

APPENDIX E. Stage 1 Road Safety Audit



Road Safety Audit Stage 1

Lower Road

Bedhampton

Hampshire

Date: 22nd January 2017

Report produced for: i-Transport

Report produced by: M & S Traffic Ltd

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DOCUMENT CONTROL SHEET

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Project Title Lower Road, Bedhampton

Report Title Road Safety Audit Stage 1

Revision

Status Final

Reference i-T/12174/1/BS

Record of Issue

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1	Final	BS	22/01/17	LMA	22/01/17	BS	22/01/17

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Organisation	Contact	Copies
i-Transport	Rachel Stout	-

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1 INTRODUCTION

1.1 This report describes a Stage 1 Road Safety Audit carried out on proposed works associated with a proposed residential development of 50 homes at Lower Road, Bedhampton, as detailed below:

- A priority junction at the northeast corner of the site, which is shown on drawing ITB12174-GA-001 Rev A; and
- A priority junction in the centre of the site, as shown on drawing ITB12174-GA-002.

The Audit was requested by the design organisation, i-Transport, Grove House, Lutyens Close, Chineham Court, Basingstoke, Hampshire, RG24 8AG.

1.2 The Audit Team membership was as follows:

Bryan Shawyer BEng (Hons), MSc, MCIHT, MSoRSA, HA RSA Cert Comp, Audit Team Leader

Lisa Allen BEng (Hons), MSc, MCIHT, MSoRSA, HA RSA Cert Comp, Audit Team Member

1.3 The audit was undertaken in accordance with the audit brief and HD 19/15, The Design Manual for Roads and Bridges. The documents available at the time the report was compiled are detailed in Appendix A.

1.4 The Audit took place at the Gillingham offices of M&S Traffic on 21st January 2017 and comprised an examination of the documents provided as listed in Appendix A, plus a visit to the site of the proposed scheme. Weather conditions at the time were fine and the road surface was dry. Traffic flows and free flow speeds were low. There were moderate pedestrian flows and no cyclist movements observed during the audit.

1.5 The report has been compiled, only with regard to the safety implications for road users of the layout presented in the supplied drawings. It has not been examined or verified for compliance with any other standards or criteria. This safety audit does not perform any "Technical Check" function on these proposals. It is assumed that the Project Sponsor is satisfied that such a "Technical Check" has been successfully completed prior to requesting this safety audit.

1.6 The auditors have not been informed of any Departures from Standards in this scheme construction.

1.7 All comments and recommendations are referenced to the detailed drawings and the locations have been detailed relating to the plans supplied with the audit brief, Appendix B.

2 ITEMS RAISED BY PREVIOUS AUDITS

2.1 No previous Audits were provided for assessment.

3 ITEMS RAISED AT THE STAGE 1 AUDIT – OPTION A

3.1 General

3.1.1 **Location:** Proposed access.

Summary: Lack of visibility could compromise road safety.

Visibility splays were provided for assessment, which were considered acceptable; however, there is currently a hedgerow at the proposed access, which if left unmaintained and remaining in the splays could restrict visibility. Restricted visibility could lead to side impact or rear end shunt accidents.

RECOMMENDATION

That the visibility splays should be cleared of obstacles.

3.1.2 **PROBLEM**

Location: Proposed access.

Summary: Insufficient construction details could compromise road safety.

No construction details were provided for assessment, in particular, details of tie-ins and Polished Stone Values (PSV). Inappropriate tie-ins and carriageway construction with a low PSV could compromise road safety and significant changes in PSV could lead to differential braking, particularly under severe braking conditions.

RECOMMENDATION

That tie-ins and carriageway construction details should be provided for assessment at Stage 2 Safety Audit or that:

- The tie-in should not be on the running path of powered two wheeled vehicles.
- Materials used in the carriageway construction should be consistent with those used along the length of the carriageway.

3.2 Local Alignment

3.2.1 No comment.

3.3 Junctions

3.3.1 PROBLEM

Location: Proposed access.

Summary: Movements of vehicles could compromise road safety.

No swept path information has been provided for assessment. Insufficient turning space may prevent access by larger vehicles or cause these vehicles to occupy all the carriageway, leading to possible head on collisions.

RECOMMENDATION

That sufficient space should be provided for all expected turning movements.

3.4 Non-Motorised User (NMU) Provision

3.4.1 PROBLEM

Location: Proposed access.

Summary: Lack of pedestrian facilities could compromise pedestrian safety.

No crossing facilities have been shown at the mouth of the new access road. Pedestrians with visual impairments may not realise this area will be subject to vehicles entering and exiting the new development site, which could result in pedestrian and vehicle conflicts. Further, the movement of mobility impaired pedestrians may be impeded by full height kerbs, which could lead to pedestrian trips.

RECOMMENDATION

That crossing facilities should be installed in accordance with Department for Transport Guidelines.

3.4.2 PROBLEM

Location: Proposed footway at the eastern end of the scheme.

Summary: Lack of pedestrian facilities could compromise pedestrian safety.

No crossing facilities have been shown at the eastern end of the scheme. A full kerb height could impede the movement of visually and mobility impaired pedestrians, which could lead to pedestrian trips.

RECOMMENDATION

That crossing facilities should be installed in accordance with Department for Transport Guidelines.

3.4.3 PROBLEM

Location: Proposed footway at the western end of the scheme.

Summary: Lack of pedestrian facilities could compromise pedestrian safety.

No crossing facilities have been shown at the western end of the scheme. A full kerb height could impede the movement of visually and mobility impaired pedestrians, which could lead to pedestrian trips.

RECOMMENDATION

That crossing facilities should be installed in accordance with Department for Transport Guidelines.

3.5 Road Signs, Carriageway Markings and Lighting

3.5.1 No comment.

4 ITEMS RAISED AT THE STAGE 1 AUDIT – OPTION B

4.1 General

4.1.1 **Location:** Proposed access.

Summary: Lack of visibility could compromise road safety.

Visibility plays were provided for assessment, which were considered acceptable; however, there is currently a hedgerow at the proposed access, which if left unmaintained and remaining in the plays could restrict visibility. Restricted visibility could lead to side impact or rear end shunt accidents.

RECOMMENDATION

That the visibility plays should be cleared of obstacles.

4.1.2 **PROBLEM**

Location: Proposed access.

Summary: Insufficient construction details could compromise road safety.

No construction details were provided for assessment, in particular, details of tie-ins and Polished Stone Values (PSV). Inappropriate tie-ins; carriageway and over-run construction with a low PSV could compromise road safety and significant changes in PSV could lead to differential braking, particularly under severe braking conditions.

RECOMMENDATION

That tie-ins and carriageway construction details should be provided for assessment at Stage 2 Safety Audit or that:

- The tie-in should not be on the running path of powered two wheeled vehicles.
- Materials used in the carriageway construction should be consistent with those used along the length of the carriageway.

4.1.3 **PROBLEM**

Location: Proposed access.

Summary: Existing undertaker plant may compromise road safety.

There appears to be existing apparatus within the proposed access, including a telegraph pole and a gully, where no details have been provided for the diversion of this apparatus. Auditors are unable to comment on the relocation of this apparatus, which could compromise road safety.

RECOMMENDATION

That details of the relocation or accommodation of the apparatus should be provided for assessment.

4.2 Local Alignment

4.2.1 No comment.

4.3 Junctions**4.3.1 PROBLEM**

Location: Proposed access.

Summary: Movements of vehicles could compromise road safety.

No swept path information has been provided for assessment. Insufficient turning space may prevent access by larger vehicles or cause these vehicles to occupy all the carriageway, leading to possible head on collisions.

RECOMMENDATION

That sufficient space should be provided for all expected turning movements.

4.4 Non-Motorised User (NMU) Provision**4.4.1 PROBLEM**

Location: Proposed access.

Summary: Lack of pedestrian facilities could compromise pedestrian safety.

No crossing facilities have been shown at the mouth of the new access road. Pedestrians with visual impairments may not realise this area will be subject to vehicles entering and exiting the new development site, which could result in pedestrian and vehicle conflicts. Further, the movement of mobility impaired pedestrians may be impeded by full height kerbs, which could lead to pedestrian trips.

RECOMMENDATION

That crossing facilities should be installed in accordance with Department for Transport Guidelines.

4.4.2 PROBLEM

Location: Proposed footway at the eastern end of the scheme.

Summary: Lack of pedestrian facilities could compromise pedestrian safety.

No crossing facilities have been shown at the eastern end of the scheme. A full kerb height could impede the movement of visually and mobility impaired pedestrians, which could lead to pedestrian trips.

RECOMMENDATION

That crossing facilities should be installed in accordance with Department for Transport Guidelines.

4.4.3 **PROBLEM**

Location: Proposed footway at the western end of the scheme.

Summary: Lack of pedestrian facilities could compromise pedestrian safety.

No crossing facilities have been shown at the western end of the scheme. A full kerb height could impede the movement of visually and mobility impaired pedestrians, which could lead to pedestrian trips.

RECOMMENDATION

That crossing facilities should be installed in accordance with Department for Transport Guidelines.

4.5 **Road Signs, Carriageway Markings and Lighting**

4.5.1 No comment.

5 ISSUES IDENTIFIED DURING THE ROAD SAFETY AUDIT THAT ARE OUTSIDE THE TERMS OF REFERENCE

- 5.1 Safety issues identified during the audit and site inspection that are considered to be outside the Terms of Reference, but which the Audit Team wishes to draw to the attention of the Client Organisation, are set out in this section. It is to be understood that, in raising these issues, the Audit Team in no way warrant that a full review of the highway environment has been undertaken beyond that necessary to undertake the Audit as commissioned.
- 5.2 The Audit Team had no issues to raise within this section.

6 AUDITOR TEAM STATEMENT

6.1 We certify that this audit has been carried out in accordance with HD 19/15.

Audit Team Leader

Bryan Shawyer
BEng (Hons), MSc, MCIHT, HA RSA Cert Comp
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Signed:

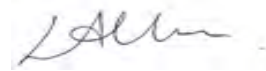


Date: 22/01/17

Audit Team Member

Lisa Allen
BEng (Hons), MSc, MCIHT, HA RSA Cert Comp
M & S Traffic Ltd
Aeolus House
32 Hamelin Road
Gillingham
Kent ME7 3EX

Signed:



Date: 22/01/17

APPENDIX A

List of drawings and documentation submitted for auditing:

Drawing Number	Title
ITB12174-GA-001 (A)	Potential Site Access Arrangement – Option A
ITB12174-GA-002	Potential Site Access Arrangement – Option B
Figure T1	Lower Road, Bedhampton, Site Location Plan

Other Documentation:

- Road Safety Audit Brief, i-Transport, January 2017

APPENDIX B

Plan attached showing the locations of the problems identified as part of this audit (location numbers refer to paragraph numbers in the report).

APPENDIX C: DESIGNERS RESPONSE

Auditors: Bryan Shawyer (Team Leader) and Lisa Allen (Team Member).

Scheme: Lower Road, Bedhampton

Date Audit Completed: 22nd January 2017

This response is to a Stage 1 Road Safety Audit to the design standard detailed within HD19/15 of Volume 5, Section 2, Part 2, of the Design Manual for Roads and Bridges, as detailed by the Highways Agency.

Problem no. in safety audit report	Problem accepted (yes/no)	Recommended measure accepted (yes/no)	Alternative measure (detail description)
3.1.1	Yes	Yes	
3.1.2	Yes	Yes	Will be provided at next stage
3.3.1	Yes	Yes	Swept path analysis will be provided to Hampshire County Council
3.4.1	Yes	Yes	Please see drawing ITB12174-GA-001 Rev B
3.4.2	Yes	Yes	Please see drawing ITB12174-GA-001 Rev B
3.4.3	Yes	Yes	Please see drawing ITB12174-GA-001 Rev B
4.1.1	Yes	Yes	
4.1.2	Yes	Yes	Will be provided at next stage
4.1.3	Yes	Yes	Apparatus will be relocated at next design stage
4.3.1	Yes	Yes	Swept path analysis will be provided to Hampshire County Council
4.4.1	Yes	Yes	Please see drawing ITB12174-GA-002 Rev A

4.4.2	Yes	Yes	Please see drawing ITB12174-GA-002 Rev A
4.4.3	Yes	Yes	Please see drawing ITB12174-GA-002 Rev A

APPENDIX F. National Travel Survey Data

Department for Transport statistics

[National Travel Survey](#)

Table NTS0308-chart data

Trips by length and main mode: England, 2014

Main mode	Percentage						Unweighted sample size (trips '000s)
	Under 1 mile	1 to under 2 miles	2 to under 5 miles	5 to under 10 miles	10 to under 25 miles	25 miles and over	
Walk	76	31	5	-	-	0	63
Bicycle	1	3	3	2	1	-	5
Car / van ¹	21	58	77	80	82	81	179
Local bus	1	5	11	9	5	1	18
Rail ²	-	-	1	6	10	14	8
Other transport ³	1	2	3	3	3	4	7
All modes	100	100	100	100	100	100	280

1 Car / van driver and passenger.

2 Surface rail and London Underground.

3 All other modes of transport.

Telephone: 020 7944 3097

Email: national.travelsurvey@dft.gsi.gov.uk

[Notes & definitions](#)

Source: National Travel Survey

Last updated: 2 September 2015

Next update: Summer 2016

The figures in this table are National Statistics

The results presented in this table are weighted. The base (unweighted sample size) is shown in the table for information.

Weights are applied to adjust for non-response to ensure the characteristics of the achieved sample match the population of Great Britain (1995-2012) or England (2013 onwards) and for the drop off in trip recording in diary data.

The survey results are subject to sampling error.

APPENDIX G.TRICS Output

Calculation Reference: AUDIT-236601-170523-0558

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
 Category : M - MIXED PRIVATE/AFFORDABLE HOUSING
 VEHICLES

Selected regions and areas:

02	SOUTH EAST	
	ES EAST SUSSEX	1 days
	WS WEST SUSSEX	5 days
03	SOUTH WEST	
	DV DEVON	1 days
05	EAST MIDLANDS	
	DS DERBYSHIRE	1 days
	LE LEICESTERSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	NY NORTH YORKSHIRE	1 days
08	NORTH WEST	
	GM GREATER MANCHESTER	1 days
09	NORTH	
	DH DURHAM	1 days
10	WALES	
	CM CARMARTHENSHIRE	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Secondary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Number of dwellings
 Actual Range: 9 to 92 (units:)
 Range Selected by User: 9 to 100 (units:)

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/08 to 10/05/16

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Tuesday	5 days
Wednesday	2 days
Thursday	6 days

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

Selected survey types:

Manual count	13 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre)	7
Edge of Town	6

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Residential Zone	13
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This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

C3

13 days

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

Population within 1 mile:

1,001 to 5,000	2 days
5,001 to 10,000	1 days
10,001 to 15,000	3 days
20,001 to 25,000	2 days
25,001 to 50,000	5 days

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

Population within 5 miles:

5,001 to 25,000	1 days
25,001 to 50,000	1 days
75,001 to 100,000	3 days
100,001 to 125,000	4 days
125,001 to 250,000	2 days
250,001 to 500,000	2 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	2 days
1.1 to 1.5	10 days
1.6 to 2.0	1 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	6 days
No	7 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	13 days
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This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	CM-03-M-02 COLLEGE ROAD	HOUSES & FLATS	CARMARTHENSHIRE
	CARMARTHEN Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 49 Survey date: TUESDAY 14/10/14		Survey Type: MANUAL
2	DH-03-M-02 PUDSEY WALK	SEMI DET. & DETACHED	DURHAM
	DARLINGTON Edge of Town Residential Zone Total Number of dwellings: 39 Survey date: WEDNESDAY 10/11/10		Survey Type: MANUAL
3	DS-03-M-01 COCKAYNE STREET BOULTON DERBY	TERRACED/SEMI DETACHED	DERBYSHIRE
	Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 32 Survey date: TUESDAY 21/10/14		Survey Type: MANUAL
4	DV-03-M-01 TOPSHAM ROAD	HOUSES & FLATS	DEVON
	EXETER Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 61 Survey date: THURSDAY 06/10/11		Survey Type: MANUAL
5	ES-03-M-08 FIELD END	MIXED HOUSES	EAST SUSSEX
	MARESFIELD Edge of Town Residential Zone Total Number of dwellings: 80 Survey date: TUESDAY 10/05/16		Survey Type: MANUAL
6	GM-03-M-01 PARK ROAD	TERRACED & FLATS	GREATER MANCHESTER
	ROCHDALE Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 9 Survey date: TUESDAY 25/11/14		Survey Type: MANUAL
7	LE-03-M-01 RYDER ROAD BRAUNSTONE FRITH LEICESTER	SEMI DETACHED	LEICESTERSHIRE
	Edge of Town Residential Zone Total Number of dwellings: 16 Survey date: THURSDAY 27/09/12		Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

8	NY-03-M-03	SEMI D./TERRACED		NORTH YORKSHIRE
	CAWTHORN AVENUE			
	HARROGATE			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Number of dwellings:	14		
	Survey date: THURSDAY	11/09/08		Survey Type: MANUAL
9	WS-03-M-05	MIXED HOUSING		WEST SUSSEX
	ELLIS ROAD			
	S BROADBRIDGE HEATH			
	WEST HORSHAM			
	Edge of Town			
	Residential Zone			
	Total Number of dwellings:	92		
	Survey date: THURSDAY	23/10/14		Survey Type: MANUAL
10	WS-03-M-06	SEMI DETACHED/DETACHED		WEST SUSSEX
	SOUTHFIELDS CLOSE			
	CHICHESTER			
	Edge of Town			
	Residential Zone			
	Total Number of dwellings:	67		
	Survey date: TUESDAY	27/01/15		Survey Type: MANUAL
11	WS-03-M-07	HOUSES & FLATS		WEST SUSSEX
	ROSE GREEN ROAD			
	ALDWICK			
	BOGNOR REGIS			
	Edge of Town			
	Residential Zone			
	Total Number of dwellings:	90		
	Survey date: WEDNESDAY	05/03/14		Survey Type: MANUAL
12	WS-03-M-08	MIXED HOUSES & FLATS		WEST SUSSEX
	WESTLOATS LANE			
	NORTH BERSTED			
	BOGNOR REGIS			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Number of dwellings:	86		
	Survey date: THURSDAY	22/10/15		Survey Type: MANUAL
13	WS-03-M-09	MIXED HOUSES & FLATS		WEST SUSSEX
	ADLINGTON GARDENS			
	BOGNOR REGIS			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Number of dwellings:	32		
	Survey date: THURSDAY	22/10/15		Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 03 - RESIDENTIAL/M - MIXED PRIVATE/AFFORDABLE HOUSING
VEHICLES

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	13	51	0.087	13	51	0.271	13	51	0.358
08:00 - 09:00	13	51	0.133	13	51	0.385	13	51	0.518
09:00 - 10:00	13	51	0.142	13	51	0.166	13	51	0.308
10:00 - 11:00	13	51	0.145	13	51	0.139	13	51	0.284
11:00 - 12:00	13	51	0.151	13	51	0.174	13	51	0.325
12:00 - 13:00	13	51	0.159	13	51	0.145	13	51	0.304
13:00 - 14:00	13	51	0.166	13	51	0.145	13	51	0.311
14:00 - 15:00	13	51	0.148	13	51	0.162	13	51	0.310
15:00 - 16:00	13	51	0.240	13	51	0.178	13	51	0.418
16:00 - 17:00	13	51	0.241	13	51	0.192	13	51	0.433
17:00 - 18:00	13	51	0.348	13	51	0.169	13	51	0.517
18:00 - 19:00	13	51	0.292	13	51	0.163	13	51	0.455
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.252			2.289			4.541

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

Parameter summary

Trip rate parameter range selected: 9 - 92 (units:)
 Survey date range: 01/01/08 - 10/05/16
 Number of weekdays (Monday-Friday): 13
 Number of Saturdays: 0
 Number of Sundays: 0
 Surveys automatically removed from selection: 3
 Surveys manually removed from selection: 0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/M - MIXED PRIVATE/AFFORDABLE HOUSING
TAXIS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	13	51	0.004	13	51	0.003	13	51	0.007
08:00 - 09:00	13	51	0.004	13	51	0.006	13	51	0.010
09:00 - 10:00	13	51	0.004	13	51	0.004	13	51	0.008
10:00 - 11:00	13	51	0.003	13	51	0.001	13	51	0.004
11:00 - 12:00	13	51	0.006	13	51	0.007	13	51	0.013
12:00 - 13:00	13	51	0.003	13	51	0.003	13	51	0.006
13:00 - 14:00	13	51	0.003	13	51	0.003	13	51	0.006
14:00 - 15:00	13	51	0.000	13	51	0.000	13	51	0.000
15:00 - 16:00	13	51	0.010	13	51	0.007	13	51	0.017
16:00 - 17:00	13	51	0.006	13	51	0.006	13	51	0.012
17:00 - 18:00	13	51	0.000	13	51	0.001	13	51	0.001
18:00 - 19:00	13	51	0.001	13	51	0.001	13	51	0.002
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.044			0.042			0.086

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

Parameter summary

Trip rate parameter range selected: 9 - 92 (units:)
 Survey date range: 01/01/08 - 10/05/16
 Number of weekdays (Monday-Friday): 13
 Number of Saturdays: 0
 Number of Sundays: 0
 Surveys automatically removed from selection: 3
 Surveys manually removed from selection: 0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/M - MIXED PRIVATE/AFFORDABLE HOUSING

OGVS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	13	51	0.001	13	51	0.001	13	51	0.002
08:00 - 09:00	13	51	0.000	13	51	0.001	13	51	0.001
09:00 - 10:00	13	51	0.003	13	51	0.003	13	51	0.006
10:00 - 11:00	13	51	0.001	13	51	0.001	13	51	0.002
11:00 - 12:00	13	51	0.001	13	51	0.001	13	51	0.002
12:00 - 13:00	13	51	0.001	13	51	0.001	13	51	0.002
13:00 - 14:00	13	51	0.001	13	51	0.001	13	51	0.002
14:00 - 15:00	13	51	0.000	13	51	0.000	13	51	0.000
15:00 - 16:00	13	51	0.000	13	51	0.000	13	51	0.000
16:00 - 17:00	13	51	0.004	13	51	0.004	13	51	0.008
17:00 - 18:00	13	51	0.000	13	51	0.000	13	51	0.000
18:00 - 19:00	13	51	0.000	13	51	0.000	13	51	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.012			0.013			0.025

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

Parameter summary

Trip rate parameter range selected:	9 - 92 (units:)
Survey date range:	01/01/08 - 10/05/16
Number of weekdays (Monday-Friday):	13
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	3
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/M - MIXED PRIVATE/AFFORDABLE HOUSING
PSVS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	13	51	0.000	13	51	0.000	13	51	0.000
08:00 - 09:00	13	51	0.000	13	51	0.000	13	51	0.000
09:00 - 10:00	13	51	0.000	13	51	0.000	13	51	0.000
10:00 - 11:00	13	51	0.000	13	51	0.000	13	51	0.000
11:00 - 12:00	13	51	0.000	13	51	0.000	13	51	0.000
12:00 - 13:00	13	51	0.000	13	51	0.000	13	51	0.000
13:00 - 14:00	13	51	0.000	13	51	0.000	13	51	0.000
14:00 - 15:00	13	51	0.000	13	51	0.000	13	51	0.000
15:00 - 16:00	13	51	0.000	13	51	0.000	13	51	0.000
16:00 - 17:00	13	51	0.001	13	51	0.001	13	51	0.002
17:00 - 18:00	13	51	0.000	13	51	0.000	13	51	0.000
18:00 - 19:00	13	51	0.000	13	51	0.000	13	51	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.001			0.001			0.002

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

Parameter summary

Trip rate parameter range selected: 9 - 92 (units:)
 Survey date range: 01/01/08 - 10/05/16
 Number of weekdays (Monday-Friday): 13
 Number of Saturdays: 0
 Number of Sundays: 0
 Surveys automatically removed from selection: 3
 Surveys manually removed from selection: 0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/M - MIXED PRIVATE/AFFORDABLE HOUSING
CYCLISTS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	13	51	0.006	13	51	0.007	13	51	0.013
08:00 - 09:00	13	51	0.000	13	51	0.007	13	51	0.007
09:00 - 10:00	13	51	0.001	13	51	0.004	13	51	0.005
10:00 - 11:00	13	51	0.001	13	51	0.001	13	51	0.002
11:00 - 12:00	13	51	0.001	13	51	0.001	13	51	0.002
12:00 - 13:00	13	51	0.001	13	51	0.003	13	51	0.004
13:00 - 14:00	13	51	0.003	13	51	0.001	13	51	0.004
14:00 - 15:00	13	51	0.007	13	51	0.003	13	51	0.010
15:00 - 16:00	13	51	0.009	13	51	0.006	13	51	0.015
16:00 - 17:00	13	51	0.015	13	51	0.019	13	51	0.034
17:00 - 18:00	13	51	0.018	13	51	0.009	13	51	0.027
18:00 - 19:00	13	51	0.006	13	51	0.001	13	51	0.007
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.068			0.062			0.130

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

Parameter summary

Trip rate parameter range selected: 9 - 92 (units:)
 Survey date range: 01/01/08 - 10/05/16
 Number of weekdays (Monday-Friday): 13
 Number of Saturdays: 0
 Number of Sundays: 0
 Surveys automatically removed from selection: 3
 Surveys manually removed from selection: 0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

APPENDIX H.Junctions 9 Output

Junctions 9										
PICADY 9 - Priority Intersection Module										
Version: 9.0.2.5947 © Copyright TRL Limited, 2017										
For sales and distribution information, program advice and maintenance, contact TRL: +44 (0)1344 770558 software@trl.co.uk www.trlsoftware.co.uk										
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution										

Filename: Brookside Road (Updated).j9

Path: T:\Projects\12000 Series Project Numbers\12174\ITB Land at Lower Road, Bedhampton\Tech\Junction

Assessments\Picady

Report generation date: 08/05/2018 11:50:57

- »2017 Observed, AM
- »2017 Observed, PM
- »2019 'Without Development', AM
- »2019 'Without Development', PM
- »2019 'With Development', AM
- »2019 'With Development', PM

Summary of junction performance

	AM					PM				
	Queue (Veh)	Delay (s)	RFC	LOS	Network Residual Capacity	Queue (Veh)	Delay (s)	RFC	LOS	Network Residual Capacity
2017 Observed										
Stream B-AC	0.2	8.15	0.14	A	141 %	0.1	7.70	0.06	A	142 %
Stream C-AB	0.1	8.04	0.10	A	[Stream B-AC]	0.1	6.98	0.09	A	[Stream B-AC]
2019 'Without Development'										
Stream B-AC	0.2	8.32	0.15	A	133 %	0.1	7.80	0.06	A	136 %
Stream C-AB	0.1	7.90	0.10	A	[Stream B-AC]	0.1	7.06	0.09	A	[Stream B-AC]
2019 'With Development'										
Stream B-AC	0.2	8.46	0.17	A	123 %	0.1	7.95	0.08	A	129 %
Stream C-AB	0.1	7.75	0.10	A	[Stream B-AC]	0.1	7.18	0.10	A	[Stream B-AC]

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

File summary

File Description

Title	(untitled)
Location	
Site number	
Date	08/06/2017
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	I-TRANSPORT\Hotdesk
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2017 Observed	AM	DIRECT	07:30	08:30	60	15
D2	2017 Observed	PM	DIRECT	16:30	17:30	60	15
D3	2019 'Without Development'	AM	DIRECT	07:30	08:30	60	15
D4	2019 'Without Development'	PM	DIRECT	16:30	17:30	60	15
D5	2019 'With Development'	AM	DIRECT	07:30	08:30	60	15
D6	2019 'With Development'	PM	DIRECT	16:30	17:30	60	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2017 Observed, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Bedhampton Road / Brookside Road	T-Junction	Two-way	0.42	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	141	Stream B-AC

Arms

Arms

Arm	Name	Description	Arm type
A	Bedhampton Road (E)		Major
B	Brookside Road		Minor
C	Bedhampton Road (W)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Bedhampton Road (W)	13.90	✓	3.45	✓	4.28	140.0	✓	5.53

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - Brookside Road	One lane	4.28	36	33

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (Veh/TS)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	153.478	0.068	0.172	0.108	0.246
1	B-C	181.797	0.073	0.185	-	-
1	C-B	200.831	0.204	0.204	-	-

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

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2017 Observed	AM	DIRECT	07:30	08:30	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A - Bedhampton Road (E)		✓	100.000
B - Brookside Road		✓	100.000
C - Bedhampton Road (W)		✓	100.000

Origin-Destination Data

Demand (Veh/TS)

07:30 - 07:45

	To			
		A - Bedhampton Road (E)	B - Brookside Road	C - Bedhampton Road (W)
From	A - Bedhampton Road (E)	0.00	2.00	214.00
	B - Brookside Road	0.00	0.00	19.00
	C - Bedhampton Road (W)	203.00	3.00	0.00

Demand (Veh/TS)

07:45 - 08:00

	To			
		A - Bedhampton Road (E)	B - Brookside Road	C - Bedhampton Road (W)
From	A - Bedhampton Road (E)	0.00	2.00	230.00
	B - Brookside Road	0.00	0.00	11.00
	C - Bedhampton Road (W)	197.00	3.00	0.00

Demand (Veh/TS)

08:00 - 08:15

	To			
		A - Bedhampton Road (E)	B - Brookside Road	C - Bedhampton Road (W)
From	A - Bedhampton Road (E)	0.00	2.00	209.00
	B - Brookside Road	0.00	0.00	18.00
	C - Bedhampton Road (W)	195.00	12.00	0.00

Demand (Veh/TS)

08:15 - 08:30

	To			
		A - Bedhampton Road (E)	B - Brookside Road	C - Bedhampton Road (W)
From	A - Bedhampton Road (E)	0.00	3.00	236.00
	B - Brookside Road	0.00	0.00	18.00
	C - Bedhampton Road (W)	224.00	4.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - Bedhampton Road (E)	B - Brookside Road	C - Bedhampton Road (W)
From	A - Bedhampton Road (E)	0	11	4
	B - Brookside Road	0	0	6
	C - Bedhampton Road (W)	3	26	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
B-AC	0.14	8.15	0.2	A
C-AB	0.10	8.04	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:30 - 07:45

Stream	Total Demand (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
B-AC	19.00	132.55	0.143	18.83	0.2	7.904	A
C-AB	3.00	122.97	0.024	2.98	0.0	7.498	A
C-A	203.00			203.00			
A-B	2.00			2.00			
A-C	214.00			214.00			

07:45 - 08:00

Stream	Total Demand (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
B-AC	11.00	129.65	0.085	11.07	0.1	7.593	A
C-AB	3.00	120.27	0.025	3.00	0.0	7.673	A
C-A	197.00			197.00			
A-B	2.00			2.00			
A-C	230.00			230.00			

08:00 - 08:15

Stream	Total Demand (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
B-AC	18.00	133.46	0.135	17.94	0.2	7.787	A
C-AB	12.00	123.82	0.097	11.92	0.1	8.037	A
C-A	195.00			195.00			
A-B	2.00			2.00			
A-C	209.00			209.00			

08:15 - 08:30

Stream	Total Demand (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
B-AC	18.00	128.49	0.140	17.99	0.2	8.145	A
C-AB	4.00	119.08	0.034	4.07	0.0	7.831	A
C-A	224.00			224.00			
A-B	3.00			3.00			
A-C	236.00			236.00			

2017 Observed, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Bedhampton Road / Brookside Road	T-Junction	Two-way	0.20	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	142	Stream B-AC

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D2	2017 Observed	PM	DIRECT	16:30	17:30	60	15

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

Demand overview (Traffic)

Am	Linked arm	Use O-D data	Scaling Factor (%)
A - Bedhampton Road (E)		✓	100.000
B - Brookside Road		✓	100.000
C - Bedhampton Road (W)		✓	100.000

Origin-Destination Data

Demand (Veh/TS)

16:30 - 16:45

	To			
		A - Bedhampton Road (E)	B - Brookside Road	C - Bedhampton Road (W)
From	A - Bedhampton Road (E)	0.00	2.00	275.00
	B - Brookside Road	0.00	0.00	5.00
	C - Bedhampton Road (W)	244.00	6.00	0.00

Demand (Veh/TS)

16:45 - 17:00

	To			
		A - Bedhampton Road (E)	B - Brookside Road	C - Bedhampton Road (W)
From	A - Bedhampton Road (E)	0.00	9.00	245.00
	B - Brookside Road	0.00	0.00	8.00
	C - Bedhampton Road (W)	241.00	7.00	0.00

Demand (Veh/TS)

17:00 - 17:15

	To			
		A - Bedhampton Road (E)	B - Brookside Road	C - Bedhampton Road (W)
From	A - Bedhampton Road (E)	0.00	3.00	302.00
	B - Brookside Road	0.00	0.00	7.00
	C - Bedhampton Road (W)	223.00	6.00	0.00

Demand (Veh/TS)

17:15 - 17:30

	To			
		A - Bedhampton Road (E)	B - Brookside Road	C - Bedhampton Road (W)
From	A - Bedhampton Road (E)	0.00	6.00	278.00
	B - Brookside Road	0.00	0.00	8.00
	C - Bedhampton Road (W)	246.00	12.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - Bedhampton Road (E)	B - Brookside Road	C - Bedhampton Road (W)
From	A - Bedhampton Road (E)	0	0	3
	B - Brookside Road	0	0	0
	C - Bedhampton Road (W)	3	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
B-AC	0.06	7.70	0.1	A
C-AB	0.09	6.98	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:30 - 16:45

Stream	Total Demand (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
B-AC	5.00	129.09	0.039	4.96	0.0	7.249	A
C-AB	6.00	142.36	0.042	5.96	0.0	6.596	A
C-A	244.00			244.00			
A-B	2.00			2.00			
A-C	275.00			275.00			

16:45 - 17:00

Stream	Total Demand (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
B-AC	8.00	134.31	0.060	7.98	0.1	7.124	A
C-AB	7.00	147.26	0.048	6.99	0.0	6.415	A
C-A	241.00			241.00			
A-B	9.00			9.00			
A-C	245.00			245.00			

17:00 - 17:15

Stream	Total Demand (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
B-AC	7.00	123.86	0.057	7.00	0.1	7.701	A
C-AB	6.00	136.45	0.044	6.00	0.0	6.901	A
C-A	223.00			223.00			
A-B	3.00			3.00			
A-C	302.00			302.00			

17:15 - 17:30

Stream	Total Demand (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
B-AC	8.00	128.22	0.062	7.99	0.1	7.485	A
C-AB	12.00	140.91	0.085	11.95	0.1	6.978	A
C-A	246.00			246.00			
A-B	6.00			6.00			
A-C	278.00			278.00			

2019 'Without Development', AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Bedhampton Road / Brookside Road	T-Junction	Two-way	0.43	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	133	Stream B-AC

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D3	2019 'Without Development'	AM	DIRECT	07:30	08:30	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A - Bedhampton Road (E)		✓	100.000
B - Brookside Road		✓	100.000
C - Bedhampton Road (W)		✓	100.000

Origin-Destination Data

Demand (Veh/TS)

07:30 - 07:45

	To			
		A - Bedhampton Road (E)	B - Brookside Road	C - Bedhampton Road (W)
From	A - Bedhampton Road (E)	0.00	2.00	220.00
	B - Brookside Road	0.00	0.00	20.00
	C - Bedhampton Road (W)	209.00	3.00	0.00

Demand (Veh/TS)

07:45 - 08:00

	To			
		A - Bedhampton Road (E)	B - Brookside Road	C - Bedhampton Road (W)
From	A - Bedhampton Road (E)	0.00	2.00	237.00
	B - Brookside Road	0.00	0.00	11.00
	C - Bedhampton Road (W)	203.00	3.00	0.00

Demand (Veh/TS)

08:00 - 08:15

	To			
		A - Bedhampton Road (E)	B - Brookside Road	C - Bedhampton Road (W)
From	A - Bedhampton Road (E)	0.00	2.00	215.00
	B - Brookside Road	0.00	0.00	19.00
	C - Bedhampton Road (W)	201.00	12.00	0.00

Demand (Veh/TS)

08:15 - 08:30

	To			
		A - Bedhampton Road (E)	B - Brookside Road	C - Bedhampton Road (W)
From	A - Bedhampton Road (E)	0.00	3.00	243.00
	B - Brookside Road	0.00	0.00	19.00
	C - Bedhampton Road (W)	231.00	4.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - Bedhampton Road (E)	B - Brookside Road	C - Bedhampton Road (W)
From	A - Bedhampton Road (E)	0	11	4
	B - Brookside Road	0	0	6
	C - Bedhampton Road (W)	3	23	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
B-AC	0.15	8.32	0.2	A
C-AB	0.10	7.90	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:30 - 07:45

Stream	Total Demand (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
B-AC	20.00	131.46	0.152	19.82	0.2	8.037	A
C-AB	3.00	124.93	0.024	2.98	0.0	7.377	A
C-A	209.00			209.00			
A-B	2.00			2.00			
A-C	220.00			220.00			

07:45 - 08:00

Stream	Total Demand (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
B-AC	11.00	128.38	0.086	11.08	0.1	7.680	A
C-AB	3.00	122.00	0.025	3.00	0.0	7.562	A
C-A	203.00			203.00			
A-B	2.00			2.00			
A-C	237.00			237.00			

08:00 - 08:15

Stream	Total Demand (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
B-AC	19.00	132.37	0.144	18.93	0.2	7.929	A
C-AB	12.00	125.80	0.095	11.92	0.1	7.897	A
C-A	201.00			201.00			
A-B	2.00			2.00			
A-C	215.00			215.00			

08:15 - 08:30

Stream	Total Demand (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
B-AC	19.00	127.22	0.149	18.99	0.2	8.316	A
C-AB	4.00	120.78	0.033	4.07	0.0	7.717	A
C-A	231.00			231.00			
A-B	3.00			3.00			
A-C	243.00			243.00			

2019 'Without Development', PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Bedhampton Road / Brookside Road	T-Junction	Two-way	0.19	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	136	Stream B-AC

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D4	2019 'Without Development'	PM	DIRECT	16:30	17:30	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A - Bedhampton Road (E)		✓	100.000
B - Brookside Road		✓	100.000
C - Bedhampton Road (W)		✓	100.000

Origin-Destination Data

Demand (Veh/TS)

16:30 - 16:45

	To			
		A - Bedhampton Road (E)	B - Brookside Road	C - Bedhampton Road (W)
From	A - Bedhampton Road (E)	0.00	2.00	282.00
	B - Brookside Road	0.00	0.00	5.00
	C - Bedhampton Road (W)	250.00	6.00	0.00

Demand (Veh/TS)

16:45 - 17:00

	To			
		A - Bedhampton Road (E)	B - Brookside Road	C - Bedhampton Road (W)
From	A - Bedhampton Road (E)	0.00	9.00	251.00
	B - Brookside Road	0.00	0.00	8.00
	C - Bedhampton Road (W)	247.00	7.00	0.00

Demand (Veh/TS)

17:00 - 17:15

	To			
		A - Bedhampton Road (E)	B - Brookside Road	C - Bedhampton Road (W)
From	A - Bedhampton Road (E)	0.00	3.00	310.00
	B - Brookside Road	0.00	0.00	7.00
	C - Bedhampton Road (W)	229.00	6.00	0.00

Demand (Veh/TS)

17:15 - 17:30

	To			
		A - Bedhampton Road (E)	B - Brookside Road	C - Bedhampton Road (W)
From	A - Bedhampton Road (E)	0.00	6.00	285.00
	B - Brookside Road	0.00	0.00	8.00
	C - Bedhampton Road (W)	252.00	12.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - Bedhampton Road (E)	B - Brookside Road	C - Bedhampton Road (W)
From	A - Bedhampton Road (E)	0	0	3
	B - Brookside Road	0	0	0
	C - Bedhampton Road (W)	3	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
B-AC	0.06	7.80	0.1	A
C-AB	0.09	7.06	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:30 - 16:45

Stream	Total Demand (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
B-AC	5.00	127.75	0.039	4.96	0.0	7.328	A
C-AB	6.00	140.88	0.043	5.96	0.0	6.669	A
C-A	250.00			250.00			
A-B	2.00			2.00			
A-C	282.00			282.00			

16:45 - 17:00

Stream	Total Demand (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
B-AC	8.00	133.17	0.060	7.98	0.1	7.189	A
C-AB	7.00	146.00	0.048	6.99	0.1	6.474	A
C-A	247.00			247.00			
A-B	9.00			9.00			
A-C	251.00			251.00			

17:00 - 17:15

Stream	Total Demand (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
B-AC	7.00	122.33	0.057	7.00	0.1	7.805	A
C-AB	6.00	134.77	0.045	6.00	0.0	6.991	A
C-A	229.00			229.00			
A-B	3.00			3.00			
A-C	310.00			310.00			

17:15 - 17:30

Stream	Total Demand (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
B-AC	8.00	126.89	0.063	7.99	0.1	7.569	A
C-AB	12.00	139.43	0.086	11.95	0.1	7.059	A
C-A	252.00			252.00			
A-B	6.00			6.00			
A-C	285.00			285.00			

2019 'With Development', AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Bedhampton Road / Brookside Road	T-Junction	Two-way	0.50	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	123	Stream B-AC

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D5	2019 'With Development'	AM	DIRECT	07:30	08:30	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A - Bedhampton Road (E)		✓	100.000
B - Brookside Road		✓	100.000
C - Bedhampton Road (W)		✓	100.000

Origin-Destination Data

Demand (Veh/TS)

07:30 - 07:45

	To			
		A - Bedhampton Road (E)	B - Brookside Road	C - Bedhampton Road (W)
From	A - Bedhampton Road (E)	0.00	2.00	220.00
	B - Brookside Road	0.00	0.00	23.00
	C - Bedhampton Road (W)	210.00	4.00	0.00

Demand (Veh/TS)

07:45 - 08:00

	To			
		A - Bedhampton Road (E)	B - Brookside Road	C - Bedhampton Road (W)
From	A - Bedhampton Road (E)	0.00	2.00	237.00
	B - Brookside Road	0.00	0.00	15.00
	C - Bedhampton Road (W)	204.00	4.00	0.00

Demand (Veh/TS)

08:00 - 08:15

	To			
		A - Bedhampton Road (E)	B - Brookside Road	C - Bedhampton Road (W)
From	A - Bedhampton Road (E)	0.00	2.00	215.00
	B - Brookside Road	0.00	0.00	22.00
	C - Bedhampton Road (W)	202.00	13.00	0.00

Demand (Veh/TS)

08:15 - 08:30

	To			
		A - Bedhampton Road (E)	B - Brookside Road	C - Bedhampton Road (W)
From	A - Bedhampton Road (E)	0.00	4.00	243.00
	B - Brookside Road	0.00	0.00	22.00
	C - Bedhampton Road (W)	232.00	5.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - Bedhampton Road (E)	B - Brookside Road	C - Bedhampton Road (W)
From	A - Bedhampton Road (E)	0	9	4
	B - Brookside Road	0	0	5
	C - Bedhampton Road (W)	3	20	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
B-AC	0.17	8.46	0.2	A
C-AB	0.10	7.75	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:30 - 07:45

Stream	Total Demand (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
B-AC	23.00	132.72	0.173	22.79	0.2	8.172	A
C-AB	4.00	128.06	0.031	3.97	0.0	7.250	A
C-A	210.00			210.00			
A-B	2.00			2.00			
A-C	220.00			220.00			

07:45 - 08:00

Stream	Total Demand (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
B-AC	15.00	129.61	0.116	15.08	0.1	7.863	A
C-AB	4.00	125.05	0.032	4.00	0.0	7.433	A
C-A	204.00			204.00			
A-B	2.00			2.00			
A-C	237.00			237.00			

08:00 - 08:15

Stream	Total Demand (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
B-AC	22.00	133.63	0.165	21.94	0.2	8.053	A
C-AB	13.00	128.95	0.101	12.92	0.1	7.752	A
C-A	202.00			202.00			
A-B	2.00			2.00			
A-C	215.00			215.00			

08:15 - 08:30

Stream	Total Demand (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
B-AC	22.00	128.36	0.171	21.99	0.2	8.460	A
C-AB	5.00	123.62	0.040	5.07	0.0	7.597	A
C-A	232.00			232.00			
A-B	4.00			4.00			
A-C	243.00			243.00			

2019 'With Development', PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Bedhampton Road / Brookside Road	T-Junction	Two-way	0.25	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	129	Stream B-AC

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D6	2019 'With Development'	PM	DIRECT	16:30	17:30	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A - Bedhampton Road (E)		✓	100.000
B - Brookside Road		✓	100.000
C - Bedhampton Road (W)		✓	100.000

Origin-Destination Data

Demand (Veh/TS)

16:30 - 16:45

	To			
From		A - Bedhampton Road (E)	B - Brookside Road	C - Bedhampton Road (W)
	A - Bedhampton Road (E)	0.00	3.00	282.00
	B - Brookside Road	0.00	0.00	7.00
	C - Bedhampton Road (W)	251.00	8.00	0.00

Demand (Veh/TS)

16:45 - 17:00

	To			
From		A - Bedhampton Road (E)	B - Brookside Road	C - Bedhampton Road (W)
	A - Bedhampton Road (E)	0.00	10.00	251.00
	B - Brookside Road	0.00	0.00	10.00
	C - Bedhampton Road (W)	248.00	9.00	0.00

Demand (Veh/TS)

17:00 - 17:15

	To			
From		A - Bedhampton Road (E)	B - Brookside Road	C - Bedhampton Road (W)
	A - Bedhampton Road (E)	0.00	4.00	310.00
	B - Brookside Road	0.00	0.00	9.00
	C - Bedhampton Road (W)	229.00	8.00	0.00

Demand (Veh/TS)

17:15 - 17:30

	To			
		A - Bedhampton Road (E)	B - Brookside Road	C - Bedhampton Road (W)
From	A - Bedhampton Road (E)	0.00	7.00	285.00
	B - Brookside Road	0.00	0.00	10.00
	C - Bedhampton Road (W)	253.00	14.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - Bedhampton Road (E)	B - Brookside Road	C - Bedhampton Road (W)
From	A - Bedhampton Road (E)	0	0	3
	B - Brookside Road	0	0	0
	C - Bedhampton Road (W)	3	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
B-AC	0.08	7.95	0.1	A
C-AB	0.10	7.18	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:30 - 16:45

Stream	Total Demand (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
B-AC	7.00	127.68	0.055	6.94	0.1	7.450	A
C-AB	8.00	140.68	0.057	7.94	0.1	6.777	A
C-A	251.00			251.00			
A-B	3.00			3.00			
A-C	282.00			282.00			

16:45 - 17:00

Stream	Total Demand (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
B-AC	10.00	133.09	0.075	9.98	0.1	7.310	A
C-AB	9.00	145.79	0.062	8.99	0.1	6.578	A
C-A	248.00			248.00			
A-B	10.00			10.00			
A-C	251.00			251.00			

17:00 - 17:15

Stream	Total Demand (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
B-AC	9.00	122.25	0.074	9.00	0.1	7.946	A
C-AB	8.00	134.56	0.059	8.00	0.1	7.113	A
C-A	229.00			229.00			
A-B	4.00			4.00			
A-C	310.00			310.00			

17:15 - 17:30

Stream	Total Demand (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
B-AC	10.00	126.81	0.079	10.00	0.1	7.704	A
C-AB	14.00	139.23	0.101	13.95	0.1	7.183	A
C-A	253.00			253.00			
A-B	7.00			7.00			
A-C	285.00			285.00			

Junctions 9											
PICADY 9 - Priority Intersection Module											
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Filename: Access-Lower Road, Bedhampton.j9
Path: L:\Library\Laura Training
Report generation date: 07/06/2017 10:46:55

»2019 'With Development', AM
 »2019 'With Development', PM

Summary of junction performance

	AM						PM					
	Q (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Res Cap	Q (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Res Cap
2019 'With Development'												
Stream B-AC	0.0	7.47	0.04	A	1.70	900 %	0.0	7.31	0.02	A	0.71	900 %
Stream C-AB	0.0	0.00	0.00	A		[]	0.0	0.00	0.00	A		[]

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of Av. delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted Av.s. Res Cap indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	Site Access- Lower Rd
Location	Bedhampton
Site number	
Date	07/06/2017
Version	
Status	(new file)
Identifier	LH
Client	Bargate Homes
Jobnumber	ITB12174
Enumerator	I-TRANSPORT\ManchesterHotdesk
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	2019 'With Development'	AM	DIRECT	07:30	08:30	60	15	✓
D2	2019 'With Development'	PM	DIRECT	16:30	17:30	60	15	✓

Analysis Set Details

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

2019 'With Development', AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	1.70	A

Junction Network Options

Driving side	Lighting	Res Cap (%)	First arm reaching threshold
Left	Normal/unknown	900	

Arms

Arms

Arm	Name	Description	Arm type
A	Lower Rd (E)		Major
B	Site Access		Minor
C	Lower Rd (W)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	6.00			63.8	✓	0.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	3.42	16	22

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (Veh/TS)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	128.588	0.094	0.237	0.149	0.338
1	B-C	166.200	0.102	0.258	-	-
1	C-B	152.728	0.237	0.237	-	-

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

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	2019 'With Development'	AM	DIRECT	07:30	08:30	60	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
A		DIRECT	✓	100.000
B		DIRECT	✓	100.000
C		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/TS)

07:30 - 07:45

	To			
From		A	B	C
	A	0.00	2.00	4.00
	B	5.00	0.00	0.00
	C	9.00	0.00	0.00

Demand (Veh/TS)

07:45 - 08:00

	To			
From		A	B	C
	A	0.00	2.00	4.00
	B	5.00	0.00	0.00
	C	10.00	0.00	0.00

Demand (Veh/TS)

08:00 - 08:15

	To			
From		A	B	C
	A	0.00	2.00	7.00
	B	5.00	0.00	0.00
	C	9.00	0.00	0.00

Demand (Veh/TS)

08:15 - 08:30

	To			
From		A	B	C
	A	0.00	2.00	3.00
	B	5.00	0.00	0.00
	C	14.00	0.00	0.00

Vehicle Mix

HV %s

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

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Q (Veh)	Max LOS	Av. Demand (Veh/TS)	Total Junction Arrivals (Veh)
B-AC	0.04	7.47	0.0	A	5.00	20.00
C-AB	0.00	0.00	0.0	A	0.00	0.00
C-A					10.50	42.00
A-B					2.00	8.00
A-C					4.50	18.00

Main Results for each time segment

07:30 - 07:45

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-AC	5.00	5.00	126.11	0.040	4.96	0.0	0.0	7.427	A
C-AB	0.00	0.00	151.31	0.000	0.00	0.0	0.0	0.000	A
C-A	9.00	9.00			9.00				
A-B	2.00	2.00			2.00				
A-C	4.00	4.00			4.00				

07:45 - 08:00

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-AC	5.00	5.00	125.96	0.040	5.00	0.0	0.0	7.439	A
C-AB	0.00	0.00	151.31	0.000	0.00	0.0	0.0	0.000	A
C-A	10.00	10.00			10.00				
A-B	2.00	2.00			2.00				
A-C	4.00	4.00			4.00				

08:00 - 08:15

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-AC	5.00	5.00	125.40	0.040	5.00	0.0	0.0	7.473	A
C-AB	0.00	0.00	150.60	0.000	0.00	0.0	0.0	0.000	A
C-A	9.00	9.00			9.00				
A-B	2.00	2.00			2.00				
A-C	7.00	7.00			7.00				

08:15 - 08:30

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-AC	5.00	5.00	125.60	0.040	5.00	0.0	0.0	7.461	A
C-AB	0.00	0.00	151.54	0.000	0.00	0.0	0.0	0.000	A
C-A	14.00	14.00			14.00				
A-B	2.00	2.00			2.00				
A-C	3.00	3.00			3.00				

2019 'With Development', PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	0.71	A

Junction Network Options

Driving side	Lighting	Res Cap (%)	First arm reaching threshold
Left	Normal/unknown	900	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D2	2019 'With Development'	PM	DIRECT	16:30	17:30	60	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
A		DIRECT	✓	100.000
B		DIRECT	✓	100.000
C		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/TS)

16:30 - 16:45

		To		
		A	B	C
From	A	0.00	4.00	8.00
	B	2.00	0.00	0.00
	C	8.00	0.00	0.00

Demand (Veh/TS)

16:45 - 17:00

		To		
		A	B	C
From	A	0.00	4.00	6.00
	B	2.00	0.00	0.00
	C	7.00	0.00	0.00

Demand (Veh/TS)

17:00 - 17:15

	To			
		A	B	C
	A	0.00	4.00	6.00
	B	2.00	0.00	0.00
From	C	8.00	0.00	0.00

Demand (Veh/TS)

17:15 - 17:30

	To			
		A	B	C
	A	0.00	4.00	9.00
	B	2.00	0.00	0.00
From	C	6.00	0.00	0.00

Vehicle Mix

HV %s

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

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Q (Veh)	Max LOS	Av. Demand (Veh/TS)	Total Junction Arrivals (Veh)
B-AC	0.02	7.31	0.0	A	2.00	8.00
C-AB	0.00	0.00	0.0	A	0.00	0.00
C-A					7.25	29.00
A-B					4.00	16.00
A-C					7.25	29.00

Main Results for each time segment

16:30 - 16:45

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-AC	2.00	2.00	125.13	0.016	1.98	0.0	0.0	7.308	A
C-AB	0.00	0.00	149.89	0.000	0.00	0.0	0.0	0.000	A
C-A	8.00	8.00			8.00				
A-B	4.00	4.00			4.00				
A-C	8.00	8.00			8.00				

16:45 - 17:00

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-AC	2.00	2.00	125.75	0.016	2.00	0.0	0.0	7.271	A
C-AB	0.00	0.00	150.36	0.000	0.00	0.0	0.0	0.000	A
C-A	7.00	7.00			7.00				
A-B	4.00	4.00			4.00				
A-C	6.00	6.00			6.00				

17:00 - 17:15

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-AC	2.00	2.00	125.60	0.016	2.00	0.0	0.0	7.280	A
C-AB	0.00	0.00	150.36	0.000	0.00	0.0	0.0	0.000	A
C-A	8.00	8.00			8.00				
A-B	4.00	4.00			4.00				
A-C	6.00	6.00			6.00				

17:15 - 17:30

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-AC	2.00	2.00	125.19	0.016	2.00	0.0	0.0	7.304	A
C-AB	0.00	0.00	149.65	0.000	0.00	0.0	0.0	0.000	A
C-A	6.00	6.00			6.00				
A-B	4.00	4.00			4.00				
A-C	9.00	9.00			9.00				

Junctions 9										
ARCADY 9 - Roundabout Module										
Version: 9.0.1.4646 [] © Copyright TRL Limited, 2017										
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Filename: Bedhampton Roundabout.j9

Path: T:\Projects\12000 Series Project Numbers\12174\ITB Land at Lower Road, Bedhampton\Tech\Junction

Assessments\Arcady

Report generation date: 08/06/2017 14:24:28

- »2017 Observed Flows, AM
- »2017 Observed Flows , PM
- »2019 'Without Development', AM
- »2019 'Without Development', PM
- »2019 'With Development', AM
- »2019 'With Development', PM

Summary of junction performance

	AM					PM				
	Queue (Veh)	Delay (s)	RFC	LOS	Network Residual Capacity	Queue (Veh)	Delay (s)	RFC	LOS	Network Residual Capacity
	2017 Observed Flows									
1 - Bedhampton Road	1.1	3.86	0.52	A	7 % [3 - Portsdown Hill Road]	1.6	4.61	0.61	A	-6 % [3 - Portsdown Hill Road]
2 - Bedhampton Hill	0.8	4.89	0.44	A		1.1	5.67	0.53	A	
3 - Portsdown Hill Road	3.2	24.61	0.78	C		7.8	56.48	0.92	F	
4 - Maylands Road	0.5	10.17	0.31	B		0.2	9.84	0.16	A	
	2019 'Without Development'									
1 - Bedhampton Road	1.2	4.01	0.54	A	5 % [3 - Portsdown Hill Road]	1.7	4.80	0.63	A	-8 % [3 - Portsdown Hill Road]
2 - Bedhampton Hill	0.8	5.07	0.46	A		1.2	5.89	0.55	A	
3 - Portsdown Hill Road	3.7	27.49	0.81	D		10.2	71.02	0.95	F	
4 - Maylands Road	0.5	10.64	0.33	B		0.2	10.18	0.17	B	
	2019 'With Development'									
1 - Bedhampton Road	1.2	4.06	0.55	A	4 % [3 - Portsdown Hill Road]	1.7	4.85	0.63	A	-9 % [3 - Portsdown Hill Road]
2 - Bedhampton Hill	0.9	5.13	0.46	A		1.2	6.02	0.55	A	
3 - Portsdown Hill Road	3.8	28.13	0.81	D		11.3	77.84	0.97	F	
4 - Maylands Road	0.5	10.76	0.33	B		0.2	10.32	0.17	B	

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

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

File summary

File Description

Title	Bedhampton Roundabout
Location	Lower Road, Bedhampton
Site number	
Date	08/06/2017
Version	
Status	
Identifier	
Client	
Jobnumber	ITB12174
Enumerator	RS
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2017 Observed Flows	AM	DIRECT	07:30	08:30	60	15
D2	2017 Observed Flows	PM	DIRECT	16:30	17:30	60	15
D3	2019 'Without Development'	AM	DIRECT	07:30	08:30	60	15
D4	2019 'Without Development'	PM	DIRECT	16:30	17:30	60	15
D5	2019 'With Development'	AM	DIRECT	07:30	08:30	60	15
D6	2019 'With Development'	PM	DIRECT	16:30	17:30	60	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2017 Observed Flows, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Bedhampton Road - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	Bedhampton Road	Standard Roundabout	8.67	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	7	3 - Portsdown Hill Road

Arms

Arms

Arm	Name	Description
1	Bedhampton Road	
2	Bedhampton Hill	
3	Portsdown Hill Road	
4	Maylands Road	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - Bedhampton Road	4.30	7.30	45.0	15.0	30.0	8.5	
2 - Bedhampton Hill	4.50	7.70	10.0	20.0	30.0	37.5	
3 - Portsdown Hill Road	2.80	4.80	3.0	7.5	30.0	50.0	
4 - Maylands Road	2.80	4.30	3.0	10.0	30.0	30.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/TS)
1 - Bedhampton Road	0.773	542.931
2 - Bedhampton Hill	0.669	448.650
3 - Portsdown Hill Road	0.444	221.149
4 - Maylands Road	0.494	243.293

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2017 Observed Flows	AM	DIRECT	07:30	08:30	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
1 - Bedhampton Road		✓	100.000
2 - Bedhampton Hill		✓	100.000
3 - Portsdown Hill Road		✓	100.000
4 - Maylands Road		✓	100.000

Origin-Destination Data

Demand (Veh/TS)

07:30 -
07:45

		To			
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	4.00	100.00	128.00	2.00
	2 - Bedhampton Hill	112.00	1.00	28.00	3.00
	3 - Portsdown Hill Road	82.00	9.00	0.00	1.00
	4 - Maylands Road	8.00	23.00	12.00	0.00

Demand (Veh/TS)

07:45 -
08:00

		To			
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	4.00	99.00	136.00	2.00
	2 - Bedhampton Hill	111.00	0.00	32.00	4.00
	3 - Portsdown Hill Road	78.00	11.00	0.00	1.00
	4 - Maylands Road	7.00	15.00	7.00	0.00

Demand (Veh/TS)

08:00 -
08:15

		To			
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	5.00	103.00	119.00	2.00
	2 - Bedhampton Hill	102.00	1.00	10.00	3.00
	3 - Portsdown Hill Road	91.00	14.00	0.00	2.00
	4 - Maylands Road	9.00	19.00	4.00	0.00

Demand (Veh/TS)

08:15 -
08:30

		To			
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	4.00	127.00	120.00	3.00
	2 - Bedhampton Hill	116.00	1.00	10.00	7.00
	3 - Portsdown Hill Road	105.00	15.00	0.00	2.00
	4 - Maylands Road	3.00	23.00	5.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	0	7	2	11
	2 - Bedhampton Hill	5	0	5	6
	3 - Portsdown Hill Road	2	10	0	0
	4 - Maylands Road	0	1	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1 - Bedhampton Road	0.52	3.86	1.1	A
2 - Bedhampton Hill	0.44	4.89	0.8	A
3 - Portsdown Hill Road	0.78	24.61	3.2	C
4 - Maylands Road	0.31	10.17	0.5	B

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
1 - Bedhampton Road	234.00	44.50	488.30	0.479	233.09	0.9	3.513	A
2 - Bedhampton Hill	144.00	145.35	333.70	0.432	143.25	0.8	4.708	A
3 - Portsdown Hill Road	92.00	121.37	160.31	0.574	90.70	1.3	12.705	B
4 - Maylands Road	43.00	206.11	136.72	0.315	42.55	0.5	9.512	A

07:45 - 08:00

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
1 - Bedhampton Road	241.00	33.14	497.05	0.485	240.98	0.9	3.513	A
2 - Bedhampton Hill	147.00	149.03	331.11	0.444	146.96	0.8	4.886	A
3 - Portsdown Hill Road	90.00	120.99	160.16	0.562	90.01	1.3	12.836	B
4 - Maylands Road	29.00	204.00	137.72	0.211	29.18	0.3	8.305	A

08:00 - 08:15

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
1 - Bedhampton Road	229.00	37.90	492.37	0.465	229.06	0.9	3.418	A
2 - Bedhampton Hill	116.00	130.10	343.63	0.338	116.28	0.5	3.963	A
3 - Portsdown Hill Road	107.00	113.15	163.66	0.654	106.49	1.8	15.588	C
4 - Maylands Road	32.00	212.65	133.29	0.240	31.96	0.3	8.878	A

08:15 - 08:30

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
1 - Bedhampton Road	254.00	43.75	486.57	0.522	253.79	1.1	3.863	A
2 - Bedhampton Hill	134.00	131.92	342.28	0.392	133.87	0.6	4.315	A
3 - Portsdown Hill Road	122.00	130.87	155.67	0.784	120.56	3.2	24.609	C
4 - Maylands Road	31.00	239.48	119.42	0.260	30.97	0.3	10.170	B

2017 Observed Flows , PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Bedhampton Road - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	Bedhampton Road	Standard Roundabout	15.84	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-6	3 - Portsdown Hill Road

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D2	2017 Observed Flows	PM	DIRECT	16:30	17:30	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
1 - Bedhampton Road		✓	100.000
2 - Bedhampton Hill		✓	100.000
3 - Portsdown Hill Road		✓	100.000
4 - Maylands Road		✓	100.000

Origin-Destination Data

Demand (Veh/TS)

16:30 -
16:45

		To			
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	3.00	140.00	129.00	9.00
	2 - Bedhampton Hill	146.00	2.00	15.00	17.00
	3 - Portsdown Hill Road	97.00	18.00	0.00	9.00
	4 - Maylands Road	4.00	9.00	1.00	0.00

Demand (Veh/TS)

16:45 -
17:00

		To			
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	4.00	111.00	126.00	13.00
	2 - Bedhampton Hill	146.00	1.00	11.00	18.00
	3 - Portsdown Hill Road	91.00	16.00	0.00	6.00
	4 - Maylands Road	7.00	7.00	4.00	0.00

Demand (Veh/TS)

17:00 -
17:15

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	2.00	142.00	158.00	7.00
	2 - Bedhampton Hill	117.00	1.00	12.00	18.00
	3 - Portsdown Hill Road	109.00	15.00	0.00	6.00
	4 - Maylands Road	1.00	8.00	1.00	0.00

Demand (Veh/TS)

17:15 -
17:30

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	6.00	148.00	124.00	10.00
	2 - Bedhampton Hill	136.00	1.00	21.00	11.00
	3 - Portsdown Hill Road	111.00	18.00	0.00	3.00
	4 - Maylands Road	5.00	8.00	2.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	0	4	4	0
	2 - Bedhampton Hill	4	0	3	2
	3 - Portsdown Hill Road	2	3	0	0
	4 - Maylands Road	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1 - Bedhampton Road	0.61	4.61	1.6	A
2 - Bedhampton Hill	0.53	5.67	1.1	A
3 - Portsdown Hill Road	0.92	56.48	7.8	F
4 - Maylands Road	0.16	9.84	0.2	A

Main Results for each time segment

16:30 - 16:45

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
1 - Bedhampton Road	281.00	29.02	500.54	0.561	279.73	1.3	4.054	A
2 - Bedhampton Hill	180.00	141.35	338.51	0.532	178.88	1.1	5.599	A
3 - Portsdown Hill Road	124.00	175.92	137.94	0.899	118.06	5.9	38.101	E
4 - Maylands Road	14.00	259.56	111.27	0.126	13.86	0.1	9.226	A

16:45 - 17:00

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
1 - Bedhampton Road	254.00	28.06	501.75	0.506	254.23	1.0	3.638	A
2 - Bedhampton Hill	176.00	147.02	334.87	0.526	176.01	1.1	5.667	A
3 - Portsdown Hill Road	113.00	181.97	135.24	0.836	113.33	5.6	42.548	E
4 - Maylands Road	18.00	258.19	111.96	0.161	17.95	0.2	9.568	A

17:00 - 17:15

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
1 - Bedhampton Road	309.00	25.17	503.18	0.614	308.46	1.6	4.609	A
2 - Bedhampton Hill	148.00	167.77	320.80	0.461	148.25	0.9	5.225	A
3 - Portsdown Hill Road	130.00	145.27	151.77	0.857	129.94	5.7	40.514	E
4 - Maylands Road	10.00	244.15	119.30	0.084	10.10	0.1	8.249	A

17:15 - 17:30

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
1 - Bedhampton Road	288.00	28.57	501.13	0.575	288.21	1.4	4.232	A
2 - Bedhampton Hill	169.00	142.17	337.87	0.500	168.88	1.0	5.317	A
3 - Portsdown Hill Road	132.00	163.90	143.28	0.921	129.87	7.8	56.482	F
4 - Maylands Road	15.00	269.66	106.31	0.141	14.93	0.2	9.842	A

2019 'Without Development', AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Bedhampton Road - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	Bedhampton Road	Standard Roundabout	9.38	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	5	3 - Portsdown Hill Road

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D3	2019 'Without Development'	AM	DIRECT	07:30	08:30	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
1 - Bedhampton Road		✓	100.000
2 - Bedhampton Hill		✓	100.000
3 - Portsdown Hill Road		✓	100.000
4 - Maylands Road		✓	100.000

Origin-Destination Data

Demand (Veh/TS)

07:30 -
07:45

From	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
	1 - Bedhampton Road	4.00	103.00	132.00	2.00
	2 - Bedhampton Hill	115.00	1.00	29.00	3.00
	3 - Portsdown Hill Road	84.00	9.00	0.00	1.00
	4 - Maylands Road	8.00	24.00	12.00	0.00

Demand (Veh/TS)

07:45 -
08:00

From	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
	1 - Bedhampton Road	4.00	102.00	140.00	2.00
	2 - Bedhampton Hill	114.00	0.00	33.00	4.00
	3 - Portsdown Hill Road	80.00	11.00	0.00	1.00
	4 - Maylands Road	7.00	15.00	7.00	0.00

Demand (Veh/TS)

08:00 -
08:15

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	5.00	106.00	123.00	2.00
	2 - Bedhampton Hill	105.00	1.00	10.00	3.00
	3 - Portsdown Hill Road	94.00	14.00	0.00	2.00
	4 - Maylands Road	9.00	20.00	4.00	0.00

Demand (Veh/TS)

08:15 -
08:30

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	4.00	131.00	124.00	3.00
	2 - Bedhampton Hill	119.00	1.00	10.00	7.00
	3 - Portsdown Hill Road	108.00	15.00	0.00	2.00
	4 - Maylands Road	3.00	24.00	5.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	0	7	2	11
	2 - Bedhampton Hill	5	0	5	6
	3 - Portsdown Hill Road	2	10	0	0
	4 - Maylands Road	0	1	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1 - Bedhampton Road	0.54	4.01	1.2	A
2 - Bedhampton Hill	0.46	5.07	0.8	A
3 - Portsdown Hill Road	0.81	27.49	3.7	D
4 - Maylands Road	0.33	10.64	0.5	B

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
1 - Bedhampton Road	241.00	45.47	487.56	0.494	240.03	1.0	3.623	A
2 - Bedhampton Hill	148.00	149.31	331.12	0.447	147.20	0.8	4.874	A
3 - Portsdown Hill Road	94.00	124.33	158.97	0.591	92.60	1.4	13.300	B
4 - Maylands Road	44.00	210.98	134.21	0.328	43.52	0.5	9.872	A

07:45 - 08:00

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
1 - Bedhampton Road	248.00	33.16	497.02	0.499	247.98	1.0	3.613	A
2 - Bedhampton Hill	151.00	153.04	328.51	0.460	150.96	0.8	5.067	A
3 - Portsdown Hill Road	92.00	123.98	158.80	0.579	92.00	1.4	13.481	B
4 - Maylands Road	29.00	209.00	135.16	0.215	29.20	0.3	8.511	A

08:00 - 08:15

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
1 - Bedhampton Road	236.00	38.87	491.64	0.480	236.06	0.9	3.524	A
2 - Bedhampton Hill	119.00	134.10	341.03	0.349	119.30	0.5	4.065	A
3 - Portsdown Hill Road	110.00	116.16	162.30	0.678	109.39	2.0	16.796	C
4 - Maylands Road	33.00	218.57	130.25	0.253	32.94	0.3	9.243	A

08:15 - 08:30

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
1 - Bedhampton Road	262.00	44.71	485.84	0.539	261.77	1.2	4.012	A
2 - Bedhampton Hill	137.00	135.91	339.69	0.403	136.87	0.7	4.434	A
3 - Portsdown Hill Road	125.00	133.87	154.32	0.810	123.28	3.7	27.485	D
4 - Maylands Road	32.00	245.20	116.50	0.275	31.96	0.4	10.640	B

2019 'Without Development', PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Bedhampton Road - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	Bedhampton Road	Standard Roundabout	19.02	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-8	3 - Portsdown Hill Road

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D4	2019 'Without Development'	PM	DIRECT	16:30	17:30	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
1 - Bedhampton Road		✓	100.000
2 - Bedhampton Hill		✓	100.000
3 - Portsdown Hill Road		✓	100.000
4 - Maylands Road		✓	100.000

Origin-Destination Data

Demand (Veh/TS)

16:30 -
16:45

		To			
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	3.00	144.00	132.00	9.00
	2 - Bedhampton Hill	150.00	2.00	15.00	17.00
	3 - Portsdown Hill Road	100.00	18.00	0.00	9.00
	4 - Maylands Road	4.00	9.00	1.00	0.00

Demand (Veh/TS)

16:45 -
17:00

		To			
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	4.00	114.00	129.00	13.00
	2 - Bedhampton Hill	150.00	1.00	11.00	18.00
	3 - Portsdown Hill Road	93.00	16.00	0.00	6.00
	4 - Maylands Road	7.00	7.00	4.00	0.00

Demand (Veh/TS)

17:00 -
17:15

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	2.00	146.00	162.00	7.00
	2 - Bedhampton Hill	120.00	1.00	12.00	18.00
	3 - Portsdown Hill Road	112.00	15.00	0.00	6.00
	4 - Maylands Road	1.00	8.00	1.00	0.00

Demand (Veh/TS)

17:15 -
17:30

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	6.00	152.00	127.00	10.00
	2 - Bedhampton Hill	140.00	1.00	22.00	11.00
	3 - Portsdown Hill Road	114.00	18.00	0.00	3.00
	4 - Maylands Road	5.00	8.00	2.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	0	4	4	0
	2 - Bedhampton Hill	4	0	3	2
	3 - Portsdown Hill Road	2	3	0	0
	4 - Maylands Road	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1 - Bedhampton Road	0.63	4.80	1.7	A
2 - Bedhampton Hill	0.55	5.89	1.2	A
3 - Portsdown Hill Road	0.95	71.02	10.2	F
4 - Maylands Road	0.17	10.18	0.2	B

Main Results for each time segment

16:30 - 16:45

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
1 - Bedhampton Road	288.00	28.85	500.66	0.575	286.66	1.3	4.180	A
2 - Bedhampton Hill	184.00	144.32	336.49	0.547	182.81	1.2	5.813	A
3 - Portsdown Hill Road	127.00	179.85	136.16	0.933	119.72	7.3	43.973	E
4 - Maylands Road	14.00	265.24	108.38	0.129	13.85	0.1	9.507	A

16:45 - 17:00

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
1 - Bedhampton Road	260.00	28.05	501.73	0.518	260.26	1.1	3.733	A
2 - Bedhampton Hill	180.00	150.03	332.83	0.541	180.01	1.2	5.891	A
3 - Portsdown Hill Road	115.00	185.97	133.43	0.862	115.32	7.0	52.029	F
4 - Maylands Road	18.00	264.15	108.92	0.165	17.95	0.2	9.888	A

17:00 - 17:15

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
1 - Bedhampton Road	317.00	25.21	503.14	0.630	316.41	1.7	4.804	A
2 - Bedhampton Hill	151.00	171.74	318.11	0.475	151.27	0.9	5.403	A
3 - Portsdown Hill Road	133.00	148.29	150.40	0.884	132.90	7.1	49.747	E
4 - Maylands Road	10.00	250.12	116.27	0.086	10.10	0.1	8.484	A

17:15 - 17:30

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
1 - Bedhampton Road	295.00	28.42	501.21	0.589	295.23	1.4	4.376	A
2 - Bedhampton Hill	174.00	145.19	335.83	0.518	173.85	1.1	5.552	A
3 - Portsdown Hill Road	135.00	167.88	141.48	0.954	131.91	10.2	71.019	F
4 - Maylands Road	15.00	275.67	103.25	0.145	14.93	0.2	10.182	B

2019 'With Development', AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Bedhampton Road - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	Bedhampton Road	Standard Roundabout	9.53	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	4	3 - Portsdown Hill Road

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D5	2019 'With Development'	AM	DIRECT	07:30	08:30	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
1 - Bedhampton Road		✓	100.000
2 - Bedhampton Hill		✓	100.000
3 - Portsdown Hill Road		✓	100.000
4 - Maylands Road		✓	100.000

Origin-Destination Data

Demand (Veh/TS)

07:30 -
07:45

		To			
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	5.00	105.00	132.00	2.00
	2 - Bedhampton Hill	116.00	1.00	29.00	3.00
	3 - Portsdown Hill Road	85.00	9.00	0.00	1.00
	4 - Maylands Road	8.00	24.00	12.00	0.00

Demand (Veh/TS)

07:45 -
08:00

		To			
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	5.00	104.00	141.00	2.00
	2 - Bedhampton Hill	115.00	0.00	33.00	4.00
	3 - Portsdown Hill Road	81.00	11.00	0.00	1.00
	4 - Maylands Road	7.00	15.00	7.00	0.00

Demand (Veh/TS)

08:00 -
08:15

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	6.00	108.00	123.00	2.00
	2 - Bedhampton Hill	106.00	1.00	10.00	3.00
	3 - Portsdown Hill Road	94.00	14.00	0.00	2.00
	4 - Maylands Road	9.00	20.00	4.00	0.00

Demand (Veh/TS)

08:15 -
08:30

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	5.00	133.00	124.00	3.00
	2 - Bedhampton Hill	120.00	1.00	10.00	7.00
	3 - Portsdown Hill Road	108.00	15.00	0.00	2.00
	4 - Maylands Road	3.00	24.00	5.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	0	7	2	11
	2 - Bedhampton Hill	5	0	5	6
	3 - Portsdown Hill Road	2	10	0	0
	4 - Maylands Road	0	1	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1 - Bedhampton Road	0.55	4.06	1.2	A
2 - Bedhampton Hill	0.46	5.13	0.9	A
3 - Portsdown Hill Road	0.81	28.13	3.8	D
4 - Maylands Road	0.33	10.76	0.5	B

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
1 - Bedhampton Road	244.00	45.46	487.79	0.500	243.01	1.0	3.661	A
2 - Bedhampton Hill	149.00	150.30	330.58	0.451	148.19	0.8	4.913	A
3 - Portsdown Hill Road	95.00	126.32	158.13	0.601	93.55	1.4	13.651	B
4 - Maylands Road	44.00	213.91	132.76	0.331	43.51	0.5	10.031	B

07:45 - 08:00

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
1 - Bedhampton Road	252.00	33.16	497.27	0.507	251.97	1.0	3.668	A
2 - Bedhampton Hill	152.00	155.03	327.31	0.464	151.95	0.9	5.131	A
3 - Portsdown Hill Road	93.00	125.98	157.96	0.589	93.00	1.4	13.859	B
4 - Maylands Road	29.00	211.99	133.68	0.217	29.21	0.3	8.631	A

08:00 - 08:15

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
1 - Bedhampton Road	239.00	38.87	491.88	0.486	239.07	1.0	3.563	A
2 - Bedhampton Hill	120.00	135.10	340.48	0.352	120.31	0.5	4.093	A
3 - Portsdown Hill Road	110.00	118.17	161.45	0.681	109.42	2.0	17.083	C
4 - Maylands Road	33.00	220.59	129.25	0.255	32.94	0.3	9.338	A

08:15 - 08:30

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
1 - Bedhampton Road	265.00	44.71	486.12	0.545	264.76	1.2	4.061	A
2 - Bedhampton Hill	138.00	136.91	339.15	0.407	137.87	0.7	4.468	A
3 - Portsdown Hill Road	125.00	135.87	153.46	0.815	123.23	3.8	28.129	D
4 - Maylands Road	32.00	247.14	115.55	0.277	31.96	0.4	10.761	B

2019 'With Development', PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Bedhampton Road - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	Bedhampton Road	Standard Roundabout	20.44	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-9	3 - Portsdown Hill Road

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D6	2019 'With Development'	PM	DIRECT	16:30	17:30	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
1 - Bedhampton Road		✓	100.000
2 - Bedhampton Hill		✓	100.000
3 - Portsdown Hill Road		✓	100.000
4 - Maylands Road		✓	100.000

Origin-Destination Data

Demand (Veh/TS)

16:30 -
16:45

		To			
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	4.00	144.00	133.00	9.00
	2 - Bedhampton Hill	152.00	2.00	15.00	17.00
	3 - Portsdown Hill Road	100.00	18.00	0.00	9.00
	4 - Maylands Road	4.00	9.00	1.00	0.00

Demand (Veh/TS)

16:45 -
17:00

		To			
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	5.00	115.00	130.00	13.00
	2 - Bedhampton Hill	152.00	1.00	11.00	18.00
	3 - Portsdown Hill Road	94.00	16.00	0.00	6.00
	4 - Maylands Road	7.00	7.00	4.00	0.00

Demand (Veh/TS)

17:00 -
17:15

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	3.00	147.00	162.00	7.00
	2 - Bedhampton Hill	122.00	1.00	12.00	18.00
	3 - Portsdown Hill Road	112.00	15.00	0.00	6.00
	4 - Maylands Road	1.00	8.00	1.00	0.00

Demand (Veh/TS)

17:15 -
17:30

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	7.00	153.00	128.00	10.00
	2 - Bedhampton Hill	141.00	1.00	22.00	11.00
	3 - Portsdown Hill Road	115.00	18.00	0.00	3.00
	4 - Maylands Road	5.00	8.00	2.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	0	4	4	0
	2 - Bedhampton Hill	4	0	3	2
	3 - Portsdown Hill Road	2	3	0	0
	4 - Maylands Road	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1 - Bedhampton Road	0.63	4.85	1.7	A
2 - Bedhampton Hill	0.55	6.02	1.2	A
3 - Portsdown Hill Road	0.97	77.84	11.3	F
4 - Maylands Road	0.17	10.32	0.2	B

Main Results for each time segment

16:30 - 16:45

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
1 - Bedhampton Road	290.00	28.79	500.85	0.579	288.64	1.4	4.214	A
2 - Bedhampton Hill	186.00	146.30	335.29	0.555	184.77	1.2	5.933	A
3 - Portsdown Hill Road	127.00	182.81	134.87	0.942	119.33	7.7	45.868	E
4 - Maylands Road	14.00	267.83	107.10	0.131	13.85	0.1	9.622	A

16:45 - 17:00

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
1 - Bedhampton Road	263.00	28.03	501.89	0.524	263.25	1.1	3.774	A
2 - Bedhampton Hill	182.00	152.03	331.61	0.549	182.00	1.2	6.018	A
3 - Portsdown Hill Road	116.00	188.96	132.13	0.878	116.06	7.6	57.482	F
4 - Maylands Road	18.00	267.89	107.06	0.168	17.95	0.2	10.095	B

17:00 - 17:15

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
1 - Bedhampton Road	319.00	25.22	503.28	0.634	318.40	1.7	4.852	A
2 - Bedhampton Hill	153.00	172.74	317.55	0.482	153.28	0.9	5.487	A
3 - Portsdown Hill Road	133.00	151.30	149.08	0.892	132.92	7.7	53.890	F
4 - Maylands Road	10.00	253.15	114.77	0.087	10.10	0.1	8.608	A

17:15 - 17:30

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	LOS
1 - Bedhampton Road	298.00	28.34	501.42	0.594	298.22	1.5	4.435	A
2 - Bedhampton Hill	175.00	147.19	334.62	0.523	174.86	1.1	5.628	A
3 - Portsdown Hill Road	136.00	169.89	140.63	0.967	132.38	11.3	77.843	F
4 - Maylands Road	15.00	278.14	102.04	0.147	14.93	0.2	10.323	B

APPENDIX I. Pedestrian and Cycle Assessment

TECHNICAL NOTE

Project No: ITB12174
Project Title: Land at Lower Road, Bedhampton
Title: Pedestrian Surveys Analysis
Ref: SJ/RS/ITB12174-006 TN
Date: 20 July 2018

SECTION 1 INTRODUCTION

- 1.1 The Technical Note (TN) provides further highways advice for the development of 50 homes on land south of Lower Road, Bedhampton. The site location is shown in **Figure T1**. The TN focuses on the current and future non-car use of Lower Road.
- 1.2 To the east of the proposed site there is approximately 50m of Lower Road where footways are not present on either side. In this section pedestrians and cyclists use the carriageway as a shared surface. It was agreed with Havant Borough Council (HBC) and Hampshire County Council (HCC) in an exchange of correspondence and at meetings (See **Appendix A**), that this shared surface environment is suitable to continue to serve the development. The reasons being that this section of Lower Road exhibits all of the three criteria identified in paragraph 7.2.14 of the Manual for Street where such shared surfaces work well, i.e.:
- “In short lengths, or where they form cul-de-sacs;
 - Where the volume of motor traffic is below 100 vehicles per hour (vph) (peak); and
 - Where parking is controlled or it takes place in designated areas.”
- 1.3 In addition, Lower Road (including the shared surface section) has an impeccable safety record (ref: crashmap.co.uk – no recorded injury accidents between 1999 and 2017). The road is straight, street lit and has forward visibility to pedestrians of around 30m, this is in excess of that required for the recorded 85th percentile speeds of 21mph - which require just 24m of forward visibility.

- 1.4 Notwithstanding the above, comments from a public consultation on 8 March 2018 raised concern with the current safety and usage of Lower Road by pedestrians and cyclists. To further assess this, pedestrian and cycle surveys have been undertaken to understand the current usage and movements along Lower Road.

SECTION 2 PEDESTRIAN AND CYCLE SURVEY

2.1 Pedestrian and Cycle Surveys

- 2.1.1 To understand the current pedestrian and cycle demand, two four-day surveys were undertaken and provided data for each day (0700 – 1900). The initial survey was undertaken from Thursday 19 April to Sunday 22 April 2018, however road works were in place at the time and therefore the results were not considered to be representative of normal pedestrian and cycle movements and therefore have not been presented within this TN. The site was re-surveyed from Thursday 10 May to Sunday 13 May 2018 to gather information on both weekday and weekend usage. Video footage has also been obtained to understand the routes taken by pedestrian and cyclists. Surveys were located to obtain information about the current movements on the section of Lower Road which has no footway provision.

2.2 Pedestrian Movements

- 2.2.1 Across the four-day survey period, a total of 403 two-way daily pedestrian movements were recorded. **Table 2.1** provides a summary of survey results for each day. The morning peak and evening peak hours have been established separately for each day to demonstrate the different profiles of pedestrian movements across the four days. The survey data is in **Appendix B**.

Table 2.1: Pedestrian Movements (Peak pedestrian hours)

Date of Survey	Location				Two - Way
	Movement 1		Movement 2		
	Lower Road (South) to Lower Road (North)		Lower Road (North) to Lower Road (South)		
Thursday 10 May	AM Peak Hour (08:30 - 09:30)	7	AM Peak Hour (08:45 - 09:45)	6	13
	PM Peak Hour (18:00 - 19:00)	6	PM Peak Hour (15:15 - 16:15)	9	15
	Daily (07:00 - 19:00)	37	Daily (07:00 - 19:00)	43	80
Friday 11 May	AM Peak Hour (08:15 - 09:15)	11	AM Peak Hour (08:15 - 09:15)	8	19
	PM Peak Hour (17:30 - 18:30)	6	PM Peak Hour (16:45 - 17:45)	6	12
	Daily (07:00 - 19:00)	47	Daily (07:00 - 19:00)	35	82
Saturday 12 May	AM Peak Hour (11:45 - 12:45)	8	AM Peak Hour (10:30 - 11:30)	4	12
	PM Peak Hour (14:15 - 15:15)	11	PM Peak Hour (13:30 - 14:30)	11	22
	Daily (07:00 - 19:00)	46	Daily (07:00 - 19:00)	46	92
Sunday 13 May	AM Peak Hour (10:30 - 11:30)	14	AM Peak Hour (10:45 - 11:45)	13	27
	PM Peak Hour (16:45 - 17:45)	10	PM Peak Hour (16:30 - 17:30)	11	21
	Daily (07:00 - 19:00)	76	Daily (07:00 - 19:00)	73	149
10/05/18 - 13/05/18	Total	206	Total	197	403

2.2.2 During the weekdays, there were on average 81 two-way daily pedestrian movements.

2.2.3 The morning peak hour for pedestrian movements varies with the highest number of pedestrians ranging between 7 and 11 per hour (one-way) across the two days. During the evening pedestrian activity was slightly lower with between 6 and 9 pedestrian movements (one-way) per hour.

2.2.4 During the weekend, the average number of two-way daily movements were recorded at 121 pedestrians. Morning peak hour movements were recorded between 4 and 14 per hour (one-way), with the evening peak hour ranging between 10 and 11 cyclists per hour (one-way). It should be noted that the pedestrian usage was significantly higher on the Sunday in comparison to the three other days.

2.3 Cyclist Movements

2.3.1 Across the four-day survey period there were a total of 384 two-way cycle movements. **Table 2.2** shows the number of cyclists observed during the survey period across two weekdays and a weekend. This route is attractive for cyclists due to Lower Road being part of a signposted cycle network which provides a connection to Portsmouth. The survey data can be found in **Appendix B**.

Table 2.2: Cyclist Movements (Peak cycle hours)

Date of Survey	Location				Two - Way
	Movement 1		Movement 2		
	Lower Road (South) to Lower Road (North)		Lower Road (North) to Lower Road (South)		
Thursday 10 May	AM Peak Hour (07:00 - 08:00)	6	AM Peak Hour (07:00 - 08:00)	14	20
	PM Peak Hour (16:15 - 17:15)	20	PM Peak Hour (16:30 - 17:30)	9	29
	Daily (07:00 - 19:00)	58	Daily (07:00 - 19:00)	42	100
Friday 11 May	AM Peak Hour (07:00 - 08:00)	10	AM Peak Hour (07:30 - 08:30)	11	21
	PM Peak Hour (17:15 - 18:15)	10	PM Peak Hour (15:45 - 16:45)	9	19
	Daily (07:00 - 19:00)	53	Daily (07:00 - 19:00)	51	104
Saturday 12 May	AM Peak Hour (08:30 - 09:30)	10	AM Peak Hour (10:30 - 11:30)	10	20
	PM Peak Hour (16:15 - 17:15)	9	PM Peak Hour (14:45 - 15:45)	10	19
	Daily (07:00 - 19:00)	49	Daily (07:00 - 19:00)	51	100
Sunday 13 May	AM Peak Hour (11:15 - 12:15)	7	AM Peak Hour (10:45 - 11:45)	7	14
	PM Peak Hour (17:45 - 18:45)	7	PM Peak Hour (12:45 - 13:45)	11	18
	Daily (07:00 - 19:00)	36	Daily (07:00 - 19:00)	44	80
10/05/18 - 13/05/18	Total	196	Total	188	384

2.3.2 During the weekdays, there were on average a total of 102 two-way daily cycle movements.

2.3.3 The morning peak hour for cycle movements varies but is generally within the traditional peak period. The highest number of cyclists in the morning peak hour ranged between 6 and 14 across the two days (one-way). During the evening, this was slightly higher with between 9 and 20 cyclist movements in the hour (one-way).

2.3.4 During the weekend, the average number of two-way cycle movements was recorded at 90 per day.

2.3.5 The weekend morning peak hour movements ranges between 7 and 10 per hour (one-way), with the evening peak hour ranging between 7 and 11 cyclists per hour (one-way).

2.3.6 During the four days, the number of two-way cyclist movements was broadly consistent, with between 80 and 100 cycle movements per day.

2.4 Pedestrian and Cyclist Movements vs. Vehicle Movements

2.4.1 A 7-day Automatic Traffic Count (ATC) was undertaken on 3 October 2016 on the corner of Lower Road, just before the footway terminates. **Table 2.3** shows a comparison between the number of pedestrian and cyclist movements and the number of vehicles at the peak hours of vehicular movements.

Table 2.3: Pedestrians and Cyclists vs. Vehicles (in vehicle peak hours)

Date of Survey ¹	Pedestrians and Cyclists - Two-Way			Vehicle Movements - Two Way			Daily Total (All Types)
	AM Peak 07:30 – 08:30	PM Peak 16:30 – 17:30	Daily Total 07:00 – 19:00	AM Peak 07:30 – 08:30	PM Peak 16:30 – 17:30	Daily Total 07:00 – 19:00	
Thursday 10 May	15	29	180	59	58	572	752
Friday 11 May	27	17	186	59	58	440	626
Weekday Average	21	23	183	59	58	506	689
Date of Survey ¹	AM Peak 10:45 – 11:45	PM Peak 16:00 – 17:00	Daily Total 07:00 – 19:00	AM Peak 10:45 – 11:45	PM Peak 16:00 – 17:00	Daily Total 07:00 – 19:00	Daily Total
Saturday 12 May	23	14	192	45	44	439	631
Sunday 13 May	34	22	229	36	43	368	597
10/05/18 - 13/05/18	131	114	787	180	191	1819	2606

¹ All vehicular traffic from September 2016 ATC data.

2.5 Summary

2.5.1 **Tables 2.1, 2.2 and 2.3** demonstrate that there are high levels of pedestrians and cyclists using Lower Road.

2.5.2 The number of pedestrian and cycling movements as a total of all movements on Lower Road across the day ranges between 24% (Thursday 180/752) and 38% (Sunday 229/597) of the total number of movements i.e. it is a genuine shared surface during the week and at weekends.

2.5.3 When comparing the number of pedestrian and cycle movements against the number of vehicle movements in the vehicular peak hour, there is also a high proportion of pedestrian and cyclists at these busy times. On average, between 26% (Morning peak: 21/80) and 28% (Evening peak: 23/81) of all peak hour movements are found to be pedestrians and cyclists, whilst at the weekend there is an even higher proportion of pedestrians and cyclists with between 24% (Saturday evening: 14/58) and 49% (Sunday morning: 34/70) of peak hour movement being pedestrians and cyclists.

2.5.4 Put simply, the percentage of pedestrians and cyclists currently using Lower Road are:

- Weekday morning peak 26%
- Weekday evening peak 28%
- Weekday daily 26%
- Weekend peak between 24% - 49%

2.5.5 Lower Road is a genuine shared surface at all times and days.

SECTION 3 PEDESTRIAN ROUTING AND SAFETY

3.1.1 Video footage was also obtained from the survey to understand how pedestrians currently use the short section of Lower Road which does not have a footway. From the video footage the majority of pedestrians walk on along the western side of Lower Road to continue on the footway to the north. **Images 3.1 and 3.2** provide examples of recorded pedestrian use in Lower Road.

Image 3.1: Pedestrian Walking on Lower Road (Facing South)



Image 3.2: Pedestrian Walking on Lower Road (Facing North)



Source: Pedestrian Surveys

- 3.1.2 Pedestrians are observed to use the short length of Lower Road (without a footway) in a very regular and conventional way i.e. by walking on the western side of Lower Road. Using this route, pedestrians can see the recommencement of the footway before leaving the one which links to the site. The length of Lower Road without a footway is 50m, roughly a 35 second walk².

3.2 Pedestrian Safety

- 3.2.1 Personal Injury Accident (PIA) data within the Transport Statement (Report Ref: ITB12174-003) has been obtained from Hampshire Constabulary for the local highway network. The data covered a five-year period between 1 May 2011 and 30 April 2016. This data showed that there were no recorded collisions within the vicinity of the site. Updated PIA data has also been obtained for the most recent five years. This data covered a period between 1 February 2013 and 31 January 2018 and demonstrated that there were still no accidents within the vicinity of the site or along Lower Road.
- 3.2.2 A study of crashmap.co.uk was also undertaken which demonstrated that there have been no accidents recorded along Lower Road between 1999 and 2017, i.e. it has an impeccable safety record over nearly 20 years.

² 1.4m/sec

SECTION 4 DEVELOPMENT IMPACT

4.1.1 The development will increase the amount of pedestrian, cycle and vehicular activity in this area. The assessment below quantifies the likely impact.

4.2 Overall assessment

4.2.1 Using the vehicular trip rates in the Transport Statement (Report Ref: ITB12174-003) and pedestrian and cycle trip rates in **Appendix C** an assessment has been carried out of the 'post development' scenario to understand the number of pedestrians and cyclists against the number of vehicles.

4.2.2 **Table 4.1** shows the average existing weekday vehicle and pedestrian / cycle movements on Lower Road alongside the forecast number of vehicles and pedestrians / cycles.

Table 4.1: With Development Pedestrians and Cyclists vs. Vehicles

Weekday Average		Vehicular Movements			Cyclist Movements			Pedestrian Movements		
		Existing	Development Generated	Total	Existing	Development Generated	Total	Existing	Development Generated	Total
	07:30 - 08:30	59	26	85	16	2	18	6	12	18
	16:30 - 17:30	58	26	84	18	2	20	5	8	13
	07:00 - 19:00	555	227	782	102	13	115	81	84	165

4.2.3 **Table 4.1** demonstrates that the amounts of pedestrians and cyclists using Lower Road against the number of vehicles will continue to be high when the development is completed. The forecast number of pedestrian and cycling movements as a total of all forecast movements on Lower Road will range between 30% (Morning peak: 18 pedestrians and 18 cyclists /121 all traffic) and 28% (Evening peak: 13 pedestrians and 20 cyclists / 117 all traffic) in the evening peak hour.

4.2.4 **Table 4.1** also shows that over a day, the amounts of pedestrians and cyclists using Lower Road against the number of vehicles will continue to be high when the development is completed. Some 26% of daily movements will be in the form of pedestrians and cyclists (165 pedestrians and 115 cyclists /1062) i.e. it will continue to be a genuine shared surface during at busy times and throughout the day.

4.2.5 Put simply, the percentage of pedestrians and cyclists forecast to use Lower Road when the development complete will be higher than it is now with a proportionate increase in vehicles, pedestrian and cyclists. The breakdown is:

- Weekday morning peak 30%
- Weekday evening peak 28%
- Weekday daily 26%

4.3 Probability assessment

4.3.1 Notwithstanding the above continuation of safe and balanced user composition, a simple probability assessment of the likelihood of a pedestrian using the section of Lower Road without a footway at the same time as two cars are passing one another has been undertaken. This occasionally happens now and has done so safely for many years.

Vehicle assessment

4.3.2 An assessment has firstly been undertaken to determine the probability of two vehicles meeting each other. This considers the movements associated with the morning peak hour when the development is complete. This will be the busiest peak for vehicle use, in which 60 vehicles are anticipated to travel north and 25 vehicles travel south (85 two-way movements).

4.3.3 The shared surface section is circa 50m in length and vehicles can be expected to travel at 20mph. A vehicle would therefore reasonably take 5.625 seconds to undertake this movement. The assessment undertaken for the (worst case) weekday morning peak hour is set out as follows:

Northbound car

The probability of a car heading north in the busiest hour is:

$$\frac{60 \text{ (number of northbound vehicles per hour)} \times 5.6 \text{ (seconds to travel through shared section)} = 336 \text{ seconds}}{3,600 \text{ seconds (i.e. one hour)}} = 9.4\%$$

Southbound car

The probability of a car heading south in the busiest hour is:

$$\frac{25 \text{ (number of southbound vehicles per hour)} \times 5.6 \text{ (seconds to travel through shared section)} = 140 \text{ seconds}}{3,600 \text{ seconds (i.e. one hour)}} = 3.9\%$$

- 4.3.4 The probability of two cars passing one another on the shared surface section is 0.37% (9.4% x 3.9%). It will therefore be a very infrequent event, approximately once every 370 times a car uses Lower Road i.e. twice a day. Even when it does happen, they can pass one another and there is good visibility between vehicles. There is, of course, no severe impact associated with this operation.

Two cars and a pedestrian meeting

- 4.3.5 An assessment has also been undertaken to determine the probability of the above occurring when a pedestrian is also using the shared surface section i.e. two vehicles and a pedestrian meeting each other on the access road.
- 4.3.6 The shared surface section is circa 50m in length and pedestrians can be expected to travel at 1.4m per second. A pedestrian would therefore reasonably take 36 seconds to undertake this movement.

The probability of a pedestrian being on that part of Lower Road with no footway the busiest hour is:

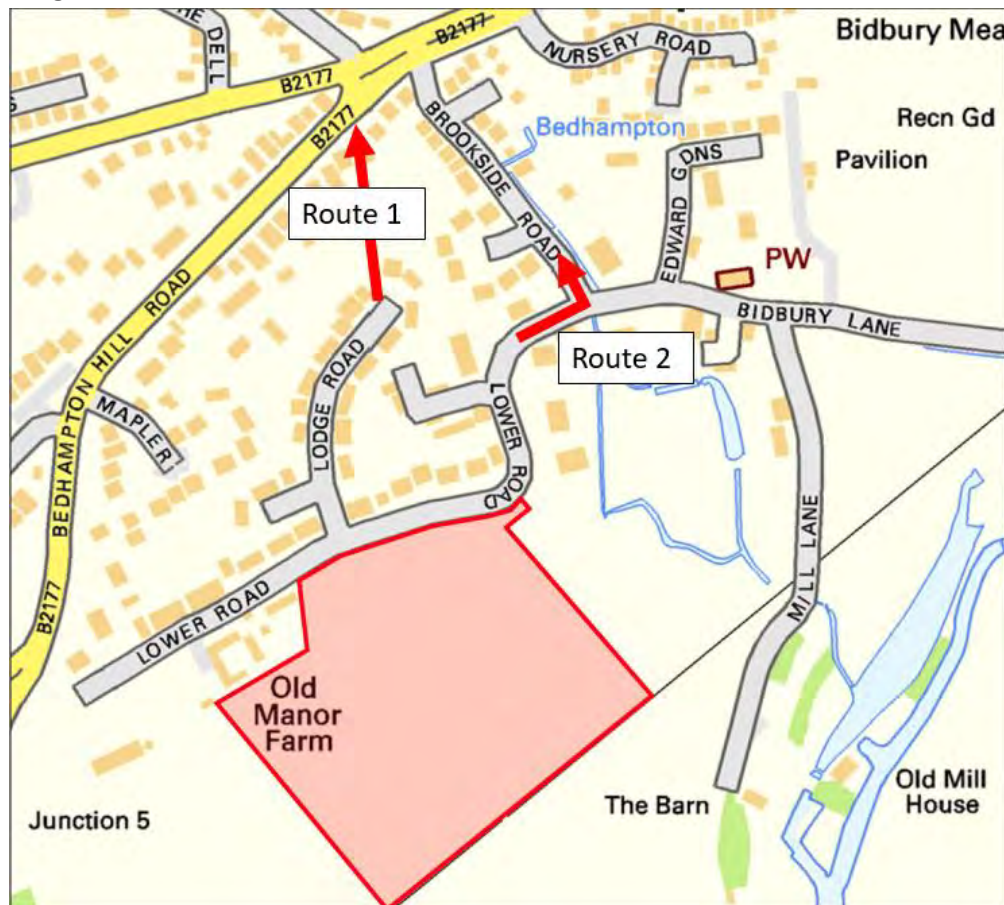
$$\frac{18 \text{ (number of pedestrians in the busiest hour)} \times 36 \text{ (seconds to travel through shared section)} = 648 \text{ seconds}}{3,600 \text{ seconds (i.e. one hour)}} = 18\%$$

- 4.3.7 The probability of a pedestrian being on that part of Lower Road without a footway at the same time as two cars need to pass one another is 0.0659% (9.4%x3.9%x18%). Therefore, in the peak hours there is a very small prospect of three such users of Lower Road meeting on the narrowed section – once every 56,000 times a user passes along the access.

SECTION 5 ALTERNATIVE PEDESTRIAN ROUTE

5.1.1 Whilst it is clear from the above assessment that there is a high proportion of existing pedestrian and cycle users safely using Lower Road and that this entirely safe 'balance' with vehicles will continue in the 'post development' scenario, it must be remembered that there is a quiet, traffic free pedestrian route from Lower Road to the services and facilities in Bedhampton provided by Footpath 107. This is provided via Lodge Road (Route 1 below) to Bedhampton Road and is shown in **Image 5.1**.

Image 5.1: Alternative Route from Lower Road



5.2 Distance

5.2.1 The route via Lodge Road (Route 1) to the bus stops on Bedhampton Road is:

- 487m to the northern bus stop; and
- 520m to the southern bus stop.

5.2.2 The route via Lower Road (Route 2) to the bus stops on Bedhampton Road is:

- 499m to the northern bus stop; and

- 521m to the southern bus stop.

5.2.3 The development proposes a new footway from the site access along the frontage of the site. This then provides an opportunity to cross Lower Road and will provide a continuous footway to Bedhampton Road via Route 1.

5.2.4 A site visit was undertaken on Tuesday 19 May 2018 to assess Route 1 and the likelihood that this route could be used by future residents from the site.

5.3 Width

5.3.1 There is a continuous footway on both sides of Lodge Road which lead to Footpath 107. The street-lit and hard-surfaced Footpath 107 begins from the north western corner of Lodge Road and is some 130m from Bedhampton Road.

5.3.2 The entrance of the footpath is 1.0m wide and is bounded by vegetation and fencing. Heading north the footpath varies in width between 1.0m and 1.2m wide. Turning east the footpath varies between 0.9m and 1.0m wide, however a wider section of 1.4m further north allows for the more comfortable passing of two pedestrians. Travelling further north towards Bedhampton Road the footpath then varies between 1.0m and 1.6m wide.

5.4 User requirements

5.4.1 The *Manual for Streets* and *Inclusive Mobility* documents describe the widths requirements of different pedestrian users. For a single pedestrian, the width required is just 0.75m. In terms of pushchairs and wheelchairs, *Inclusive Mobility* identifies the 95th percentile width of powered chairs is 0.7m and 0.8m for manual chairs. These widths are similar to those required for the widest 'side by side' double buggies.

5.4.2 Footpath 107 has a continuous minimum width of 0.90m and therefore would be more than sufficient for normal pedestrian use, wheelchair use and double buggies. At some sections of the footpath, the width increases to 1.4m and 1.6m wide and would therefore allow for two users to pass with ease.

5.5 Summary

5.5.1 Route 1 provides a quiet, street lit, traffic free pedestrian route from Lower Road to the services and facilities in Bedhampton.

5.5.2 In comparison to the route via Lower Road:

- The distance using Route 1 to the bus stops located on Bedhampton Road is shorter;
- The site access works will provide a continuous off-road route to Bedhampton;
- The width of the route is suitable to accommodate pedestrian, wheelchair and double buggies usage; and
- The route is clearly a suitable alternative for any pedestrian users from the site should they not wish to use Lower Road.

SECTION 6 SUMMARY AND CONCLUSION

- 6.1.1 Following comments from the public consultation event, a four-day survey was undertaken along Lower Road to demonstrate the current pedestrian and cycle usage.
- 6.1.2 The results demonstrated that there are large numbers of pedestrian and cycle movements on Lower Road. The highest amount of pedestrian movements across the survey period was on Sunday 13 May with total of 149 two-way movements. The highest amount of cyclist movements recorded were on Friday 11 May with a total of 104 two-way movements across the day.
- 6.1.3 When comparing these survey results to the traffic data received in October 2016 it demonstrates that out of all the total movements, between 24% and 38% were either pedestrian or cycling trips i.e. it is a genuine shared surface.
- 6.1.4 When observing the video footage, pedestrians almost universally walk along the western side of Lower Road to continue along the footway to the north, the length of Lower Road without a footway is 50m, roughly a 35 second walk.
- 6.1.5 The current use of Lower Road, as a shared surface is suitable for the proposed development of 50 dwellings and has been agreed by Havant Borough Council. The shared surface is in line with the following criteria:
- It is lightly trafficked with slow traffic speeds – 85th Percentile speeds of 21mph;
 - It has an impeccable safety record (ref: crashmap.co.uk – no recorded injury accidents between 1999 and 2017);
 - The road is straight, street lit and has forward visibility to pedestrians of around 30m (recorded 85th percentile speeds of 21mph require 24m of forward visibility);
- 6.1.6 An assessment of the impact of the development has been carried out which shows that the amounts of pedestrians and cyclists using Lower Road against the number of vehicles will continue to be high when the development is completed. The forecast number of pedestrian and cycling movements as a total of all forecast movements on Lower Road when the development is complete will be higher than it is now, the breakdown is:

- Weekday morning peak 30% pedestrians and cyclists
- Weekday evening peak 28% pedestrians and cyclists
- Weekday daily 26% pedestrians and cyclists

6.1.7 Put simply, Lower Road will continue to be a genuine shared surface at busy times and throughout the day.

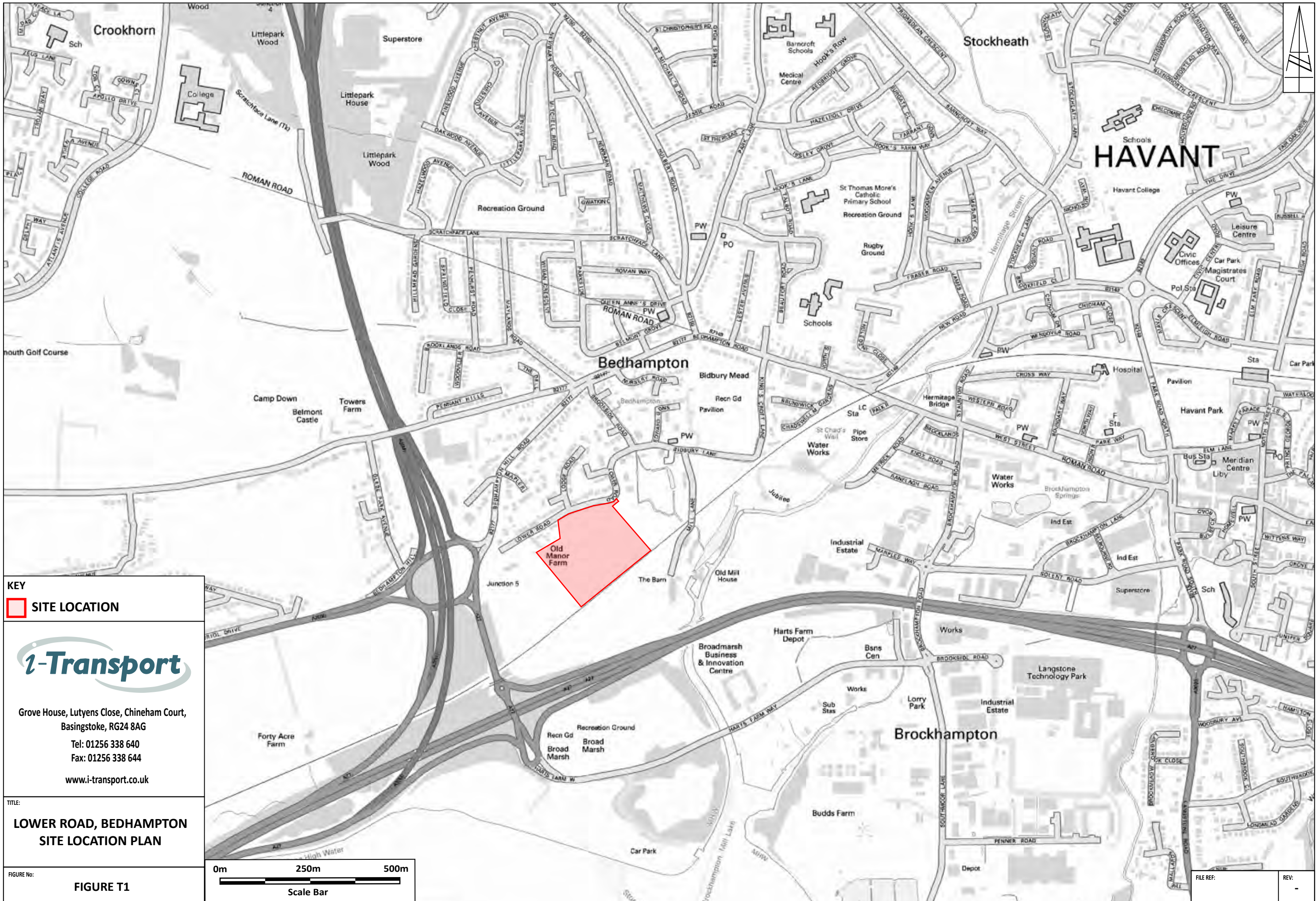
6.1.8 The probability of vehicles and pedestrians using the section of Lower Road without a footway has also been assessed and the prospect of these users all being in the 'shared surface' section at the same time is 0.056%, i.e. there is a vanishingly small prospect of any users meeting on the narrowed section – once every 56,000 times a user passes along the access. Even when this happens:

- There is ample width for car to pass a pedestrian;
- There is ample visibility between passing cars and other users; and
- This activity has occurred for many years with no impact on road safety.

6.1.9 Finally, an alternative pedestrian route can be accessed via Lodge Road (Public Footpath 107) which provides a direct connection to Bedhampton Road. The minimum width of the footpath is 0.90m, however the width does increase to 1.4m/1.6m at some sections. With sections along the footpath which are wider this allows for two pedestrians to pass one another. This alternative route is also located to a similar distance, (indeed shorter) to the bus stops located on Bedhampton Road.

6.1.10 It has been demonstrated that the proposed access meets current and relevant design standards in Manual for Streets and that it provides safe and suitable access to the development for pedestrians, cyclists and vehicles.

FIGURES



APPENDIX A

CORRESPONDANCE WITH HBC / HCC

NOTES OF MEETING

i-Transport LLP

Grove House

Lutyens Close

Chineham Court

Basingstoke

Hampshire

RG24 8AG

Tel: 01256 338640

Fax: 01256 338644

www.i-transport.co.uk

Project No: ITB12174
Project Title: Lower Road Bedhampton – Cycling links and access matters
Date/Time: 5 June 2018
Venue: Havant Borough Council (HBC)

Attendees

Pip Marshall	-	HBC	(PM)
Steve Jenkins	-	i-Transport	(SJ)
Millie Billett	-	HBC	(MB)
Steve Mountain	-	HBC	(SM)

Item

Action

1.0 Introduction

SJ introduced the meeting as a follow up from the recent pre-application meeting with Bargate Homes, PM and Daphney Haywood (DH). The purpose was to understand how the development could relate to local cycle improvements that HBC are planning and to reconfirm the pedestrian access strategy for the development.

2.0 Havant Cycle Strategy 2036

- 2.1 MB talked through HBC plans for improved cycle links in Lower Road, Mill Lane, Bidbury Lane and Bedhampton Road. These are located as Routes 4, 5 and 6 on the HBC map that was tabled.
- 2.2 MB talked through more detailed drawings for Route 6, including the widening of the existing southern footway on Bedhampton Road (into the verge) to provide a cycle way from Brookside Road to Hulbert Road. The cost of the scheme is estimated to be £52,000.
- 2.3 MB and SM explained that Route 4 and 5 were less extensive schemes involving small scale engineering works. The cost of these schemes is estimated to be £5,000 and £15,000 respectively.
- 2.4 SJ explained that i-Transport had established that Lower Road was part of the signed HBC cycle network and recorded speeds (circa 21mph) and flows (circa 60vph) made it very well suited to cycle use. He agreed that further improvements to it and Routes 5 and 6 would help further promote cycling in the area, including from residents of the development.
- 2.5 HBC explained that the specific cycle improvements on Routes 4, 5 and 6 were not detailed on the CIL123 list and that they were seeking S106 contributions from local development sites to help bring them forward. HBC to confirm CIL 123 list status.

Item	Action
2.6	SJ agreed to raise this with Bargate Homes and it did seem reasonable for the development to potentially make a contribution to them.
2.7	SJ also tabled the on-site layout and confirmed it would not prevent a future cycle connection over the railway albeit this was outside the development site. The provision of a route to the site boundary could be secured if needed.
3.0 Pedestrian Access Strategy	
3.1	SJ explained that an earlier site meeting with HCC, PM and HBC's Landscape Officer had helped inform the current proposal. The current proposal includes a footway within the site to link to the eastern side of Lodge Road where a continuous pedestrian route to Bedhampton was provided. It had also been previously agreed that a footway would be provided on Lower Road to link to the existing footway at the bend to the east of the site. It had previously been agreed that from the point where the footway currently terminates that pedestrians would use Lower Road and that part of Brookside Road (without a footway) as a shared surface. i-Transport had produced a Technical Note (ITB12174-004 TN) which supported this approach with reference to Manual for Streets and the Conservation Area status. This had been agreed with PM. PM noted that this was an issue which was raised by members of the public at the DCF.
3.2	SM confirmed that what i-Transport proposed was the correct approach and pointed out that Lodge Road was a suitable alternative pedestrian route should it be preferred by some. SM suggested the route via Lodge Road could be further improved if the site access works were updated to extend the western footway to allow pedestrians to cross Lower Road just west of Lodge Road. SJ agreed this seemed sensible and would ensure the scheme was updated to ensure that the planning application could be submitted on an agreed basis.
3.3	SJ explained that the current scheme for the site access had been through HCC's pre-application design review process and agreed as being suitable for a subsequent combined section 278 Design Check. SJ will ensure the scheme is updated as agreed in advance of the planning application and it could be further detailed as part of HCC's normal post planning design checking process.

Actions:

- HBC to consider what details of the planned cycle routes could be shared.
- HBC to confirm the CIL 123 list did not preclude S106 contributions discussed.
- SJ to amend site access works to provide extended western footway and crossing to the west of Lodge Road.
- SJ to raise the potential to make an S106 contribution with Bargate Homes.

Steve Jenkins

NOTES OF MEETING

i-Transport LLP

Grove House

Lutyens Close

Chineham Court

Basingstoke

Hampshire

RG24 8AG

Tel: 01256 338640

Fax: 01256 338644

www.i-transport.co.uk

Project No: ITB1274
Project Title: Lower Road, Bedhampton
Date/Time: 1 March 2017
Venue: On - site

Attendees

Steve Jenkins (SJ) - i-Transport

Matt Dyer (MD) - HCC

Peter Marshall (PM) - HBC

Michelle Good (MG) - HBC

Apologies

Holly Drury (HD) - HCC

1.0 INTRODUCTION

- 1.1 SJ explained that i-T had submitted a Pre-Application Design Review package to HCC for conceptual agreement and that process had led HD to suggest a site meeting to discuss the wider pedestrian access strategy on Lower Road.
- 1.2 SJ explained that the area around the site has conservation area status and its designation notes the informal highway environment with some roads not having footways and these features contributing to its status. The access strategy for the site has been developed with this designation in mind.

2.0 PEDESTRIAN ACCESS STRATEGY

- 2.0 SJ went on to explain that i-T had recorded vehicle speeds and flows over 7 days on Lower Road which show 85th percentile speeds are less than 20mph and hourly flows peak at around 60 two-way vehicle movements, with much lower flows for large parts of the day. SJ also explained that Hampshire Constabulary records show Lower Road has an unblemished 5-year safety record.
- 2.1 On this basis, i-T's recommendation is that Lower Road operates safely as a 'Shared Surface' (reference MfS para 7.2.14) and the road is therefore suitable in its current form to accommodate the modest additional vehicle and pedestrian demands likely to arise from the development without potentially inappropriate new highway construction.
- 2.2 SJ did explain that whilst physical improvements such as the construction of a small length of new footway to the east of the site were feasible, he was concerned that this would be unnecessary and inappropriate given the sensitive character of the area.
- 2.3 PM and MG agreed in principle but requested that SJ issue a note that provides the evidence for this approach (i.e. provide the recorded speeds, flows, and MfS reference) and this should also be included in the Transport Statement that accompanies any future planning application on the site.

3.0 WIDER TRANSPORT ISSUES

- 3.1 PM and MG advised that HBC have aspirations for cycle improvements in this area and would be likely to seek financial contributions from any development on this site which could also be used by HBC and HCC towards sensitive future improvements in the local area. Attention was drawn to the high-quality materials used around the Bowling Club and Bidbury Meads area. MG wished to see a high-quality approach to the site follow these local cues.
- 3.2 HBC also identified a desire to achieve a walking and cycling route across the railway line at the rear of the site where a private bridge was observed cross the railway line and a connection to it could provide a new pedestrian or cycle link to the Broadmarsh Employment area. SJ agreed to investigate what control the applicant has over this area and how the site might relate to it.

4.0 AoB

- 4.1 HCC were comfortable with the principle of the site vehicle access and noted that i-T had presented two options. SJ explained that the more central option (shown on drawing ITB12174-GA-002) was now likely to be taken forward. HCC did note the change in level between the carriageway and the site and potential for a hedgerow impact.
- 4.2 HBC suggested that the proposed footway along the Lower Road site frontage to connect with Lodge Road and an existing Post Box on Lower Road could be provided within the site (instead of on the frontage) which might reduce (or even remove) impacts on the hedgerow in this location. SJ agreed this seemed sensible and it was agreed that i-T would amend their site access drawing and submit it to HCC in advance of them issuing their PAD-R report.

Circulation: Attendees, Holly Drury (HCC) and Paul Thomas (Bargate Homes)

Steve Jenkins

From: Peter Marshall <Peter.Marshall@havant.gov.uk>
Sent: 19 April 2017 10:16
To: Steve Jenkins
Subject: RE: Lower Road Bedhampton - Pedestrian provision

Steve sorry about the delay in my reply. I agree with your the conclusion with regard to the sustainability of the site and the and the design solution for Lower Road and Lodge Road. However as part of any planning application I will expect a Travel Assessments that includes the route to the development with major emphasis on the junction of Brookside Road and Bedhampton especially the effect on Belmont Junction of queuing traffic waiting to turn right into Brookside Road

Regards Pip

Peter J Marshall BSc MCIHT
Development Engineer

(My work days are Tuesday, Wednesday and Thursday)

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Direct Dial (023) 925446457
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From: Steve Jenkins [<mailto:steve.jenkins@i-transport.co.uk>]
Sent: 07 April 2017 13:34
To: Peter Marshall
Subject: FW: Lower Road Bedhampton - Pedestrian provision

Hi Pip – Just wondered if you'd had a chance to look at this yet?

Hope you have a good weekend.

Regards Steve

Steve Jenkins BSc MSc MCIHT MRTPI
Associate Partner
for i-Transport LLP

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T: 01256 316516 M: 07590 410346 F: 01256 338644 E: steve.jenkins@i-transport.co.uk W: www.i-transport.co.uk

From: Steve Jenkins

Sent: 30 March 2017 13:10

To: 'Peter.Marshall@havant.gov.uk' <Peter.Marshall@havant.gov.uk>

Cc: 'Michelle.Good@havant.gov.uk' <Michelle.Good@havant.gov.uk>; 'Dyer, Matt' <Matt.Dyer@hants.gov.uk>; 'Drury, Holly' <holly.drury@hants.gov.uk>

Subject: Lower Road Bedhampton - Pedestrian provision

Hi Pip,

Further to our site meeting please find attached a Technical Note covering pedestrian provision (Report Ref ITB12174-004 TN) which concludes:

- The site is in a sustainable location with ample facilities within a 2km (walkable) distance and very good public transport services;
- Pedestrian linkages to the facilities are good with just two stretches of Lower Road between the 'bends' and towards Lodge Road having no footway;
- Lower Road operates safely as a shared surface benefiting from very low traffic flows / speeds and it has an impeccable safety record, the development will not materially alter this position;
- Notwithstanding this, a footway will be provided to Lodge Road within the proposed development in a form which will enable wider public use and the retention of the existing hedgerow and informal character of Lower Road;
- The section of Lower Road between the bends currently operates as a section of shared surface street which will continue with the development in place. This is supported by the recorded traffic conditions, relevant design guidance and is supported by HCCs PADR;

On this basis, the local area provides opportunities for residents to 'take up' sustainable modes of travel, a safe and suitable access is proposed and there will be no residual traffic impact on Lower Road, with a imperceptible change to traffic movements. I'd be grateful if you can confirm your agreement as agent for the Local Highway Authority and that the approach identified in this report is acceptable and agreed.

Regards Steve

Steve Jenkins BSc MSc MCIHT MRTPI

Associate Partner

for i-Transport LLP



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From: Steve Jenkins

Sent: 07 March 2017 17:54

To: 'Peter.Marshall@havant.gov.uk' <Peter.Marshall@havant.gov.uk>; 'Michelle.Good@havant.gov.uk' <Michelle.Good@havant.gov.uk>; 'Dyer, Matt' <Matt.Dyer@hants.gov.uk>; 'Drury, Holly' <holly.drury@hants.gov.uk>

Subject: Lower Road Bedhampton

Hi All,

Thanks for meeting on site last week, it was very useful.

Please find attached the notes of our recent meeting on site which I trust are an accurate reflection of the matters agreed.

Under item 2.3, I will provide a short note to Pip providing evidence to support our approach to that section of Lower Road which operates as a shared surface.

Under item 3.2, I have established that the railway bridge or land to the south of it is not within the site or our control but we will have to ensure access to it is maintained for agriculture so we would certainly not prevent any future link.

Under item 4.2, please find attached drawing ITB12174-GA-002 Rev B, which shows the footway to connect to Lodge Road being provided within the site to reduce the extent of hedgerow loss. I'd be grateful if this could be considered as part of HCC's PAD-R report.

Very happy to discuss further on the phone if needed?

Regards Steve

Steve Jenkins BSc MSc MCIHT MRTPI

Associate Partner

for i-Transport LLP



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APPENDIX B

PEDESTRIAN AND CYLCLE SURVEY RESULTS

Intelligent Data Collection Limited

Lower Road Bedhampton

Client:	i-Transport
Project Number:	ID03830
Site Name:	Lower Road
Dates of Survey:	10.05.2018 to 13.05.2018
Survey Type:	Pedestrian and Cycle Count

Intelligent Data Collection Limited



Client: i-Transport
Project Number: ID03830
Site Name: Lower Road
Date of Survey: 10.05.2018 to 13.05.2018
Survey Type: Pedestrian and Cycle Count

X Coordinate	Y Coordinate	Google Maps Link
50.852312	-1.005653	Click Here
Site Layout		
		
Additional Notes (Factors which may impact on survey results such as accidents, roadworks, special events)		

Intelligent Data Collection Limited



Client: i-Transport
 Project Number: ID03830
 Site Name: Lower Road
 Date of Survey: 10.05.2018
 Survey Type: Pedestrian and Cycle Count

Input by: Conor Lenehan
 Checked by: David Brown

Time	Movement 1			Movement 2		
	Peds	Cycles	Total	Peds	Cycles	Total
07:00	2	2	4	1	3	4
07:15	1	1	2	1	2	3
07:30	1	1	2	1	3	4
07:45	0	2	2	0	6	6
08:00	0	0	0	0	0	0
08:15	0	1	1	0	0	0
08:30	3	1	4	0	3	3
08:45	1	0	1	0	1	1
09:00	2	0	2	4	0	4
09:15	1	0	1	1	0	1
09:30	0	1	1	1	0	1
09:45	0	2	2	0	0	0
10:00	1	0	1	1	0	1
10:15	0	0	0	0	0	0
10:30	0	0	0	1	0	1
10:45	0	0	0	1	0	1
11:00	2	0	2	3	0	3
11:15	0	0	0	0	0	0
11:30	1	0	1	1	0	1
11:45	2	0	2	1	0	1
12:00	1	0	1	0	0	0
12:15	1	0	1	0	0	0
12:30	0	1	1	0	0	0
12:45	1	0	1	0	0	0
13:00	1	3	4	0	1	1
13:15	0	2	2	1	1	2
13:30	0	1	1	1	0	1
13:45	0	3	3	3	0	3
14:00	0	0	0	0	1	1
14:15	0	0	0	1	1	2
14:30	0	2	2	0	0	0
14:45	2	1	3	0	0	0
15:00	1	0	1	1	1	2
15:15	2	0	2	3	1	4
15:30	0	0	0	2	0	2
15:45	1	0	1	1	0	1
16:00	1	2	3	3	1	4
16:15	0	5	5	2	0	2
16:30	1	3	4	1	2	3
16:45	0	4	4	0	4	4
17:00	1	8	9	0	0	0
17:15	0	1	1	1	3	4
17:30	0	3	3	0	1	1
17:45	1	3	4	0	2	2
18:00	0	3	3	3	0	3
18:15	0	1	1	1	4	5
18:30	2	1	3	0	1	1
18:45	4	0	4	2	0	2
07:00-10:00 Total	11	11	22	9	18	27
16:00-19:00 Total	10	34	44	13	18	31
07:00-19:00 Total	37	58	95	43	42	85

Intelligent Data Collection Limited



Client: i-Transport
 Project Number: ID03830
 Site Name: Lower Road
 Date of Survey: 11.05.2018
 Survey Type: Pedestrian and Cycle Count

Input by: Conor Lenehan
 Checked by: David Brown

Time	Movement 1			Movement 2		
	Peds	Cycles	Total	Peds	Cycles	Total
07:00	0	2	2	1	4	5
07:15	0	3	3	0	2	2
07:30	2	2	4	0	4	4
07:45	0	3	3	0	1	1
08:00	2	0	2	0	3	3
08:15	1	2	3	4	3	7
08:30	3	1	4	0	2	2
08:45	0	3	3	3	0	3
09:00	7	0	7	1	0	1
09:15	0	0	0	1	0	1
09:30	1	0	1	0	1	1
09:45	0	0	0	0	2	2
10:00	0	0	0	1	0	1
10:15	1	0	1	1	1	2
10:30	3	0	3	0	0	0
10:45	0	0	0	2	0	2
11:00	2	1	3	0	0	0
11:15	0	0	0	0	0	0
11:30	0	0	0	0	1	1
11:45	1	0	1	0	0	0
12:00	2	0	2	1	0	1
12:15	5	2	7	0	0	0
12:30	1	0	1	1	1	2
12:45	0	4	4	0	2	2
13:00	2	2	4	1	0	1
13:15	0	1	1	0	1	1
13:30	0	2	2	1	1	2
13:45	1	0	1	0	0	0
14:00	2	1	3	3	2	5
14:15	0	0	0	0	1	1
14:30	1	1	2	1	0	1
14:45	1	2	3	2	2	4
15:00	1	0	1	1	0	1
15:15	0	0	0	3	2	5
15:30	0	0	0	1	1	2
15:45	0	1	1	0	2	2
16:00	0	1	1	0	2	2
16:15	1	3	4	0	3	3
16:30	1	1	2	0	2	2
16:45	0	2	2	4	1	5
17:00	0	1	1	1	0	1
17:15	0	3	3	0	1	1
17:30	1	4	5	1	0	1
17:45	2	0	2	0	1	1
18:00	0	3	3	0	0	0
18:15	3	1	4	0	2	2
18:30	0	0	0	0	0	0
18:45	0	1	1	0	0	0
07:00-10:00 Total	16	16	32	10	22	32
16:00-19:00 Total	8	20	28	6	12	18
07:00-19:00 Total	47	53	100	35	51	86

Intelligent Data Collection Limited



Client: i-Transport
 Project Number: ID03830
 Site Name: Lower Road
 Date of Survey: 12.05.2018
 Survey Type: Pedestrian and Cycle Count

Input by: Conor Lenehan
 Checked by: David Brown

Time	Movement 1			Movement 2		
	Peds	Cycles	Total	Peds	Cycles	Total
07:00	0	0	0	1	0	1
07:15	0	0	0	1	0	1
07:30	1	0	1	1	0	1
07:45	2	1	3	1	0	1
08:00	0	0	0	0	0	0
08:15	2	0	2	1	0	1
08:30	0	1	1	1	1	2
08:45	0	2	2	0	0	0
09:00	0	1	1	1	6	7
09:15	0	6	6	1	0	1
09:30	3	0	3	1	2	3
09:45	0	0	0	0	0	0
10:00	0	0	0	2	4	6
10:15	0	0	0	1	0	1
10:30	1	0	1	0	0	0
10:45	0	4	4	0	3	3
11:00	2	0	2	3	1	4
11:15	2	1	3	1	6	7
11:30	0	0	0	0	0	0
11:45	2	1	3	0	0	0
12:00	0	4	4	0	2	2
12:15	4	1	5	1	0	1
12:30	2	0	2	1	0	1
12:45	3	5	8	0	1	1
13:00	3	3	6	1	2	3
13:15	0	0	0	1	0	1
13:30	0	1	1	5	2	7
13:45	0	2	2	0	4	4
14:00	0	1	1	0	0	0
14:15	6	0	6	6	2	8
14:30	0	0	0	4	1	5
14:45	1	0	1	0	1	1
15:00	4	0	4	0	2	2
15:15	0	1	1	2	4	6
15:30	0	0	0	2	3	5
15:45	0	0	0	0	0	0
16:00	0	0	0	0	0	0
16:15	0	2	2	1	0	1
16:30	6	0	6	0	0	0
16:45	0	1	1	2	2	4
17:00	1	6	7	0	0	0
17:15	0	0	0	4	0	4
17:30	0	0	0	0	0	0
17:45	0	0	0	0	1	1
18:00	0	0	0	0	0	0
18:15	0	1	1	0	1	1
18:30	1	4	5	0	0	0
18:45	0	0	0	0	0	0
07:00-10:00 Total	8	11	19	9	9	18
16:00-19:00 Total	8	14	22	7	4	11
07:00-19:00 Total	46	49	95	46	51	97

Intelligent Data Collection Limited



Client: i-Transport
 Project Number: ID03830
 Site Name: Lower Road
 Date of Survey: 13.05.2018
 Survey Type: Pedestrian and Cycle Count

Input by: Conor Lenehan
 Checked by: David Brown

Time	Movement 1			Movement 2		
	Peds	Cycles	Total	Peds	Cycles	Total
07:00	0	0	0	0	0	0
07:15	1	0	1	0	0	0
07:30	1	1	2	1	1	2
07:45	2	0	2	0	1	1
08:00	1	0	1	0	0	0
08:15	3	0	3	0	0	0
08:30	4	0	4	1	1	2
08:45	1	1	2	3	0	3
09:00	3	0	3	0	0	0
09:15	1	0	1	2	0	2
09:30	1	0	1	1	0	1
09:45	4	1	5	0	0	0
10:00	1	2	3	0	0	0
10:15	1	0	1	3	0	3
10:30	6	0	6	0	0	0
10:45	2	2	4	2	1	3
11:00	2	0	2	4	2	6
11:15	4	0	4	4	2	6
11:30	2	2	4	3	2	5
11:45	1	1	2	1	0	1
12:00	0	4	4	3	3	6
12:15	0	0	0	0	0	0
12:30	3	0	3	1	0	1
12:45	2	2	4	4	2	6
13:00	0	0	0	0	5	5
13:15	0	0	0	0	0	0
13:30	4	2	6	3	4	7
13:45	1	0	1	2	1	3
14:00	1	1	2	5	1	6
14:15	3	0	3	0	0	0
14:30	1	1	2	0	4	4
14:45	0	0	0	0	2	2
15:00	0	0	0	8	0	8
15:15	0	0	0	0	0	0
15:30	0	2	2	2	0	2
15:45	1	3	4	0	0	0
16:00	3	2	5	2	0	2
16:15	0	0	0	0	1	1
16:30	1	0	1	5	1	6
16:45	3	0	3	1	3	4
17:00	4	1	5	3	1	4
17:15	1	1	2	2	0	2
17:30	2	0	2	0	2	2
17:45	0	3	3	5	3	8
18:00	3	0	3	0	1	1
18:15	1	3	4	1	0	1
18:30	0	1	1	0	0	0
18:45	1	0	1	1	0	1
07:00-10:00 Total	22	3	25	8	3	11
16:00-19:00 Total	19	11	30	20	12	32
07:00-19:00 Total	76	36	112	73	44	117

APPENDIX C

PEDESTRIAN AND CYCLE TRIP RATES

Calculation Reference: AUDIT-236601-180710-0746

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
 Category : A - HOUSES PRIVATELY OWNED
 MULTI-MODAL VEHICLES

Selected regions and areas:

02	SOUTH EAST	
	ES EAST SUSSEX	1 days
	HC HAMPSHIRE	1 days
	KC KENT	1 days
	SC SURREY	1 days
	WS WEST SUSSEX	1 days
03	SOUTH WEST	
	DV DEVON	2 days
	SM SOMERSET	1 days
	WL WILTSHIRE	1 days
04	EAST ANGLIA	
	CA CAMBRIDGESHIRE	1 days
	NF NORFOLK	3 days
	SF SUFFOLK	2 days
05	EAST MIDLANDS	
	LN LINCOLNSHIRE	1 days
06	WEST MIDLANDS	
	SH SHROPSHIRE	2 days
	WK WARWICKSHIRE	2 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	NY NORTH YORKSHIRE	5 days
	SY SOUTH YORKSHIRE	1 days
08	NORTH WEST	
	CH CHESHIRE	2 days
	GM GREATER MANCHESTER	1 days
	MS MERSEYSIDE	1 days
09	NORTH	
	DH DURHAM	1 days
	TW TYNE & WEAR	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Secondary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Number of dwellings
 Actual Range: 6 to 98 (units:)
 Range Selected by User: 6 to 100 (units:)

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/10 to 27/11/17

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	8 days
Tuesday	6 days
Wednesday	8 days
Thursday	7 days
Friday	3 days

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

Selected survey types:

Manual count	32 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre)	20
Edge of Town	12

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

C3 32 days

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

Population within 1 mile:

1,001 to 5,000	3 days
5,001 to 10,000	8 days
10,001 to 15,000	8 days
15,001 to 20,000	5 days
20,001 to 25,000	4 days
25,001 to 50,000	4 days

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

Population within 5 miles:

5,001 to 25,000	2 days
25,001 to 50,000	4 days
50,001 to 75,000	4 days
75,001 to 100,000	9 days
100,001 to 125,000	2 days
125,001 to 250,000	7 days
250,001 to 500,000	3 days
500,001 or More	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	12 days
1.1 to 1.5	20 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	3 days
No	29 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	32 days
-----------------	---------

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	CA-03-A-05	DETACHED HOUSES		CAMBRIDGESHIRE
	EASTFIELD ROAD			
	PETERBOROUGH			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Number of dwellings:	28		
	Survey date: MONDAY	17/10/16		Survey Type: MANUAL
2	CH-03-A-08	DETACHED		CHESHIRE
	WHITCHURCH ROAD			
	BOUGHTON HEATH			
	CHESTER			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Number of dwellings:	11		
	Survey date: TUESDAY	22/05/12		Survey Type: MANUAL
3	CH-03-A-09	TERRACED HOUSES		CHESHIRE
	GREYSTOKE ROAD			
	HURDSFIELD			
	MACCLESFIELD			
	Edge of Town			
	Residential Zone			
	Total Number of dwellings:	24		
	Survey date: MONDAY	24/11/14		Survey Type: MANUAL
4	DH-03-A-01	SEMI DETACHED		DURHAM
	GREENFIELDS ROAD			
	BISHOP AUCKLAND			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Number of dwellings:	50		
	Survey date: TUESDAY	28/03/17		Survey Type: MANUAL
5	DV-03-A-01	TERRACED HOUSES		DEVON
	BRONSHILL ROAD			
	TORQUAY			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Number of dwellings:	37		
	Survey date: WEDNESDAY	30/09/15		Survey Type: MANUAL
6	DV-03-A-03	TERRACED & SEMI DETACHED		DEVON
	LOWER BRAND LANE			
	HONITON			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Number of dwellings:	70		
	Survey date: MONDAY	28/09/15		Survey Type: MANUAL
7	ES-03-A-02	PRIVATE HOUSING		EAST SUSSEX
	SOUTH COAST ROAD			
	PEACEHAVEN			
	Edge of Town			
	Residential Zone			
	Total Number of dwellings:	37		
	Survey date: FRIDAY	18/11/11		Survey Type: MANUAL
8	GM-03-A-10	DETACHED / SEMI		GREATER MANCHESTER
	BUTT HILL DRIVE			
	PRESTWICH			
	MANCHESTER			
	Edge of Town			
	Residential Zone			
	Total Number of dwellings:	29		
	Survey date: WEDNESDAY	12/10/11		Survey Type: MANUAL

9	HC-03-A-19	HOUSES & FLATS	HAMPSHIRE
	CANADA WAY		
	LIPHOOK		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of dwellings:	62	
	Survey date: MONDAY	27/11/17	Survey Type: MANUAL
10	KC-03-A-03	MIXED HOUSES & FLATS	KENT
	HYTHE ROAD		
	WILLESBOROUGH		
	ASHFORD		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of dwellings:	51	
	Survey date: THURSDAY	14/07/16	Survey Type: MANUAL
11	LN-03-A-03	SEMI DETACHED	LINCOLNSHIRE
	ROOKERY LANE		
	BOULTHAM		
	LINCOLN		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of dwellings:	22	
	Survey date: TUESDAY	18/09/12	Survey Type: MANUAL
12	MS-03-A-03	DETACHED	MERSEYSIDE
	BEMPTON ROAD		
	OTTERSPPOOL		
	LIVERPOOL		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of dwellings:	15	
	Survey date: FRIDAY	21/06/13	Survey Type: MANUAL
13	NF-03-A-01	SEMI DET. & BUNGALOWS	NORFOLK
	YARMOUTH ROAD		
	CAISTER-ON-SEA		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of dwellings:	27	
	Survey date: TUESDAY	16/10/12	Survey Type: MANUAL
14	NF-03-A-02	HOUSES & FLATS	NORFOLK
	DEREHAM ROAD		
	NORWICH		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of dwellings:	98	
	Survey date: MONDAY	22/10/12	Survey Type: MANUAL
15	NF-03-A-03	DETACHED HOUSES	NORFOLK
	HALING WAY		
	THETFORD		
	Edge of Town		
	Residential Zone		
	Total Number of dwellings:	10	
	Survey date: WEDNESDAY	16/09/15	Survey Type: MANUAL
16	NY-03-A-08	TERRACED HOUSES	NORTH YORKSHIRE
	NICHOLAS STREET		
	YORK		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of dwellings:	21	
	Survey date: MONDAY	16/09/13	Survey Type: MANUAL
17	NY-03-A-09	MIXED HOUSING	NORTH YORKSHIRE
	GRAMMAR SCHOOL LANE		
	NORTHALLERTON		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of dwellings:	52	
	Survey date: MONDAY	16/09/13	Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

18	NY-03-A-10	HOUSES AND FLATS		NORTH YORKSHIRE
		BOROUGHBRIDGE ROAD		
		RIPON		
		Edge of Town		
		No Sub Category		
		Total Number of dwellings:	71	
		Survey date: TUESDAY	17/09/13	Survey Type: MANUAL
19	NY-03-A-11	PRIVATE HOUSING		NORTH YORKSHIRE
		HORSEFAIR		
		BOROUGHBRIDGE		
		Edge of Town		
		Residential Zone		
		Total Number of dwellings:	23	
		Survey date: WEDNESDAY	18/09/13	Survey Type: MANUAL
20	NY-03-A-13	TERRACED HOUSES		NORTH YORKSHIRE
		CATTERICK ROAD		
		OLD HOSPITAL COMPOUND		
		CATTERICK GARRISON		
		Suburban Area (PPS6 Out of Centre)		
		Residential Zone		
		Total Number of dwellings:	10	
		Survey date: WEDNESDAY	10/05/17	Survey Type: MANUAL
21	SC-03-A-04	DETACHED & TERRACED		SURREY
		HIGH ROAD		
		BYFLEET		
		Edge of Town		
		Residential Zone		
		Total Number of dwellings:	71	
		Survey date: THURSDAY	23/01/14	Survey Type: MANUAL
22	SF-03-A-04	DETACHED & BUNGALOWS		SUFFOLK
		NORMANSTON DRIVE		
		LOWESTOFT		
		Suburban Area (PPS6 Out of Centre)		
		Residential Zone		
		Total Number of dwellings:	7	
		Survey date: TUESDAY	23/10/12	Survey Type: MANUAL
23	SF-03-A-05	DETACHED HOUSES		SUFFOLK
		VALE LANE		
		BURY ST EDMUNDS		
		Edge of Town		
		Residential Zone		
		Total Number of dwellings:	18	
		Survey date: WEDNESDAY	09/09/15	Survey Type: MANUAL
24	SH-03-A-05	SEMI-DETACHED / TERRACED		SHROPSHIRE
		SANDCROFT		
		SUTTON HILL		
		TELFORD		
		Edge of Town		
		Residential Zone		
		Total Number of dwellings:	54	
		Survey date: THURSDAY	24/10/13	Survey Type: MANUAL
25	SH-03-A-06	BUNGALOWS		SHROPSHIRE
		ELLESMERE ROAD		
		SHREWSBURY		
		Edge of Town		
		Residential Zone		
		Total Number of dwellings:	16	
		Survey date: THURSDAY	22/05/14	Survey Type: MANUAL
26	SM-03-A-01	DETACHED & SEMI		SOMERSET
		WEMBDON ROAD		
		NORTHFIELD		
		BRIDGWATER		
		Edge of Town		
		Residential Zone		
		Total Number of dwellings:	33	
		Survey date: THURSDAY	24/09/15	Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

27	SY-03-A-01	SEMI DETACHED HOUSES		SOUTH YORKSHIRE
	A19 BENTLEY ROAD			
	BENTLEY RISE			
	DONCASTER			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Number of dwellings:	54		
	Survey date: WEDNESDAY	18/09/13		Survey Type: MANUAL
28	TW-03-A-02	SEMI-DETACHED		TYNE & WEAR
	WEST PARK ROAD			
	GATESHEAD			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Number of dwellings:	16		
	Survey date: MONDAY	07/10/13		Survey Type: MANUAL
29	WK-03-A-01	TERRACED / SEMI / DET.		WARWICKSHIRE
	ARLINGTON AVENUE			
	LEAMINGTON SPA			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Number of dwellings:	6		
	Survey date: FRIDAY	21/10/11		Survey Type: MANUAL
30	WK-03-A-02	BUNGALOWS		WARWICKSHIRE
	NARBERTH WAY			
	POTTERS GREEN			
	COVENTRY			
	Edge of Town			
	Residential Zone			
	Total Number of dwellings:	17		
	Survey date: THURSDAY	17/10/13		Survey Type: MANUAL
31	WL-03-A-02	SEMI DETACHED		WILTSHIRE
	HEADLANDS GROVE			
	SWINDON			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Number of dwellings:	27		
	Survey date: THURSDAY	22/09/16		Survey Type: MANUAL
32	WS-03-A-05	TERRACED & FLATS		WEST SUSSEX
	UPPER SHOREHAM ROAD			
	SHOREHAM BY SEA			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Number of dwellings:	48		
	Survey date: WEDNESDAY	18/04/12		Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

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

MULTI-MODAL VEHICLES

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	32	35	0.081	32	35	0.296	32	35	0.377
08:00 - 09:00	32	35	0.139	32	35	0.404	32	35	0.543
09:00 - 10:00	32	35	0.144	32	35	0.184	32	35	0.328
10:00 - 11:00	32	35	0.130	32	35	0.136	32	35	0.266
11:00 - 12:00	32	35	0.157	32	35	0.147	32	35	0.304
12:00 - 13:00	32	35	0.161	32	35	0.155	32	35	0.316
13:00 - 14:00	32	35	0.160	32	35	0.176	32	35	0.336
14:00 - 15:00	32	35	0.151	32	35	0.182	32	35	0.333
15:00 - 16:00	32	35	0.252	32	35	0.189	32	35	0.441
16:00 - 17:00	32	35	0.283	32	35	0.178	32	35	0.461
17:00 - 18:00	32	35	0.343	32	35	0.141	32	35	0.484
18:00 - 19:00	32	35	0.233	32	35	0.149	32	35	0.382
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.234			2.337			4.571

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

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Parameter summary

Trip rate parameter range selected:	6 - 98 (units:)
Survey date date range:	01/01/10 - 27/11/17
Number of weekdays (Monday-Friday):	32
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	2
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

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

MULTI-MODAL TAXIS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	32	35	0.004	32	35	0.004	32	35	0.008
08:00 - 09:00	32	35	0.008	32	35	0.008	32	35	0.016
09:00 - 10:00	32	35	0.005	32	35	0.004	32	35	0.009
10:00 - 11:00	32	35	0.003	32	35	0.004	32	35	0.007
11:00 - 12:00	32	35	0.004	32	35	0.004	32	35	0.008
12:00 - 13:00	32	35	0.002	32	35	0.001	32	35	0.003
13:00 - 14:00	32	35	0.003	32	35	0.004	32	35	0.007
14:00 - 15:00	32	35	0.004	32	35	0.003	32	35	0.007
15:00 - 16:00	32	35	0.005	32	35	0.005	32	35	0.010
16:00 - 17:00	32	35	0.003	32	35	0.003	32	35	0.006
17:00 - 18:00	32	35	0.003	32	35	0.002	32	35	0.005
18:00 - 19:00	32	35	0.003	32	35	0.004	32	35	0.007
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.047			0.046			0.093

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

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Parameter summary

Trip rate parameter range selected:	6 - 98 (units:)
Survey date date range:	01/01/10 - 27/11/17
Number of weekdays (Monday-Friday):	32
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	2
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

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

MULTI-MODAL OGVS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	32	35	0.000	32	35	0.000	32	35	0.000
08:00 - 09:00	32	35	0.004	32	35	0.003	32	35	0.007
09:00 - 10:00	32	35	0.004	32	35	0.004	32	35	0.008
10:00 - 11:00	32	35	0.004	32	35	0.002	32	35	0.006
11:00 - 12:00	32	35	0.004	32	35	0.004	32	35	0.008
12:00 - 13:00	32	35	0.001	32	35	0.002	32	35	0.003
13:00 - 14:00	32	35	0.003	32	35	0.002	32	35	0.005
14:00 - 15:00	32	35	0.002	32	35	0.003	32	35	0.005
15:00 - 16:00	32	35	0.001	32	35	0.001	32	35	0.002
16:00 - 17:00	32	35	0.001	32	35	0.002	32	35	0.003
17:00 - 18:00	32	35	0.002	32	35	0.002	32	35	0.004
18:00 - 19:00	32	35	0.000	32	35	0.000	32	35	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.026			0.025			0.051

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

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Parameter summary

Trip rate parameter range selected:	6 - 98 (units:)
Survey date date range:	01/01/10 - 27/11/17
Number of weekdays (Monday-Friday):	32
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	2
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

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

MULTI-MODAL PSVS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	32	35	0.000	32	35	0.000	32	35	0.000
08:00 - 09:00	32	35	0.002	32	35	0.002	32	35	0.004
09:00 - 10:00	32	35	0.000	32	35	0.000	32	35	0.000
10:00 - 11:00	32	35	0.000	32	35	0.000	32	35	0.000
11:00 - 12:00	32	35	0.002	32	35	0.002	32	35	0.004
12:00 - 13:00	32	35	0.000	32	35	0.000	32	35	0.000
13:00 - 14:00	32	35	0.000	32	35	0.000	32	35	0.000
14:00 - 15:00	32	35	0.000	32	35	0.000	32	35	0.000
15:00 - 16:00	32	35	0.002	32	35	0.002	32	35	0.004
16:00 - 17:00	32	35	0.000	32	35	0.000	32	35	0.000
17:00 - 18:00	32	35	0.000	32	35	0.000	32	35	0.000
18:00 - 19:00	32	35	0.000	32	35	0.000	32	35	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.006			0.006			0.012

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

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Parameter summary

Trip rate parameter range selected:	6 - 98 (units:)
Survey date date range:	01/01/10 - 27/11/17
Number of weekdays (Monday-Friday):	32
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	2
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

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

MULTI-MODAL CYCLISTS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	32	35	0.009	32	35	0.028	32	35	0.037
08:00 - 09:00	32	35	0.001	32	35	0.030	32	35	0.031
09:00 - 10:00	32	35	0.002	32	35	0.012	32	35	0.014
10:00 - 11:00	32	35	0.004	32	35	0.013	32	35	0.017
11:00 - 12:00	32	35	0.004	32	35	0.005	32	35	0.009
12:00 - 13:00	32	35	0.009	32	35	0.006	32	35	0.015
13:00 - 14:00	32	35	0.009	32	35	0.003	32	35	0.012
14:00 - 15:00	32	35	0.005	32	35	0.006	32	35	0.011
15:00 - 16:00	32	35	0.025	32	35	0.004	32	35	0.029
16:00 - 17:00	32	35	0.022	32	35	0.005	32	35	0.027
17:00 - 18:00	32	35	0.026	32	35	0.007	32	35	0.033
18:00 - 19:00	32	35	0.012	32	35	0.006	32	35	0.018
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.128			0.125			0.253

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

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Parameter summary

Trip rate parameter range selected:	6 - 98 (units:)
Survey date date range:	01/01/10 - 27/11/17
Number of weekdays (Monday-Friday):	32
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	2
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
 MULTI-MODAL VEHICLE OCCUPANTS
 Calculation factor: 1 DWELLS
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	32	35	0.099	32	35	0.371	32	35	0.470
08:00 - 09:00	32	35	0.178	32	35	0.583	32	35	0.761
09:00 - 10:00	32	35	0.173	32	35	0.243	32	35	0.416
10:00 - 11:00	32	35	0.165	32	35	0.185	32	35	0.350
11:00 - 12:00	32	35	0.202	32	35	0.180	32	35	0.382
12:00 - 13:00	32	35	0.205	32	35	0.203	32	35	0.408
13:00 - 14:00	32	35	0.195	32	35	0.229	32	35	0.424
14:00 - 15:00	32	35	0.198	32	35	0.229	32	35	0.427
15:00 - 16:00	32	35	0.402	32	35	0.262	32	35	0.664
16:00 - 17:00	32	35	0.401	32	35	0.244	32	35	0.645
17:00 - 18:00	32	35	0.469	32	35	0.185	32	35	0.654
18:00 - 19:00	32	35	0.307	32	35	0.197	32	35	0.504
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.994			3.111			6.105

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

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Parameter summary

Trip rate parameter range selected:	6 - 98 (units:)
Survey date date range:	01/01/10 - 27/11/17
Number of weekdays (Monday-Friday):	32
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	2
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

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

MULTI-MODAL PEDESTRIANS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	32	35	0.016	32	35	0.080	32	35	0.096
08:00 - 09:00	32	35	0.057	32	35	0.191	32	35	0.248
09:00 - 10:00	32	35	0.056	32	35	0.072	32	35	0.128
10:00 - 11:00	32	35	0.048	32	35	0.065	32	35	0.113
11:00 - 12:00	32	35	0.051	32	35	0.043	32	35	0.094
12:00 - 13:00	32	35	0.063	32	35	0.046	32	35	0.109
13:00 - 14:00	32	35	0.056	32	35	0.057	32	35	0.113
14:00 - 15:00	32	35	0.053	32	35	0.054	32	35	0.107
15:00 - 16:00	32	35	0.158	32	35	0.085	32	35	0.243
16:00 - 17:00	32	35	0.106	32	35	0.060	32	35	0.166
17:00 - 18:00	32	35	0.104	32	35	0.055	32	35	0.159
18:00 - 19:00	32	35	0.058	32	35	0.041	32	35	0.099
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.826			0.849			1.675

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

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Parameter summary

Trip rate parameter range selected:	6 - 98 (units:)
Survey date date range:	01/01/10 - 27/11/17
Number of weekdays (Monday-Friday):	32
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	2
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

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

MULTI-MODAL BUS/TRAM PASSENGERS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	32	35	0.004	32	35	0.017	32	35	0.021
08:00 - 09:00	32	35	0.002	32	35	0.013	32	35	0.015
09:00 - 10:00	32	35	0.002	32	35	0.007	32	35	0.009
10:00 - 11:00	32	35	0.004	32	35	0.009	32	35	0.013
11:00 - 12:00	32	35	0.005	32	35	0.003	32	35	0.008
12:00 - 13:00	32	35	0.009	32	35	0.011	32	35	0.020
13:00 - 14:00	32	35	0.004	32	35	0.001	32	35	0.005
14:00 - 15:00	32	35	0.005	32	35	0.004	32	35	0.009
15:00 - 16:00	32	35	0.009	32	35	0.004	32	35	0.013
16:00 - 17:00	32	35	0.010	32	35	0.001	32	35	0.011
17:00 - 18:00	32	35	0.013	32	35	0.004	32	35	0.017
18:00 - 19:00	32	35	0.018	32	35	0.000	32	35	0.018
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.085			0.074			0.159

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

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Parameter summary

Trip rate parameter range selected:	6 - 98 (units:)
Survey date date range:	01/01/10 - 27/11/17
Number of weekdays (Monday-Friday):	32
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	2
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL TOTAL RAIL PASSENGERS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	32	35	0.000	32	35	0.017	32	35	0.017
08:00 - 09:00	32	35	0.000	32	35	0.004	32	35	0.004
09:00 - 10:00	32	35	0.000	32	35	0.002	32	35	0.002
10:00 - 11:00	32	35	0.000	32	35	0.000	32	35	0.000
11:00 - 12:00	32	35	0.000	32	35	0.001	32	35	0.001
12:00 - 13:00	32	35	0.000	32	35	0.002	32	35	0.002
13:00 - 14:00	32	35	0.000	32	35	0.000	32	35	0.000
14:00 - 15:00	32	35	0.001	32	35	0.001	32	35	0.002
15:00 - 16:00	32	35	0.000	32	35	0.000	32	35	0.000
16:00 - 17:00	32	35	0.000	32	35	0.001	32	35	0.001
17:00 - 18:00	32	35	0.004	32	35	0.000	32	35	0.004
18:00 - 19:00	32	35	0.004	32	35	0.000	32	35	0.004
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.009			0.028			0.037

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Parameter summary

Trip rate parameter range selected:	6 - 98 (units:)
Survey date date range:	01/01/10 - 27/11/17
Number of weekdays (Monday-Friday):	32
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	2
Surveys manually removed from selection:	0

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

MULTI-MODAL COACH PASSENGERS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	32	35	0.000	32	35	0.000	32	35	0.000
08:00 - 09:00	32	35	0.000	32	35	0.002	32	35	0.002
09:00 - 10:00	32	35	0.000	32	35	0.000	32	35	0.000
10:00 - 11:00	32	35	0.000	32	35	0.000	32	35	0.000
11:00 - 12:00	32	35	0.000	32	35	0.000	32	35	0.000
12:00 - 13:00	32	35	0.000	32	35	0.000	32	35	0.000
13:00 - 14:00	32	35	0.000	32	35	0.000	32	35	0.000
14:00 - 15:00	32	35	0.000	32	35	0.000	32	35	0.000
15:00 - 16:00	32	35	0.002	32	35	0.000	32	35	0.002
16:00 - 17:00	32	35	0.000	32	35	0.000	32	35	0.000
17:00 - 18:00	32	35	0.000	32	35	0.000	32	35	0.000
18:00 - 19:00	32	35	0.000	32	35	0.000	32	35	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.002			0.002			0.004

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

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Parameter summary

Trip rate parameter range selected:	6 - 98 (units:)
Survey date date range:	01/01/10 - 27/11/17
Number of weekdays (Monday-Friday):	32
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	2
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
 MULTI-MODAL PUBLIC TRANSPORT USERS
 Calculation factor: 1 DWELLS
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	32	35	0.004	32	35	0.034	32	35	0.038
08:00 - 09:00	32	35	0.002	32	35	0.018	32	35	0.020
09:00 - 10:00	32	35	0.002	32	35	0.009	32	35	0.011
10:00 - 11:00	32	35	0.004	32	35	0.009	32	35	0.013
11:00 - 12:00	32	35	0.005	32	35	0.004	32	35	0.009
12:00 - 13:00	32	35	0.009	32	35	0.013	32	35	0.022
13:00 - 14:00	32	35	0.004	32	35	0.001	32	35	0.005
14:00 - 15:00	32	35	0.006	32	35	0.005	32	35	0.011
15:00 - 16:00	32	35	0.011	32	35	0.004	32	35	0.015
16:00 - 17:00	32	35	0.010	32	35	0.002	32	35	0.012
17:00 - 18:00	32	35	0.017	32	35	0.004	32	35	0.021
18:00 - 19:00	32	35	0.022	32	35	0.000	32	35	0.022
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.096			0.103			0.199

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

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Parameter summary

Trip rate parameter range selected:	6 - 98 (units:)
Survey date date range:	01/01/10 - 27/11/17
Number of weekdays (Monday-Friday):	32
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	2
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

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

MULTI-MODAL TOTAL PEOPLE

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	32	35	0.128	32	35	0.513	32	35	0.641
08:00 - 09:00	32	35	0.238	32	35	0.822	32	35	1.060
09:00 - 10:00	32	35	0.232	32	35	0.335	32	35	0.567
10:00 - 11:00	32	35	0.222	32	35	0.273	32	35	0.495
11:00 - 12:00	32	35	0.263	32	35	0.232	32	35	0.495
12:00 - 13:00	32	35	0.286	32	35	0.267	32	35	0.553
13:00 - 14:00	32	35	0.264	32	35	0.290	32	35	0.554
14:00 - 15:00	32	35	0.263	32	35	0.294	32	35	0.557
15:00 - 16:00	32	35	0.596	32	35	0.356	32	35	0.952
16:00 - 17:00	32	35	0.539	32	35	0.311	32	35	0.850
17:00 - 18:00	32	35	0.616	32	35	0.251	32	35	0.867
18:00 - 19:00	32	35	0.399	32	35	0.245	32	35	0.644
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:	4.046			4.189			8.235		

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Survey date date range:	01/01/10 - 27/11/17
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Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	2
Surveys manually removed from selection:	0

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APPENDIX J. Technical Note ITB12174-007B and HCC response to previous application



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Head of Planning
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PO9 2AX

Enquiries to	Chris Hirst	My reference	6/3/13/182
Direct Line	01962 846877	Your reference	APP/19/00427
Date	14 th November 2019	Email	Chris.Hirst@hants.gov.uk

For the attention of D Haywood

Dear Madam,

Land at Lower Road, Havant – Development of 50 new dwellings together with access, landscaping and open space.

Thank you for re-consultation on the above planning application. In response to the Highway Authority's letter dated 23rd May 2019, the applicant has produced a Technical Note aiming to overcome the outstanding highway matters. The following response considers the points raised within this document.

Traffic Modelling

The original transport statement including modelling for the following junctions:

- Site Access/Lower Road;
- Brookside Road/Bedhampton Road; and
- Bedhampton Road/Bedhampton Hill Roundabout.

It was identified in the Highway Authority's previous response that the modelling has only been undertaken to 2019, which should have been considered as the base year for the assessment. To understand the impact of traffic from this development, the Highway Authority requested modelling to a future year of 2024, including the 'Forty Acre Farm' site (planning reference APP/18/00450) as a committed development.

A subsequent sensitivity test has been undertaken to model the aforementioned junctions to 2024. Under this scenario, the Portsdown Hill Road arm of the Bedhampton Road/Bedhampton Hill Roundabout increases to an RFC of 0.92 and 1.08 in the AM and PM peaks respectively. Whilst the

Director of Economy, Transport and Environment
Stuart Jarvis BSc DipTP FCIHT MRTPI

latter is noted to be overcapacity, this is primarily caused by background growth at the roundabout, with the vehicular traffic from this development only resulting in 1 additional movement every 4 minutes across the peak hours. The predicted vehicular flows through this junction of 17 in the AM peak and 15 in the PM peak in 2024 result in an overall increase in vehicular flow of 0.75% and 0.58% in the AM and PM peaks respectively. For this reason, mitigation from this development is not considered necessary.

Accessibility

Nearby facilities were previously assessed against the National Travel Survey 2014 findings which suggested that the maximum distance that pedestrians are prepared to walk is 3.2km. This was disputed by the Highway Authority who asked for a reassessment of the identified facilities against the CIHT 'providing for journeys on foot' publication which considers 2km as the maximum walking distance.

The reassessment shows that while there are a number of employment and retail outside of the 2km bracket, the majority of the identified facilities sit within the 2km 'maximum preferred' walking distance.

The updated accessibility work did highlight that a number of the identified schools sit close to the maximum preferred walking distance. As a result, a route to school audit was requested on the main route to these schools to understand whether there are any improvements required as part of this development to maintain safety and encourage sustainable modes travel to school. Through this assessment, a number of improvements were identified, as detailed in drawing number ITB12174-GA-007 Rev A. The Highway Authority have reviewed these improvements and have agreed to the applicant paying a £23,489 contribution towards the improvements to be secured via a S106 agreement. This is considered adequate mitigation for the forecast increase in vehicular and pedestrian movements on routes to school.

The Highway authority is aware that there is local concern regarding the intensification of use by vehicles and pedestrians of a 50m section Lower Road with no footway. A number of improvement options have been explored; however, the limited width of the highway constrains what is achievable here. The highway authority has carefully considered the impact of the development on the current layout. There have been no recorded accidents over the past 20 years at this location. Vehicle use is forecast to increase by 26 trips in the AM and PM peak hours and pedestrian use by 12 in the AM peak and 8 in the PM peak. Vehicle speeds are low in the area, with 85th percentile speeds of 18.1mph eastbound and 15.7mph westbound (adjusted for wet weather). Hampshire County Council's safety auditor has reviewed the impact of the development on this section of highway and considers that the current safe operation of Lower Road will not be affected by the additional vehicular and pedestrian flows.

Given the above, the Highway Authority does not consider that the development will lead to an unacceptable impact on highway safety or a severe impact on the road network and as such no objection has been raised in relation to this issue. It is noted that there is also an alternative walking route utilising Footpath 107, which is accessed from Lodge Road. This is

partially lit and surfaced; however, the footpath width is restricted. This does offer an alternative route choice, although it is appreciated it may not be attractive to all users at all times.

Site Access

To aid the turning movement of a refuse vehicle, it was requested within the previous response that the radii of the junction was increased. This amendment has been reflected in drawing number MJA 5992:601 Rev C. Also, a reduced length of footway and crossing point to the northern side of Lower Road was requested from the development to provide pedestrian access to the wider network. This amendment has also been reflected in drawing number MJA 5992:601 Rev C. This drawing has been reviewed and is considered acceptable. The access works should be delivered by entering into a S278 agreement with the Highway Authority.

Internal Site Layout

The applicant has confirmed that the internal site layout will not be offered for adoption through a S38 agreement to the Highway Authority. However, to address the comments raised regarding the internal site layout, table 4.1 has been produced by the applicant and included within the Technical Note. This sets out the comments previously raised by the Highway Authority, and how these points have been addressed in the latest drawings.

With the internal roads and footways not being offered for adoption, the Highway Authority raise no objection to the proposals. However, the developer is advised to ensure that the roads and footways are designed to the minimum industry standards and/or Hampshire County Council's best practice as set out in

<https://www.hants.gov.uk/transport/developers/constructionstandards>.

Developers should also be made aware of the Advanced Payment Code (APC) that will be required by the Highway Authority. Details of this can be found via the following link -

<http://documents.hants.gov.uk/transport/APCProcess-Guidancedocumentforwebsitev22018-04-02.pdf>.

Recommendation

The applicant has adequately addressed the issues raised in the Highway Authority's previous response. The Highway Authority therefore recommend no objection to the application, subject to the following conditions and obligations:

S106 Obligations

- Financial contribution of £23,489 to be paid towards the route to school improvements identified in drawing number ITB12174-GA-007 Rev A prior to occupation of any dwelling.
- Site access works, as detailed in drawing number MJA 5992:601 Rev C, to be delivered prior to occupation of any dwelling.

Conditions

- Prior to first occupation the visibility splays shown for the vehicular access and two pedestrian accesses shall be provided so that any obstruction within the splays between 0.6m. and 3m. above the level of the carriageway shall be removed. These splays shall be maintained in this condition thereafter.

Reason:

In the interest of highway safety

- Prior to use at least the first 16m. of access measured from the nearside edge of carriageway of the adjacent highway shall be surfaced in a non-migratory material and shall be maintained in this condition thereafter.

Reason:

In the interest of highway safety

- A Construction Traffic Management Plan shall be submitted to, and approved in writing, by the Local Planning Authority (in consultation with Hampshire County Council Highway Authority) before development commences. This should include construction traffic routes and their management and control, parking and turning provision to be made on site, measures to prevent mud being deposited on the highway, adequate provision for addressing any abnormal wear and tear to the highway, and a programme for construction.

Reason:

In the interest of highway safety

I trust the above is clear, however should you have any further queries, please do not hesitate to contact Chris Hirst on the number noted above.

Yours Faithfully,

Chris Hirst – Assistant Transport Planner

Technical Note

Project No: ITB12174
Project Title: Land at Lower Road, Bedhampton
Title: Response to Hampshire Highways Comments
Ref: SJ/EF/ITB12174-007B R
Date: 11 October 2019

SECTION 1 INTRODUCTION

- 1.1 i-Transport LLP has been appointed by Bargate Homes to provide highways and transport advice in support of a planning application (APP/19/00427) for the development of 50 dwellings on land at Lower Road, Bedhampton. A Transport Statement (*ITB12174-005A R*) was prepared in support of the planning application.
- 1.2 This Technical Note summarises the additional information that has been provided to Hampshire County Council (HCC) in response to the comments received from them on the planning application on highway and transport matters. This information has all been provided to HCC and is agreed by them. The comments received from HCC are included in **Appendix A**. The remainder of the note is structured as follows:
- **Section 2** – provides additional information to response to queries raised regarding the traffic modelling;
 - **Section 3** – provides additional information in response to queries raised regarding the accessibility of the site;
 - **Section 4** – covers the site access and internal highway matters; and
 - **Section 5** – provides a summary and conclusions.

SECTION 2 TRAFFIC MODELLING

- 2.1 The HCC response includes comments relating to the junction modelling and the future year assessment, extracted below:

A 5-year future scenario to 2024 should be assessed to gauge how the identified junctions operate following the assignment of development trips on the network. Additionally, the Highway Authority require committed developments to be included, in this case the development to the west of A3(M) known as Forty Acre Farm will need to be taken into account.

2.2 Future year assessment and development impacts

- 2.2.1 In accordance with the Department for Transport Circular 02/2013 ‘The Strategic Road Network and Delivery of Sustainable Transport’, the assessment of the impact of the development has been carried out at the time of opening of the development. The opening year of the development is defined as:

“The opening of the development shall be taken to be the date at which the development first becomes available for occupation, unless agreed otherwise”

- 2.2.2 The application is for full planning permission and construction will begin as soon as planning permission is granted with occupations having been planned for 2019. Therefore, 2019 should be the year of opening for the site, although it is accepted that this is now more likely to be 2020. In any event, there is no basis for testing the road network five years after the development has opened as the full impact of the development is included in the opening year ‘with development test’, i.e. the traffic from 50 dwellings has been included in that test in line with DfT guidance. The 2019 modelling as set out in **Table 2.1**, clearly demonstrates the vanishingly small impact that the development will have on the operation of the Bedhampton Road/ Bedhampton Hill Roundabout. It is clear that the existing infrastructure is able to accommodate the additional traffic arising from the development. The development will increase one queue by one vehicle and increase delay by 1 second in the morning peak hour and 6 seconds in the evening peak hour on one arm of the junction (the Portsdown Hill Road arm). As shown in **Table 2.1**, there are no other measurable impacts arising as a result of the development.

Table 2.1: Bedhampton Road/ Bedhampton Hill Roundabout Traffic Modelling

	Morning Peak Hour			Evening Peak Hour		
	RFC	Queue	Delay (s)	RFC	Queue	Delay (s)
2019 ‘without development’						
Bedhampton Road	0.54	1	4	0.63	2	5
Bedhampton Hill	0.46	<1	5	0.55	1	6

	Morning Peak Hour			Evening Peak Hour		
	RFC	Queue	Delay (s)	RFC	Queue	Delay (s)
Portsdown Hill Road	0.81	4	27	0.95	10	71
Maylands Road	0.33	<1	11	0.17	<1	10
2019 'with development'						
Bedhampton Road	0.54	1	4	0.63	2	5
Bedhampton Hill	0.46	<1	5	0.55	1	6
Portsdown Hill Road	0.81	4	28	0.97	11	77
Maylands Road	0.33	<1	11	0.17	< 1	10

Source: Junctions 9

2.2.3 Circular 02/2013 also states:

"Where the overall forecast demand at the time of opening of the development can be accommodated by the existing infrastructure, further capacity mitigation will not be sought"

2.2.4 Put simply, the proposed development has been tested in full and its impact is effectively immeasurable and can in any event be accommodated by the existing infrastructure. Whilst the above information and evidence has been provided to HCC, they have not fully agreed it and have maintained a requirement for 2024 modelling and further consideration of the matter is set out in **Section 2.4**.

2.3 Committed Development

2.3.1 HCC also requested that the applicant include the Forty Acre Farm development (Ref: 18/00450) as a committed development in the traffic modelling. This is a large scheme comprising 320 dwellings and a 66-bedroom care home which has not yet been granted planning permission, but it is included in the emerging Havant Borough Council (HBC) Local Plan. To address HCC's request, the traffic from the Forty Acre Farm development (Ref: 18/00450) has now been included and is covered below.

2.3.2 The Forty Acre Farm Transport Assessment has been reviewed and whilst its study area does not extend as far as the Bedhampton Road/ Bedhampton Hill roundabout, it does include the A3(M) / Rusty Cutter junction. The traffic analysis indicates that the development will result in just 11 vehicles using Bedhampton Hill in the morning peak hour and 10 vehicles using it in the evening peak hour - which equates to one additional vehicle every five or six minutes in the very busiest hours of the day. Even if all these vehicles use the Bedhampton Road/ Bedhampton Hill roundabout it will not have any noticeable impact on the junction operation. HCC have not raised this junction or its operational impact in its response to the Forty Acre Farm development. This is further assessed in Section 2.4.

2.4 2024 Sensitivity Test

- 2.4.1 Despite the above, HCC maintained their request for a 5-year future year scenario to 2024 to gauge how the Bedhampton Road / Portsdown Hill Road roundabout will operate 5 years after the Lower Road development has been completed. In addition to this, HCC have also maintained their requirement for traffic from the current planning application at Forty Acre Farm to the west of the A3(M) to be included.
- 2.4.2 Although there is no basis for doing so, the 2024 'with development' assessment has been undertaken by the applicant. As the Forty Acre Farm site is a draft allocation within the draft Local Plan, the background traffic growth associated with that development is included within the TEMPRO growth rates to 2024. If the Forty Acre Farm site is to be included manually within the 2024 assessment i.e. the 11 vehicles from Forty Acres Farm (forecast to be using Bedhampton Hill) in the morning peak period and the 10 vehicles forecast to be using it during the evening peak period, then the TEMPRO growth rate would need to be adjusted down (in accordance with TEMPRO guidance) to avoid double counting. Either way, the 2024 'with development' assessment would produce the same results.
- 2.4.3 Therefore, the 2024 'with development' modelling in **Appendix B** has been carried out on the basis of an unadjusted TEMPRO growth rate to 2024 which includes Forty Acre Farm. The modelling in **Appendix B** demonstrates all arms of the Bedhampton Road / Portsdown Hill Road roundabout junction will operate within capacity in the morning peak. All arms of the junction also operate within capacity in the evening peak, with the exception of Portsdown Hill Road. The queue on that arm increases by 24 vehicles and the delay increases by 133 seconds (1 and a half minutes) compared to the 2019 'with development' scenario.
- 2.4.4 The level of increase in queuing and delay on Portsdown Hill Road is caused by the 5 years of background traffic growth (AM Growth=11%, PM Growth=10%). The 5 years of background traffic growth generates an increase of 162 vehicles passing through the junction during the morning peak hour and 176 vehicles in the evening peak hour. To put this into context, this is an additional vehicle movement every 20 seconds during the peak periods.
- 2.4.5 The proposed development at Lower Road of 50 dwellings will only generate 17 vehicle movements passing through the junction during the morning peak period and only 15 vehicles in the evening peak period. To put this level of increase into context, the proposed development at Lower Road only generates one additional vehicle movement every four minutes during the peak periods which is a negligible increase.

2.4.6 To summarise, it has been demonstrated in **Table 2.1** that the junction will operate within capacity on all arms 'with development' traffic included. The impact arising from the development will be imperceptible and cannot be considered 'severe' or unacceptable in highways terms. Despite there being no guidance stating it is legitimate to assess a 5-year future year scenario, it has been demonstrated (above and in **Appendix B**) that any capacity issues that may arise at the Bedhampton Road / Portsdown Hill Road roundabout junction are entirely associated with other background traffic growth and not the proposed development.

2.4.7 Finally, to provide further comfort to HCC, it is reasonable for Havant Borough Council (HBC) to use part of its CIL (Community Infrastructure Levy) receipts from this development and others (including Forty Acres Farm) to help bring forward an improvement at the Bedhampton Road / Portsdown Hill roundabout. The HBC CIL Regulation 123 List states those infrastructure projects that HBC may wholly or partly fund by CIL, including:

"Local and strategic transport improvements, except for site specific matters needed to mitigate the impact of the development and to make it acceptable in planning terms"

2.4.8 HBC have a strong track record of prioritising transport schemes through its allocation of CIL funds and the development at Lower Road will be required to make a CIL payment and as there are no site-specific matters needed to mitigate the traffic impact of the development at the Bedhampton Road / Portsdown Hill roundabout to make it acceptable in planning terms - CIL is a suitable means for the development contributing towards a future improvement here. The above is now agreed with HCC.

2.5 Traffic modelling summary

2.5.1 It is accepted from site observations that the Bedhampton Road / Bedhampton Hill roundabout is, at certain times of the day a well-used and busy junction. However, whilst the above modelling work shows that the Portsdown Hill Road arm is approaching its capacity, the impact arising from the proposed development itself is effectively immeasurable. In addition, the development impact can, in any event be accommodated by the existing roundabout.

2.5.2 The impact of wider growth from developments planned in the Borough up to 2024 adds additional pressure to this junction and it is reasonable for HBC to use part of its CIL (Community Infrastructure Levy) receipts from these developments and indeed the proposed scheme at Lower Road, to help bring forward an improvement at the Bedhampton Road / Bedhampton Hill roundabout.

2.5.3 In summary, there are no site-specific matters needed to mitigate the impact of the development at the Bedhampton Road / Bedhampton Hill roundabout to make it acceptable in planning terms and

therefore CIL is a suitable means for the development contributing towards a future improvement here.
The above is now agreed with HCC.

SECTION 3 ACCESSIBILITY

- 3.1 The HCC response identifies comments relating to the accessibility of the site to local services and facilities with a comment raised about some destinations being over 2km from the site.
- 3.2 Firstly, the National Travel Survey shows that 33% of journeys between 1 and 2 miles (up to 3.2km) will be on foot i.e. a significant proportion of people are prepared to walk for journeys of up to 2 miles (3.2km) meaning that just because a destination is over 2km away it does not mean it is not 'walkable'.
- 3.3 However, despite some of the facilities that are identified in Table 5.2 of the Transport Statement being over 2km, there remain a very wide range of services and facilities below 2km that residents of the site will be able to easily walk and cycle to, as shown in **Table 3.1**.

Table 3.1: Walk and Distance (Measured from Centre of site) to Key Local Facilities

Purpose	Destination	Approx. Total Distance (m)	Walking Distance	Cycling Distance
Leisure	Beefeater Rusty Cutter Restaurant	690	✓✓✓	✓✓✓
	Imperial Palace Restaurant	650	✓✓✓	✓✓✓
	Bedhampton Mariners Cricket Club	480	✓✓✓	✓✓✓
	Havant Leisure Centre	2200	✗	✗✗✗
	Havant Rugby Football Club	1800	✓✓	✓✓✓
	The Swan Inn Restaurant	1400	✓✓	✓✓✓
	Havant Park	2100	✗	✗✗✗
	Recreation Ground	970	✓✓	✓✓✓
Employment	Volvo Cars Havant	940	✓✓	✓✓✓
	Industrial Estate	2000	✗✗	✗✗✗
	Langstone Technology Park	2100	✗	✗✗✗
	Endeavour Business Park	2700	✗	✗✗✗
	Havant Town Centre	2200	✗	✗✗✗
	Havant Industrial Estate	1900	✓✓	✓✓✓
Retail	Belmont Barber Shop	650	✓✓✓	✓✓✓
	Deep Blue Takeaway	820	✓✓	✓✓✓
	Tesco Extra	2300	✗	✗✗✗
	Asda Superstore	2150	✗	✗✗✗
	Aldi	1900	✓✓	✓✓✓
	Havant Town Centre	2200	✗	✗✗✗
	Post Office	990	✓✓	✓✓✓
	Convenience Store	970	✓✓	✓✓✓
Education	Havant College	1800	✓✓	✓✓✓

Purpose	Destination	Approx. Total Distance (m)	Walking Distance	Cycling Distance
	Tresnant Junior School	2300	✓	✓✓✓
	Bidbury Junior School	1900	✓✓	✓✓✓
	Bidbury Infant School	1900	✓✓	✓✓✓
	St Thomas More's Pre School	1600	✓✓	✓✓✓
	Barncroft Primary School	1900	✓✓	✓✓✓
	South Down College	3000	✓	✓✓✓
	Bosmere Junior School	2400	✓	✓✓✓
Health	Rowlands Pharmacy	830	✓✓	✓✓✓
	Damira Dental Care	2200	✓	✓✓✓
Others	St Thomas Church	340	✓✓✓	✓✓✓
	Saint Nicholas Church	860	✓✓	✓✓✓
	Bedhampton Methodist Church	970	✓✓	✓✓✓

Note to walking distance column: ✓✓✓ up to 800m distance and reasonable cycle distance, ✓✓ - 800m – 2km distance, ✓ 2km – 3.2km – “maximum” walking distance

- 3.4 In addition, the site is very well served by bus with service number 21 and 23 serving the bus stops on Bedhampton Road approximately a 500m walk (less than 10 minutes) from the site. These services run 7 days a week with up to 10 services per hour on a weekday providing a very high frequency service to Portsmouth, Havant and Southsea. Therefore, residents will have realistic and genuine opportunities to access facilities and services further afield on a regular basis should they not wish to walk more than 2km.

Routes to school audit

- 3.5 The above information was submitted to HCC who subsequently requested a ‘Routes to School Audit’ considering the suitability of the routes to various schools and details of the school catchment areas. This has been completed and is summarised in **Appendix C**. It has been shared with HCC and confirms:
- The walking route to Bidbury School involves a pleasant walk on a street lit, tarmac path through Bidbury Meads recreation ground and then crossing a single road – where there is a choice of push button signal crossings to do so. From then on there are no roads to cross (only minor side streets which have dropped kerbs) and a continuous footway is provided to the school.
 - The walking route to Barncroft School, again, involves a pleasant walk on a street lit, tarmac path through Bidbury Meads recreation ground and then requires the crossing of a single road – at a push button pedestrian phase in the Bedhampton Road / Hulbert Road traffic signals and from then on there are no major roads to cross, just two side roads which join the walking

route – both of which have dropped kerb crossings, i.e. there is a continuous footway provided to the school.

- It was noted that HCC has no objection to the Forty Arce Farm planning application and that site relies on the same walking route to Bidbury Schools.
- In terms of secondary schooling, the catchment school is Warblington School (**Appendix C**) which shows the site location is well within the catchment area. The school pupils are required to be in school by 08.30 and the school can be accessed from the Lower Road site via:
 - Bus route number 23 runs every 10 minutes from Bedhampton Road (a 500m walk) to Havant Bus Station. From the bus station students can safely walk the remaining 1.5km in 18 minutes to Warblington School;
 - A continuous signed cycle route (Ref: Havant Borough Cycle map 2017) in 17 minutes, or by the unsigned but suggested cycle link route (Ref: Havant Borough Cycle map 2017) in 13 minutes; or
 - A 1.2km walk to Bedhampton Station, a 5 minutes train journey arrives at Warblington at 07.40 and then a 2-minute walk to the school arriving at 07.42.

3.6 On receipt of the above information HCC noted:

- At the junction of Lower Road / Brookside Road / Bidbury Lane there is no footway connection from the north side of Lower Road to the south side of Lower Road;
- That the path leading north from Bidbury Lane into Bidbury Meads recreation ground has limited visibility for pedestrians who would be on their homeward journey; and
- That there is missing tactile paving at the junction of Bedhampton Road and Kings Croft Lane.

3.7 Whilst the above observations are correct, further information has been shared with HCC which confirms that the proposed development would generate approximately 15 primary age pupils and that the existing walking route (despite the above observations) is safe and suitable. In addition, the need for improvements (to address the above observations) was not raised by HCC in pre-application discussions despite pre-application engagement being underway since February 2017. Also, draft Local Plan Policy H20 (albeit in draft) does not identify the need for these improvements which is where this type of requirement is normally identified. It is noteworthy that Policy H20 does specifically mention improvements to another walking route in Footpath 107 – which the applicant is providing a connection to.

3.8 However, to satisfy HCC on this matter **drawing ITB12174-GA-007 Rev A** was prepared which shows:

- A potential footway connection on Lower Road (at the Lower Road / Brookside Road / Bidbury Lane junction) along with a short length of footway and tactile paving on the north and south side of the road;
- A potential widening of the footway on the south side of Lower Road / Bidbury Lane tying back into the existing footway on Bidbury Lane;
- A potential localised kerb re-alignment at the bottom of the path leading from Bidbury Lane through to Bedhampton Road to provide improved visibility for pedestrians on their home bound journey in the traffic direction; and
- The potential introduction of tactile paving at the junction of Bedhampton Road and Kings Croft Lane.

3.9 The improvement works shown on **drawing ITB12174-GA-007 Rev A** are estimated to cost £23,489 and without prejudice to the matters raised above, the applicant has agreed to make a financial contribution under Section 106 of this value which would allow HCC to bring these works (or a variation of them) forward.

3.10 The above is now agreed with HCC.

SECTION 4 SITE ACCESS AND INTERNAL HIGHWAY MATTERS

4.1 The HCC response also seeks an alteration to the site access design and some further swept path analysis along with further information on the internal layout of the site.

Site access design and swept path analysis

4.2 The HCC response seeks a reduction in the length of the proposed footway on Lower Road to the east of the site, *'to better align with lower kerbs on the north side of Lower Road'*.

4.3 This has been reviewed alongside a more detailed consideration of the impact of constructing the footway alongside the existing mature hedge across the full site frontage. This review has included a site meeting with officers of HCC and HBC.

- 4.4 **MJA drawing 5995-P60A** now includes a reduction in the length of proposed footway and an informal crossing point to the northern side of Lower Road where pedestrians will be able to access the existing footway a short way along Lower Road. This option has been discussed on site with HCC and is agreed. In addition, it is agreed that an internal pedestrian route within the site will be provided to the west of the site access along what is annotated as 'Road 2', this will connect to a short section of footway which will re-join Lower Road opposite the junction with Lodge Road and provide a connection to the route to Footpath 107.
- 4.5 The HCC response also seeks a more generous radius at the site access junction to ease the path of larger vehicles, the access has now been widened and tracked to show how a super large refuse vehicle can turn in to and out of 'Road 2' including accessing and egressing Lower Road, this is shown in **MJA drawings 5995-P60A and 5995-P90A**.

Internal highway matters

- 4.6 The internal highway matters raised by HCC have now been addressed on **MJA drawings 5995-P60A and 5995-P90A** and a commentary is provided in **Table 4.1**.

Table 4.1: Summary of internal highway matters

HCC Comment	Applicant response
Super large refuse vehicle tracking required at the entrance between Lower Road and Road 2.	MJA drawings 5995-P60A and P90A now show the required tracking and an 'eased' radii.
It is not clear if the applicant would wish the Highway Authority to adopt the on-site roads and footways/paths	The on-site roads will not be offered for adoption.
Additional space is recommended between the edge of the road and the top of the excavation for the SUDS	This will be dealt with to the applicants satisfaction in their construction drawings.
There is a 'step' in Road 2 on the north side opposite plot 5, this should be replaced with a smooth transition between the two widths or the whole road kept at a single width	MJA drawing 5995-P60A now shows the removal of the 'step' in road 2 with a smoother alignment.
An explanation of the double line just to the north of road 2, and adjacent to plot 15 would be appreciated.	MJA drawing 5995-P60A now shows the removal of the double line.
The tracking drawing for a super large refuse vehicle in front of plot 10 would suggest the most southerly of the two trees shown is unlikely to last very long.	The trees shown on the MJA layouts are indicative only. The final landscaping layout will take into consideration all tracking movements.
Allocation of all private parking spaces to individual plots is required.	All private parking spaces will be allocated to individual plots.

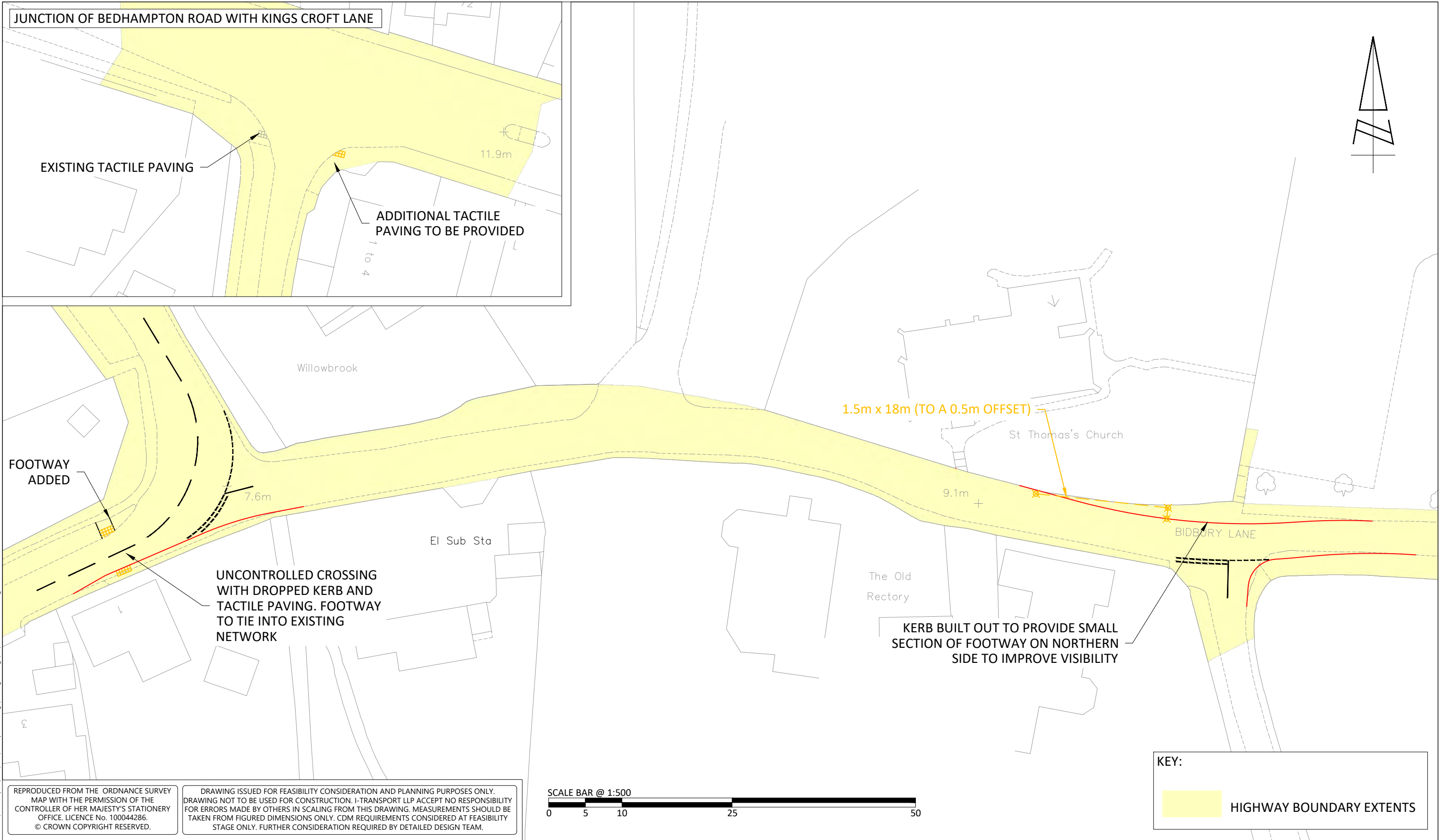
SECTION 5 SUMMARY AND CONCLUSIONS

5.1 The matters raised in HCC's response have been addressed, in summary:

- In line with the Department for Transport Circular 02/2013 'The Strategic Road Network and Delivery of Sustainable Transport', the assessment of the impact of the development has been carried out at the time of opening of development;
- The traffic modelling set out in **Table 2.1**, clearly demonstrates the vanishingly small impact that the development will have on the operation of the Bedhampton Road/ Bedhampton Hill Roundabout;
- Despite there being no guidance stating it is legitimate to assess a 5-year future year scenario, a 2024 assessment has been completed which includes the Forty Acre Farm development traffic (Ref: 18/00450) and which demonstrates all arms of the Bedhampton Road / Portsdown Hill Road roundabout junction will operate within capacity in the morning peak. All arms of the junction also operate within capacity in the evening peak, with the exception of Portsdown Hill Road - however this capacity issue is entirely associated with other background traffic growth (which adds 176 vehicles to the junction in the evening peak hour) and not the proposed Lower Road development which adds just 15 vehicles to the junction in the evening peak hour.
- It is reasonable for Havant Borough Council (HBC) to use part of its CIL (Community Infrastructure Levy) receipts from this (and other local developments), to help bring forward an improvement at the Bedhampton Road / Bedhampton Hill roundabout.
- In terms of accessibility, evidence is presented to demonstrate that just because a destination is over 2km away it does not mean it is not 'walkable' and in any event there remains a very wide range of services and facilities below 2km that residents of the site will be able to easily walk and cycle to including local schools;
- However, to further enhance the accessibility of the site a scheme of local improvements has been prepared and costed and the applicant has agreed to make a financial contribution to their value to HCC to allow them to bring them forward; and
- The detailed on-site and highway access matters raised by HCC have been addressed.

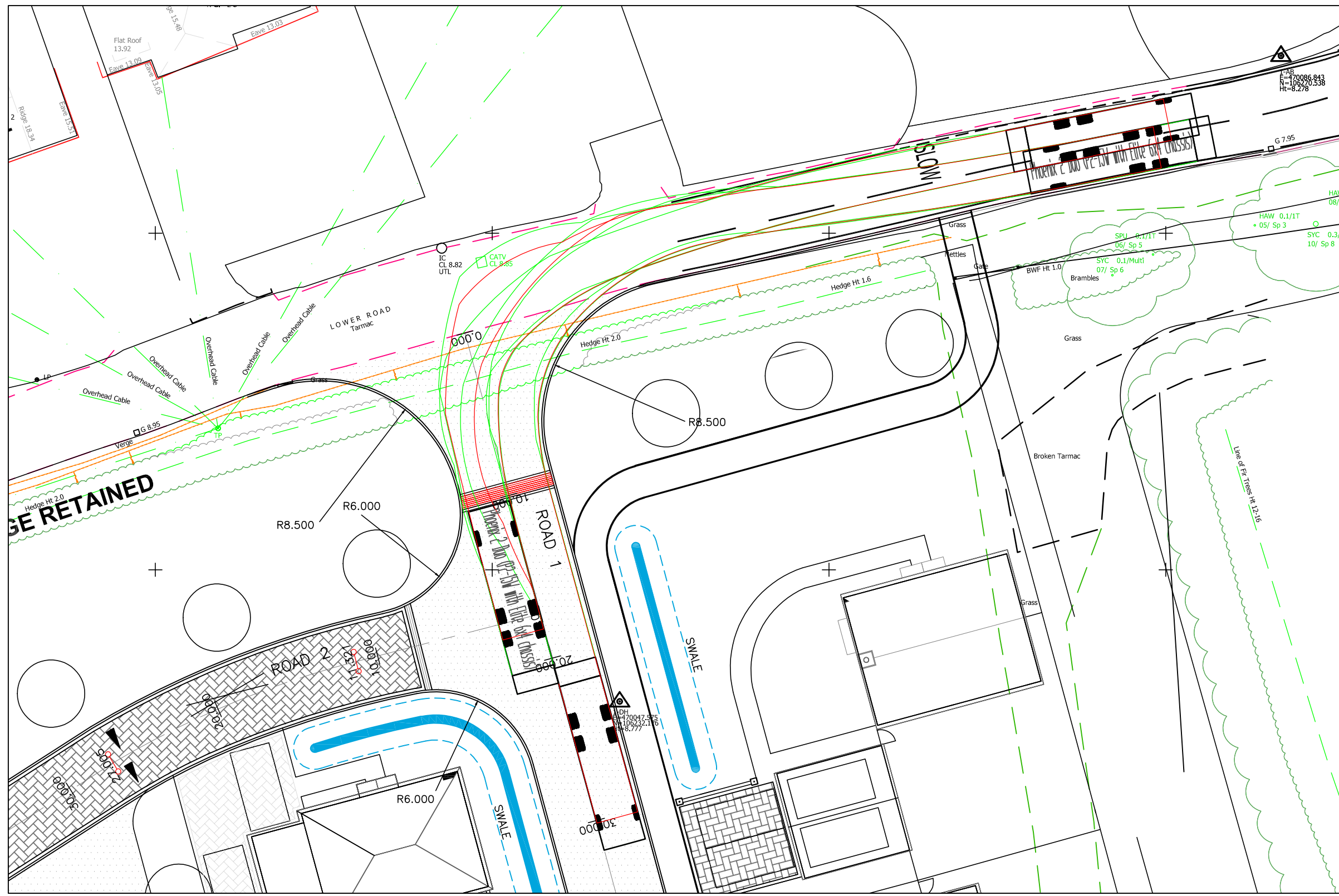
5.2 To conclude, all matters raised by HCC in their response to the application have been discussed with them, are addressed above and are agreed.

DRAWINGS

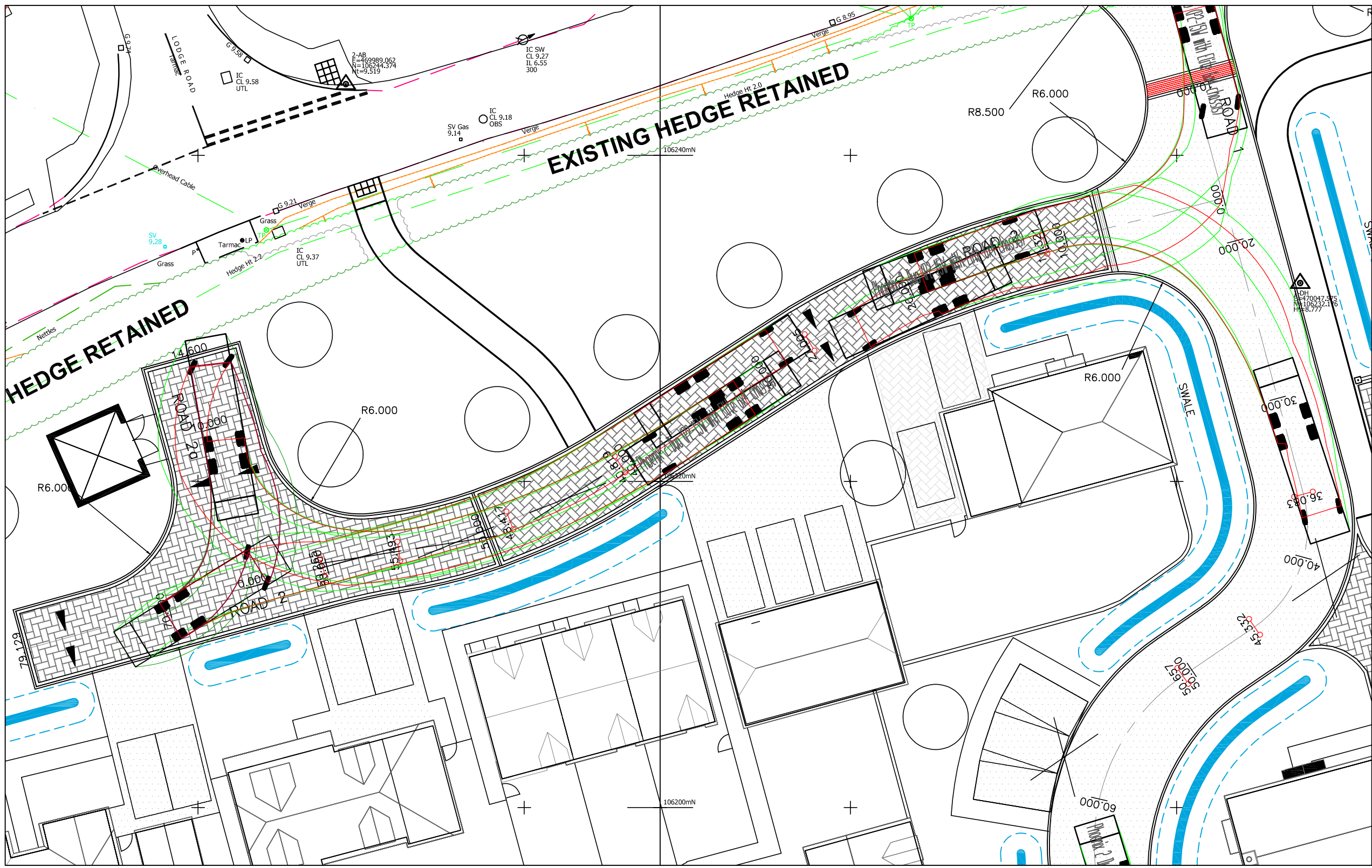


 Grove House, Lutyens Close, Chineham Basingstoke, Hampshire, RG24 8AG Tel: 01256 338640 www.i-transport.co.uk						TITLE: POTENTIAL IMPROVEMENT SCHEME ALONG BIDBURY LANE		DRAWN: MC	CHECKED: SJ	APPROVED: SJ
		A	18.09.19	MC	LAYOUT UPDATES	SJ	SJ	PROJECT No: ITB12174	SCALE @ A3: 1:500	DATE: 12.09.19
		REV	DATE	BY	DESCRIPTION	CHK	APD	DRAWING No: ITB12174-GA-007		REV: A
		STATUS: FOR INFORMATION					PROJECT: LAND AT LOWER ROAD, BEDHAMPTON	CLIENT: BARGATE HOMES		

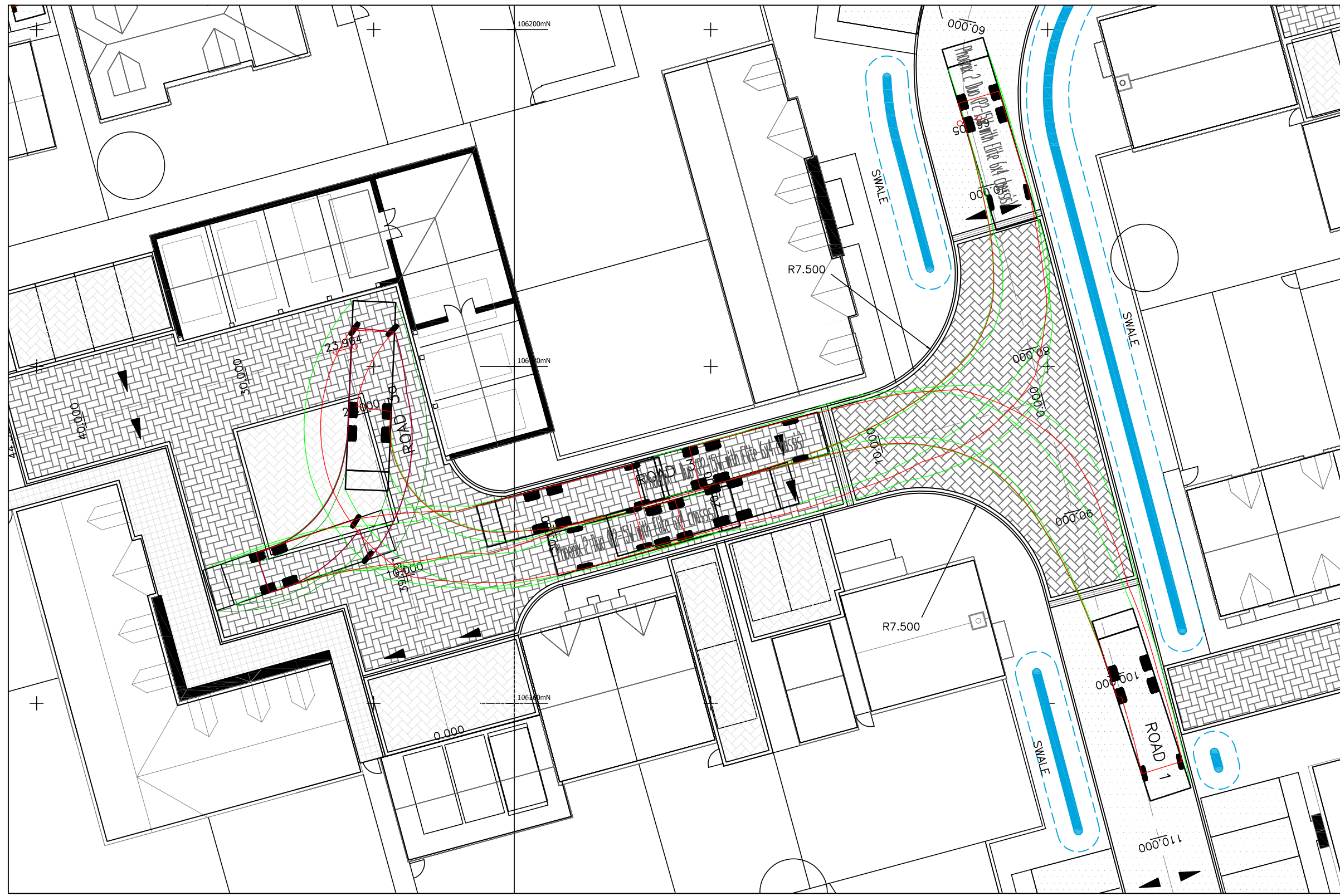
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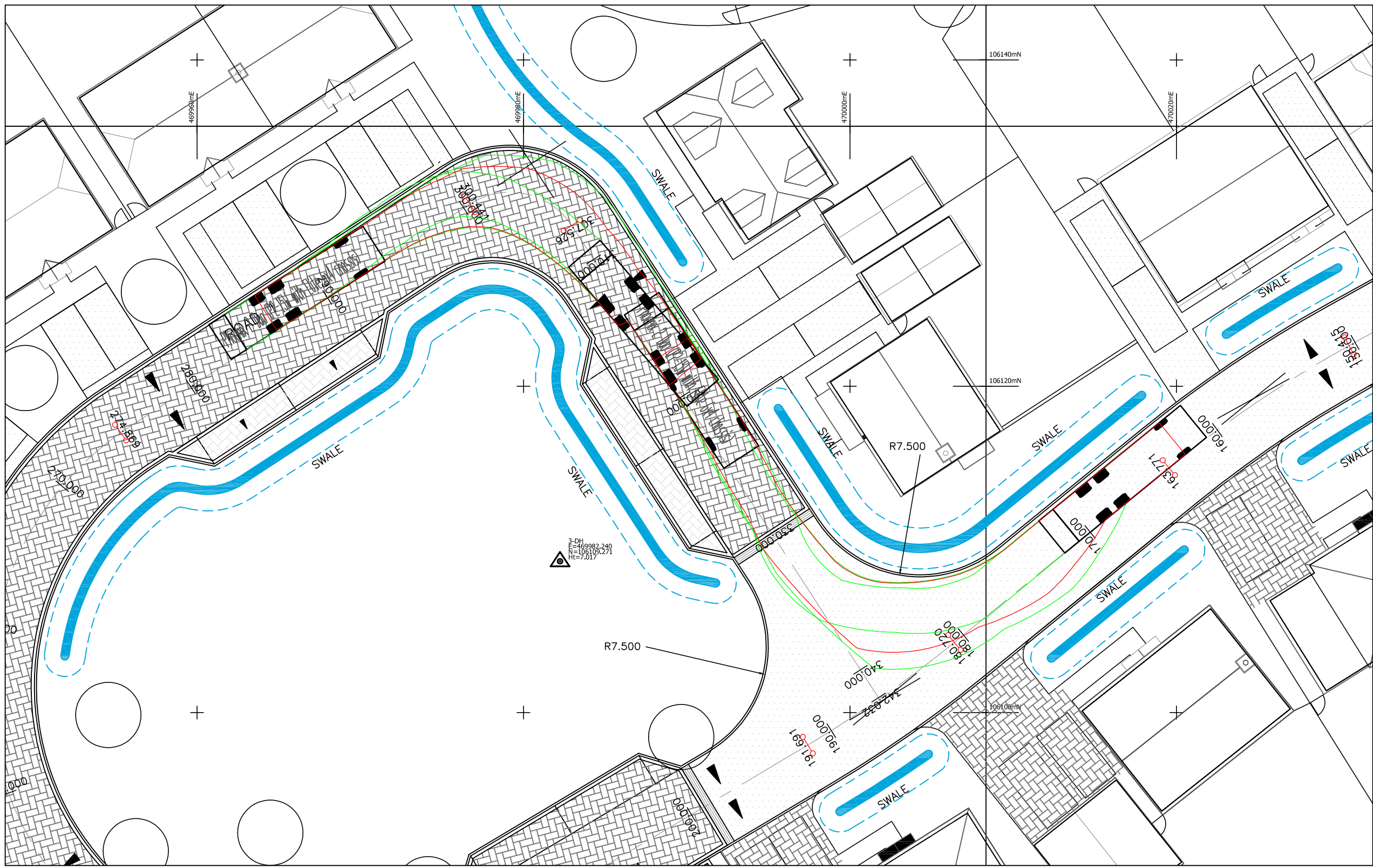
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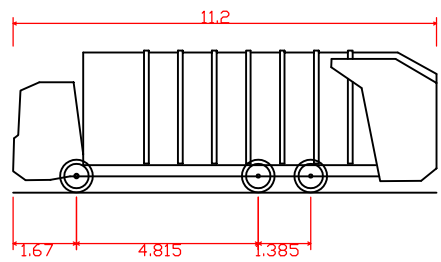
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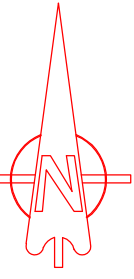
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ROAD 1 SPEED CONTROL BEND
& JUNCTION TRACKING
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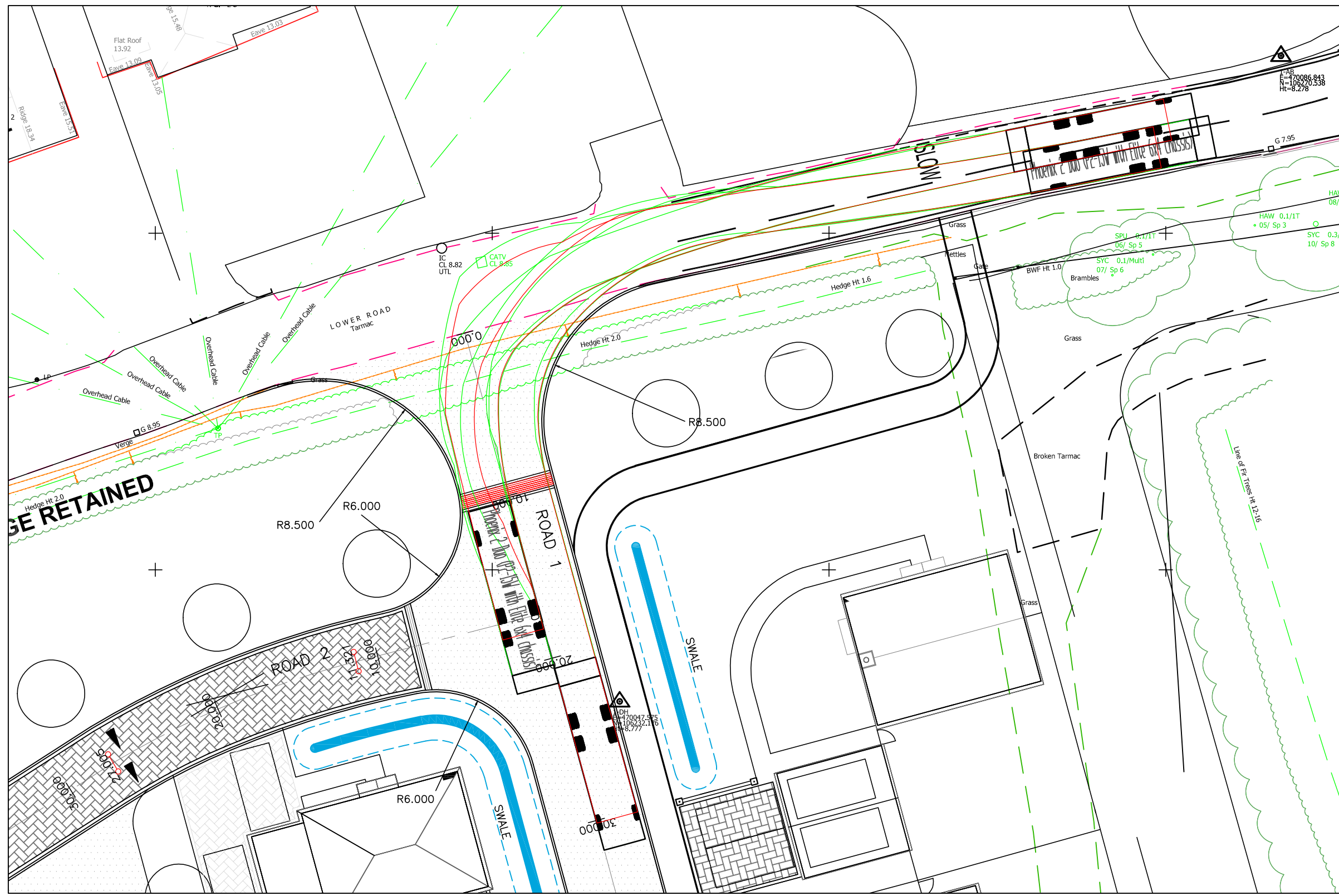


Phoenix 2 Duo (P2-15W with Elite 6x4 chassis)
Overall Length 11.200m
Overall Width 2.930m
Overall Body Height 2.930m
Min Body Ground Clearance 0.304m
Track Width 2.500m
Lock to lock time 4.00s
Kerb to Kerb Turning Radius 9.500m

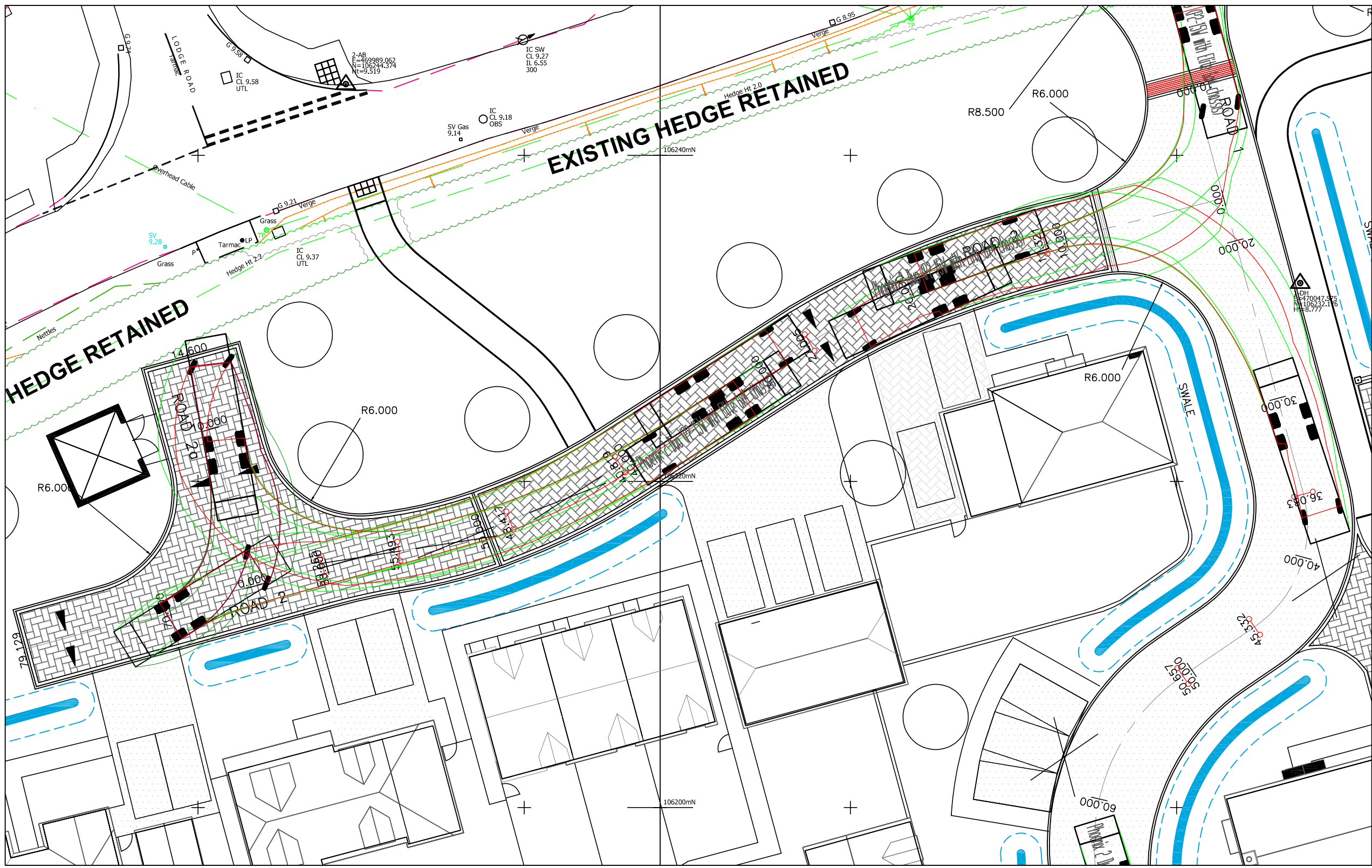


PRELIMINARY FOR PLANNING ONLY

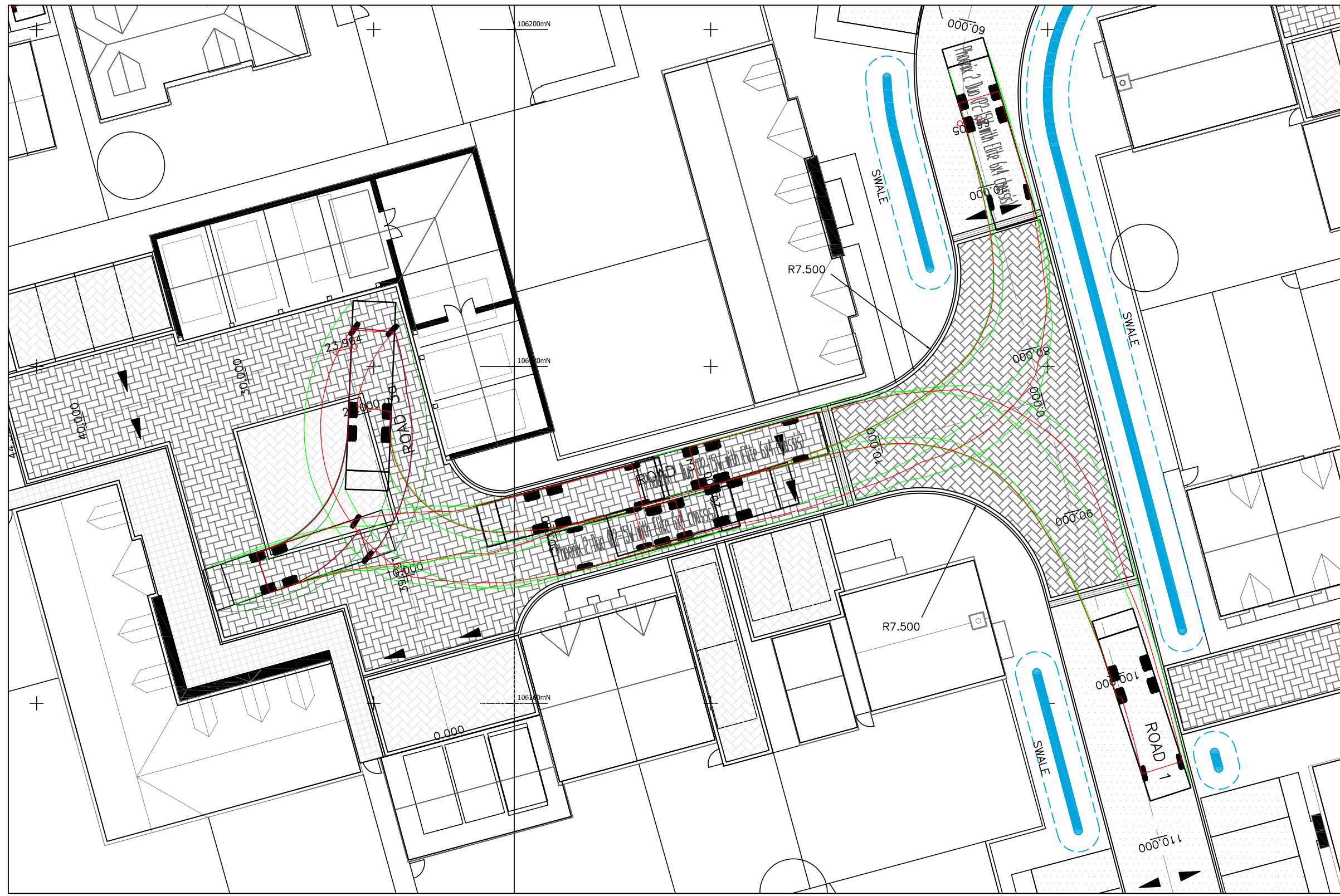
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REV. No.	DATE	DESCRIPTION	INITIALS
Client	 MJA CONSULTING CIVIL & STRUCTURAL ENGINEERS Ipsum Court, 24 The Quadrant, Abingdon Science Park, Oxon, OX14 3YS Tel: 01235 555173 Fax: 01235 523226		
Project	Manor Farm Bedhampton		
Title	Refuse vehicle tracking layout		
Scale	1:500@A1	Date	Mar'19
Checked		Drawn	KTG
Drawing No.	5992:P90		Rev
			A



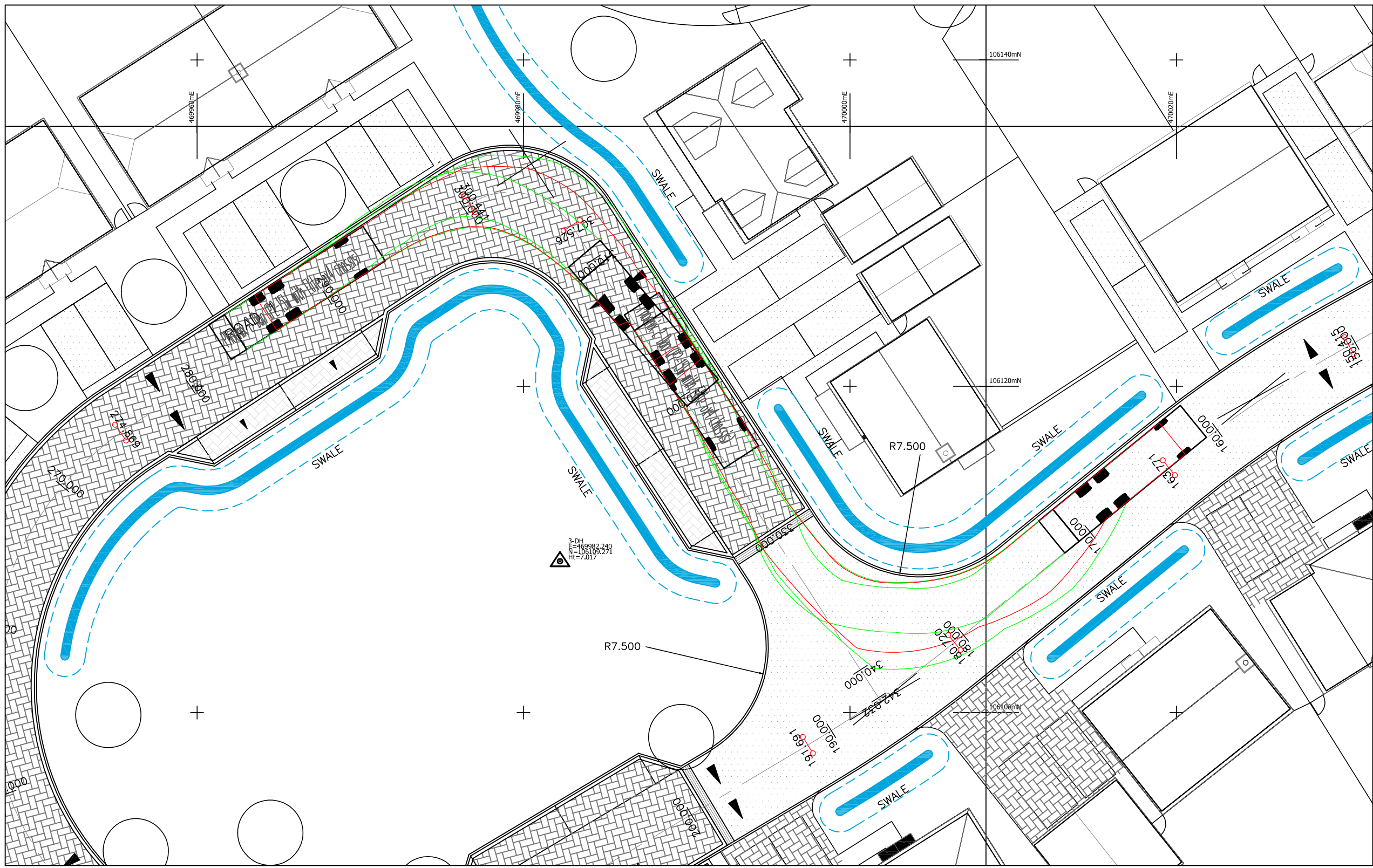
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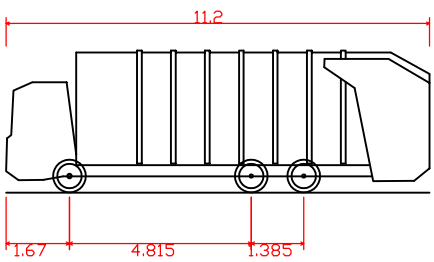
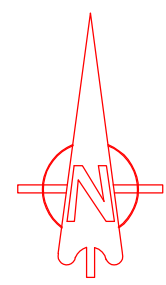
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ROAD 3 TRACKING
Scale 1:250



ROAD 1 SPEED CONTROL BEND
& JUNCTION TRACKING
Scale 1:250



Phoenix 2 Duo (P2-15W with Elite 6x4 chassis)
Overall Length 11.200m
Overall Width 2.930m
Overall Body Height 2.930m
Min Body Ground Clearance 0.304m
Track Width 2.500m
Lock to lock time 4.00s
Kerb to Kerb Turning Radius 9.500m

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Scale	1:500@A1	Date	Mar'19
Checked		Drawn	KTG
Drawing No.	5992:P90		Rev
			A

APPENDIX A. HCC RESPONSE

Havant Borough Council
Civic Offices
Civic Centre Road
Havant
PO9 2AX

*Economy, Transport and Environment Department
Elizabeth II Court West, The Castle
Winchester, Hampshire SO23 8UD*

Tel: 0300 555 1375 (General Enquiries)
0300 555 1388 (Roads and Transport)
0300 555 1389 (Recycling Waste & Planning)
Textphone 0300 555 1390
Fax 01962 847055
www.hants.gov.uk

Enquiries To Ray Alborough
Direct Line 01962 847 316
Date 23 May 2019

My reference 024645
Your reference APP/19/00427
Email havantdc@hants.gov.uk

Dear ,

Land at Lower Road, Havant

Development of 50 new dwellings together with access, landscaping and open space

I refer to your recent consultation in respect of the above planning application. The Highway Authority's comments on the Transport Statement are :-

Existing Conditions

Walking and Cycling

Lower Road is a rural style road with limited footway provision. Across the site frontage there is currently no footway on the southern side of Lower Road and on the north side provision at its junction with Lodge Road and a short section leading in to and just around the sharp bend at the eastern end of the site. There is another section commencing about 50m. to the north all the way to Brookside Road. There is a link from Lodge Road to Bedhampton Road via. Footpath 107 which also connects the site to the wider provision in Bedhampton.

Lower Road makes up part of Havant Borough Council's formal cycle network, signposting cyclists westwards across Rusty Cutter Roundabout or south along Harts Farm Way. Given the lack of footway or other shared use path provision, cycling along Lower Road takes place within the carriageway.

*Director of Economy, Transport and Environment
Stuart Jarvis BSc DipTP FCIHT MRTPI*

Bus

The closest bus stop to the development sits c.550m to the north on Bedhampton Road. The facilities here consist of a bus shelter, flagpole and timetable which are considered sufficient for encouraging the uptake of bus travel from the site. Bus service 21 operates every 10-15 minutes, while service 23 operates every 15 minutes, providing journeys to Portsmouth, Southsea and Havant.

Rail

The nearest train station (Bedhampton Rail Station) is c.1000m northeast of the development, providing regular journeys to destinations further afield. While the station does not benefit from a car park, cycle parking spaces are provided, representing a potential method of travel to replace the private car.

Local Highway Network

Lower Road can accommodate two way vehicular traffic and is subject to a 30mph speed limit. Automatic Traffic Surveys have been undertaken by the applicant to establish vehicle speeds along the road in proximity of the site. The wet weather 85th percentile speeds were recorded as 20.6 mph heading eastbound and 18.2 mph westbound. Vehicular flow has been recorded as 60 two-way movements in the AM peak hour, and 58 in the PM peak hour. Pedestrian and cyclist movements along Lower Road have also been recorded, highlighting Sunday as the busiest day for pedestrians with 149 two-way movements and Friday for cyclists with 104 two-way movements across the day. This level of pedestrian and cycle movements indicates that Lower Road currently operates as a shared surface.

Lower Road terminates to the west of the site, providing vehicular access to approximately 30 dwellings. There is a shared use footpath/cycleway link to the Rusty Cutter Roundabout beyond the end of the carriageway.

Personal Injury Accident Data

Personal Injury Accident (PIA) data has been collected from Hampshire Constabulary for the period between 01/05/11 to 31/01/2018 covering Brookside Road, Lower Road and Lodge Road. No personal Injury Incidents on these roads were recorded across the study period, indicating that there are no existing highway safety issues in the area. The Highway Authority is therefore satisfied that there are no existing safety issues on these roads.

Traffic Impact

To ascertain the likely number of vehicular trips generated by this development, the TRICS database has been consulted to provide trip rates for the AM and PM peak hours. Based on the criteria selected, the total two way trips are identified as 0.518 in

Director of Economy, Transport and Environment
Stuart Jarvis BSc DipTP FCIHT MRTPI

the AM peak and 0.517 in the PM peak, corresponding to vehicle trips of 26 in both the peak hours. The Highway Authority has carried out its own review of the likely number of trips from the development and confirm that the trip rates provided are acceptable.

The distribution of these vehicular trips has been split into commuting and business trips, with 46% of trips being for employment and 54% for other purposes (leisure, education, etc.). The distribution assumption for both of these categories has then been calculated. For commuting trips, National Census Journey to Work data has been used for output area Havant 018 MSOA. To understand other journey purpose trips, a gravity model has been by the applicant, focusing on destinations within a 35 minute drive. Combining the outputs for the above places Bedhampton/Havant as the highest trip attractor with 42.02% of all trips, followed by Portsmouth at 22.23% and Waterlooville/Horndean at 11.93%. These trips have been assigned onto the local road network in figures TF6 and TF7 and are considered acceptable.

Junction Modelling

Junction modelling has been undertaken at the following junctions:

- Site Access/Lower Road;
- Brookside Road/Bedhampton Road; and
- Bedhampton Road/Bedhampton Hill roundabout.

Within the modelling assessment, a 2017 base has been used to assess the operational performance of the junctions and 2019 with/without scenario used as a 'future year' to ascertain how development traffic will affect the operational performance of these junctions. Whilst this approach is considered acceptable in principle, we are in 2019, and this should be used as the base year within the modelling, rather than as a future scenario. A 5 year future scenario to 2024 should be assessed to gauge how the identified junctions operate following the assignment of development trips on the network. Additionally the Highway Authority require committed developments to be included, in this case the development to the west of A3(M) known as Forty Acre Farm will need to be taken into account. Detailed modelling comments cannot be provided until clarification is provided on these matters.

Site Access

Vehicular

Proposed vehicular access into the development was progressed through a Pre-Application Design Review with Hampshire County Council. Access into the site is proposed via a bellmouth access, as shown in drawing number ITB12174-GA-002. Visibility splays have been provided at 2.4m x 43m, commensurate with the 30mph speed limit. To reduce hedgerow loss along Lower Road, a 2m wide footway is provided internally in the site, heading west to connect to the existing footway provision at the junction between Lower Road and Lodge Road with a short connection forward

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of the frontage hedge to the existing post box. This will require the relocation of a street lighting column and a telegraph pole. A section of footway is provided along the site frontage to the east of the access, with tactile paving provided to cross pedestrians to the existing provision on the northern side of Lower Road. It is recommended to shorten this provision by a few metres to better align with lower kerbs on the north side of Lower Road.

The access has been tracked for a super large refuse vehicle, demonstrated in drawing number ITB12174-GA-006, showing the movement is tight based on the bellmouth radii. It should therefore be investigated whether the radii of the junction can be increased slightly to aid the movement of a refuse vehicle and other large vehicles in and out of the development. In addition tracking will be required to show how a super large refuse vehicle can turn in to and out of all road 2 including accessing and egressing Lower Road.

The application includes use of an existing agricultural access for construction purposes and how an articulated vehicle can enter and leave the site. The same should be provided for a large pantechicon vehicle which has different turning requirements.

A Stage 1 Road Safety Audit has been undertaken for the proposal. Comments were raised by the auditor and considered within the designers response which have been reflected in drawing number ITB12174-GA-002. A CTMP will be required prior to development of the site (for approval by the Highway Authority) to manage the movement of construction vehicles to and from the development and to address other issues such as preventing mud from being dragged onto the highway when egressing the site.

Pedestrian and Cycle Access

As mentioned, the frontage of the proposed development on Lower Road does not contain a footway. To address this matter, a 2m wide footway is proposed internal to the site, linking to the junction with Lodge Road to the west via tactile paving. The offer to provide signage towards Footpath 107 and Lodge Road is welcomed, additional signage to the west for pedestrians and cyclists may also be required and should be provided within the S278 design check submission.

Drawing number ITB12174-GA-002 details the footway connection to the east. This link is provided on the corner of Lower Road, linking to the existing footway provision on the northern side of the carriageway. North of this link, the footway terminates for 50m before recommencing on the approach to the junction with Brookside Road. The narrower carriageway at this location means a footway link cannot be provided across the missing section. However, traffic surveys have been carried out with 85th percentile speeds recorded at 21 mph and pedestrian forward visibility provided to 30m. It is therefore considered that the current safe operation of Lower Road as a shared surface

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across the absent section of footway is unlikely to be compromised by the additional vehicular trips generated by this development.

The distance to local facilities has been assessed from the development based on the criteria set out in the National Travel Survey 2014 which states 800 m. is a “comfortable walking distance”, 2 km. is a “reasonable” walking distance and 3.2 km. is a “maximum” walking distance. The Highway Authority does not accept the methodology for determining the likelihood of walking trips. Adopting 2 km. as a reasonable walking distance and 3.2 km. as a maximum regular walking distance is therefore not agreed.

The CIHT publication ‘Providing for journeys on foot’ states the preferred maximum walking distance is 2 km. for commuting and sight-seeing. Acceptable walking distances are also considered for a range of journey types within this document. This places a number of destinations highlighted in table 5.2 over the maximum distance that pedestrians are prepared to walk. This matter should be reassessed within the TA before further detailed comments on sustainable access to the site can be provided.

Site Layout

As mentioned above further tracking of a super large refuse vehicle is required at the entrance between Lowe Road and Road 2.

It is not clear if the applicant would wish the Highway Authority to adopt the on site roads and footways/paths. If that is the case and if it includes the SUDS then they will be required to only take water draining from the highway and not any roof or other private area. Either way additional space is recommended between the edge of the road and the top of the excavation for the SUDS.

There is a step in road 2 on the north side opposite plot 5, this should be replaced with a smooth transition between the two widths or the whole road kept at a single width.

An explanation of the double line just to the north of road 2, and adjacent to plot 15 would be appreciated.

The tracking drawing for a super large refuse vehicle in front of plot 10 would suggest the most southerly of the two trees shown is unlikely to last very long.

Allocation of all private parking spaces to individual plots is required.

The unallocated spaces (6 in number) are concentrated at the south west end of the site. The number is a matter for the Borough Council, but I recommend their width is increased to 2.5 m. and they are distributed more evenly throughout the site.

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There is a footpath shown looping through an area of Communal Open Space, the western link of which utilises a private drive serving plots 31 to 33. It is not recommended to have public rights over a shared private drive, but this is a matter for the Borough Council.

Recommendation

The Highway Authority are not currently in a position to provide a positive recommendation until the outstanding information and observations on the internal matters have been satisfactorily addressed and therefore at this time advise an objection on the grounds of :-

1. Inadequate information has been provided to enable the LPA to fully understand the implications of the proposed development on the local highway network.
2. Amendments are required to the layout to make it satisfactory to the LPA.

Yours sincerely,

Ray Alborough

Director of Economy, Transport and Environment
Stuart Jarvis BSc DipTP FCIHT MRTPI

APPENDIX B. 2024 MODELLING

Junctions 9										
ARCADY 9 - Roundabout Module										
Version: 9.5.0.6896										
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+44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk										
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution										

Filename: Bedhampton Roundabout August 2019.j9

Path: T:\Projects\12000 Series Project Numbers\12174\TB Land at Lower Road, Bedhampton\Tech\Junction

Assessments\Arcady\August 2019

Report generation date: 14/08/2019 09:56:27

- »2017 Observed Flows, AM
- »2017 Observed Flows , PM
- »2019 'Without Development', AM
- »2019 'Without Development', PM
- »2019 'With Development', AM
- »2019 'With Development', PM
- »2024 'With Development', AM
- »2024 'With Development', PM

Summary of junction performance

	AM					PM				
	Queue (Veh)	Delay (s)	RFC	LOS	Network Residual Capacity	Queue (Veh)	Delay (s)	RFC	LOS	Network Residual Capacity
	2017 Observed Flows									
1 - Bedhampton Road	1.1	3.86	0.52	A	7 % [3 - Portsdown Hill Road]	1.6	4.61	0.61	A	-6 % [3 - Portsdown Hill Road]
2 - Bedhampton Hill	0.8	4.89	0.44	A		1.1	5.67	0.53	A	
3 - Portsdown Hill Road	3.2	24.61	0.78	C		7.8	56.48	0.92	F	
4 - Maylands Road	0.5	10.17	0.31	B		0.2	9.84	0.16	A	
	2019 'Without Development'									
1 - Bedhampton Road	1.2	4.01	0.54	A	5 % [3 - Portsdown Hill Road]	1.7	4.80	0.63	A	-8 % [3 - Portsdown Hill Road]
2 - Bedhampton Hill	0.8	5.07	0.46	A		1.2	5.89	0.55	A	
3 - Portsdown Hill Road	3.7	27.49	0.81	D		10.2	71.02	0.95	F	
4 - Maylands Road	0.5	10.64	0.33	B		0.2	10.18	0.17	B	
	2019 'With Development'									
1 - Bedhampton Road	1.2	4.04	0.54	A	4 % [3 - Portsdown Hill Road]	1.7	4.83	0.63	A	-9 % [3 - Portsdown Hill Road]
2 - Bedhampton Hill	0.9	5.13	0.46	A		1.2	5.98	0.55	A	
3 - Portsdown Hill Road	3.8	28.13	0.81	D		11.3	77.33	0.97	F	
4 - Maylands Road	0.5	10.76	0.33	B		0.2	10.32	0.17	B	
	2024 'With Development'									
1 - Bedhampton Road	1.4	4.54	0.59	A	-4 % [3 - Portsdown Hill Road]	2.1	5.60	0.68	A	-15 % [3 - Portsdown Hill Road]
2 - Bedhampton Hill	1.0	5.74	0.51	A		1.5	6.93	0.61	A	
3 - Portsdown Hill Road	6.9	45.52	0.92	E		35.0	209.96	1.08	F	
4 - Maylands Road	0.6	12.64	0.39	B		0.2	11.36	0.20	B	

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

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

File summary

File Description

Title	Bedhampton Roundabout
Location	Lower Road, Bedhampton
Site number	
Date	08/06/2017
Version	
Status	
Identifier	
Client	
Jobnumber	ITB12174
Enumerator	RS
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	2017 Observed Flows	AM	DIRECT	07:30	08:30	60	15	✓
D2	2017 Observed Flows	PM	DIRECT	16:30	17:30	60	15	✓
D3	2019 'Without Development'	AM	DIRECT	07:30	08:30	60	15	✓
D4	2019 'Without Development'	PM	DIRECT	16:30	17:30	60	15	✓
D5	2019 'With Development'	AM	DIRECT	07:30	08:30	60	15	✓
D6	2019 'With Development'	PM	DIRECT	16:30	17:30	60	15	✓
D7	2024 'Without Development'	AM	DIRECT	07:30	08:30	60	15	
D8	2024 'Without Development'	PM	DIRECT	16:30	17:30	60	15	
D9	2024 'With Development'	AM	DIRECT	07:30	08:30	60	15	✓
D10	2024 'With Development'	PM	DIRECT	16:30	17:30	60	15	✓

Analysis Set Details

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

2017 Observed Flows, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Bedhampton Road - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bedhampton Road	Standard Roundabout		1, 2, 3, 4	8.67	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	7	3 - Portsdown Hill Road

Arms

Arms

Arm	Name	Description
1	Bedhampton Road	
2	Bedhampton Hill	
3	Portsdown Hill Road	
4	Maylands Road	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - Bedhampton Road	4.30	7.30	45.0	15.0	30.0	8.5	
2 - Bedhampton Hill	4.50	7.70	10.0	20.0	30.0	37.5	
3 - Portsdown Hill Road	2.80	4.80	3.0	7.5	30.0	50.0	
4 - Maylands Road	2.80	4.30	3.0	10.0	30.0	30.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/TS)
1 - Bedhampton Road	0.773	542.931
2 - Bedhampton Hill	0.669	448.650
3 - Portsdown Hill Road	0.444	221.149
4 - Maylands Road	0.494	243.293

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	2017 Observed Flows	AM	DIRECT	07:30	08:30	60	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1 - Bedhampton Road		DIRECT	✓	100.000
2 - Bedhampton Hill		DIRECT	✓	100.000
3 - Portsdown Hill Road		DIRECT	✓	100.000
4 - Maylands Road		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/TS)

07:30 -
07:45

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	4.00	100.00	128.00	2.00
	2 - Bedhampton Hill	112.00	1.00	28.00	3.00
	3 - Portsdown Hill Road	82.00	9.00	0.00	1.00
	4 - Maylands Road	8.00	23.00	12.00	0.00

Demand (Veh/TS)

07:45 -
08:00

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	4.00	99.00	136.00	2.00
	2 - Bedhampton Hill	111.00	0.00	32.00	4.00
	3 - Portsdown Hill Road	78.00	11.00	0.00	1.00
	4 - Maylands Road	7.00	15.00	7.00	0.00

Demand (Veh/TS)

08:00 -
08:15

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	5.00	103.00	119.00	2.00
	2 - Bedhampton Hill	102.00	1.00	10.00	3.00
	3 - Portsdown Hill Road	91.00	14.00	0.00	2.00
	4 - Maylands Road	9.00	19.00	4.00	0.00

Demand (Veh/TS)

08:15 -
08:30

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	4.00	127.00	120.00	3.00
	2 - Bedhampton Hill	116.00	1.00	10.00	7.00
	3 - Portsdown Hill Road	105.00	15.00	0.00	2.00
	4 - Maylands Road	3.00	23.00	5.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
	1 - Bedhampton Road	0	7	2	11
	2 - Bedhampton Hill	5	0	5	6
	3 - Portsdown Hill Road	2	10	0	0
	4 - Maylands Road	0	1	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
1 - Bedhampton Road	0.52	3.86	1.1	A	239.50	958.00
2 - Bedhampton Hill	0.44	4.89	0.8	A	135.25	541.00
3 - Portsdown Hill Road	0.78	24.61	3.2	C	102.75	411.00
4 - Maylands Road	0.31	10.17	0.5	B	33.75	135.00

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Bedhampton Road	234.00	234.00	44.50	488.30	0.479	233.09	204.15	0.0	0.9	3.513	A
2 - Bedhampton Hill	144.00	144.00	145.35	333.70	0.432	143.25	132.24	0.0	0.8	4.708	A
3 - Portsdown Hill Road	92.00	92.00	121.37	160.31	0.574	90.70	167.23	0.0	1.3	12.705	B
4 - Maylands Road	43.00	43.00	206.11	136.72	0.315	42.55	5.96	0.0	0.5	9.512	A

07:45 - 08:00

Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Bedhampton Road	241.00	241.00	33.14	497.05	0.485	240.98	200.04	0.9	0.9	3.513	A
2 - Bedhampton Hill	147.00	147.00	149.03	331.11	0.444	146.96	125.08	0.8	0.8	4.886	A
3 - Portsdown Hill Road	90.00	90.00	120.99	160.16	0.562	90.01	175.01	1.3	1.3	12.836	B
4 - Maylands Road	29.00	29.00	204.00	137.72	0.211	29.18	6.99	0.5	0.3	8.305	A

08:00 - 08:15

Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Bedhampton Road	229.00	229.00	37.90	492.37	0.465	229.06	206.71	0.9	0.9	3.418	A
2 - Bedhampton Hill	116.00	116.00	130.10	343.63	0.338	116.28	136.86	0.8	0.5	3.963	A
3 - Portsdown Hill Road	107.00	107.00	113.15	163.66	0.654	106.49	133.23	1.3	1.8	15.588	C
4 - Maylands Road	32.00	32.00	212.65	133.29	0.240	31.96	6.99	0.3	0.3	8.878	A

08:15 - 08:30

Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Bedhampton Road	254.00	254.00	43.75	486.57	0.522	253.79	226.70	0.9	1.1	3.863	A
2 - Bedhampton Hill	134.00	134.00	131.92	342.28	0.392	133.87	165.62	0.5	0.6	4.315	A
3 - Portsdown Hill Road	122.00	122.00	130.87	155.67	0.784	120.56	134.92	1.8	3.2	24.609	C
4 - Maylands Road	31.00	31.00	239.48	119.42	0.260	30.97	11.96	0.3	0.3	10.170	B

2017 Observed Flows , PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Bedhampton Road - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bedhampton Road	Standard Roundabout		1, 2, 3, 4	15.84	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-6	3 - Portsdown Hill Road

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D2	2017 Observed Flows	PM	DIRECT	16:30	17:30	60	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1 - Bedhampton Road		DIRECT	✓	100.000
2 - Bedhampton Hill		DIRECT	✓	100.000
3 - Portsdown Hill Road		DIRECT	✓	100.000
4 - Maylands Road		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/TS)

16:30 -
16:45

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	3.00	140.00	129.00	9.00
	2 - Bedhampton Hill	146.00	2.00	15.00	17.00
	3 - Portsdown Hill Road	97.00	18.00	0.00	9.00
	4 - Maylands Road	4.00	9.00	1.00	0.00

Demand (Veh/TS)

16:45 -
17:00

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	4.00	111.00	126.00	13.00
	2 - Bedhampton Hill	146.00	1.00	11.00	18.00
	3 - Portsdown Hill Road	91.00	16.00	0.00	6.00
	4 - Maylands Road	7.00	7.00	4.00	0.00

Demand (Veh/TS)

17:00 -
17:15

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	2.00	142.00	158.00	7.00
	2 - Bedhampton Hill	117.00	1.00	12.00	18.00
	3 - Portsdown Hill Road	109.00	15.00	0.00	6.00
	4 - Maylands Road	1.00	8.00	1.00	0.00

Demand (Veh/TS)

17:15 -
17:30

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	6.00	148.00	124.00	10.00
	2 - Bedhampton Hill	136.00	1.00	21.00	11.00
	3 - Portsdown Hill Road	111.00	18.00	0.00	3.00
	4 - Maylands Road	5.00	8.00	2.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	0	4	4	0
	2 - Bedhampton Hill	4	0	3	2
	3 - Portsdown Hill Road	2	3	0	0
	4 - Maylands Road	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
1 - Bedhampton Road	0.61	4.61	1.6	A	283.00	1132.00
2 - Bedhampton Hill	0.53	5.67	1.1	A	168.25	673.00
3 - Portsdown Hill Road	0.92	56.48	7.8	F	124.75	499.00
4 - Maylands Road	0.16	9.84	0.2	A	14.25	57.00

Main Results for each time segment

16:30 - 16:45

Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Bedhampton Road	281.00	281.00	29.02	500.54	0.561	279.73	244.39	0.0	1.3	4.054	A
2 - Bedhampton Hill	180.00	180.00	141.35	338.51	0.532	178.88	167.40	0.0	1.1	5.599	A
3 - Portsdown Hill Road	124.00	124.00	175.92	137.94	0.899	118.06	144.31	0.0	5.9	38.101	E
4 - Maylands Road	14.00	14.00	259.56	111.27	0.126	13.86	34.42	0.0	0.1	9.226	A

16:45 - 17:00

Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Bedhampton Road	254.00	254.00	28.06	501.75	0.506	254.23	248.08	1.3	1.0	3.638	A
2 - Bedhampton Hill	176.00	176.00	147.02	334.87	0.526	176.01	135.27	1.1	1.1	5.667	A
3 - Portsdown Hill Road	113.00	113.00	181.97	135.24	0.836	113.33	141.06	5.9	5.6	42.548	E
4 - Maylands Road	18.00	18.00	258.19	111.96	0.161	17.95	37.11	0.1	0.2	9.568	A

17:00 - 17:15

Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Bedhampton Road	309.00	309.00	25.17	503.18	0.614	308.46	229.08	1.0	1.6	4.609	A
2 - Bedhampton Hill	148.00	148.00	167.77	320.80	0.461	148.25	165.87	1.1	0.9	5.225	A
3 - Portsdown Hill Road	130.00	130.00	145.27	151.77	0.857	129.94	170.74	5.6	5.7	40.514	E
4 - Maylands Road	10.00	10.00	244.15	119.30	0.084	10.10	31.06	0.2	0.1	8.249	A

17:15 - 17:30

Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Bedhampton Road	288.00	288.00	28.57	501.13	0.575	288.21	256.02	1.6	1.4	4.232	A
2 - Bedhampton Hill	169.00	169.00	142.17	337.87	0.500	168.88	174.60	0.9	1.0	5.317	A
3 - Portsdown Hill Road	132.00	132.00	163.90	143.28	0.921	129.87	147.15	5.7	7.8	56.482	F
4 - Maylands Road	15.00	15.00	269.66	106.31	0.141	14.93	24.11	0.1	0.2	9.842	A

2019 'Without Development', AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Bedhampton Road - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bedhampton Road	Standard Roundabout		1, 2, 3, 4	9.38	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	5	3 - Portsdown Hill Road

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D3	2019 'Without Development'	AM	DIRECT	07:30	08:30	60	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1 - Bedhampton Road		DIRECT	✓	100.000
2 - Bedhampton Hill		DIRECT	✓	100.000
3 - Portsdown Hill Road		DIRECT	✓	100.000
4 - Maylands Road		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/TS)

07:30 - 07:45		To				
	From		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
		1 - Bedhampton Road	4.00	103.00	132.00	2.00
		2 - Bedhampton Hill	115.00	1.00	29.00	3.00
		3 - Portsdown Hill Road	84.00	9.00	0.00	1.00
		4 - Maylands Road	8.00	24.00	12.00	0.00

Demand (Veh/TS)

07:45 - 08:00		To				
	From		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
		1 - Bedhampton Road	4.00	102.00	140.00	2.00
		2 - Bedhampton Hill	114.00	0.00	33.00	4.00
		3 - Portsdown Hill Road	80.00	11.00	0.00	1.00
		4 - Maylands Road	7.00	15.00	7.00	0.00

Demand (Veh/TS)

08:00 -
08:15

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	5.00	106.00	123.00	2.00
	2 - Bedhampton Hill	105.00	1.00	10.00	3.00
	3 - Portsdown Hill Road	94.00	14.00	0.00	2.00
	4 - Maylands Road	9.00	20.00	4.00	0.00

Demand (Veh/TS)

08:15 -
08:30

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	4.00	131.00	124.00	3.00
	2 - Bedhampton Hill	119.00	1.00	10.00	7.00
	3 - Portsdown Hill Road	108.00	15.00	0.00	2.00
	4 - Maylands Road	3.00	24.00	5.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	0	7	2	11
	2 - Bedhampton Hill	5	0	5	6
	3 - Portsdown Hill Road	2	10	0	0
	4 - Maylands Road	0	1	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
1 - Bedhampton Road	0.54	4.01	1.2	A	246.75	987.01
2 - Bedhampton Hill	0.46	5.07	0.8	A	138.75	555.00
3 - Portsdown Hill Road	0.81	27.49	3.7	D	105.25	421.00
4 - Maylands Road	0.33	10.64	0.5	B	34.50	138.00

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Bedhampton Road	241.00	241.00	45.47	487.56	0.494	240.03	209.03	0.0	1.0	3.623	A
2 - Bedhampton Hill	148.00	148.00	149.31	331.12	0.447	147.20	136.19	0.0	0.8	4.874	A
3 - Portsdown Hill Road	94.00	94.00	124.33	158.97	0.591	92.60	172.18	0.0	1.4	13.300	B
4 - Maylands Road	44.00	44.00	210.98	134.21	0.328	43.52	5.96	0.0	0.5	9.872	A

07:45 - 08:00

Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Bedhampton Road	248.00	248.00	33.16	497.02	0.499	247.98	205.04	1.0	1.0	3.613	A
2 - Bedhampton Hill	151.00	151.00	153.04	328.51	0.460	150.96	128.10	0.8	0.8	5.067	A
3 - Portsdown Hill Road	92.00	92.00	123.98	158.80	0.579	92.00	180.01	1.4	1.4	13.481	B
4 - Maylands Road	29.00	29.00	209.00	135.16	0.215	29.20	6.99	0.5	0.3	8.511	A

08:00 - 08:15

Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Bedhampton Road	236.00	236.00	38.87	491.64	0.480	236.06	212.63	1.0	0.9	3.524	A
2 - Bedhampton Hill	119.00	119.00	134.10	341.03	0.349	119.30	140.84	0.8	0.5	4.065	A
3 - Portsdown Hill Road	110.00	110.00	116.16	162.30	0.678	109.39	137.24	1.4	2.0	16.796	C
4 - Maylands Road	33.00	33.00	218.57	130.25	0.253	32.94	6.99	0.3	0.3	9.243	A

08:15 - 08:30

Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Bedhampton Road	262.00	262.00	44.71	485.84	0.539	261.77	232.45	0.9	1.2	4.012	A
2 - Bedhampton Hill	137.00	137.00	135.91	339.69	0.403	136.87	170.57	0.5	0.7	4.434	A
3 - Portsdown Hill Road	125.00	125.00	133.87	154.32	0.810	123.28	138.91	2.0	3.7	27.485	D
4 - Maylands Road	32.00	32.00	245.20	116.50	0.275	31.96	11.95	0.3	0.4	10.640	B

2019 'Without Development', PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Bedhampton Road - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bedhampton Road	Standard Roundabout		1, 2, 3, 4	19.02	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-8	3 - Portsdown Hill Road

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D4	2019 'Without Development'	PM	DIRECT	16:30	17:30	60	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1 - Bedhampton Road		DIRECT	✓	100.000
2 - Bedhampton Hill		DIRECT	✓	100.000
3 - Portsdown Hill Road		DIRECT	✓	100.000
4 - Maylands Road		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/TS)

16:30 -
16:45

		To			
From		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
	1 - Bedhampton Road	3.00	144.00	132.00	9.00
	2 - Bedhampton Hill	150.00	2.00	15.00	17.00
	3 - Portsdown Hill Road	100.00	18.00	0.00	9.00
	4 - Maylands Road	4.00	9.00	1.00	0.00

Demand (Veh/TS)

16:45 -
17:00

		To			
From		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
	1 - Bedhampton Road	4.00	114.00	129.00	13.00
	2 - Bedhampton Hill	150.00	1.00	11.00	18.00
	3 - Portsdown Hill Road	93.00	16.00	0.00	6.00
	4 - Maylands Road	7.00	7.00	4.00	0.00

Demand (Veh/TS)

17:00 -
17:15

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	2.00	146.00	162.00	7.00
	2 - Bedhampton Hill	120.00	1.00	12.00	18.00
	3 - Portsdown Hill Road	112.00	15.00	0.00	6.00
	4 - Maylands Road	1.00	8.00	1.00	0.00

Demand (Veh/TS)

17:15 -
17:30

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	6.00	152.00	127.00	10.00
	2 - Bedhampton Hill	140.00	1.00	22.00	11.00
	3 - Portsdown Hill Road	114.00	18.00	0.00	3.00
	4 - Maylands Road	5.00	8.00	2.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	0	4	4	0
	2 - Bedhampton Hill	4	0	3	2
	3 - Portsdown Hill Road	2	3	0	0
	4 - Maylands Road	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
1 - Bedhampton Road	0.63	4.80	1.7	A	290.00	1160.00
2 - Bedhampton Hill	0.55	5.89	1.2	A	172.25	689.00
3 - Portsdown Hill Road	0.95	71.02	10.2	F	127.50	510.00
4 - Maylands Road	0.17	10.18	0.2	B	14.25	57.00

Main Results for each time segment

16:30 - 16:45

Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Bedhampton Road	288.00	288.00	28.85	500.66	0.575	286.66	250.24	0.0	1.3	4.180	A
2 - Bedhampton Hill	184.00	184.00	144.32	336.49	0.547	182.81	171.19	0.0	1.2	5.813	A
3 - Portsdown Hill Road	127.00	127.00	179.85	136.16	0.933	119.72	147.28	0.0	7.3	43.973	E
4 - Maylands Road	14.00	14.00	265.24	108.38	0.129	13.85	34.33	0.0	0.1	9.507	A

16:45 - 17:00

Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Bedhampton Road	260.00	260.00	28.05	501.73	0.518	260.26	254.05	1.3	1.1	3.733	A
2 - Bedhampton Hill	180.00	180.00	150.03	332.83	0.541	180.01	138.28	1.2	1.2	5.891	A
3 - Portsdown Hill Road	115.00	115.00	185.97	133.43	0.862	115.32	144.07	7.3	7.0	52.029	F
4 - Maylands Road	18.00	18.00	264.15	108.92	0.165	17.95	37.13	0.1	0.2	9.888	A

17:00 - 17:15

Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Bedhampton Road	317.00	317.00	25.21	503.14	0.630	316.41	235.02	1.1	1.7	4.804	A
2 - Bedhampton Hill	151.00	151.00	171.74	318.11	0.475	151.27	169.87	1.2	0.9	5.403	A
3 - Portsdown Hill Road	133.00	133.00	148.29	150.40	0.884	132.90	174.71	7.0	7.1	49.747	E
4 - Maylands Road	10.00	10.00	250.12	116.27	0.086	10.10	31.07	0.2	0.1	8.484	A

17:15 - 17:30

Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Bedhampton Road	295.00	295.00	28.42	501.21	0.589	295.23	262.18	1.7	1.4	4.376	A
2 - Bedhampton Hill	174.00	174.00	145.19	335.83	0.518	173.85	178.46	0.9	1.1	5.552	A
3 - Portsdown Hill Road	135.00	135.00	167.88	141.48	0.954	131.91	151.16	7.1	10.2	71.019	F
4 - Maylands Road	15.00	15.00	275.67	103.25	0.145	14.93	24.12	0.1	0.2	10.182	B

2019 'With Development', AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Bedhampton Road - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bedhampton Road	Standard Roundabout		1, 2, 3, 4	9.52	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	4	3 - Portsdown Hill Road

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D5	2019 'With Development'	AM	DIRECT	07:30	08:30	60	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1 - Bedhampton Road		DIRECT	✓	100.000
2 - Bedhampton Hill		DIRECT	✓	100.000
3 - Portsdown Hill Road		DIRECT	✓	100.000
4 - Maylands Road		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/TS)

07:30 - 07:45	From	To			
			1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road
		1 - Bedhampton Road	5.00	105.00	132.00
		2 - Bedhampton Hill	116.00	1.00	29.00
		3 - Portsdown Hill Road	85.00	9.00	0.00
		4 - Maylands Road	8.00	24.00	12.00

Demand (Veh/TS)

07:45 - 08:00	From	To			
			1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road
		1 - Bedhampton Road	5.00	104.00	141.00
		2 - Bedhampton Hill	115.00	0.00	33.00
		3 - Portsdown Hill Road	81.00	11.00	0.00
		4 - Maylands Road	7.00	15.00	7.00

Demand (Veh/TS)

08:00 -
08:15

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	6.00	108.00	123.00	2.00
	2 - Bedhampton Hill	106.00	1.00	10.00	3.00
	3 - Portsdown Hill Road	94.00	14.00	0.00	2.00
	4 - Maylands Road	9.00	20.00	4.00	0.00

Demand (Veh/TS)

08:15 -
08:30

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	5.00	132.00	124.00	3.00
	2 - Bedhampton Hill	120.00	1.00	10.00	7.00
	3 - Portsdown Hill Road	108.00	15.00	0.00	2.00
	4 - Maylands Road	3.00	24.00	5.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	0	7	2	11
	2 - Bedhampton Hill	5	0	5	6
	3 - Portsdown Hill Road	2	10	0	0
	4 - Maylands Road	0	1	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
1 - Bedhampton Road	0.54	4.04	1.2	A	249.75	999.00
2 - Bedhampton Hill	0.46	5.13	0.9	A	139.75	559.00
3 - Portsdown Hill Road	0.81	28.13	3.8	D	105.75	423.00
4 - Maylands Road	0.33	10.76	0.5	B	34.50	138.00

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Bedhampton Road	244.00	244.00	45.46	487.79	0.500	243.01	211.96	0.0	1.0	3.661	A
2 - Bedhampton Hill	149.00	149.00	150.30	330.58	0.451	148.19	138.16	0.0	0.8	4.913	A
3 - Portsdown Hill Road	95.00	95.00	126.32	158.13	0.601	93.55	172.17	0.0	1.4	13.651	B
4 - Maylands Road	44.00	44.00	213.91	132.76	0.331	43.51	5.96	0.0	0.5	10.031	B

07:45 - 08:00

Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Bedhampton Road	252.00	252.00	33.16	497.27	0.507	251.97	208.04	1.0	1.0	3.668	A
2 - Bedhampton Hill	152.00	152.00	155.03	327.31	0.464	151.95	130.10	0.8	0.9	5.131	A
3 - Portsdown Hill Road	93.00	93.00	125.98	157.96	0.589	93.00	181.00	1.4	1.4	13.859	B
4 - Maylands Road	29.00	29.00	211.99	133.68	0.217	29.21	6.99	0.5	0.3	8.631	A

08:00 - 08:15

Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Bedhampton Road	239.00	239.00	38.87	491.88	0.486	239.07	214.66	1.0	1.0	3.563	A
2 - Bedhampton Hill	120.00	120.00	135.10	340.48	0.352	120.31	142.84	0.9	0.5	4.093	A
3 - Portsdown Hill Road	110.00	110.00	118.17	161.45	0.681	109.42	137.25	1.4	2.0	17.083	C
4 - Maylands Road	33.00	33.00	220.59	129.25	0.255	32.94	6.99	0.3	0.3	9.338	A

08:15 - 08:30

Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Bedhampton Road	264.00	264.00	44.71	486.17	0.543	263.77	234.40	1.0	1.2	4.042	A
2 - Bedhampton Hill	138.00	138.00	136.91	339.14	0.407	137.87	171.56	0.5	0.7	4.468	A
3 - Portsdown Hill Road	125.00	125.00	135.87	153.46	0.815	123.23	138.92	2.0	3.8	28.129	D
4 - Maylands Road	32.00	32.00	247.14	115.55	0.277	31.96	11.95	0.3	0.4	10.761	B

2019 'With Development', PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Bedhampton Road - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bedhampton Road	Standard Roundabout		1, 2, 3, 4	20.33	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-9	3 - Portsdown Hill Road

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D6	2019 'With Development'	PM	DIRECT	16:30	17:30	60	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1 - Bedhampton Road		DIRECT	✓	100.000
2 - Bedhampton Hill		DIRECT	✓	100.000
3 - Portsdown Hill Road		DIRECT	✓	100.000
4 - Maylands Road		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/TS)

16:30 -
16:45

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	4.00	144.00	133.00	9.00
	2 - Bedhampton Hill	151.00	2.00	15.00	17.00
	3 - Portsdown Hill Road	100.00	18.00	0.00	9.00
	4 - Maylands Road	4.00	9.00	1.00	0.00

Demand (Veh/TS)

16:45 -
17:00

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	5.00	115.00	130.00	13.00
	2 - Bedhampton Hill	151.00	1.00	11.00	18.00
	3 - Portsdown Hill Road	94.00	16.00	0.00	6.00
	4 - Maylands Road	7.00	7.00	4.00	0.00

Demand (Veh/TS)

17:00 -
17:15

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	3.00	146.00	162.00	7.00
	2 - Bedhampton Hill	122.00	1.00	12.00	18.00
	3 - Portsdown Hill Road	112.00	15.00	0.00	6.00
	4 - Maylands Road	1.00	8.00	1.00	0.00

Demand (Veh/TS)

17:15 -
17:30

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	7.00	153.00	128.00	10.00
	2 - Bedhampton Hill	141.00	1.00	22.00	11.00
	3 - Portsdown Hill Road	115.00	18.00	0.00	3.00
	4 - Maylands Road	5.00	8.00	2.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	0	4	4	0
	2 - Bedhampton Hill	4	0	3	2
	3 - Portsdown Hill Road	2	3	0	0
	4 - Maylands Road	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
1 - Bedhampton Road	0.63	4.83	1.7	A	292.25	1169.00
2 - Bedhampton Hill	0.55	5.98	1.2	A	173.50	694.00
3 - Portsdown Hill Road	0.97	77.33	11.3	F	128.00	512.01
4 - Maylands Road	0.17	10.32	0.2	B	14.25	57.00

Main Results for each time segment

16:30 - 16:45

Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Bedhampton Road	290.00	290.00	28.81	500.84	0.579	288.64	252.02	0.0	1.4	4.214	A
2 - Bedhampton Hill	185.00	185.00	146.30	335.29	0.552	183.79	171.15	0.0	1.2	5.894	A
3 - Portsdown Hill Road	127.00	127.00	181.82	135.32	0.939	119.47	148.27	0.0	7.5	45.198	E
4 - Maylands Road	14.00	14.00	266.98	107.54	0.130	13.85	34.31	0.0	0.1	9.607	A

16:45 - 17:00

Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Bedhampton Road	263.00	263.00	28.03	501.89	0.524	263.25	256.83	1.4	1.1	3.777	A
2 - Bedhampton Hill	181.00	181.00	152.03	331.62	0.546	181.00	139.25	1.2	1.2	5.977	A
3 - Portsdown Hill Road	116.00	116.00	187.96	132.58	0.875	116.07	145.07	7.5	7.5	56.103	F
4 - Maylands Road	18.00	18.00	266.91	107.57	0.167	17.95	37.13	0.1	0.2	10.038	B

17:00 - 17:15

Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Bedhampton Road	318.00	318.00	25.21	503.29	0.632	317.42	237.99	1.1	1.7	4.826	A
2 - Bedhampton Hill	153.00	153.00	172.74	317.55	0.482	153.27	169.88	1.2	0.9	5.489	A
3 - Portsdown Hill Road	133.00	133.00	151.29	149.09	0.892	132.88	174.72	7.5	7.6	53.388	F
4 - Maylands Road	10.00	10.00	253.10	114.79	0.087	10.10	31.07	0.2	0.1	8.604	A

17:15 - 17:30

Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Bedhampton Road	298.00	298.00	28.34	501.42	0.594	298.21	264.67	1.7	1.5	4.435	A
2 - Bedhampton Hill	175.00	175.00	147.18	334.62	0.523	174.86	179.37	0.9	1.1	5.628	A
3 - Portsdown Hill Road	136.00	136.00	169.89	140.63	0.967	132.32	152.15	7.6	11.3	77.326	F
4 - Maylands Road	15.00	15.00	278.09	102.07	0.147	14.93	24.12	0.1	0.2	10.320	B

2024 'With Development', AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Bedhampton Road - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bedhampton Road	Standard Roundabout		1, 2, 3, 4	13.50	B

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-4	3 - Portsdown Hill Road

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D9	2024 'With Development'	AM	DIRECT	07:30	08:30	60	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1 - Bedhampton Road		DIRECT	✓	100.000
2 - Bedhampton Hill		DIRECT	✓	100.000
3 - Portsdown Hill Road		DIRECT	✓	100.000
4 - Maylands Road		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/TS)

07:30 -
07:45

		To			
From		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
	1 - Bedhampton Road	6.00	113.00	143.00	2.00
	2 - Bedhampton Hill	125.00	1.00	31.00	3.00
	3 - Portsdown Hill Road	91.00	10.00	0.00	1.00
	4 - Maylands Road	9.00	26.00	13.00	0.00

Demand (Veh/TS)

07:45 -
08:00

		To			
From		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
	1 - Bedhampton Road	6.00	111.00	151.00	2.00
	2 - Bedhampton Hill	124.00	0.00	35.00	4.00
	3 - Portsdown Hill Road	87.00	12.00	0.00	1.00
	4 - Maylands Road	8.00	17.00	8.00	0.00

Demand (Veh/TS)

08:00 -
08:15

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	7.00	116.00	133.00	2.00
	2 - Bedhampton Hill	114.00	1.00	11.00	3.00
	3 - Portsdown Hill Road	101.00	16.00	0.00	2.00
	4 - Maylands Road	10.00	21.00	4.00	0.00

Demand (Veh/TS)

08:15 -
08:30

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	6.00	142.00	134.00	3.00
	2 - Bedhampton Hill	129.00	1.00	11.00	8.00
	3 - Portsdown Hill Road	117.00	17.00	0.00	2.00
	4 - Maylands Road	3.00	26.00	6.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	0	7	2	11
	2 - Bedhampton Hill	5	0	5	6
	3 - Portsdown Hill Road	2	10	0	0
	4 - Maylands Road	0	1	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
1 - Bedhampton Road	0.59	4.54	1.4	A	269.25	1077.00
2 - Bedhampton Hill	0.51	5.74	1.0	A	150.25	601.00
3 - Portsdown Hill Road	0.92	45.52	6.9	E	114.25	457.00
4 - Maylands Road	0.39	12.64	0.6	B	37.75	151.00

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Bedhampton Road	264.00	264.00	49.31	484.93	0.544	262.82	228.43	0.0	1.2	4.031	A
2 - Bedhampton Hill	160.00	160.00	163.16	322.24	0.497	159.03	148.97	0.0	1.0	5.481	A
3 - Portsdown Hill Road	102.00	102.00	136.18	153.64	0.664	100.13	186.00	0.0	1.9	16.302	C
4 - Maylands Road	48.00	48.00	230.35	124.39	0.386	47.38	5.95	0.0	0.6	11.598	B

07:45 - 08:00

Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Bedhampton Road	270.00	270.00	37.19	494.26	0.546	269.99	225.05	1.2	1.2	4.012	A
2 - Bedhampton Hill	163.00	163.00	167.05	319.53	0.510	162.94	140.13	1.0	1.0	5.744	A
3 - Portsdown Hill Road	100.00	100.00	135.98	153.44	0.652	100.00	194.02	1.9	1.9	16.840	C
4 - Maylands Road	33.00	33.00	228.98	125.03	0.264	33.25	6.99	0.6	0.4	9.834	A

08:00 - 08:15

Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Bedhampton Road	258.00	258.00	41.82	489.63	0.527	258.07	231.40	1.2	1.1	3.889	A
2 - Bedhampton Hill	129.00	129.00	146.13	333.32	0.387	129.39	153.77	1.0	0.6	4.423	A
3 - Portsdown Hill Road	119.00	119.00	127.22	157.28	0.757	118.02	148.30	1.9	2.9	22.313	C
4 - Maylands Road	35.00	35.00	238.26	120.25	0.291	34.96	6.98	0.4	0.4	10.545	B

08:15 - 08:30

Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Bedhampton Road	285.00	285.00	49.36	482.66	0.590	284.70	251.39	1.1	1.4	4.538	A
2 - Bedhampton Hill	149.00	149.00	148.87	331.37	0.450	148.83	185.19	0.6	0.8	4.926	A
3 - Portsdown Hill Road	136.00	136.00	146.83	148.46	0.916	131.92	150.87	2.9	6.9	45.516	E
4 - Maylands Road	35.00	35.00	265.83	106.05	0.330	34.92	12.91	0.4	0.5	12.637	B

2024 'With Development', PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Bedhampton Road - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bedhampton Road	Standard Roundabout		1, 2, 3, 4	48.79	E

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-15	3 - Portsdown Hill Road

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D10	2024 'With Development'	PM	DIRECT	16:30	17:30	60	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1 - Bedhampton Road		DIRECT	✓	100.000
2 - Bedhampton Hill		DIRECT	✓	100.000
3 - Portsdown Hill Road		DIRECT	✓	100.000
4 - Maylands Road		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/TS)

16:30 -
16:45

		To			
From		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
	1 - Bedhampton Road	4.00	155.00	142.00	10.00
	2 - Bedhampton Hill	162.00	2.00	17.00	19.00
	3 - Portsdown Hill Road	107.00	20.00	0.00	10.00
	4 - Maylands Road	4.00	10.00	1.00	0.00

Demand (Veh/TS)

16:45 -
17:00

		To			
From		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
	1 - Bedhampton Road	5.00	123.00	139.00	14.00
	2 - Bedhampton Hill	162.00	1.00	12.00	20.00
	3 - Portsdown Hill Road	101.00	18.00	0.00	7.00
	4 - Maylands Road	8.00	8.00	4.00	0.00

Demand (Veh/TS)

17:00 -
17:15

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	3.00	157.00	174.00	8.00
	2 - Bedhampton Hill	130.00	1.00	13.00	20.00
	3 - Portsdown Hill Road	121.00	17.00	0.00	7.00
	4 - Maylands Road	1.00	9.00	1.00	0.00

Demand (Veh/TS)

17:15 -
17:30

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	7.00	164.00	137.00	11.00
	2 - Bedhampton Hill	151.00	1.00	23.00	12.00
	3 - Portsdown Hill Road	123.00	20.00	0.00	3.00
	4 - Maylands Road	6.00	9.00	2.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Bedhampton Road	2 - Bedhampton Hill	3 - Portsdown Hill Road	4 - Maylands Road
From	1 - Bedhampton Road	0	4	4	0
	2 - Bedhampton Hill	4	0	3	2
	3 - Portsdown Hill Road	2	3	0	0
	4 - Maylands Road	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
1 - Bedhampton Road	0.68	5.60	2.1	A	313.25	1253.00
2 - Bedhampton Hill	0.61	6.93	1.5	A	186.50	746.00
3 - Portsdown Hill Road	1.08	209.96	35.0	F	138.50	554.02
4 - Maylands Road	0.20	11.36	0.2	B	15.75	63.00

Main Results for each time segment

16:30 - 16:45

Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Bedhampton Road	311.00	311.00	30.58	499.51	0.623	309.37	263.49	0.0	1.6	4.695	A
2 - Bedhampton Hill	200.00	200.00	156.17	328.70	0.608	198.48	183.78	0.0	1.5	6.833	A
3 - Portsdown Hill Road	137.00	137.00	195.53	129.14	1.061	121.37	159.12	0.0	15.6	75.899	F
4 - Maylands Road	15.00	15.00	279.24	101.26	0.148	14.83	37.66	0.0	0.2	10.389	B

16:45 - 17:00

Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Bedhampton Road	281.00	281.00	30.56	499.96	0.562	281.33	272.93	1.6	1.3	4.124	A
2 - Bedhampton Hill	195.00	195.00	162.05	324.92	0.600	195.01	149.84	1.5	1.5	6.928	A
3 - Portsdown Hill Road	126.00	126.00	201.96	126.28	0.998	122.66	155.10	15.6	19.0	138.857	F
4 - Maylands Road	20.00	20.00	283.56	99.08	0.202	19.92	41.06	0.2	0.2	11.358	B

17:00 - 17:15

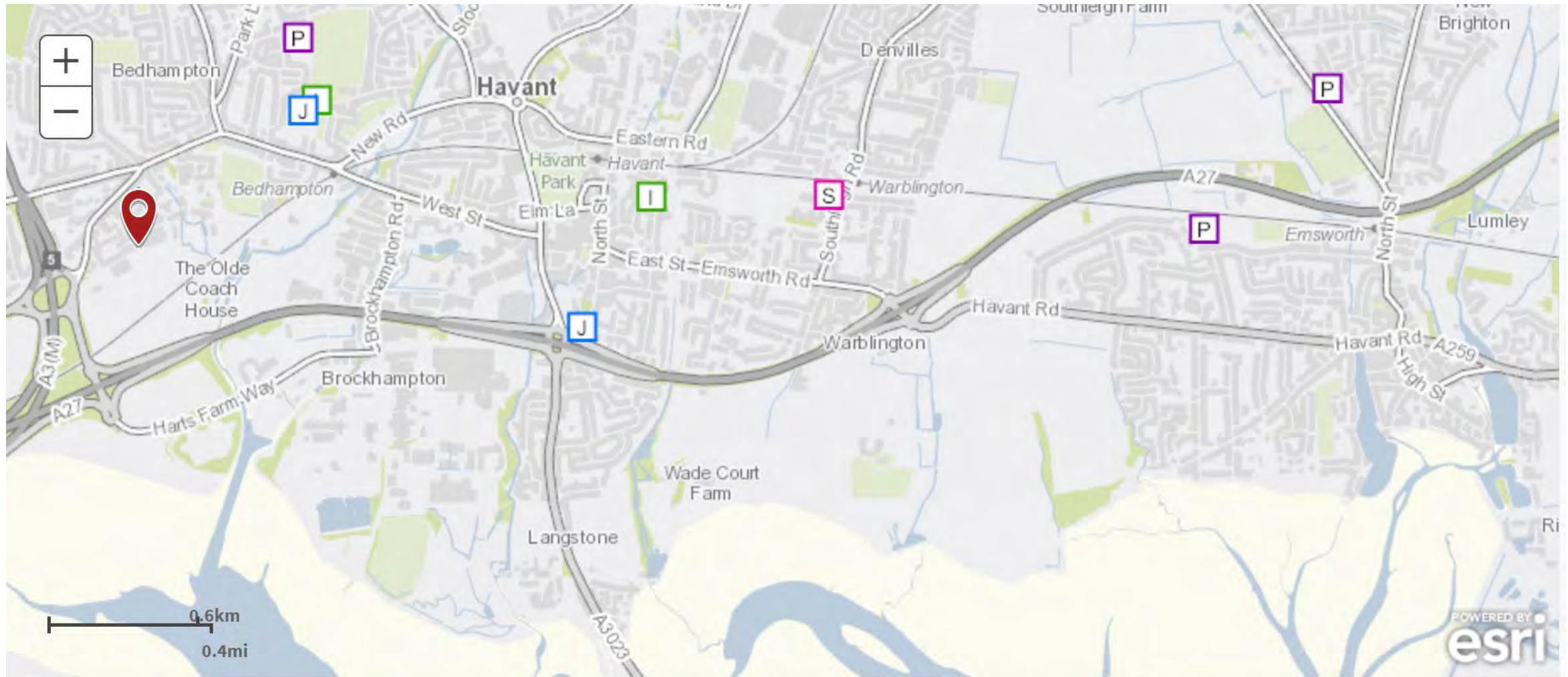
Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Bedhampton Road	342.00	342.00	28.06	501.15	0.682	341.19	251.43	1.3	2.1	5.597	A
2 - Bedhampton Hill	164.00	164.00	185.63	308.93	0.531	164.37	183.61	1.5	1.1	6.241	A
3 - Portsdown Hill Road	145.00	145.00	162.38	144.10	1.006	140.94	187.61	19.0	23.0	147.527	F
4 - Maylands Road	11.00	11.00	268.35	107.03	0.103	11.13	34.97	0.2	0.1	9.397	A

17:15 - 17:30

Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Bedhampton Road	319.00	319.00	29.88	500.25	0.638	319.32	276.54	2.1	1.8	4.983	A
2 - Bedhampton Hill	187.00	187.00	157.26	327.87	0.570	186.84	191.95	1.1	1.3	6.372	A
3 - Portsdown Hill Road	146.00	146.00	181.88	135.23	1.080	134.08	162.22	23.0	34.9	209.959	F
4 - Maylands Road	17.00	17.00	289.52	96.21	0.177	16.90	26.44	0.1	0.2	11.334	B

APPENDIX C. ROUTE TO SCHOOL AUDIT

Hampshire County Council – School Catchments



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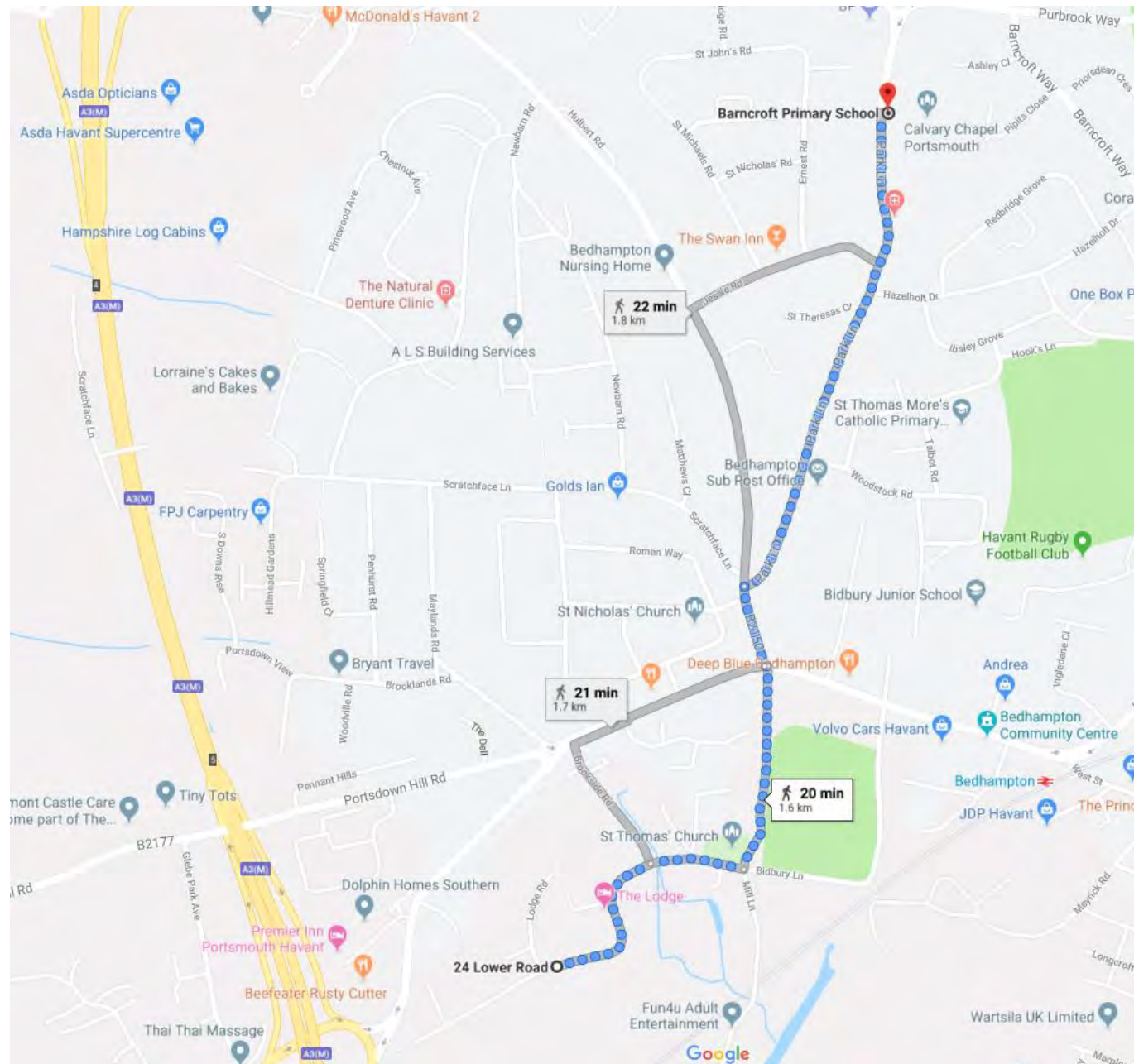
I Infant School

J Junior School

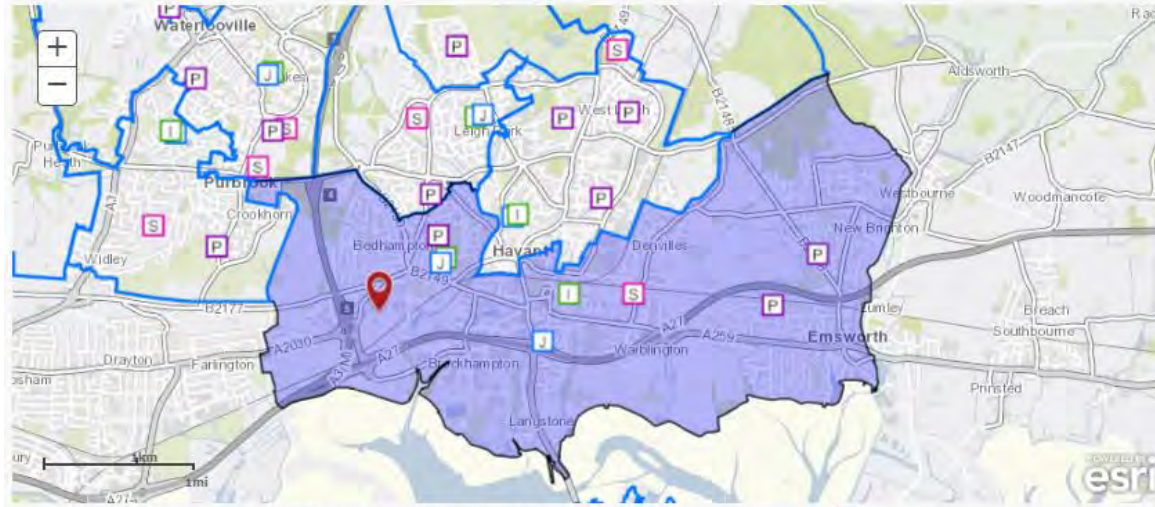
P Primary School

S Secondary School





24 Lower Road, Havant, Hampshire, PO9 3LH



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 Infant School

 Junior School

 Primary School

 Secondary School

School Catchment Areas for 24 Lower Road, Havant, Hampshire, PO9 3LH

Click the menus below to show the school catchment areas on the map. Click the links under each menu for more information and how to apply for a place

 Catchment Schools
Aged 4-6

 Catchment Schools
Aged 7-10

 Catchment Schools
Aged 11-16



Warblington School

[View school details](#)

Cycle routes to Warblington School (Ref: Havant Borough Cycle Map 2017)

