 jw Howe Road	-	-	-		-	-	-	-	-	-	**50.4%**	**104**	**2**	**2**	**7.5**	-	-
1/1	Howe Road Left Right	U	D		2	71	-	342	1674	679	50.4%	-	-	-	2.4	25.3	6.9
2/1+2/2	A1307 (E) Right Ahead	U+O	A	B	2	68	8	349	1915:1731	531+241	45.2 : 45.2%	104	2	2	2.6	26.4	5.3
3/1	A1307 (W) Left Ahead	U	C		2	60	-	317	1840	634	50.0%	-	-	-	2.6	29.0	6.8

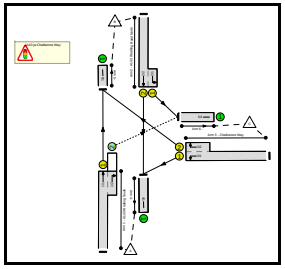
C1 PRC for Signalled Lanes (%): 78.7 Total Delay for Signalled Lanes (pcuHr): 7.52 Cycle Time (s): 180
PRC Over All Lanes (%): 78.7 Total Delay Over All Lanes(pcuHr): 7.52

Full Input Data And Results

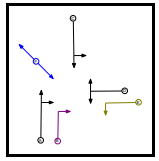
User and Project Details

Project:	**Haverhill**
Title:	**A143 Wratting Road jw Chalkstone Way**
Location:	Haverhill
File name:	10173L J9 A143 jw Chalkstone Way - Improved HL-11A.lsg3x
Author:	SMT
Company:	Brookbanks Consulting Ltd
Address:	Birmingham Business Park
Notes:	

Network Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Ind. Arrow	A	4	4
C	Traffic		7	7
D	Traffic		7	7
E	Filter	D	4	0
F	Pedestrian		6	6

Full Input Data And Results

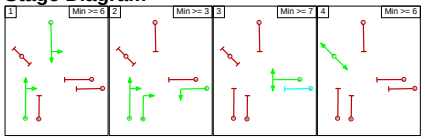
Phase Intergreens Matrix

		Starting Phase					
		A	B	C	D	E	F
Terminating Phase	A		-	-	5	-	8
	B	-		6	6	-	8
	C	-	5		6	6	8
	D	6	6	5		-	8
	E	-	-	5	-		8
	F	12	12	12	12	12	

Phases in Stage

Stage No.	Phases in Stage
1	A C
2	A B E
3	D
4	F

Stage Diagram



Give-Way Lane Input Data

Junction: A143 jw Chalkstone Way

Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
1/2 (A143 Wratting South)	6/1 (Right)	1439	0	2/1 2/2	1.09 1.09	All All	3.00	-	0.50	3	3.00

Lane Input Data

Junction: A143 jw Chalkstone Way

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (A143 Wratting South)	U	A	2	3	60.0	Geom	-	3.20	0.00	Y	Arm 5 Ahead	Inf
1/2 (A143 Wratting South)	O	A B	2	3	4.0	Geom	-	3.20	0.00	N	Arm 6 Right	6.00
2/1 (A143 Wratting Road North)	U	C	2	3	3.0	Geom	-	3.20	0.00	Y	Arm 6 Left	8.00
2/2 (A143 Wratting Road North)	U	C	2	3	60.0	Geom	-	3.20	0.00	Y	Arm 4 Ahead	Inf
3/1 (Chalkstone Way)	U	D E	2	3	60.0	Geom	-	3.20	0.00	Y	Arm 4 Left	10.00
3/2 (Chalkstone Way)	U	D	2	3	4.0	Geom	-	3.20	0.00	N	Arm 5 Right	12.00

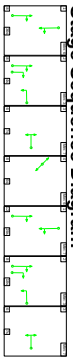
Scenario 1: '2030 AM +Peds alternate' (FG1: '2029R+NW2+NE2 AM', Plan 1: '3-stages, peds alternate')

Traffic Flows, Desired

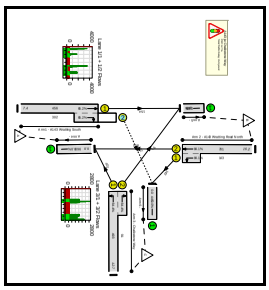
Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	154	302	456
	B	558	0	143	701
	C	402	91	0	493
	Tot.	960	245	445	1650

Stage Sequence Diagram



Network Layout Diagram



Network Results

Item	Lane Description	Full Phase	Total Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)	Average Excess Queue (pcu)
Network: A143 Wratting Road jw Chalkstone Way	-	-	-	-	-	-	**84.4%**	**15.9**	-	-	-
A143 jw Chalkstone Way	-	-	-	-	-	-	**84.4%**	**15.9**	-	-	-
1/1+1/2	A143 Wratting South Ahead Right	A	100	456	1935:1660	236+463	65.2 : 65.2%	3.3	26.1	7.4	0.00
2/2+2/1	A143 Wratting Road North Ahead Left	C	67	701	1935:1629	663+170	84.1 : 84.1%	6.4	32.8	16.2	0.00
3/1+3/2	Chalkstone Way Left Right	D	50:16	493	1683:1844	476+108	84.4 : 84.4%	6.2	45.2	12.7	0.00
4/1		-	-	960	Inf	Inf	0.0%	0.0	0.0	0.0	0.00
5/1		-	-	245	Inf	Inf	0.0%	0.0	0.0	0.0	0.00
6/1		-	-	445	Inf	Inf	0.0%	0.0	0.0	0.0	0.00

C1 PRC for Signalled Lanes (%): 6.7 Total Delay for Signalled Lanes (pcuHr): 15.89 Cycle Time (s): 160
PRC Over All Lanes (%): 6.7 Total Delay Over All Lanes(pcuHr): 15.89

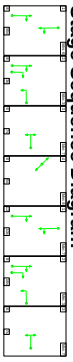
Scenario 2: '2030 PM +Peds alternate' (FG2: '2029R+NW2+NE2 PM', Plan 1: '3-stages, peds alternate')

Traffic Flows, Desired

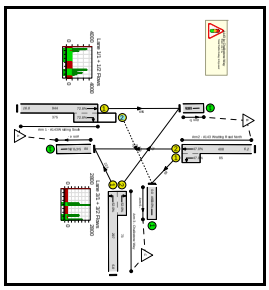
Desired Flow :

Origin \ Destination	A	B	C	Tot.
A	0	569	375	944
B	323	0	85	408
C	224	73	0	297
Tot.	547	642	460	1649

Stage Sequence Diagram



Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Full Phase	Total Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)	Average Excess Queue (pcu)
Network: A143 Wratting Road jw Chalkstone Way	-	-	-	-	-	-	**72.8%**	**8.9**	-	-	-
A143 jw Chalkstone Way	-	-	-	-	-	-	**72.8%**	**8.9**	-	-	-
1/1+1/2	A143 Wratting South Ahead Right	A	100	944	1935:1660	782+515	72.8 : 72.8%	4.2	15.9	16.0	0.00
2/2+2/1	A143 Wratting Road North Ahead Left	C	70	408	1935:1629	688+181	47.0 : 47.0%	2.1	18.6	6.2	0.00
3/1+3/2	Chalkstone Way Left Right	D	47:16	297	1683:1844	431+141	52.0 : 52.0%	2.7	32.3	5.8	0.00
4/1		-	-	547	Inf	Inf	0.0%	0.0	0.0	0.0	0.00
5/1		-	-	642	Inf	Inf	0.0%	0.0	0.0	0.0	0.00
6/1		-	-	460	Inf	Inf	0.0%	0.0	0.0	0.0	0.00

C1 PRC for Signalled Lanes (%): 23.7 Total Delay for Signalled Lanes (pcuHr): 8.95 Cycle Time (s): 160
PRC Over All Lanes (%): 23.7 Total Delay Over All Lanes(pcuHr): 8.95

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)
Patch 15 Apr 2011

_____

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"p:\10173\Traffic\Junctions - Rev3\J12 A1307 jw Queen Street and Relief Road\10173a - J12 A1307 jw Queen Street - Rev3 2019+NW1+NE1 [flat] AM.vai"
(drive-on-the-left) at 14:34:03 on Wednesday, 8 April 2015

.FILE PROPERTIES
****

RUN TITLE: J12 A1307 jw Queens Street - Rev3 2019+NW1+NE1 [flat] AM
LOCATION: Haverhill
DATE: 08/04/15
CLIENT: Hallam
ENUMERATOR: sue.tadman [BCL25]
JOB NUMBER: 10173
STATUS: Preliminary
DESCRIPTION:

.INPUT DATA
****
ARM A - Hales Barn Road
ARM B - A1307 Withersfield Road E
ARM C - A1307 Withersfield Road S
ARM D - Queens Street

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
A	3.00	6.00	10.00	20.00	43.00	20.0	0.589	23.674
B	3.20	6.50	12.00	20.00	43.00	20.0	0.616	25.893
C	3.50	6.50	12.00	8.00	43.00	35.0	0.552	23.725
D	3.00	4.50	4.00	20.00	43.00	30.0	0.519	18.593

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown
.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

TIME PERIOD BEGINS(08.00)AND ENDS(09.00)
.LENGTH OF TIME PERIOD -(60) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: as above

DEMAND SET TITLE: as above

T33

TIME	FROM/T	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C	ARM D
08.00 - 09.00	ARM A	0.000	0.200	0.648	0.152
		0.0	25.0	81.0	19.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM B	0.012	0.000	0.829	0.159
		10.0	0.0	699.0	134.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM C	0.052	0.788	0.000	0.160
		32.0	482.0	0.0	98.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM D	0.023	0.566	0.411	0.000
		3.0	73.0	53.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE)	GEOMETRIC DELAY (VEH.MIN/ PER ARRIVING)	AVERAGE DELAY TIME (MIN)
08.00-08.15									
ARM A	2.08	17.73	0.117	- -	-	0.0	0.1	1.9	0.064
ARM B	14.05	24.33	0.577	- -	-	0.0	1.3	19.3	0.096
ARM C	10.20	22.23	0.459	- -	-	0.0	0.8	12.1	0.082
ARM D	2.16	14.09	0.153	- -	-	0.0	0.2	2.6	0.084
08.15-08.30									
ARM A	2.08	17.70	0.118	- -	-	0.1	0.1	2.0	0.064
ARM B	14.05	24.32	0.578	- -	-	1.3	1.4	20.3	0.097
ARM C	10.20	22.22	0.459	- -	-	0.8	0.8	12.6	0.083
ARM D	2.16	14.06	0.154	- -	-	0.2	0.2	2.7	0.084
08.30-08.45									
ARM A	2.08	17.70	0.118	- -	-	0.1	0.1	2.0	0.064
ARM B	14.05	24.32	0.578	- -	-	1.4	1.4	20.4	0.097
ARM C	10.20	22.22	0.459	- -	-	0.8	0.8	12.7	0.083
ARM D	2.16	14.06	0.154	- -	-	0.2	0.2	2.7	0.084

TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE)	GEOMETRIC DELAY (VEH.MIN/ PER ARRIVING)	AVERAGE DELAY TIME (MIN)
08.45-09.00									
ARM A	2.08	17.70	0.118	- -	-	0.1	0.1	2.0	0.064
ARM B	14.05	24.32	0.578	- -	-	1.4	1.4	20.4	0.097
ARM C	10.20	22.22	0.459	- -	-	0.8	0.8	12.7	0.083
ARM D	2.16	14.06	0.154	- -	-	0.2	0.2	2.7	0.084

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	0.1	
08.30	0.1	
08.45	0.1	
09.00	0.1	

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.3	*
08.30	1.4	*
08.45	1.4	*
09.00	1.4	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	0.8	*
08.30	0.8	*
08.45	0.8	*
09.00	0.8	*

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.2
08.30	0.2
08.45	0.2
09.00	0.2

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	124.8	124.8	7.9	0.06	7.9	0.06
B	843.0	843.0	80.4	0.10	80.4	0.10
C	612.0	612.0	50.1	0.08	50.1	0.08
D	129.6	129.6	10.8	0.08	10.8	0.08
ALL	1709.4	1709.4	149.2	0.09	149.3	0.09

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)
Patch 15 Apr 2011

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"p:\10173\Traffic\Junctions - Rev3\J12 A1307 jw Queen Street and Relief Road\
10173a - J12 A1307 jw Queen Street - Rev3 2019+NW1+NE1 [flat] PM.vai"
(drive-on-the-left) at 14:34:32 on Wednesday, 8 April 2015

.FILE PROPERTIES

RUN TITLE: J12 A1307 jw Queens Street - Rev3 2019+NW1+NE1 [flat] PM
LOCATION: Haverhill
DATE: 08/04/15
CLIENT: Hallam
ENUMERATOR: sue.tadman [BCL25]
JOB NUMBER: 10173
STATUS: Preliminary
DESCRIPTION:

.INPUT DATA

ARM A - Hales Barn Road
ARM B - A1307 Withersfield Road E
ARM C - A1307 Withersfield Road S
ARM D - Queens Street

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)

```
 I ARM  A I    3.00   I     6.00   I    10.00   I    20.00   I   43.00   I
20.0     I  0.589  I       23.674        I
 I ARM  B I    3.20   I     6.50   I    12.00   I    20.00   I   43.00   I
20.0     I  0.616  I       25.893        I
 I ARM  C I    3.50   I     6.50   I    12.00   I     8.00   I   43.00   I
35.0     I  0.552  I       23.725        I
 I ARM  D I    3.00   I     4.50   I     4.00   I    20.00   I   43.00   I
30.0     I  0.519  I       18.593        I
```

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

T13

IARM	I FLOW SCALE(%) I
I A	I 100 I
I B	I 100 I
I C	I 100 I
I D	I 100 I

TIME PERIOD BEGINS(17.00)AND ENDS(18.00)
.LENGTH OF TIME PERIOD -(60) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: as above

DEMAND SET TITLE: as above

T33

TIME	FROM/T	ARM A	ARM B	ARM C	ARM D
17.00 - 18.00					
	ARM A	0.000	0.314	0.647	0.039
		0.0	16.0	33.0	2.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM B	0.049	0.000	0.851	0.100
		32.0	0.0	556.0	65.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM C	0.073	0.884	0.000	0.043
		71.0	859.0	0.0	42.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM D	0.037	0.631	0.332	0.000
		8.0	135.0	71.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME SEGMENT	DEMAND (VEH/MIN) (VEH.MIN/ VEHICLE)	CAPACITY (VEH/MIN) PER ARRIVING (RFC)	DEMAND/ CAPACITY	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME (MIN)
I 17.00-17.15							
I ARM A	0.85	13.31	0.064	- -	-	0.0	0.1	1.0
	-	0.080						
I ARM B	10.87	24.82	0.438	- -	-	0.0	0.8	11.2
	-	0.071						
I ARM C	16.21	22.82	0.710	- -	-	0.0	2.4	32.9
	-	0.144						
I ARM D	3.56	10.35	0.344	- -	-	0.0	0.5	7.4
	-	0.146						
I 17.15-17.30							
I ARM A	0.85	13.21	0.064	- -	-	0.1	0.1	1.0
	-	0.081						
I ARM B	10.87	24.81	0.438	- -	-	0.8	0.8	11.6
	-	0.072						
I ARM C	16.21	22.81	0.711	- -	-	2.4	2.4	35.9
	-	0.152						
I ARM D	3.56	10.27	0.347	- -	-	0.5	0.5	7.8
	-	0.149						
I 17.30-17.45							

```
 I ARM A       0.85     13.21   0.064   - -       -    0.1    0.1        1.0
         -              0.081     I
 I ARM B      10.87     24.81   0.438   - -       -    0.8    0.8       11.7
         -              0.072     I
 I ARM C      16.21     22.81   0.711   - -       -    2.4    2.4       36.3
         -              0.152     I
 I ARM D       3.56     10.27   0.347   - -       -    0.5    0.5        7.9
         -              0.149     I
 I
                                 I

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.--------------------------------------------------------------------------------
---------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 -
                                 -
 I 17.45-18.00
                                 I
 I ARM A       0.85     13.21   0.064   - -       -    0.1    0.1        1.0
         -              0.081     I
 I ARM B      10.87     24.81   0.438   - -       -    0.8    0.8       11.7
         -              0.072     I
 I ARM C      16.21     22.81   0.711   - -       -    2.4    2.4       36.4
         -              0.152     I
 I ARM D       3.56     10.27   0.347   - -       -    0.5    0.5        7.9
         -              0.149     I
 I
                                 I

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```

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.15	0.1	
17.30	0.1	
17.45	0.1	
18.00	0.1	

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.15	0.8	*
17.30	0.8	*
17.45	0.8	*
18.00	0.8	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.15	2.4	**
17.30	2.4	**
17.45	2.4	**
18.00	2.4	**

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.15	0.5	*
17.30	0.5	*
17.45	0.5	*
18.00	0.5	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	51.0	51.0	4.1	0.08	4.1	0.08
B	652.2	652.2	46.2	0.07	46.2	0.07
C	972.6	972.6	141.6	0.15	141.7	0.15
D	213.6	213.6	31.0	0.15	31.1	0.15
ALL	1889.4	1889.4	222.9	0.12	223.0	0.12

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)
Patch 15 Apr 2011

_____

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"p:\10173\Traffic\Junctions - Rev3\J12 A1307 jw Queen Street and Relief Road\10173a - J12 A1307 jw Queen Street - Rev3 2029R+NW2+NE2 [flat] AM.vai"
(drive-on-the-left) at 14:36:35 on Wednesday, 8 April 2015

.FILE PROPERTIES
****

RUN TITLE: J12 A1307 jw Queens Street - Rev3 2029R+NW2+NE2 [flat] AM
LOCATION: Haverhill
DATE: 08/04/15
CLIENT: Hallam
ENUMERATOR: sue.tadman [BCL25]
JOB NUMBER: 10173
STATUS: Preliminary
DESCRIPTION:

.INPUT DATA
****
ARM A - Hales Barn Road
ARM B - A1307 Withersfield Road E
ARM C - A1307 Withersfield Road S
ARM D - Queens Street

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
A	3.00	6.00	10.00	20.00	43.00	20.0	0.589	23.674
B	3.20	6.50	12.00	20.00	43.00	20.0	0.616	25.893
C	3.50	6.50	12.00	8.00	43.00	35.0	0.552	23.725
D	3.00	4.50	4.00	20.00	43.00	30.0	0.519	18.593

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown
.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

TIME PERIOD BEGINS(08.00)AND ENDS(09.00)
.LENGTH OF TIME PERIOD -(60) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: as above

DEMAND SET TITLE: as above

T33

TIME	FROM/T	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C	ARM D
08.00 - 09.00	ARM A	0.000	0.027	0.890	0.083
		0.0	26.0	849.0	79.0
		(0.0)%	(0.0)%	(0.0)%	(0.0)%
	ARM B	0.027	0.000	0.672	0.301
		11.0	0.0	275.0	123.0
		(0.0)%	(0.0)%	(0.0)%	(0.0)%
	ARM C	0.696	0.171	0.000	0.133
		546.0	134.0	0.0	104.0
		(0.0)%	(0.0)%	(0.0)%	(0.0)%
	ARM D	0.175	0.461	0.364	0.000
		27.0	71.0	56.0	0.0
		(0.0)%	(0.0)%	(0.0)%	(0.0)%

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

I TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING (VEH.MIN/ TIME SEGMENT)
I 08.00-08.15									
I ARM A	15.90	21.12	0.753	- -	-	0.0	2.9	39.4	0.179
I ARM B	6.81	15.91	0.428	- -	-	0.0	0.7	10.6	0.109
I ARM C	13.07	21.78	0.600	- -	-	0.0	1.5	20.9	0.112
I ARM D	2.59	12.66	0.205	- -	-	0.0	0.3	3.7	0.099
I 08.15-08.30									
I ARM A	15.90	21.10	0.754	- -	-	2.9	3.0	44.3	0.192
I ARM B	6.81	15.80	0.431	- -	-	0.7	0.8	11.2	0.111
I ARM C	13.07	21.77	0.600	- -	-	1.5	1.5	22.2	0.115
I ARM D	2.59	12.62	0.205	- -	-	0.3	0.3	3.8	0.100
I 08.30-08.45									

I ARM A	15.90	21.10	0.754	- -	-	3.0	3.0	44.9	0.192
I ARM B	6.81	15.79	0.431	- -	-	0.8	0.8	11.3	0.111
I ARM C	13.07	21.77	0.600	- -	-	1.5	1.5	22.4	0.115
I ARM D	2.59	12.62	0.205	- -	-	0.3	0.3	3.9	0.100
I 08.45-09.00									
I ARM A	15.90	21.10	0.754	- -	-	3.0	3.0	45.2	0.192
I ARM B	6.81	15.79	0.431	- -	-	0.8	0.8	11.3	0.111
I ARM C	13.07	21.77	0.600	- -	-	1.5	1.5	22.4	0.115
I ARM D	2.59	12.62	0.205	- -	-	0.3	0.3	3.9	0.100

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	2.9	***
08.30	3.0	***
08.45	3.0	***
09.00	3.0	***

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	0.7	*
08.30	0.8	*
08.45	0.8	*
09.00	0.8	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.5	*
08.30	1.5	*
08.45	1.5	*
09.00	1.5	*

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.3
08.30	0.3
08.45	0.3
09.00	0.3

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
A	954.0	954.0	173.8	0.18	174.0	0.18
B	408.6	408.6	44.4	0.11	44.5	0.11
C	784.2	784.2	87.9	0.11	88.0	0.11
D	155.4	155.4	15.3	0.10	15.3	0.10
ALL	2302.2	2302.2	321.4	0.14	321.7	0.14

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)
Patch 15 Apr 2011

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"p:\10173\Traffic\Junctions - Rev3\J12 A1307 jw Queen Street and Relief Road\10173a - J12 A1307 jw Queen Street - Rev3 2029R+NW2+NE2 [flat] PM.vai"
(drive-on-the-left) at 14:36:25 on Wednesday, 8 April 2015

.FILE PROPERTIES

RUN TITLE: J12 A1307 jw Queens Street - Rev3 2029R+NW2+NE2 [flat] PM
LOCATION: Haverhill
DATE: 08/04/15
CLIENT: Hallam
ENUMERATOR: sue.tadman [BCL25]
JOB NUMBER: 10173
STATUS: Preliminary
DESCRIPTION:

.INPUT DATA

ARM A - Hales Barn Road
ARM B - A1307 Withersfield Road E
ARM C - A1307 Withersfield Road S
ARM D - Queens Street

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)

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-------------------------------------------------------------------------------------------
---------------------------------------
 I ARM  A I    3.00   I     6.00   I    10.00   I    20.00   I   43.00   I
20.0     I  0.589  I       23.674        I
 I ARM  B I    3.20   I     6.50   I    12.00   I    20.00   I   43.00   I
20.0     I  0.616  I       25.893        I
 I ARM  C I    3.50   I     6.50   I    12.00   I     8.00   I   43.00   I
35.0     I  0.552  I       23.725        I
 I ARM  D I    3.00   I     4.50   I     4.00   I    20.00   I   43.00   I
30.0     I  0.519  I       18.593        I

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---------------------------------------

 V = approach half-width       L = effective flare length           D =
inscribed circle diameter
 E = entry width               R = entry radius                     PHI = entry
angle


.TRAFFIC DEMAND DATA
 -------------------

 Only sets included in the current run are shown
.SCALING FACTORS
.----------------------- T13
 IARM  I FLOW SCALE(%) I
 -----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 -----------------------

 TIME PERIOD BEGINS(17.00)AND ENDS(18.00)
.LENGTH OF TIME PERIOD -(  60) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: as above


 DEMAND SET TITLE:  as above
.------------------------------------------------------------------------ T33
 I                   I         TURNING PROPORTIONS                   I
 I                   I         TURNING COUNTS                        I
 I                   I        (PERCENTAGE OF H.V.S)                  I
 I                   ----------------------------------------------
 I       TIME        I FROM/T  I  ARM A I  ARM B I  ARM C I  ARM D I
 ------------------------------------------------------------------
 I   17.00 - 18.00   I         I        I        I        I        I
 I                   I  ARM  A I  0.000 I  0.028 I  0.917 I  0.055 I
 I                   I         I    0.0 I   19.0 I  621.0 I   37.0 I
 I                   I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I        I        I        I        I
 I                   I  ARM  B I  0.038 I  0.000 I  0.749 I  0.213 I
 I                   I         I   11.0 I    0.0 I  215.0 I   61.0 I
 I                   I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I        I        I        I        I
 I                   I  ARM  C I  0.626 I  0.338 I  0.000 I  0.035 I
 I                   I         I  857.0 I  463.0 I    0.0 I   48.0 I
 I                   I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I        I        I        I        I
 I                   I  ARM  D I  0.233 I  0.477 I  0.290 I  0.000 I
 I                   I         I   65.0 I  133.0 I   81.0 I    0.0 I
 I                   I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I        I        I        I        I
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.       QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
        ---------------------------------------------------
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---------------------------------- T70
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 -                                -
 I 17.00-17.15                    I
 I ARM A      11.29     17.31   0.652   - -       -    0.0    1.8       25.3
         -              0.160     I
 I ARM B       4.78     18.40   0.260   - -       -    0.0    0.3        5.1
         -              0.073     I
 I ARM C      22.81     22.73   1.004   - -       -    0.0   18.6      182.1
         -             -0.044     I
 I ARM D       4.65      7.70   0.604   - -       -    0.0    1.4       19.5
         -              0.309     I
 I                                I
                                  I

-------------------------------------------------------------------------------------------
----------------------------------
.-------------------------------------------------------------------------------------------
----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 -                                -
 I 17.15-17.30                    I
 I ARM A      11.29     17.14   0.659   - -       -    1.8    1.9       28.0
         -              0.171     I
 I ARM B       4.78     18.32   0.261   - -       -    0.3    0.4        5.3
         -              0.074     I
 I ARM C      22.81     22.72   1.004   - -       -   18.6   27.0      345.0
         -              1.174     I
 I ARM D       4.65      7.36   0.632   - -       -    1.4    1.6       23.7
         -              0.364     I
 I                                I
                                  I

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----------------------------------
.-------------------------------------------------------------------------------------------
----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 -                                -
 I 17.30-17.45                    I
```

```
 I ARM A      11.29     17.11   0.660   - -       -    1.9    1.9       28.5
         -              0.172     I
 I ARM B       4.78     18.31   0.261   - -       -    0.4    0.4        5.3
         -              0.074     I
 I ARM C      22.81     22.72   1.004   - -       -   27.0   33.5      455.0
         -              1.485     I
 I ARM D       4.65      7.30   0.637   - -       -    1.6    1.7       25.1
         -              0.375     I
 I
                                 I

-------------------------------------------------------------------------------
---------------------------------
.-------------------------------------------------------------------------------
---------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 -
                                 -
 I 17.45-18.00
                                 I
 I ARM A      11.29     17.10   0.660   - -       -    1.9    1.9       28.7
         -              0.172     I
 I ARM B       4.78     18.31   0.261   - -       -    0.4    0.4        5.3
         -              0.074     I
 I ARM C      22.81     22.72   1.004   - -       -   33.5   39.2      546.1
         -              1.738     I
 I ARM D       4.65      7.27   0.640   - -       -    1.7    1.7       25.7
         -              0.381     I
 I
                                 I

-------------------------------------------------------------------------------
---------------------------------

.QUEUE AT ARM A
 --------------

  TIME SEGMENT NO. OF
   ENDING      VEHICLES
               IN QUEUE

    17.15           1.8  **
    17.30           1.9  **
    17.45           1.9  **
    18.00           1.9  **


.QUEUE AT ARM B
 --------------

  TIME SEGMENT NO. OF
   ENDING      VEHICLES
               IN QUEUE

    17.15           0.3
    17.30           0.4
    17.45           0.4
    18.00           0.4


.QUEUE AT ARM C
 --------------
```



```
  TIME SEGMENT NO. OF
   ENDING      VEHICLES
               IN QUEUE

    17.15          18.6  ******************
    17.30          27.0  **************************
    17.45          33.5  *********************************
    18.00          39.2  ****************************************


.QUEUE AT ARM D
 --------------

  TIME SEGMENT NO. OF
   ENDING      VEHICLES
               IN QUEUE

    17.15           1.4  *
    17.30           1.6  **
    17.45           1.7  **
    18.00           1.7  **

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                  -----------------------------------------

 -------------------------------------------------------------------------------
T75
 I  ARM  I   TOTAL DEMAND  I     * QUEUEING *    I  * INCLUSIVE QUEUEING *  I
 I       I                 I      * DELAY *      I         * DELAY *        I
 I       I-----------------------------------------------------------------I
 I       I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)      (MIN/VEH)  I
 -------------------------------------------------------------------------------
 I   A   I  677.4 I  677.4 I   110.5 I    0.16   I     110.6  I     0.16     I
 I   B   I  286.8 I  286.8 I    20.9 I    0.07   I      20.9  I     0.07     I
 I   C   I 1368.6 I 1368.6 I  1528.2 I    1.12   I    1562.0  I     1.14     I
 I   D   I  279.0 I  279.0 I    94.0 I    0.34   I      94.2  I     0.34     I
 -------------------------------------------------------------------------------
 I  ALL  I 2611.8 I 2611.8 I  1753.6 I    0.67   I    1787.7  I     0.68     I
 -------------------------------------------------------------------------------
 * DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
 * INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING
AFTER THE END OF THE TIME PERIOD.
 * THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE
REMAINING AT THE END OF THE TIME PERIOD.

 END OF JOB
```

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)
Patch 15 Apr 2011

_____

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"p:\10173\Traffic\Junctions - Rev3\J12 A1307 jw Queen Street and Relief Road\
10173a - J12 A1307 jw Queen Street - Impr Rev3 2029R+NW2+NE2 [flat] AM.vai"
(drive-on-the-left) at 14:37:31 on Wednesday, 8 April 2015

.FILE PROPERTIES
****

RUN TITLE: J12 A1307 jw Queens Street - Impr Rev3 2029R+NW2+NE2 [flat] AM
LOCATION: Haverhill
DATE: 08/04/15
CLIENT: Hallam
ENUMERATOR: sue.tadman [BCL25]
JOB NUMBER: 10173
STATUS: Preliminary
DESCRIPTION:

.INPUT DATA
****
ARM A - Hales Barn Road
ARM B - A1307 Withersfield Road E
ARM C - A1307 Withersfield Road S
ARM D - Queens Street

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
A	3.00	6.00	10.00	20.00	43.00	20.0	0.589	23.674
B	3.20	6.50	12.00	20.00	43.00	20.0	0.616	25.893
C	3.50	10.00	15.00	8.00	43.00	35.0	0.610	28.578
D	3.00	4.50	4.00	20.00	43.00	30.0	0.519	18.593

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown
.SCALING FACTORS
T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

TIME PERIOD BEGINS(08.00)AND ENDS(09.00)
.LENGTH OF TIME PERIOD -(60) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: as above

DEMAND SET TITLE: as above

T33

TIME	FROM/T	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C	ARM D
08.00 - 09.00	ARM A	0.000	0.027	0.890	0.083
		0.0	26.0	849.0	79.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM B	0.027	0.000	0.672	0.301
		11.0	0.0	275.0	123.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM C	0.696	0.171	0.000	0.133
		546.0	134.0	0.0	104.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM D	0.175	0.461	0.364	0.000
		27.0	71.0	56.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

I TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING (VEH.MIN/ TIME SEGMENT) I
I 08.00-08.15									
I ARM A	15.90	21.11	0.753	- -	-	0.0	2.9	39.4	
-		0.179	I						
I ARM B	6.81	15.91	0.428	- -	-	0.0	0.7	10.6	
-		0.109	I						
I ARM C	13.07	26.43	0.494	- -	-	0.0	1.0	14.0	
-		0.074	I						
I ARM D	2.59	12.65	0.205	- -	-	0.0	0.3	3.7	
-		0.099	I						
I			I						
I 08.15-08.30									
I ARM A	15.90	21.10	0.754	- -	-	2.9	3.0	44.3	
-		0.192	I						
I ARM B	6.81	15.80	0.431	- -	-	0.7	0.8	11.2	
-		0.111	I						
I ARM C	13.07	26.41	0.495	- -	-	1.0	1.0	14.6	
-		0.075	I						
I ARM D	2.59	12.62	0.205	- -	-	0.3	0.3	3.8	
-		0.100	I						
I			I						
I 08.30-08.45									

I ARM A	15.90	21.10	0.754	- -	-	3.0	3.0	44.9	
-		0.192	I						
I ARM B	6.81	15.79	0.431	- -	-	0.8	0.8	11.3	
-		0.111	I						
I ARM C	13.07	26.41	0.495	- -	-	1.0	1.0	14.6	
-		0.075	I						
I ARM D	2.59	12.62	0.205	- -	-	0.3	0.3	3.9	
-		0.100	I						
I			I						
I 08.45-09.00									
I ARM A	15.90	21.10	0.754	- -	-	3.0	3.0	45.2	
-		0.192	I						
I ARM B	6.81	15.79	0.431	- -	-	0.8	0.8	11.3	
-		0.111	I						
I ARM C	13.07	26.41	0.495	- -	-	1.0	1.0	14.6	
-		0.075	I						
I ARM D	2.59	12.62	0.205	- -	-	0.3	0.3	3.9	
-		0.100	I						
I			I						

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	2.9	***
08.30	3.0	***
08.45	3.0	***
09.00	3.0	***

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	0.7	*
08.30	0.8	*
08.45	0.8	*
09.00	0.8	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.0	*
08.30	1.0	*
08.45	1.0	*
09.00	1.0	*

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.3
08.30	0.3
08.45	0.3
09.00	0.3

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
A	954.0	954.0	173.8	0.18	174.0	0.18
B	408.6	408.6	44.4	0.11	44.5	0.11
C	784.2	784.2	57.9	0.07	57.9	0.07
D	155.4	155.4	15.3	0.10	15.3	0.10
ALL	2302.2	2302.2	291.4	0.13	291.7	0.13

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)
Patch 15 Apr 2011

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"p:\10173\Traffic\Junctions - Rev3\J12 A1307 jw Queen Street and Relief Road\10173a - J12 A1307 jw Queen Street - Impr Rev3 2029R+NW2+NE2 [flat] PM.vai"
(drive-on-the-left) at 14:38:15 on Wednesday, 8 April 2015

.FILE PROPERTIES

RUN TITLE: J12 A1307 jw Queens Street - Impr Rev3 2029R+NW2+NE2 [flat] PM
LOCATION: Haverhill
DATE: 08/04/15
CLIENT: Hallam
ENUMERATOR: sue.tadman [BCL25]
JOB NUMBER: 10173
STATUS: Preliminary
DESCRIPTION:

.INPUT DATA

ARM A - Hales Barn Road
ARM B - A1307 Withersfield Road E
ARM C - A1307 Withersfield Road S
ARM D - Queens Street

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)

```
-------------------------------------------------------------------------------------
--------------------------------------
 I ARM  A I    3.00   I     6.00   I    10.00   I    20.00   I   43.00   I
20.0     I  0.589  I       23.674        I
 I ARM  B I    3.20   I     6.50   I    12.00   I    20.00   I   43.00   I
20.0     I  0.616  I       25.893        I
 I ARM  C I    3.50   I    10.00   I    15.00   I     8.00   I   43.00   I
35.0     I  0.610  I       28.578        I
 I ARM  D I    3.00   I     4.50   I     4.00   I    20.00   I   43.00   I
30.0     I  0.519  I       18.593        I

-------------------------------------------------------------------------------------
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 V = approach half-width       L = effective flare length           D =
inscribed circle diameter
 E = entry width               R = entry radius                     PHI = entry
angle


.TRAFFIC DEMAND DATA
 -------------------

 Only sets included in the current run are shown
.SCALING FACTORS
.----------------------- T13
 IARM  I FLOW SCALE(%) I
 -----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 -----------------------

 TIME PERIOD BEGINS(17.00)AND ENDS(18.00)
.LENGTH OF TIME PERIOD -(  60) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: as above


 DEMAND SET TITLE:  as above
.------------------------------------------------------------------------ T33
 I                   I         TURNING PROPORTIONS                   I
 I                   I         TURNING COUNTS                        I
 I                   I        (PERCENTAGE OF H.V.S)                  I
 I                   ----------------------------------------------
 I       TIME        I FROM/T  I  ARM A I  ARM B I  ARM C I  ARM D I
 ----------------------------------------------------------------------
 I   17.00 - 18.00   I         I        I        I        I        I
 I                   I  ARM  A I  0.000 I  0.028 I  0.917 I  0.055 I
 I                   I         I    0.0 I   19.0 I  621.0 I   37.0 I
 I                   I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I        I        I        I        I
 I                   I  ARM  B I  0.038 I  0.000 I  0.749 I  0.213 I
 I                   I         I   11.0 I    0.0 I  215.0 I   61.0 I
 I                   I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I        I        I        I        I
 I                   I  ARM  C I  0.626 I  0.338 I  0.000 I  0.035 I
 I                   I         I  857.0 I  463.0 I    0.0 I   48.0 I
 I                   I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I        I        I        I        I
 I                   I  ARM  D I  0.233 I  0.477 I  0.290 I  0.000 I
 I                   I         I   65.0 I  133.0 I   81.0 I    0.0 I
 I                   I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I        I        I        I        I
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.       QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
        ---------------------------------------------------
.-------------------------------------------------------------------------------------
---------------------------------- T70
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 -                                -
 I 17.00-17.15                    I
 I ARM A      11.29     17.14   0.659   - -       -    0.0    1.9       25.9
         -              0.164     I
 I ARM B       4.78     18.40   0.260   - -       -    0.0    0.3        5.1
         -              0.073     I
 I ARM C      22.81     27.48   0.830   - -       -    0.0    4.5       59.7
         -              0.191     I
 I ARM D       4.65      7.23   0.643   - -       -    0.0    1.7       22.3
         -              0.358     I
 I                                I
                                  I

-------------------------------------------------------------------------------------
----------------------------------
.-------------------------------------------------------------------------------------
----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 -                                -
 I 17.15-17.30                    I
 I ARM A      11.29     17.03   0.663   - -       -    1.9    1.9       28.6
         -              0.174     I
 I ARM B       4.78     18.31   0.261   - -       -    0.3    0.4        5.3
         -              0.074     I
 I ARM C      22.81     27.47   0.830   - -       -    4.5    4.7       69.5
         -              0.212     I
 I ARM D       4.65      7.09   0.656   - -       -    1.7    1.8       26.6
         -              0.406     I
 I                                I
                                  I

-------------------------------------------------------------------------------------
----------------------------------
.-------------------------------------------------------------------------------------
----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 -                                -
 I 17.30-17.45                    I
```

```
 I ARM A      11.29     17.03   0.663   - -       -    1.9    1.9       29.0
         -              0.174     I
 I ARM B       4.78      18.31   0.261   - -       -    0.4    0.4        5.3
         -              0.074     I
 I ARM C      22.81      27.47   0.830   - -       -    4.7    4.8       71.0
         -              0.213     I
 I ARM D       4.65       7.08   0.657   - -       -    1.8    1.9       27.6
         -              0.410     I
 I
                                  I

--------------------------------------------------------------------------------
---------------------------------
.--------------------------------------------------------------------------------
---------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                                (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 -
                                  -
 I 17.45-18.00
                                  I
 I ARM A      11.29     17.03   0.663   - -       -    1.9    1.9       29.2
         -              0.174     I
 I ARM B       4.78      18.31   0.261   - -       -    0.4    0.4        5.3
         -              0.074     I
 I ARM C      22.81      27.47   0.830   - -       -    4.8    4.8       71.7
         -              0.214     I
 I ARM D       4.65       7.08   0.657   - -       -    1.9    1.9       27.9
         -              0.411     I
 I
                                  I

--------------------------------------------------------------------------------
---------------------------------

.QUEUE AT ARM A
 --------------

  TIME SEGMENT NO. OF
   ENDING      VEHICLES
               IN QUEUE

    17.15           1.9  **
    17.30           1.9  **
    17.45           1.9  **
    18.00           1.9  **


.QUEUE AT ARM B
 --------------

  TIME SEGMENT NO. OF
   ENDING      VEHICLES
               IN QUEUE

    17.15           0.3
    17.30           0.4
    17.45           0.4
    18.00           0.4


.QUEUE AT ARM C
 --------------
```



```
  TIME SEGMENT NO. OF
   ENDING      VEHICLES
               IN QUEUE

    17.15           4.5  *****
    17.30           4.7  *****
    17.45           4.8  *****
    18.00           4.8  *****


.QUEUE AT ARM D
 --------------

  TIME SEGMENT NO. OF
   ENDING      VEHICLES
               IN QUEUE

    17.15           1.7  **
    17.30           1.8  **
    17.45           1.9  **
    18.00           1.9  **

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                  ----------------------------------------

 --------------------------------------------------------------------------------
T75
 I  ARM  I   TOTAL DEMAND  I     * QUEUEING *    I  * INCLUSIVE QUEUEING *  I
 I       I                 I      * DELAY *      I         * DELAY *        I
 I       I-----------------------------------------------------------------------I
 I       I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)      (MIN/VEH)  I
 --------------------------------------------------------------------------------
 I   A   I  677.4 I  677.4 I   112.8 I    0.17   I     112.9  I     0.17     I
 I   B   I  286.8 I  286.8 I    20.9 I    0.07   I      20.9  I     0.07     I
 I   C   I 1368.6 I 1368.6 I   272.0 I    0.20   I     272.4  I     0.20     I
 I   D   I  279.0 I  279.0 I   104.4 I    0.37   I     104.7  I     0.38     I
 --------------------------------------------------------------------------------
 I  ALL  I 2611.8 I 2611.8 I   510.0 I    0.20   I     510.8  I     0.20     I
 --------------------------------------------------------------------------------
 * DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
 * INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING
AFTER THE END OF THE TIME PERIOD.
 * THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE
REMAINING AT THE END OF THE TIME PERIOD.

 END OF JOB
```

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)
Patch 15 Apr 2011

_____

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"p:\10173\Traffic\Junctions - Rev3\J13 A143 jw Relief Road\
10173 J13 A143 jw Relief Road Roundabout - Rev3 2029R+NW2+NE2 AM.vai"
(drive-on-the-left) at 12:36:41 on Wednesday, 8 April 2015

.FILE PROPERTIES
****

RUN TITLE: 10173 J13 A143 jw Relief Road Roundabout - Rev3 2029+NW2+NE2 AM
LOCATION: Haverhill
DATE: 08/04/15
CLIENT:
ENUMERATOR: sue.tadman [BCL25]
JOB NUMBER: 10173
STATUS: Preliminary
DESCRIPTION:

.INPUT DATA
****
ARM A - A143 Haverhill Road (N)
ARM B - A143 Haverhill Road (S)
ARM C - NWGAR Development
ARM D - Relief Road

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
A	3.40	10.00	28.00	20.00	57.00	20.0	0.680	37.424
B	3.60	6.50	10.00	25.00	57.00	10.0	0.590	27.817
C	3.20	6.80	14.00	15.00	57.00	22.0	0.556	26.433
D	3.60	10.00	20.00	50.00	57.00	24.0	0.668	35.861

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown
.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

TIME PERIOD BEGINS(07.45)AND ENDS(09.15)
.LENGTH OF TIME PERIOD -(90) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

.DEMAND SET TITLE: as above

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
	TO RISE	IS REACHED	FALLING			
A	15.00	45.00	75.00	15.48	23.21	15.48
B	15.00	45.00	75.00	2.78	4.16	2.78
C	15.00	45.00	75.00	1.13	1.69	1.13
D	15.00	45.00	75.00	7.00	10.50	7.00

DEMAND SET TITLE: as above

T33

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/T	ARM A	ARM B	ARM C	ARM D
07.45 - 09.15	ARM A	0.000	0.445	0.002	0.553

		0.0	551.0	3.0	684.0
		(0.0)	(0.0)	(0.0)	(0.0)
ARM B		0.896	0.000	0.068	0.036
		199.0	0.0	15.0	8.0
		(0.0)	(0.0)	(0.0)	(0.0)
ARM C		0.111	0.533	0.000	0.356
		10.0	48.0	0.0	32.0
		(0.0)	(0.0)	(0.0)	(0.0)
ARM D		0.938	0.045	0.018	0.000
		525.0	25.0	10.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY PER ARRIVING (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)
07.45-08.00							
ARM A	15.53	36.72	0.423	- -	-	0.0	0.7	10.7
	-	0.047					
ARM B	2.79	22.68	0.123	- -	-	0.0	0.1	2.1
	-	0.050					
ARM C	1.13	20.23	0.056	- -	-	0.0	0.1	0.9
	-	0.052					
ARM D	7.03	33.72	0.208	- -	-	0.0	0.3	3.9
	-	0.037					
08.00-08.15							
ARM A	18.55	36.58	0.507	- -	-	0.7	1.0	15.0
	-	0.055					
ARM B	3.33	21.67	0.154	- -	-	0.1	0.2	2.7
	-	0.055					
ARM C	1.35	19.01	0.071	- -	-	0.1	0.1	1.1
	-	0.057					
ARM D	8.39	33.29	0.252	- -	-	0.3	0.3	5.0
	-	0.040					

TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY PER ARRIVING (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)
08.15-08.30							
ARM A	22.72	36.39	0.624	- -	-	1.0	1.6	23.8
	-	0.073					
ARM B	4.07	20.29	0.201	- -	-	0.2	0.2	3.7
	-	0.062					
ARM C	1.65	17.35	0.095	- -	-	0.1	0.1	1.5
	-	0.064					
ARM D	10.28	32.72	0.314	- -	-	0.3	0.5	6.7
	-	0.045					
08.30-08.45							
ARM A	22.72	36.39	0.624	- -	-	1.6	1.7	24.7
	-	0.073					
ARM B	4.07	20.28	0.201	- -	-	0.2	0.3	3.8
	-	0.062					
ARM C	1.65	17.34	0.095	- -	-	0.1	0.1	1.6
	-	0.064					
ARM D	10.28	32.71	0.314	- -	-	0.5	0.5	6.8
	-	0.045					
08.45-09.00							
ARM A	18.55	36.58	0.507	- -	-	1.7	1.0	15.9
	-	0.056					
ARM B	3.33	21.65	0.154	- -	-	0.3	0.2	2.8

```
          -            0.055     I
 I ARM C       1.35     18.99    0.071   - -       -    0.1    0.1        1.2
          -            0.057     I
 I ARM D       8.39     33.29    0.252   - -       -    0.5    0.3        5.1
          -            0.040     I
 I                               I
-------------------------------------------------------------------------------
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.-----------------------------------------------------------------------------
--------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 -                               -
 I 09.00-09.15                   I
 I ARM A      15.53     36.72    0.423   - -       -    1.0    0.7       11.3
          -            0.047     I
 I ARM B       2.79     22.65    0.123   - -       -    0.2    0.1        2.1
          -            0.050     I
 I ARM C       1.13     20.20    0.056   - -       -    0.1    0.1        0.9
          -            0.052     I
 I ARM D       7.03     33.71    0.208   - -       -    0.3    0.3        4.0
          -            0.037     I
 I                               I
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.QUEUE AT ARM A
 --------------

  TIME SEGMENT NO. OF
   ENDING      VEHICLES
               IN QUEUE

    08.00          0.7  *
    08.15          1.0  *
    08.30          1.6  **
    08.45          1.7  **
    09.00          1.0  *
    09.15          0.7  *


.QUEUE AT ARM B
 --------------

  TIME SEGMENT NO. OF
   ENDING      VEHICLES
               IN QUEUE

    08.00          0.1
    08.15          0.2
    08.30          0.2
    08.45          0.3
    09.00          0.2
    09.15          0.1


.QUEUE AT ARM C
 --------------
```



```
  TIME SEGMENT NO. OF
   ENDING      VEHICLES
               IN QUEUE

    08.00          0.1
    08.15          0.1
    08.30          0.1
    08.45          0.1
    09.00          0.1
    09.15          0.1


.QUEUE AT ARM D
 --------------

  TIME SEGMENT NO. OF
   ENDING      VEHICLES
               IN QUEUE

    08.00          0.3
    08.15          0.3
    08.30          0.5
    08.45          0.5
    09.00          0.3
    09.15          0.3

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                 ------------------------------------------

 -------------------------------------------------------------------------------
T75
 I  ARM  I   TOTAL DEMAND  I     * QUEUEING *    I  * INCLUSIVE QUEUEING *  I
 I       I                 I      * DELAY *      I         * DELAY *        I
 I       I-------------------------------------------------------------------I
 I       I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)      (MIN/VEH)  I
 -------------------------------------------------------------------------------
 I   A   I 1704.0 I 1136.0 I   101.4 I    0.06   I     101.4  I     0.06     I
 I   B   I  305.6 I  203.7 I    17.1 I    0.06   I      17.1  I     0.06     I
 I   C   I  123.9 I   82.6 I     7.2 I    0.06   I       7.2  I     0.06     I
 I   D   I  770.8 I  513.9 I    31.6 I    0.04   I      31.6  I     0.04     I
 -------------------------------------------------------------------------------
 I  ALL  I 2904.3 I 1936.2 I   157.3 I    0.05   I     157.3  I     0.05     I
 -------------------------------------------------------------------------------
 * DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
 * INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING
AFTER THE END OF THE TIME PERIOD.
 * THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE
REMAINING AT THE END OF THE TIME PERIOD.

 END OF JOB
```

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)
Patch 15 Apr 2011

_____

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"p:\10173\Traffic\Junctions - Rev3\J13 A143 jw Relief Road\
10173 J13 A143 jw Relief Road Roundabout - Rev3 2029R+NW2+NE2 PM.vai"
(drive-on-the-left) at 12:36:52 on Wednesday, 8 April 2015

.FILE PROPERTIES
****

RUN TITLE: 10173 J13 A143 jw Relief Road Roundabout - Rev3 2029R+NW2+NE2 PM
LOCATION: Haverhill
DATE: 08/04/15
CLIENT:
ENUMERATOR: sue.tadman [BCL25]
JOB NUMBER: 10173
STATUS: Preliminary
DESCRIPTION:

.INPUT DATA
****
ARM A - A143 Haverhill Road (N)
ARM B - A143 Haverhill Road (S)
ARM C - NWGAR Development
ARM D - Relief Road

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
A	3.40	10.00	28.00	20.00	57.00	20.0	0.680	37.424
B	3.60	6.50	10.00	25.00	57.00	10.0	0.590	27.817
C	3.20	6.80	14.00	15.00	57.00	22.0	0.556	26.433
D	3.60	10.00	20.00	50.00	57.00	24.0	0.668	35.861

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown
.SCALING FACTORS

T13

ARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

TIME PERIOD BEGINS(16.45)AND ENDS(18.15)
.LENGTH OF TIME PERIOD -(90) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

.DEMAND SET TITLE: as above

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
	TO RISE	IS REACHED	FALLING			
A	15.00	45.00	75.00	11.10	16.65	11.10
B	15.00	45.00	75.00	6.97	10.46	6.97
C	15.00	45.00	75.00	0.69	1.03	0.69
D	15.00	45.00	75.00	9.27	13.91	9.27

DEMAND SET TITLE: as above

T33

TIME	FROM/T	ARM A	ARM B	ARM C	ARM D
		TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S)			
16.45 - 18.15	ARM A	0.000	0.357	0.011	0.632

		0.0	317.0	10.0	561.0	
		(0.0)	(0.0)	(0.0)	(0.0)	
	ARM B	0.860	0.000	0.091	0.048	
		480.0	0.0	51.0	27.0	
		(0.0)	(0.0)	(0.0)	(0.0)	
	ARM C	0.109	0.527	0.000	0.364	
		6.0	29.0	0.0	20.0	
		(0.0)	(0.0)	(0.0)	(0.0)	
	ARM D	0.933	0.020	0.047	0.000	
		692.0	15.0	35.0	0.0	
		(0.0)	(0.0)	(0.0)	(0.0)	

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME SEGMENT		DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY PER ARRIVING (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)	
16.45-17.00									
	ARM A	11.14	36.75	0.303	- -	-	0.0	0.4	6.4
		-	0.039						
	ARM B	7.00	23.35	0.300	- -	-	0.0	0.4	6.2
		-	0.061						
	ARM C	0.69	19.00	0.036	- -	-	0.0	0.0	0.6
		-	0.055						
	ARM D	9.31	31.56	0.295	- -	-	0.0	0.4	6.1
		-	0.045						
17.00-17.15									
	ARM A	13.30	36.62	0.363	- -	-	0.4	0.6	8.4
		-	0.043						
	ARM B	8.36	22.47	0.372	- -	-	0.4	0.6	8.6
		-	0.071						
	ARM C	0.82	17.54	0.047	- -	-	0.0	0.0	0.7
		-	0.060						
	ARM D	11.12	30.71	0.362	- -	-	0.4	0.6	8.3
		-	0.051						

TIME SEGMENT		DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY PER ARRIVING (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)	
17.15-17.30									
	ARM A	16.30	36.44	0.447	- -	-	0.6	0.8	11.8
		-	0.050						
	ARM B	10.24	21.27	0.481	- -	-	0.6	0.9	13.4
		-	0.090						
	ARM C	1.01	15.55	0.065	- -	-	0.0	0.1	1.0
		-	0.069						
	ARM D	13.62	29.56	0.461	- -	-	0.6	0.8	12.4
		-	0.063						
17.30-17.45									
	ARM A	16.30	36.44	0.447	- -	-	0.8	0.8	12.1
		-	0.050						
	ARM B	10.24	21.26	0.482	- -	-	0.9	0.9	13.8
		-	0.091						
	ARM C	1.01	15.53	0.065	- -	-	0.1	0.1	1.0
		-	0.069						
	ARM D	13.62	29.55	0.461	- -	-	0.8	0.9	12.7
		-	0.063						
17.45-18.00									
	ARM A	13.30	36.62	0.363	- -	-	0.8	0.6	8.7
		-	0.043						
	ARM B	8.36	22.46	0.372	- -	-	0.9	0.6	9.2

```
          -             0.071     I
 I ARM C       0.82     17.51   0.047   - -       -    0.1    0.0        0.8
          -             0.060     I
 I ARM D      11.12     30.70   0.362   - -       -    0.9    0.6        8.7
          -             0.051     I
 I                                I
                                  I
-------------------------------------------------------------------------------
--------------------------------
.-------------------------------------------------------------------------------
--------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                                (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 -                                -
 I 18.00-18.15                    I
 I ARM A      11.14     36.75   0.303   - -       -    0.6    0.4        6.6
          -             0.039     I
 I ARM B       7.00     23.33   0.300   - -       -    0.6    0.4        6.6
          -             0.061     I
 I ARM C       0.69     18.97   0.036   - -       -    0.0    0.0        0.6
          -             0.055     I
 I ARM D       9.31     31.54   0.295   - -       -    0.6    0.4        6.4
          -             0.045     I
 I                                I
                                  I
-------------------------------------------------------------------------------
--------------------------------

.QUEUE AT ARM A
 --------------

  TIME SEGMENT NO. OF
   ENDING      VEHICLES
               IN QUEUE

    17.00          0.4
    17.15          0.6  *
    17.30          0.8  *
    17.45          0.8  *
    18.00          0.6  *
    18.15          0.4


.QUEUE AT ARM B
 --------------

  TIME SEGMENT NO. OF
   ENDING      VEHICLES
               IN QUEUE

    17.00          0.4
    17.15          0.6  *
    17.30          0.9  *
    17.45          0.9  *
    18.00          0.6  *
    18.15          0.4


.QUEUE AT ARM C
 --------------
```



```
  TIME SEGMENT NO. OF
   ENDING      VEHICLES
               IN QUEUE

    17.00          0.0
    17.15          0.0
    17.30          0.1
    17.45          0.1
    18.00          0.0
    18.15          0.0


.QUEUE AT ARM D
 --------------

  TIME SEGMENT NO. OF
   ENDING      VEHICLES
               IN QUEUE

    17.00          0.4
    17.15          0.6  *
    17.30          0.8  *
    17.45          0.9  *
    18.00          0.6  *
    18.15          0.4

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                 ------------------------------------------

 ---------------------------------------------------------------------------
T75
 I  ARM  I   TOTAL DEMAND  I     * QUEUEING *    I  * INCLUSIVE QUEUEING *  I
 I       I                 I      * DELAY *      I         * DELAY *        I
 I       I-------------------------------------------------------------------I
 I       I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)      (MIN/VEH)  I
 ---------------------------------------------------------------------------
 I   A   I 1222.3 I  814.8 I    54.1 I    0.04   I      54.1  I     0.04    I
 I   B   I  768.0 I  512.0 I    57.8 I    0.08   I      57.8  I     0.08    I
 I   C   I   75.7 I   50.5 I     4.7 I    0.06   I       4.7  I     0.06    I
 I   D   I 1021.3 I  680.9 I    54.8 I    0.05   I      54.8  I     0.05    I
 ---------------------------------------------------------------------------
 I  ALL  I 3087.3 I 2058.2 I   171.4 I    0.06   I     171.4  I     0.06    I
 ---------------------------------------------------------------------------
 * DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
 * INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING
AFTER THE END OF THE TIME PERIOD.
 * THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE
REMAINING AT THE END OF THE TIME PERIOD.

 END OF JOB
```

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)
Patch 15 Apr 2011

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For sales and distribution information,
program advice and maintenance, contact:

TRL Limited Tel: +44 (0) 1344 770758
Crowthorne House Fax: +44 (0) 1344 770356
Nine Mile Ride Email: software@trl.co.uk
Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

Run with file:-
"p:\10173\Traffic\Junctions - Rev3\J14 A143 jw Access North\
10173a - J14 A143 jw Access North - Rev3 2019+NW1+NE1 AM.vai"
(drive-on-the-left) at 12:35:44 on Wednesday, 8 April 2015

.FILE PROPERTIES
****

RUN TITLE: J13 A143 jw Access North - Rev3 2019+NW1+NE1 PM
LOCATION: Haverhill
DATE: 08/04/15
CLIENT: Hallam
ENUMERATOR: sue.tadman [BCL25]
JOB NUMBER: 10173
STATUS: Preliminary
DESCRIPTION:

.INPUT DATA
****
ARM A - A143 North
ARM B - Access North
ARM C - A143 South

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
A	3.50	8.00	10.00	25.00	30.00	30.0	0.648	27.252
B	3.50	8.00	10.00	25.00	30.00	30.0	0.648	27.252
C	3.50	8.00	10.00	25.00	30.00	30.0	0.648	27.252

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown
.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100

TIME PERIOD BEGINS(07.45)AND ENDS(09.15)
.LENGTH OF TIME PERIOD -(90) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

.DEMAND SET TITLE: as above

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
A	15.00	45.00	75.00	8.46	12.69	8.46
B	15.00	45.00	75.00	1.08	1.61	1.08
C	15.00	45.00	75.00	5.97	8.96	5.97

DEMAND SET TITLE: as above

T33

TIME	FROM/T	TURNING PROPORTIONS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.016	0.984
		0.0	11.0	666.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.302	0.000	0.698
		26.0	0.0	60.0

		(0.0)	(0.0)	(0.0)
	ARM C	0.948	0.052	0.000
		453.0	25.0	0.0
		(0.0)	(0.0)	(0.0)

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)	GEOMETRIC DELAY (VEH.MIN/ TIME	AVERAGE DELAY PER ARRIVING
07.45-08.00									
ARM A	8.49	27.05	0.314	- -	-	0.0	0.5	6.7	0.054
ARM B	1.08	21.86	0.049	- -	-	0.0	0.1	0.8	0.048
ARM C	6.00	27.04	0.222	- -	-	0.0	0.3	4.2	0.047
08.00-08.15									
ARM A	10.14	27.01	0.376	- -	-	0.5	0.6	8.8	0.059
ARM B	1.29	20.80	0.062	- -	-	0.1	0.1	1.0	0.051
ARM C	7.16	27.00	0.265	- -	-	0.3	0.4	5.3	0.050

TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)	GEOMETRIC DELAY (VEH.MIN/ TIME	AVERAGE DELAY PER ARRIVING
08.15-08.30									
ARM A	12.42	26.96	0.461	- -	-	0.6	0.8	12.4	0.069
ARM B	1.58	19.35	0.082	- -	-	0.1	0.1	1.3	0.056
ARM C	8.77	26.94	0.326	- -	-	0.4	0.5	7.1	0.055
08.30-08.45									
ARM A	12.42	26.96	0.461	- -	-	0.8	0.9	12.7	0.069
ARM B	1.58	19.34	0.082	- -	-	0.1	0.1	1.3	0.056
ARM C	8.77	26.94	0.326	- -	-	0.5	0.5	7.2	0.055
08.45-09.00									
ARM A	10.14	27.01	0.376	- -	-	0.9	0.6	9.3	0.059
ARM B	1.29	20.78	0.062	- -	-	0.1	0.1	1.0	0.051
ARM C	7.16	27.00	0.265	- -	-	0.5	0.4	5.5	0.050

```
                                  -
 I 09.00-09.15                    I
                                  I
 I ARM A       8.49     27.05   0.314   - -       -    0.6    0.5        7.0
         -              0.054     I
 I ARM B       1.08     21.83   0.049   - -       -    0.1    0.1        0.8
         -              0.048     I
 I ARM C       6.00     27.04   0.222   - -       -    0.4    0.3        4.3
         -              0.048     I
 I
                                  I
```

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.5	
08.15	0.6	*
08.30	0.8	*
08.45	0.9	*
09.00	0.6	*
09.15	0.5	

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.1
08.15	0.1
08.30	0.1
08.45	0.1
09.00	0.1
09.15	0.1

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.3
08.15	0.4
08.30	0.5
08.45	0.5
09.00	0.4
09.15	0.3

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)

A	931.8	621.2	57.0	0.06	57.0	0.06	
B	118.4	78.9	6.2	0.05	6.2	0.05	
C	657.9	438.6	33.7	0.05	33.7	0.05	
ALL	1708.1	1138.8	96.8	0.06	96.8	0.06	

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)
Patch 15 Apr 2011

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"p:\10173\Traffic\Junctions - Rev3\J14 A143 jw Access North\
10173a - J14 A143 jw Access North - Rev3 2019+NW1+NE1 PM.vai"
(drive-on-the-left) at 12:35:53 on Wednesday, 8 April 2015

.FILE PROPERTIES
****

RUN TITLE: J13 A143 jw Access North - Rev3 2019+NW1+NE1 PM
LOCATION: Haverhill
DATE: 08/04/15
CLIENT: Hallam
ENUMERATOR: sue.tadman [BCL25]
JOB NUMBER: 10173
STATUS: Preliminary
DESCRIPTION:

.INPUT DATA
****
ARM A - A143 North
ARM B - Access North
ARM C - A143 South

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
A	3.50	8.00	10.00	25.00	30.00	30.0	0.648	27.252
B	3.50	8.00	10.00	25.00	30.00	30.0	0.648	27.252
C	3.50	8.00	10.00	25.00	30.00	30.0	0.648	27.252

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown
.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100

TIME PERIOD BEGINS(16.45)AND ENDS(18.15)
.LENGTH OF TIME PERIOD -(90) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

.DEMAND SET TITLE: as above

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
A	15.00	45.00	75.00	6.36	9.54	6.36
B	15.00	45.00	75.00	0.65	0.97	0.65
C	15.00	45.00	75.00	8.16	12.24	8.16

DEMAND SET TITLE: as above

T33

TIME	FROM/T	TURNING PROPORTIONS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.049	0.951
		0.0	25.0	484.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.308	0.000	0.692
		16.0	0.0	36.0

		(0.0)	(0.0)	(0.0)
ARM C	0.911	0.089	0.000	
	595.0	58.0	0.0	
		(0.0)	(0.0)	(0.0)

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)	GEOMETRIC DELAY (VEH.MIN/ TIME	AVERAGE DELAY PER ARRIVING
16.45-17.00									
ARM A	6.39	26.78	0.238	- -	-	0.0	0.3	4.6	0.049
ARM B	0.65	23.33	0.028	- -	-	0.0	0.0	0.4	0.044
ARM C	8.19	27.12	0.302	- -	-	0.0	0.4	6.3	0.053
17.00-17.15									
ARM A	7.63	26.69	0.286	- -	-	0.3	0.4	5.9	0.052
ARM B	0.78	22.56	0.035	- -	-	0.0	0.0	0.5	0.046
ARM C	9.78	27.10	0.361	- -	-	0.4	0.6	8.3	0.058
17.15-17.30									
ARM A	9.34	26.56	0.352	- -	-	0.4	0.5	7.9	0.058
ARM B	0.95	21.51	0.044	- -	-	0.0	0.0	0.7	0.049
ARM C	11.98	27.06	0.443	- -	-	0.6	0.8	11.6	0.066

TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)	GEOMETRIC DELAY (VEH.MIN/ TIME	AVERAGE DELAY PER ARRIVING
17.30-17.45									
ARM A	9.34	26.56	0.352	- -	-	0.5	0.5	8.1	0.058
ARM B	0.95	21.50	0.044	- -	-	0.0	0.0	0.7	0.049
ARM C	11.98	27.06	0.443	- -	-	0.8	0.8	11.9	0.066
17.45-18.00									
ARM A	7.63	26.69	0.286	- -	-	0.5	0.4	6.1	0.053
ARM B	0.78	22.55	0.035	- -	-	0.0	0.0	0.5	0.046
ARM C	9.78	27.10	0.361	- -	-	0.8	0.6	8.7	0.058

```
                                  -
 I 18.00-18.15                    I
                                  I
 I ARM A       6.39     26.78   0.238   - -       -    0.4    0.3        4.8
         -              0.049     I
 I ARM B       0.65     23.32   0.028   - -       -    0.0    0.0        0.4
         -              0.044     I
 I ARM C       8.19     27.12   0.302   - -       -    0.6    0.4        6.6
         -              0.053     I
 I
                                  I
```

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.3	
17.15	0.4	
17.30	0.5	*
17.45	0.5	*
18.00	0.4	
18.15	0.3	

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.0	
17.15	0.0	
17.30	0.0	
17.45	0.0	
18.00	0.0	
18.15	0.0	

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.4	
17.15	0.6	*
17.30	0.8	*
17.45	0.8	*
18.00	0.6	*
18.15	0.4	

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	700.6	467.1	37.4	0.05	37.4	0.05
B	71.6	47.7	3.3	0.05	3.3	0.05
C	898.8	599.2	53.4	0.06	53.4	0.06
ALL	1671.0	1114.0	94.1	0.06	94.1	0.06

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)
Patch 15 Apr 2011

_____

For sales and distribution information,
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TRL Limited Tel: +44 (0) 1344 770758
Crowthorne House Fax: +44 (0) 1344 770356
Nine Mile Ride Email: software@trl.co.uk
Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

Run with file:-
"p:\10173\Traffic\Junctions - Rev3\J14 A143 jw Access North\
10173a - J14 A143 jw Access North - Rev3 2029R+NW2+NE2 AM.vai"
(drive-on-the-left) at 12:36:07 on Wednesday, 8 April 2015

.FILE PROPERTIES
****

RUN TITLE: J13 A143 jw Access North - Rev3 2029R+NW2+NE2 AM
LOCATION: Haverhill
DATE: 08/04/15
CLIENT: Hallam
ENUMERATOR: sue.tadman [BCL25]
JOB NUMBER: 10173
STATUS: Preliminary
DESCRIPTION:

.INPUT DATA
****
ARM A - A143 North
ARM B - Access North
ARM C - A143 South

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
A	3.50	8.00	10.00	25.00	30.00	30.0	0.648	27.252
B	3.50	8.00	10.00	25.00	30.00	30.0	0.648	27.252
C	3.50	8.00	10.00	25.00	30.00	30.0	0.648	27.252

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown
.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100

TIME PERIOD BEGINS(07.45)AND ENDS(09.15)
.LENGTH OF TIME PERIOD -(90) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

.DEMAND SET TITLE: as above

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
A	15.00	45.00	75.00	9.69	14.53	9.69
B	15.00	45.00	75.00	8.25	12.38	8.25
C	15.00	45.00	75.00	9.16	13.74	9.16

DEMAND SET TITLE: as above

T33

TIME	FROM/T	TURNING PROPORTIONS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.084	0.916
		0.0	65.0	710.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.202	0.000	0.798
		133.0	0.0	527.0

		I (0.0)I	(0.0)I	(0.0)I
		I	I	I
	ARM C I	0.660 I	0.340 I	0.000 I
		I 484.0 I	249.0 I	0.0 I
		I (0.0)I	(0.0)I	(0.0)I
		I	I	I

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

I TIME SEGMENT)	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY RATIO (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)	GEOMETRIC DELAY (VEH.MIN/ TIME	AVERAGE DELAY PER ARRIVING
I 07.45-08.00									
I ARM A	9.72	25.24	0.385	- -	-	0.0	0.6	9.1	
	-	0.064	I						
I ARM B	8.28	21.51	0.385	- -	-	0.0	0.6	9.0	
	-	0.075	I						
I ARM C	9.20	26.18	0.351	- -	-	0.0	0.5	7.9	
	-	0.059	I						
I 08.00-08.15									
I ARM A	11.61	24.84	0.467	- -	-	0.6	0.9	12.7	
	-	0.075	I						
I ARM B	9.89	20.37	0.485	- -	-	0.6	0.9	13.6	
	-	0.095	I						
I ARM C	10.98	25.96	0.423	- -	-	0.5	0.7	10.7	
	-	0.067	I						

I TIME SEGMENT)	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY RATIO (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)	GEOMETRIC DELAY (VEH.MIN/ TIME	AVERAGE DELAY PER ARRIVING
I 08.15-08.30									
I ARM A	14.22	24.30	0.585	- -	-	0.9	1.4	20.1	
	-	0.099	I						
I ARM B	12.11	18.83	0.643	- -	-	0.9	1.8	24.9	
	-	0.146	I						
I ARM C	13.45	25.68	0.524	- -	-	0.7	1.1	15.9	
	-	0.081	I						
I 08.30-08.45									
I ARM A	14.22	24.29	0.585	- -	-	1.4	1.4	20.9	
	-	0.099	I						
I ARM B	12.11	18.81	0.644	- -	-	1.8	1.8	26.6	
	-	0.149	I						
I ARM C	13.45	25.67	0.524	- -	-	1.1	1.1	16.4	
	-	0.082	I						
I 08.45-09.00									
I ARM A	11.61	24.83	0.468	- -	-	1.4	0.9	13.7	
	-	0.076	I						
I ARM B	9.89	20.34	0.486	- -	-	1.8	1.0	14.9	
	-	0.097	I						
I ARM C	10.98	25.95	0.423	- -	-	1.1	0.7	11.4	
	-	0.067	I						

```
                                  -
 I 09.00-09.15                                                                  
                                  I
 I ARM A       9.72     25.23   0.385   - -       -    0.9    0.6        9.7
         -              0.065     I
 I ARM B       8.28     21.47   0.386   - -       -    1.0    0.6        9.7
         -              0.076     I
 I ARM C       9.20     26.17   0.351   - -       -    0.7    0.5        8.3
         -              0.059     I
 I
                                  I

--------------------------------------------------------------------------------
----------------------------------

.QUEUE AT ARM A
 --------------

  TIME SEGMENT NO. OF
   ENDING      VEHICLES
               IN QUEUE

    08.00          0.6  *
    08.15          0.9  *
    08.30          1.4  *
    08.45          1.4  *
    09.00          0.9  *
    09.15          0.6  *


.QUEUE AT ARM B
 --------------

  TIME SEGMENT NO. OF
   ENDING      VEHICLES
               IN QUEUE

    08.00          0.6  *
    08.15          0.9  *
    08.30          1.8  **
    08.45          1.8  **
    09.00          1.0  *
    09.15          0.6  *


.QUEUE AT ARM C
 --------------

  TIME SEGMENT NO. OF
   ENDING      VEHICLES
               IN QUEUE

    08.00          0.5  *
    08.15          0.7  *
    08.30          1.1  *
    08.45          1.1  *
    09.00          0.7  *
    09.15          0.5  *

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                ------------------------------------------

 ------------------------------------------------------------------------------
T75
 I  ARM  I   TOTAL DEMAND  I     * QUEUEING *    I  * INCLUSIVE QUEUEING *  I
 I       I                 I      * DELAY *      I         * DELAY *        I
 I       I-----------------------------------------------------------------I
 I       I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)      (MIN/VEH)  I
```



```
 ------------------------------------------------------------------------------
 I   A   I 1066.7 I  711.2 I    86.2 I    0.08   I      86.2  I     0.08    I
 I   B   I  908.4 I  605.6 I    98.7 I    0.11   I      98.7  I     0.11    I
 I   C   I 1008.9 I  672.6 I    70.5 I    0.07   I      70.5  I     0.07    I
 ------------------------------------------------------------------------------
 I  ALL  I 2984.1 I 1989.4 I   255.4 I    0.09   I     255.4  I     0.09    I
 ------------------------------------------------------------------------------
 * DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
 * INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING
AFTER THE END OF THE TIME PERIOD.
 * THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE
REMAINING AT THE END OF THE TIME PERIOD.

 END OF JOB
```

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)
Patch 15 Apr 2011

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Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"p:\10173\Traffic\Junctions - Rev3\J14 A143 jw Access North\
10173a - J14 A143 jw Access North - Rev3 2029R+NW2+NE2 PM.vai"
(drive-on-the-left) at 12:36:18 on Wednesday, 8 April 2015

.FILE PROPERTIES
****

RUN TITLE: J13 A143 jw Access North - Rev3 2029R+NW2+NE2 PM
LOCATION: Haverhill
DATE: 08/04/15
CLIENT: Hallam
ENUMERATOR: sue.tadman [BCL25]
JOB NUMBER: 10173
STATUS: Preliminary
DESCRIPTION:

.INPUT DATA
****
ARM A - A143 North
ARM B - Access North
ARM C - A143 South

.GEOMETRIC DATA

T5

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
A	3.50	8.00	10.00	25.00	30.00	30.0	0.648	27.252
B	3.50	8.00	10.00	25.00	30.00	30.0	0.648	27.252
C	3.50	8.00	10.00	25.00	30.00	30.0	0.648	27.252

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown
.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100

TIME PERIOD BEGINS(16.45)AND ENDS(18.15)
.LENGTH OF TIME PERIOD -(90) MINUTES
.LENGTH OF TIME SEGMENT - (15) MINUTES

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

.DEMAND SET TITLE: as above

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS (TO RISE)	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
A	15.00	45.00	75.00	8.63	12.94	8.63
B	15.00	45.00	75.00	5.09	7.63	5.09
C	15.00	45.00	75.00	14.73	22.09	14.73

DEMAND SET TITLE: as above

T33

TIME	FROM/T	TURNING PROPORTIONS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.183	0.817
		0.0	126.0	564.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.204	0.000	0.796
		83.0	0.0	324.0

		I (0.0)I (0.0)I (0.0)I		
		I I I I		
	ARM C	I 0.576 I 0.424 I 0.000 I		
		I 678.0 I 500.0 I 0.0 I		
		I (0.0)I (0.0)I (0.0)I		
		I I I I		

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)	GEOMETRIC DELAY (VEH.MIN/	AVERAGE DELAY PER ARRIVING (MIN)	TIME SEGMENT)
16.45-17.00										
ARM A	8.66	23.21	0.373	- -	-	0.0	0.6	0.068		8.6
ARM B	5.11	22.69	0.225	- -	-	0.0	0.3	0.057		4.2
ARM C	14.78	26.58	0.556	- -	-	0.0	1.2	0.084		17.8
17.00-17.15										
ARM A	10.34	22.41	0.461	- -	-	0.6	0.8	0.083		12.4
ARM B	6.10	21.79	0.280	- -	-	0.3	0.4	0.064		5.7
ARM C	17.65	26.45	0.667	- -	-	1.2	2.0	0.112		28.1
17.15-17.30										
ARM A	12.66	21.35	0.593	- -	-	0.8	1.4	0.114		20.6
ARM B	7.47	20.57	0.363	- -	-	0.4	0.6	0.076		8.3
ARM C	21.62	26.27	0.823	- -	-	2.0	4.3	0.202		58.5
17.30-17.45										
ARM A	12.66	21.31	0.594	- -	-	1.4	1.4	0.115		21.6
ARM B	7.47	20.55	0.363	- -	-	0.6	0.6	0.076		8.5
ARM C	21.62	26.27	0.823	- -	-	4.3	4.5	0.213		66.3
17.45-18.00										
ARM A	10.34	22.36	0.462	- -	-	1.4	0.9	0.084		13.5
ARM B	6.10	21.76	0.280	- -	-	0.6	0.4	0.064		6.0
ARM C	17.65	26.45	0.667	- -	-	4.5	2.1	0.118		32.7

T70

TIME SEGMENT	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ VEHICLE (MIN)	GEOMETRIC DELAY (VEH.MIN/	AVERAGE DELAY PER ARRIVING (MIN)	TIME SEGMENT)
16.45-17.00										
ARM A	8.66	23.21	0.373	- -	-	0.0	0.6	0.068		8.6
ARM B	5.11	22.69	0.225	- -	-	0.0	0.3	0.057		4.2
ARM C	14.78	26.58	0.556	- -	-	0.0	1.2	0.084		17.8
17.00-17.15										
ARM A	10.34	22.41	0.461	- -	-	0.6	0.8	0.083		12.4
ARM B	6.10	21.79	0.280	- -	-	0.3	0.4	0.064		5.7
ARM C	17.65	26.45	0.667	- -	-	1.2	2.0	0.112		28.1
17.15-17.30										
ARM A	12.66	21.35	0.593	- -	-	0.8	1.4	0.114		20.6
ARM B	7.47	20.57	0.363	- -	-	0.4	0.6	0.076		8.3
ARM C	21.62	26.27	0.823	- -	-	2.0	4.3	0.202		58.5
17.30-17.45										
ARM A	12.66	21.31	0.594	- -	-	1.4	1.4	0.115		21.6
ARM B	7.47	20.55	0.363	- -	-	0.6	0.6	0.076		8.5
ARM C	21.62	26.27	0.823	- -	-	4.3	4.5	0.213		66.3
17.45-18.00										
ARM A	10.34	22.36	0.462	- -	-	1.4	0.9	0.084		13.5
ARM B	6.10	21.76	0.280	- -	-	0.6	0.4	0.064		6.0
ARM C	17.65	26.45	0.667	- -	-	4.5	2.1	0.118		32.7

```
                                  -
 I 18.00-18.15                                                                  
                                  I
 I ARM A       8.66     23.17   0.374   - -       -    0.9    0.6        9.2
         -              0.069     I
 I ARM B       5.11     22.66   0.225   - -       -    0.4    0.3        4.5
         -              0.057     I
 I ARM C      14.78     26.58   0.556   - -       -    2.1    1.3       19.7
         -              0.086     I
 I
                                  I

--------------------------------------------------------------------------------
----------------------------------

.QUEUE AT ARM A
 --------------

  TIME SEGMENT NO. OF
   ENDING      VEHICLES
               IN QUEUE

    17.00          0.6  *
    17.15          0.8  *
    17.30          1.4  *
    17.45          1.4  *
    18.00          0.9  *
    18.15          0.6  *


.QUEUE AT ARM B
 --------------

  TIME SEGMENT NO. OF
   ENDING      VEHICLES
               IN QUEUE

    17.00          0.3
    17.15          0.4
    17.30          0.6  *
    17.45          0.6  *
    18.00          0.4
    18.15          0.3


.QUEUE AT ARM C
 --------------

  TIME SEGMENT NO. OF
   ENDING      VEHICLES
               IN QUEUE

    17.00          1.2  *
    17.15          2.0  **
    17.30          4.3  ****
    17.45          4.5  ****
    18.00          2.1  **
    18.15          1.3  *

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                -------------------------------------------

 ------------------------------------------------------------------------------
T75
 I  ARM  I   TOTAL DEMAND  I     * QUEUEING *    I  * INCLUSIVE QUEUEING *  I
 I       I                 I      * DELAY *      I         * DELAY *        I
 I       I-------------------------------------------------------------------I
 I       I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)      (MIN/VEH)  I
```



```
 ------------------------------------------------------------------------------
 I   A   I  949.7 I  633.2 I    85.9 I    0.09   I      85.9  I     0.09    I
 I   B   I  560.2 I  373.5 I    37.2 I    0.07   I      37.2  I     0.07    I
 I   C   I 1621.4 I 1081.0 I   223.2 I    0.14   I     223.2  I     0.14    I
 ------------------------------------------------------------------------------
 I  ALL  I 3131.4 I 2087.6 I   346.2 I    0.11   I     346.3  I     0.11    I
 ------------------------------------------------------------------------------
 * DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
 * INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING
AFTER THE END OF THE TIME PERIOD.
 * THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE
REMAINING AT THE END OF THE TIME PERIOD.

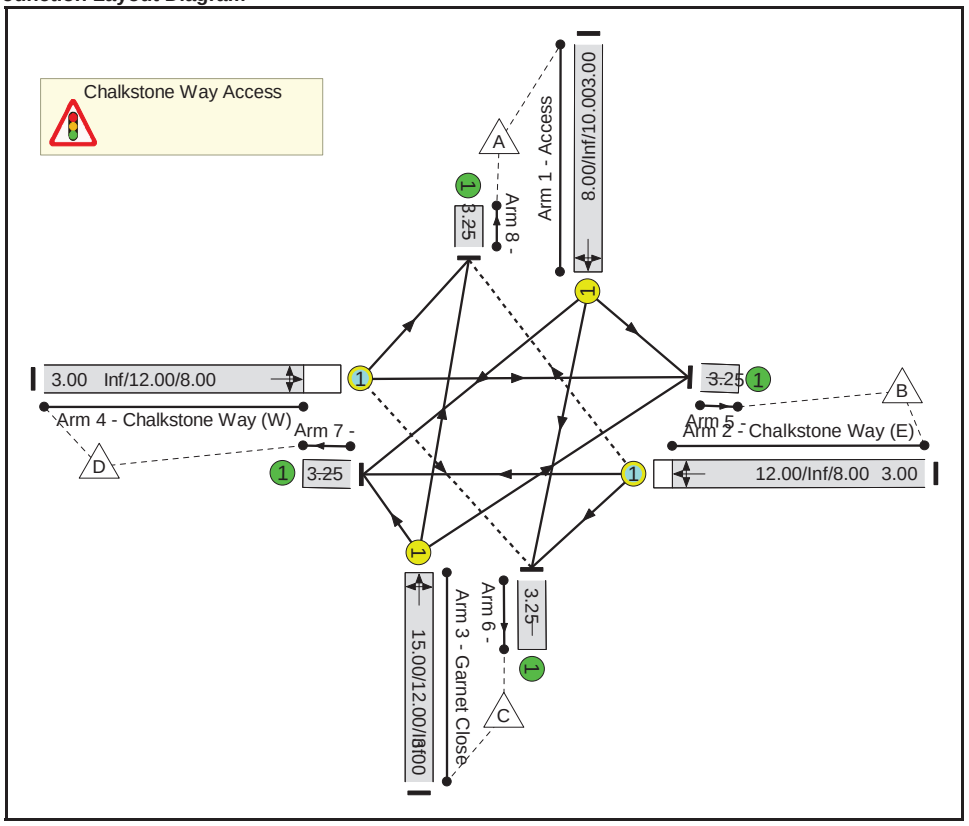
 END OF JOB
```

Linsig Report

User and Project Details

Project:	**Haverhill**
Title:	**Chalkstone Way Access**
Location:	
File name:	10173 Chalkstone Way Access - Signals Rev3.lsg3x
Author:	SMT
Company:	Brookbanks Consulting Ltd

Junction Layout Diagram



Linsig Report
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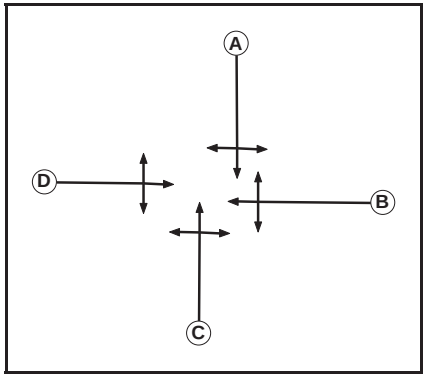
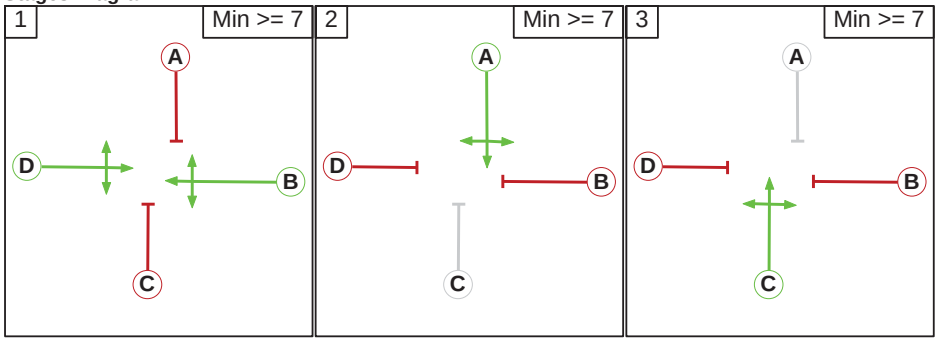
Phase Diagram



Phase Intergreens Matrix

Terminating Phase \ Starting Phase	A	B	C	D
A		5	-	5
B	5		5	-
C	-	5		5
D	5	-	5	

Stages Diagram



Lane Input Data

Junction: Chalkstone Way Access

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (Access)	U	A	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Left	8.00
											Arm 6 Ahead	Inf
											Arm 7 Right	10.00
2/1 (Chalkstone Way (E))	O	B	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 6 Left	12.00
											Arm 7 Ahead	Inf
											Arm 8 Right	8.00
3/1 (Garnet Close)	U	C	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Right	15.00
											Arm 7 Left	12.00
											Arm 8 Ahead	Inf
4/1 (Chalkstone Way (W))	O	D	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Ahead	Inf
											Arm 6 Right	12.00
											Arm 8 Left	8.00

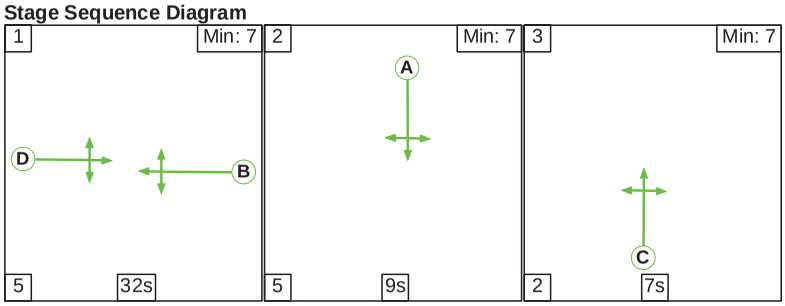
Scenario 1: '2019+Dev Ph1 AM' (FG1: '2019+NW1+NE1 AM', Plan 1: '3-stage')

Traffic Flows, Actual

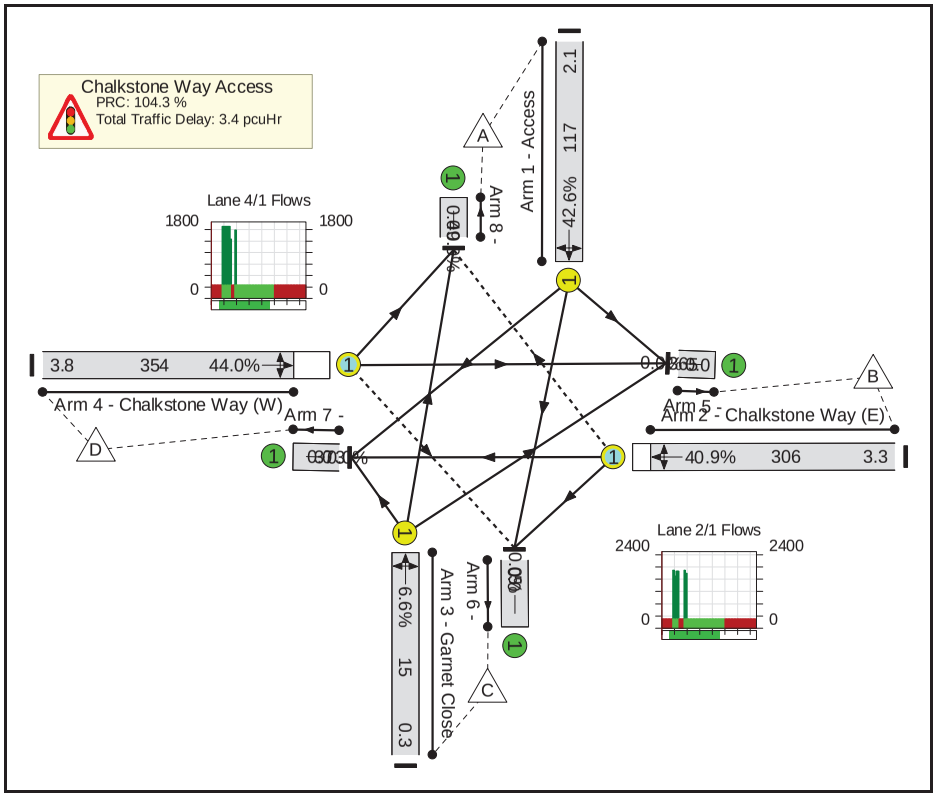
Actual Flow :

Origin	Destination					
		A	B	C	D	Tot.
	A	0	41	0	76	117
	B	17	0	2	287	306
	C	0	5	0	10	15
	D	32	319	3	0	354
	Tot.	49	365	5	373	792

Stage Sequence Diagram



Junction Layout Diagram



Link Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Chalkstone Way Access	-	-	-		-	-	-	-	-	-	**44.0%**	**20**	**0**	**0**	**3.4**	-	-
Chalkstone Way Access	-	-	-		-	-	-	-	-	-	**44.0%**	**20**	**0**	**0**	**3.4**	-	-
1/1	Access Left Ahead Right	U	A		1	9	-	117	1646	274	42.6%	-	-	-	1.1	33.8	2.1
2/1	Chalkstone Way (E) Left Ahead Right	O	B		1	32	-	306	1894	749	40.9%	17	0	0	1.0	11.9	3.3
3/1	Garnet Close Right Left Ahead	U	C		1	7	-	15	1715	229	6.6%	-	-	-	0.1	31.4	0.3
4/1	Chalkstone Way (W) Ahead Right Left	O	D		1	32	-	354	1881	804	44.0%	3	0	0	1.1	11.6	3.8

C1 PRC for Signalled Lanes (%): 104.3 Total Delay for Signalled Lanes (pcuHr): 3.39 Cycle Time (s): 60
PRC Over All Lanes (%): 104.3 Total Delay Over All Lanes(pcuHr): 3.39

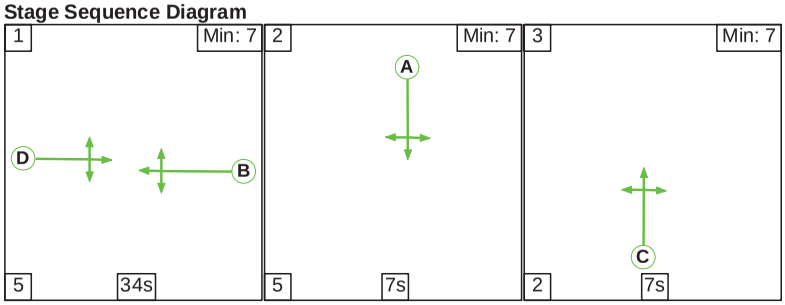
Scenario 2: '2019+Dev Ph1 PM' (FG2: '2019+NW1+NE1 PM', Plan 1: '3-stage')

Traffic Flows, Actual

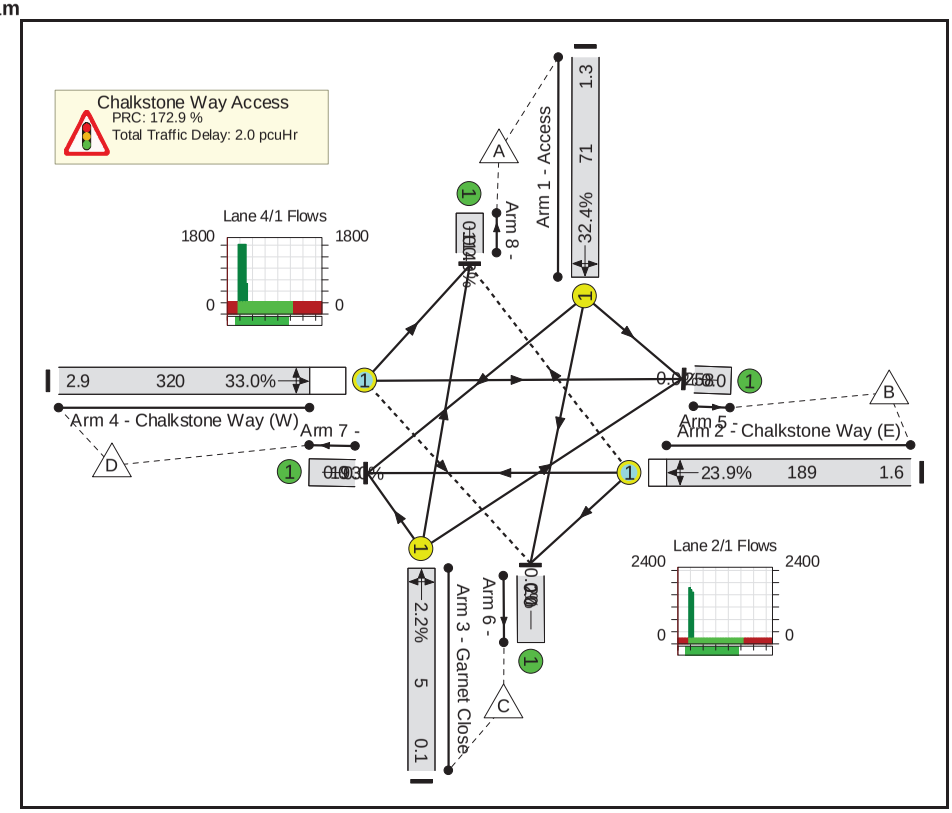
Actual Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	25	0	46	71
	B	40	0	5	144	189
	C	0	2	0	3	5
	D	74	231	15	0	320
	Tot.	114	258	20	193	585

Stage Sequence Diagram



Junction Layout Diagram



Link Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Chalkstone Way Access	-	-	-		-	-	-	-	-	-	**33.0%**	**54**	**0**	**1**	**2.0**	-	-
Chalkstone Way Access	-	-	-		-	-	-	-	-	-	**33.0%**	**54**	**0**	**1**	**2.0**	-	-
1/1	Access Left Ahead Right	U	A		1	7	-	71	1646	219	32.4%	-	-	-	0.7	35.7	1.3
2/1	Chalkstone Way (E) Left Ahead Right	O	B		1	34	-	189	1836	791	23.9%	39	0	1	0.5	9.0	1.6
3/1	Garnet Close Right Left Ahead	U	C		1	7	-	5	1717	229	2.2%	-	-	-	0.0	31.0	0.1
4/1	Chalkstone Way (W) Ahead Right Left	O	D		1	34	-	320	1825	970	33.0%	15	0	1	0.8	9.1	2.9

C1 PRC for Signalled Lanes (%): 172.9 Total Delay for Signalled Lanes (pcuHr): 2.03 Cycle Time (s): 60
PRC Over All Lanes (%): 172.9 Total Delay Over All Lanes(pcuHr): 2.03

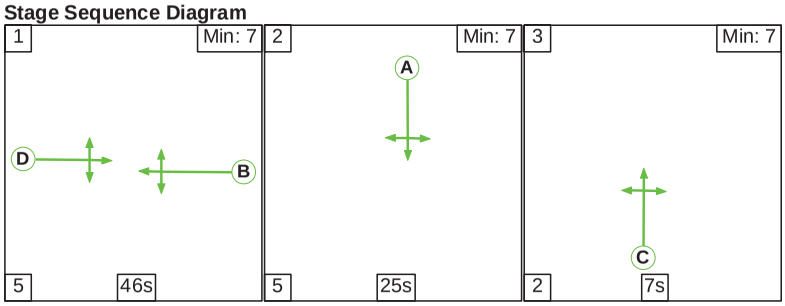
Scenario 3: '2029R+Dev Ph2 AM' (FG3: '2029R+NW2+NE2 AM', Plan 1: '3-stage')

Traffic Flows, Actual

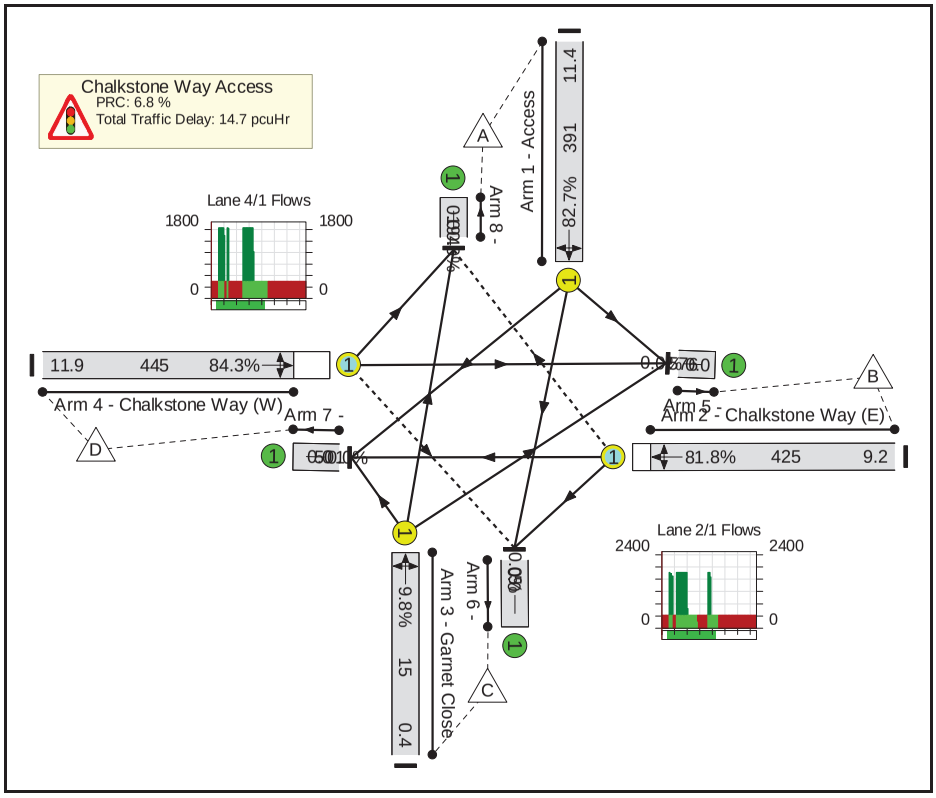
Actual Flow :

Origin \ Destination	A	B	C	D	Tot.
A	0	214	0	177	391
B	109	0	2	314	425
C	0	5	0	10	15
D	85	357	3	0	445
Tot.	194	576	5	501	1276

Stage Sequence Diagram



Junction Layout Diagram



Linsig Report
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Link Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Chalkstone Way Access	-	-	-		-	-	-	-	-	-	**84.3%**	**111**	**0**	**1**	**14.7**	-	-
Chalkstone Way Access	-	-	-		-	-	-	-	-	-	**84.3%**	**111**	**0**	**1**	**14.7**	-	-
1/1	Access Left Ahead Right	U	A		1	25	-	391	1636	473	82.7%	-	-	-	5.5	50.8	11.4
2/1	Chalkstone Way (E) Left Ahead Right	O	B		1	46	-	425	1826	519	81.8%	108	0	1	4.0	34.3	9.2
3/1	Garnet Close Right Left Ahead	U	C		1	7	-	15	1715	152	9.8%	-	-	-	0.2	50.9	0.4
4/1	Chalkstone Way (W) Ahead Right Left	O	D		1	46	-	445	1847	528	84.3%	3	0	0	4.9	39.9	11.9

C1 PRC for Signalled Lanes (%): 6.8 Total Delay for Signalled Lanes (pcuHr): 14.70 Cycle Time (s): 90
PRC Over All Lanes (%): 6.8 Total Delay Over All Lanes(pcuHr): 14.70

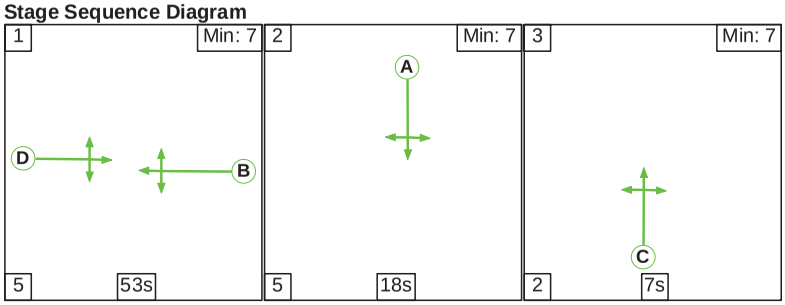
Scenario 4: '2029R+Dev Ph 2 PM' (FG4: '2029R+NW2+NE2 PM', Plan 1: '3-stage')

Traffic Flows, Actual

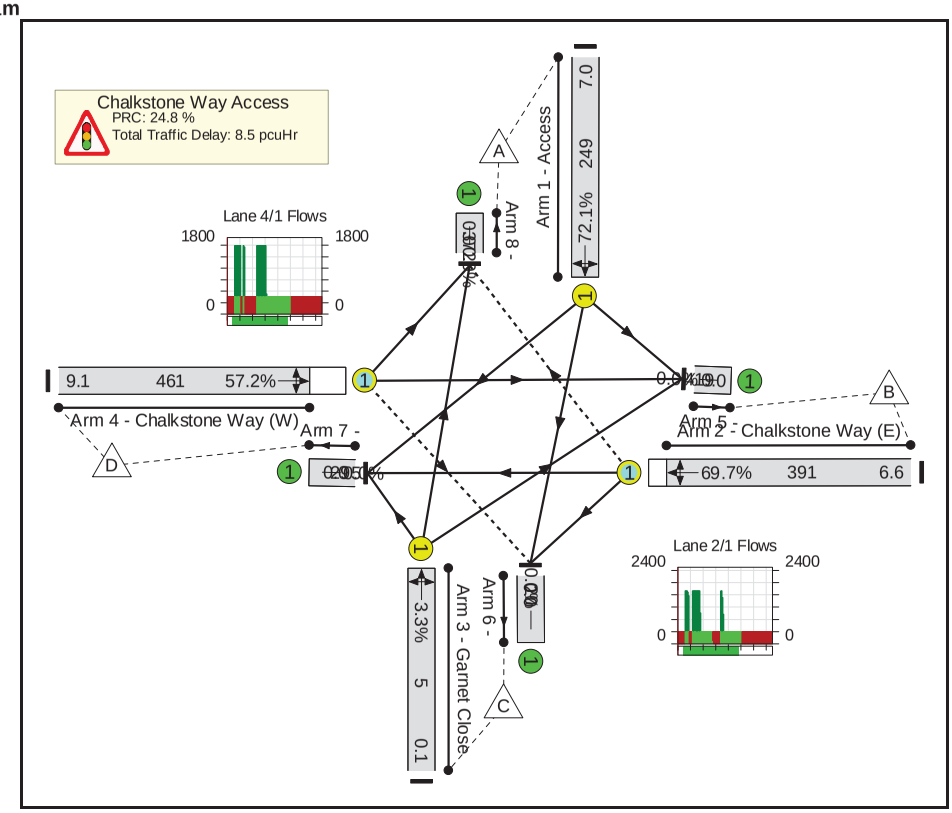
Actual Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	139	0	110	249
	B	204	0	5	182	391
	C	0	2	0	3	5
	D	168	278	15	0	461
	Tot.	372	419	20	295	1106

Stage Sequence Diagram



Junction Layout Diagram



Link Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Chalkstone Way Access	-	-	-		-	-	-	-	-	-	**72.1%**	**216**	**0**	**3**	**8.5**	-	-
Chalkstone Way Access	-	-	-		-	-	-	-	-	-	**72.1%**	**216**	**0**	**3**	**8.5**	-	-
1/1	Access Left Ahead Right	U	A		1	18	-	249	1635	345	72.1%	-	-	-	3.5	51.3	7.0
2/1	Chalkstone Way (E) Left Ahead Right	O	B		1	53	-	391	1742	561	69.7%	202	0	2	2.4	22.4	6.6
3/1	Garnet Close Right Left Ahead	U	C		1	7	-	5	1717	153	3.3%	-	-	-	0.1	50.0	0.1
4/1	Chalkstone Way (W) Ahead Right Left	O	D		1	53	-	461	1786	807	57.2%	15	0	0	2.4	18.9	9.1

C1 PRC for Signalled Lanes (%): 24.8 Total Delay for Signalled Lanes (pcuHr): 8.48 Cycle Time (s): 90
PRC Over All Lanes (%): 24.8 Total Delay Over All Lanes(pcuHr): 8.48