Costs

3.31 This section of the feasibility study sets out an indication of the costs, if a signalised junction were to be implemented at each section of the study area. The costs are based on appraisal of construction prices from SPONS and WYG's understanding of similar schemes developed for other local authorities. The cost estimate is identified in **Table 3.11**.

The Fairway

3.32 The scope of improvements includes the following:

a) Re-alignment of the kerbline.

b) Construction of new carriageway and footway.

c) New signalised pedestrian crossing to be implemented with tactile paving on the eastern arm.

d) Removal of existing road markings and new markings to be implemented where applicable.

e) One-way vehicular access on the western arm of The Fairway.

f) New traffic signs where applicable.

Lake Hill

3.33 The scope of improvements includes the following:

g) Kerbline to be realigned on the northern side of Lake Hill, the War Memorial and public realm will be remodelled to accommodate re-location of bus stop.

h) Construction of new carriageway and footway.

i) New signalised pedestrian crossings to be implemented with tactile paving.

j) Removal of existing road markings and new markings to be implemented where applicable.

k) New traffic signs where applicable.

Summary

3.34 **Table 3.11** sets out a summary of the indicative estimated costs for the proposals within the study area.

Table 3.11 Cost Estimate of Proposals – Summary

Proposal	Cost Estimate
Construction Estimate	£131,700.00
Risk Variables (Statutory Undertakers, Safety Audit requirements)	£13,200.00
Design Administration and TRO Fees	£6,500.00
Total	**£152,400.00**

Source: WYG, April 2018

4 Summary and Conclusions

Summary

4.1 WYG have been appointed by the Isle of Wight (IOW) Council to undertake a feasibility study for a series of highway junctions located throughout the island, with a particular focus on the towns of Newport, Ryde, Shanklin and Sandown. The study has been carried out to identify traffic management issues impacting on all road users and develop proposals that will form part of a package of schemes to be progressed as part of the Council's Local Implementation Plan (LIP) process.

4.2 IOW Council has identified 15 highway junctions which currently experience traffic issues such as congestion and queuing. The study considers where the main issues lie in relation to traffic movement, road safety, bus operation, pedestrian and cycle provision, public realm, parking provision and servicing. Each of the 15 highway junctions is subject to a feasibility study report, with traffic modelling software used to test various proposals in order to identify a range of measures aimed at improving the behaviour and movement of traffic at each junction.

4.3 The Lake Hill / The Fairway triangular priority junction is located in Sandown, approximately 900m to the south west of Sandown town centre. The Fairway forms the two northern arms, whilst Lake Hill forms the eastern and western arms.

4.4 The junction provides access to Tesco Express to the west of the junction, residential streets and the Sandown Bay Academy to the north, Sandown town centre to the east and the towns of Lake and Shanklin to the southwest. At present, the junction is known to experience congestion and queuing, of which it has been informed by a site visit and traffic video surveys at the junction. It was observed that congestion and queuing is particularly evident on The Fairway (north-western arm).

4.5 The priority junction modelling software within Junctions 9 was used to model this junction. The modelling has been undertaken for two weekday periods considered to be the network peaks in terms of traffic volumes, with the AM peak between 08:00 and 09:00 and the PM peak between 17:00 and 18:00. The Base Year results indicate that the junction currently operates within recommended capacity during the AM and PM Peaks, that is with a RFC of under 0.85. However, it is shown that particularly on The Fairway arm which is known to experience issues, has a recorded RFC of 0.57. Modelled queues of 1.3 PCU are recorded on this arm, whilst average queues for the AM and PM Peaks of 2.42 and 3.25, respectively, were registered in the video footage. Moreover, the 2034 Future Year Assessment for the existing junction shows that the junction is likely to experience an excess of capacity on The Fairway, with an RFC of 1.04 and queues of 9.7 PCUs during the PM Peak.

4.6 As a result, improvements to the junction have been focused around reducing the instance of queuing and congestion on the north-western arm on The Fairway. The widening of The Fairway was proposed as part of both Options 1 and 2, whilst a mini-roundabout was proposed as part of Option 3 in order to address the issue of queuing and congestion along this arm. Option 4 includes a three-arm signalised junction proposal, whereby the north-eastern arm on The Fairway is the minor arm. Alongside this, there has been a focus on improving the public realm for pedestrians and cyclists, for instance by introducing signalised pedestrian crossings.

4.7 Within the four proposed schemes tested, the modelling results for Options 1 and 2 for the Base Year indicate that the junction is expected to operate within capacity. However, these proposals do not provide any significant improvement compared to the existing junction, as they show similar results to the existing junction and in some instance marginally worse results. Comparing the proposed designs, there is marginal difference in the modelling results between the junction designs of Options 1 and 2. On the other hand, Option 3 Base Year Assessment shows that RFC and queuing for this proposal would be significantly worse than the existing design, leading to operation over maximum capacity on the eastern arm on Lake Hill during the PM Peak and on the western arm during AM and

PM Peaks. The only benefit derived from this design is the improved capacity of The Fairway in comparison to the existing junction layout.

4.8 Option 4, which involves implementing a signalised junction, does provide immediate benefits in current conditions, operating within capacity and moderating queues on The Fairway arm by allowing this traffic to merge onto Lake Hill within a designated green time, but this does assume that the pedestrian phases will not run every cycle. It is noted that when the pedestrian phases do run every cycle, junction capacity is severely reduced. Unfortunately, the same benefits seen in current conditions are not replicated in the Future Year, with the junction performing worse in comparison to the existing junction.

4.9 After analysing the different scheme proposals, the low benefits provided by Option 2 and adverse effects of Options 1 and 3, the implementation of a signalised junction (Option 4) is therefore the most suitable option for providing immediate benefits, however, subsequent capacity issues present themselves in the Future Year, and thus, it can be determined that there is little that can be done physically to the junction, to entirely solve capacity issues for the long-term.

Conclusions

4.10 As part of this feasibility study, it can be concluded that the design options whereby the junction remains as a priority junction or operating as a mini-roundabout do not address the existing issues related to congestion and queuing at the junction, and in fact, in some instances worsen the existing situation.

4.11 It has been shown from the traffic modelling Base Year results that Option 1 and 2 junction designs would operate with similar capacity to the existing junction layout, although Option 2 is likely to marginally minimise queueing on The Fairway arm, which is the main issue experienced at junction. Option 3, on the other hand, transfers the existing traffic issues to Lake Hill by means of a mini-roundabout, leading to serious congestion and traffic in the future, based on the 2034 Future Year Assessment. Therefore, no positive outcomes have been extracted from these different scheme proposals (Options 1, 2 and 3), and to conclude it has been shown that Option 4, which involves signalising the junction provides immediate benefits in comparison to the existing junction, however, this does present a negative outcome in the Future Year.

4.12 Therefore, no positive outcomes have been extracted from the different scheme proposals laid in this report, and it can be concluded that the implementation of a signalised junction provides the most benefit, however this design does not fully address capacity issues at this junction in the long-term.

Appendix A
1:250 DRAWINGS

Option 1

Option 2

Pemberley Court

THE FAIRWAY

Health Clinic

LAKE HILL

New kerbline

Tree and planting

Planter

War Memorial

Bus shelter to be relocated

Tie into existing footway

Post box to be relocated - location to be discussed

Services cabinet to remain

Services cabinet to be relocated

Relocation of bus stop

Crossing to be relocated

tactile paving and dropped kerbs

Notes:

General

1. Do not scale from drawing.
2. All dimensions are in metres, unless stated otherwise.
3. This drawing is to be read & printed in colour.
4. This drawing is for illustrative purposes only.

Disclaimer

1. The information contained in this drawing is based or a combination of OS and data provided by others and WYG shall not be liable for any inaccuracies or deficiencies.

KEY:

Proposed extended public realm

Vehicles used:

Large Car (2006)

Overall Length	5.079m
Overall Width	1.872m
Overall Body Height	1.525m
Min Body Ground Clearance	0.310m
Max Track Width	1.831m
Lock to Lock Time	4.00s
Kerb to Kerb Turning Radius	5.900m

'Standard' Rigid Bus

Overall Length	12.000m
Overall Width	2.550m
Overall Body Height	3.069m
Min Body Ground Clearance	0.309m
Track Width	2.350m
Lock to Lock Time	4.00s
Wall to Wall Turning Radius	10.771m

KEY:

- Extent of highway boundary
- Existing footway / public realm
- Existing road marking
- Proposed road marking
- Extent of footway / public realm to be incorporated into the carriageway
- Extent of carriageway to be incorporated into public realm/footway
- Over runable surface
- Grass verge

REV	DETAILS	DRAWN BY	CHECKED BY	DATE

CLIENT: Client

PROJECT: IOW

DRAWING TITLE: Junction 14 Sandown Option 1 & 2

SCALES: 1:250

SHEET SIZE: A1

DRAWN: SJR

CHECKED: NW

DATE: 01.09.2017

WYG Transport
part of WYG group
11th Floor 1 Angel Court London EC2R 7HJ
t: 0207 250 7500 f: 0207 250 7501 e: transport@wyg.com

DRAWING NUMBER: A090129-99-003

REVISION: Rev

Option 3

New kerbline

New kerbline

Informal pedestrian crossing with tactile paving and dropped kerbs

3.500

3.544

War memorial

Bus shelter to be relocated

Post box to be relocated - location to be discussed

Services cabinet to remain

Over runable area

tactile paving and dropped kerbs

3.0m

Footway to be extended into existing carriageway

Relocation of bus stop

Over runable area

Proposed mini roundabout

Pedestrian refuge with tactile paving and dropped kerbs

THE FAIRWAY

LAKE HILL

SANDOWN ROAD

Health Clinic

El Sub Sta

St Andrews Court

Old Manor House (PH)

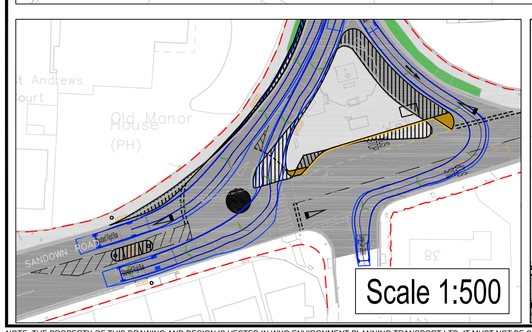
Warren Court

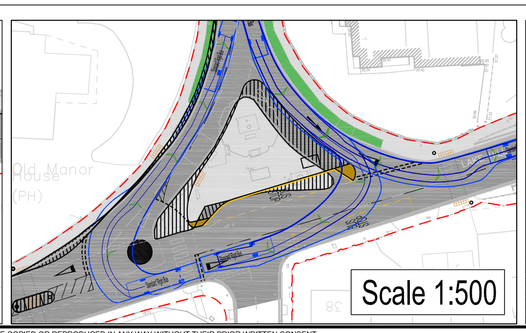
Shelley Court

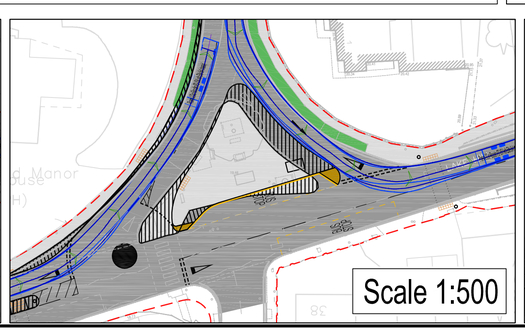
Scale 1:250

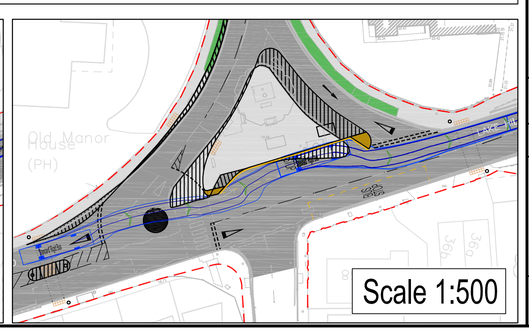
KEY:

- Extent of highway boundary
- Existing footway / public realm
- Existing road marking
- Proposed road marking
- New carriageway construction
- New footway construction
- Over runable surface
- Grass verge









Notes:

General

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4. This drawing is for illustrative purposes only.

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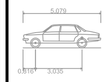
KEY:

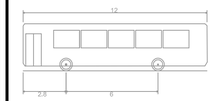
Proposed extended public realm

Vehicles used:



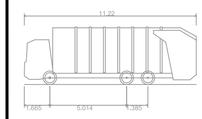
Large Car (2006)

Overall Length	5.079m
Overall Width	1.872m
Overall Body Height	1.525m
Min Body Ground Clearance	0.310m
Max Track Width	1.831m
Lock to Lock Time	4.00s
Kerb to Kerb Turning Radius	5.900m



'Standard' Rigid Bus

Overall Length	12.000m
Overall Width	2.550m
Overall Body Height	3.069m
Min Body Ground Clearance	0.309m
Track Width	2.350m
Lock to Lock Time	4.00s
Wall to Wall Turning Radius	10.771m



Phoenix 2 Duo Recycler (P2-15W with Elite 6x4 chassis)

Overall Length	11.220m
Overall Width	2.530m
Overall Body Height	3.756m
Min Body Ground Clearance	0.309m
Track Width	2.530m
Lock to Lock Time	4.00s
Kerb to Kerb Turning Radius	11.550m

INDICATIVE

REV	DETAILS	DRAWN BY	CHECKED BY	DATE

CLIENT:

Client

PROJECT:

IOW

DRAWING TITLE:

Junction 14
Sandown
Option 3

SCALES: Scale as Shown:

SHEET SIZE: A1

DRAWN: SJR

CHECKED: NW

DATE: 01.09.2017

WYG Transport
part of WYG group

11th Floor 1 Angel Court London EC2R 7HJ
t: 0207 250 7500 f: 0207 250 7501 e: transport@wyg.com

DRAWING NUMBER: A090129-99-003

REVISION:

Option 1

Tie into existing

Tie into existing

New kerbline

New kerbline

Diag. 616 - No entry for vehicular traffic

Tie into existing

Dropped kerb and tactile paving

Dropped kerb and tactile paving

Diag. 652 - One way

New kerbline

Diag. 613 - No left turn for vehicular traffic

Dropped kerb and tactile paving

Dropped kerb and tactile paving

Diag. 652 - One way

Tie into existing

Diag. 652 - One way

Scale 1:250

Scale 1:500

Scale 1:500

Scale 1:500

Scale 1:500

Notes:

General

1. Do not scale from drawing.
2. All dimensions are in metres, unless stated otherwise.
3. This drawing is to be read & printed in colour.
4. This drawing is for illustrative purposes only.

Disclaimer

1. The information contained in this drawing is based on a combination of OS and data provided by others and WYG shall not be liable for any inaccuracies or deficiencies.

KEY:

Red line boundary

Existing road markings

Proposed road markings

Vehicles used:

'Standard' Rigid Bus

Overall Length	12.000m
Overall Width	2.550m
Overall Body Height	3.069m
Min Body Ground Clearance	0.309m
Track Width	2.350m
Lock to Lock Time	4.00s
Wall to Wall Turning Radius	10.771m

KEY:

Primary Signals

Secondary Signals

Pedestrian Push Button

INDICATIVE

REV	DETAILS	DRAWN BY	CHECKED BY	DATE

CLIENT:

Client

PROJECT:

IOW

DRAWING TITLE:

Junction 14
Sandown
Option 4 - Signalised Junction

SCALES: As Shown

SHEET SIZE: A1

DRAWN: SJR

CHECKED: NW

DATE: 14.03.2018

WYG Transport
part of WYG group

11th Floor 1 Angel Court London EC2R 7HJ
t: 0207 250 7500 f: 0207 250 7501 e: transport@wyg.com

DRAWING NUMBER: A090129-99-014

REVISION:

Appendix B
MODELLING OUTPUT RESULTS

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.0.2.5947

Filename: Junction 14 - The Fairway Lake Hill - Staggered Junction - Base Model.j9
Path: X:\Projects\2012\A090000\A090129-99 - IoW Junction Assessment and Design\30 Technical\31 Modelling\2017 Base Models\Junction 14
Report generation date: 03/01/2018 14:10:13

Summary of junction performance

	AM					PM				
	Q (PCU)	Delay (s)	RFC	LOS	Res Cap	Q (PCU)	Delay (s)	RFC	LOS	Res Cap
	2017									
Stream B-ACD	0.1	9.27	0.05	A	8 % [Stream D-ABC]	0.0	8.90	0.04	A	-2 % [Stream D-ABC]
Stream AB-CD	0.0	8.36	0.03	A		0.0	9.02	0.04	A	
Stream D-ABC	1.0	27.14	0.51	D		1.3	38.74	0.57	E	
Stream CD-AB	0.0	7.51	0.01	A		0.0	7.89	0.01	A	
	2034									
Stream B-ACD	0.1	11.12	0.07	B	-12 % [Stream D-ABC]	0.1	10.83	0.07	B	-20 % [Stream D-ABC]
Stream AB-CD	0.0	9.11	0.04	A		0.1	9.92	0.05	A	
Stream D-ABC	3.3	76.77	0.80	F		9.7	235.91	1.04	F	
Stream CD-AB	0.0	8.00	0.01	A		0.0	8.49	0.02	A	

Values shown are the highest values encountered over all time segments. Delay is the maximum value of Av. delay per arriving vehicle. 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	(untitled)
Location	
Site number	
Date	21/08/2017
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	WYG\jack.smith
Description	

Units

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

Analysis Options

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 segment length (min)	Run automatically
D1	2017	AM	ONE HOUR	07:45	09:15	15	✓
D2	2017	PM	ONE HOUR	16:45	18:15	15	✓
D3	2034	AM	ONE HOUR	07:45	09:15	15	✓
D4	2034	PM	ONE HOUR	16:45	18:15	15	✓

Analysis Set Details

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

2017, 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	The Fairway / Lake Hill / Denness Road Staggered Junction	Left-Right Stagger	Two-way	1.25	A

Junction Network Options

Driving side	Lighting	Res Cap (%)	First arm reaching threshold
Left	Normal/unknown	8	Stream D-ABC

Arms

Arms

Arm	Name	Description	Arm type
A	Lake Hill (E)		Major
B	Denness Road		Minor
C	Lake Hill (W)		Major
D	The Fairway		Minor

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)
A	9.00			80.0	✓	1.00
C	9.00			82.0	✓	1.00

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	3.80	42	20
D	One lane	3.30	71	41

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-C	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-A	Slope for D-B
1	AB-D	620	-	-	-	-	-	0.209	0.209	0.209	-	-
1	B-A	541	0.086	0.217	0.217	-	-	0.136	0.310	-	0.136	0.310
1	B-CD	688	0.092	0.232	0.232	-	-	-	-	-	-	-
1	CD-B	621	0.209	0.209	0.209	-	-	-	-	-	-	-
1	D-AB	669	-	-	-	-	-	0.225	0.225	0.089	-	-
1	D-C	537	-	0.135	0.307	0.135	0.307	0.215	0.215	0.085	-	-

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 segment length (min)	Run automatically
D1	2017	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	623	100.000
B		ONE HOUR	✓	19	100.000
C		ONE HOUR	✓	852	100.000
D		ONE HOUR	✓	123	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	4	609	10
	B	7	0	11	1
	C	649	3	0	200
	D	0	0	123	0

Vehicle Mix

HV %s

		To			
		A	B	C	D
From	A	0	0	3	0
	B	0	0	0	0
	C	2	0	0	1
	D	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-ACD	0.05	9.27	0.1	A	17	26
A-B					4	6
A-C					559	838
A-D					9	14
AB-CD	0.03	8.36	0.0	A	10	16
AB-C					569	853
D-ABC	0.51	27.14	1.0	D	113	169
C-D					184	275
C-A					596	893
C-B					3	4
CD-AB	0.01	7.51	0.0	A	3	4
CD-A					596	893

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	14	4	481	0.030	14	0.0	0.0	7.709	A
A-B	3	0.75			3				
A-C	458	115			458				
A-D	8	2			8				
AB-CD	8	2	494	0.017	8	0.0	0.0	7.413	A
AB-C	467	117			467				
D-ABC	93	23	353	0.263	91	0.0	0.3	13.695	B
C-D	151	38			151				
C-A	489	122			489				
C-B	2	0.56			2				
CD-AB	2	0.57	525	0.004	2	0.0	0.0	6.881	A
CD-A	489	122			489				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	17	4	452	0.038	17	0.0	0.0	8.286	A
A-B	4	0.90			4				
A-C	547	137			547				
A-D	9	2			9				
AB-CD	10	3	472	0.021	10	0.0	0.0	7.796	A
AB-C	557	139			557				
D-ABC	111	28	317	0.349	110	0.3	0.5	17.320	C
C-D	180	45			180				
C-A	583	146			583				
C-B	3	0.67			3				
CD-AB	3	0.68	507	0.005	3	0.0	0.0	7.134	A
CD-A	583	146			583				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	21	5	409	0.051	21	0.0	0.1	9.266	A
A-B	4	1			4				
A-C	671	168			671				
A-D	11	3			11				
AB-CD	13	3	444	0.029	13	0.0	0.0	8.361	A
AB-C	682	171			682				
D-ABC	135	34	268	0.506	134	0.5	1.0	26.500	D
C-D	220	55			220				
C-A	715	179			715				
C-B	3	0.83			3				
CD-AB	3	0.83	483	0.007	3	0.0	0.0	7.509	A
CD-A	715	179			715				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	21	5	409	0.051	21	0.1	0.1	9.268	A
A-B	4	1			4				
A-C	671	168			671				
A-D	11	3			11				
AB-CD	13	3	444	0.029	13	0.0	0.0	8.362	A
AB-C	682	171			682				
D-ABC	135	34	268	0.506	135	1.0	1.0	27.143	D
C-D	220	55			220				
C-A	715	179			715				
C-B	3	0.83			3				
CD-AB	3	0.83	483	0.007	3	0.0	0.0	7.512	A
CD-A	715	179			715				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	17	4	452	0.038	17	0.1	0.0	8.288	A
A-B	4	0.90			4				
A-C	547	137			547				
A-D	9	2			9				
AB-CD	10	3	472	0.021	10	0.0	0.0	7.799	A
AB-C	557	139			557				
D-ABC	111	28	317	0.349	112	1.0	0.6	17.737	C
C-D	180	45			180				
C-A	583	146			583				
C-B	3	0.67			3				
CD-AB	3	0.68	507	0.005	3	0.0	0.0	7.137	A
CD-A	583	146			583				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	14	4	481	0.030	14	0.0	0.0	7.715	A
A-B	3	0.75			3				
A-C	458	115			458				
A-D	8	2			8				
AB-CD	8	2	494	0.017	8	0.0	0.0	7.416	A
AB-C	467	117			467				
D-ABC	93	23	353	0.263	93	0.6	0.4	13.920	B
C-D	151	38			151				
C-A	489	122			489				
C-B	2	0.56			2				
CD-AB	2	0.57	525	0.004	2	0.0	0.0	6.881	A
CD-A	489	122			489				

2017, 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	The Fairway / Lake Hill / Denness Road Staggered Junction	Left-Right Stagger	Two-way	1.35	A

Junction Network Options

Driving side	Lighting	Res Cap (%)	First arm reaching threshold
Left	Normal/unknown	-2	Stream D-ABC

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2017	PM	ONE HOUR	16:45	18:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	739	100.000
B		ONE HOUR	✓	17	100.000
C		ONE HOUR	✓	1023	100.000
D		ONE HOUR	✓	112	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	13	715	11
	B	3	0	12	2
	C	800	3	0	220
	D	0	2	110	0

Vehicle Mix

HV %s

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	2	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-ACD	0.04	8.90	0.0	A	16	23
A-B					12	18
A-C					656	984
A-D					10	15
AB-CD	0.04	9.02	0.0	A	13	19
AB-C					666	1000
D-ABC	0.57	38.74	1.3	E	103	154
C-D					202	303
C-A					734	1101
C-B					3	4
CD-AB	0.01	7.89	0.0	A	5	7
CD-A					734	1101

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	13	3	502	0.025	13	0.0	0.0	7.353	A
A-B	10	2			10				
A-C	538	135			538				
A-D	8	2			8				
AB-CD	10	3	471	0.021	10	0.0	0.0	7.808	A
AB-C	547	137			547				
D-ABC	84	21	318	0.265	83	0.0	0.4	15.232	C
C-D	166	41			166				
C-A	602	151			602				
C-B	2	0.56			2				
CD-AB	4	0.94	509	0.007	4	0.0	0.0	7.118	A
CD-A	602	151			602				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	15	4	470	0.033	15	0.0	0.0	7.917	A
A-B	12	3			12				
A-C	643	161			643				
A-D	10	2			10				
AB-CD	12	3	446	0.027	12	0.0	0.0	8.298	A
AB-C	653	163			653				
D-ABC	101	25	275	0.366	100	0.4	0.6	20.462	C
C-D	198	49			198				
C-A	719	180			719				
C-B	3	0.67			3				
CD-AB	5	1	489	0.009	5	0.0	0.0	7.429	A
CD-A	719	180			719				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	19	5	423	0.044	19	0.0	0.0	8.900	A
A-B	14	4			14				
A-C	787	197			787				
A-D	12	3			12				
AB-CD	15	4	415	0.037	15	0.0	0.0	9.016	A
AB-C	799	200			799				
D-ABC	123	31	216	0.572	121	0.6	1.2	36.954	E
C-D	242	61			242				
C-A	881	220			881				
C-B	3	0.83			3				
CD-AB	6	1	462	0.012	6	0.0	0.0	7.891	A
CD-A	881	220			881				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	19	5	423	0.044	19	0.0	0.0	8.902	A
A-B	14	4			14				
A-C	787	197			787				
A-D	12	3			12				
AB-CD	15	4	415	0.037	15	0.0	0.0	9.018	A
AB-C	799	200			799				
D-ABC	123	31	215	0.572	123	1.2	1.3	38.743	E
C-D	242	61			242				
C-A	881	220			881				
C-B	3	0.83			3				
CD-AB	6	1	462	0.012	6	0.0	0.0	7.892	A
CD-A	881	220			881				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	15	4	470	0.033	15	0.0	0.0	7.921	A
A-B	12	3			12				
A-C	643	161			643				
A-D	10	2			10				
AB-CD	12	3	446	0.027	12	0.0	0.0	8.300	A
AB-C	653	163			653				
D-ABC	101	25	275	0.366	103	1.3	0.6	21.299	C
C-D	198	49			198				
C-A	719	180			719				
C-B	3	0.67			3				
CD-AB	5	1	489	0.009	5	0.0	0.0	7.429	A
CD-A	719	180			719				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	13	3	502	0.025	13	0.0	0.0	7.359	A
A-B	10	2			10				
A-C	538	135			538				
A-D	8	2			8				
AB-CD	10	3	471	0.021	10	0.0	0.0	7.810	A
AB-C	547	137			547				
D-ABC	84	21	318	0.265	85	0.6	0.4	15.535	C
C-D	166	41			166				
C-A	602	151			602				
C-B	2	0.56			2				
CD-AB	4	0.95	509	0.007	4	0.0	0.0	7.118	A
CD-A	602	151			602				

2034, 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	The Fairway / Lake Hill / Denness Road Staggered Junction	Left-Right Stagger	Two-way	3.36	A

Junction Network Options

Driving side	Lighting	Res Cap (%)	First arm reaching threshold
Left	Normal/unknown	-12	Stream D-ABC

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2034	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	762	100.000
B		ONE HOUR	✓	23	100.000
C		ONE HOUR	✓	1043	100.000
D		ONE HOUR	✓	150	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	5	745	12
	B	9	0	13	1
	C	794	4	0	245
	D	0	0	150	0

Vehicle Mix

HV %s

		To			
		A	B	C	D
From	A	0	0	3	0
	B	0	0	0	0
	C	2	0	0	1
	D	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-ACD	0.07	11.12	0.1	B	21	32
A-B					5	7
A-C					684	1025
A-D					11	17
AB-CD	0.04	9.11	0.0	A	13	19
AB-C					695	1042
D-ABC	0.80	76.77	3.3	F	138	206
C-D					225	337
C-A					729	1093
C-B					4	6
CD-AB	0.01	8.00	0.0	A	4	6
CD-A					729	1093

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	17	4	442	0.039	17	0.0	0.0	8.478	A
A-B	4	0.94			4				
A-C	561	140			561				
A-D	9	2			9				
AB-CD	10	3	468	0.021	10	0.0	0.0	7.858	A
AB-C	570	143			570				
D-ABC	113	28	312	0.362	111	0.0	0.6	17.726	C
C-D	184	46			184				
C-A	598	149			598				
C-B	3	0.75			3				
CD-AB	3	0.76	505	0.006	3	0.0	0.0	7.172	A
CD-A	598	149			598				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	21	5	404	0.051	21	0.0	0.1	9.392	A
A-B	4	1			4				
A-C	670	167			670				
A-D	11	3			11				
AB-CD	12	3	443	0.028	12	0.0	0.0	8.364	A
AB-C	681	170			681				
D-ABC	135	34	268	0.503	133	0.6	1.0	26.370	D
C-D	220	55			220				
C-A	714	178			714				
C-B	4	0.90			4				
CD-AB	4	0.91	483	0.008	4	0.0	0.0	7.504	A
CD-A	714	178			714				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	25	6	349	0.073	25	0.1	0.1	11.113	B
A-B	6	1			6				
A-C	820	205			820				
A-D	13	3			13				
AB-CD	15	4	412	0.038	15	0.0	0.0	9.103	A
AB-C	833	208			833				
D-ABC	165	41	208	0.795	157	1.0	2.9	63.858	F
C-D	270	67			270				
C-A	874	219			874				
C-B	4	1			4				
CD-AB	4	1	454	0.010	4	0.0	0.0	8.003	A
CD-A	874	219			874				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	25	6	349	0.073	25	0.1	0.1	11.119	B
A-B	6	1			6				
A-C	820	205			820				
A-D	13	3			13				
AB-CD	15	4	412	0.038	15	0.0	0.0	9.107	A
AB-C	833	208			833				
D-ABC	165	41	208	0.795	164	2.9	3.3	76.773	F
C-D	270	67			270				
C-A	874	219			874				
C-B	4	1			4				
CD-AB	4	1	454	0.010	4	0.0	0.0	8.005	A
CD-A	874	219			874				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	21	5	404	0.051	21	0.1	0.1	9.400	A
A-B	4	1			4				
A-C	670	167			670				
A-D	11	3			11				
AB-CD	12	3	443	0.028	12	0.0	0.0	8.366	A
AB-C	681	170			681				
D-ABC	135	34	268	0.503	144	3.3	1.1	30.653	D
C-D	220	55			220				
C-A	714	178			714				
C-B	4	0.90			4				
CD-AB	4	0.91	483	0.008	4	0.0	0.0	7.504	A
CD-A	714	178			714				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	17	4	442	0.039	17	0.1	0.0	8.487	A
A-B	4	0.94			4				
A-C	561	140			561				
A-D	9	2			9				
AB-CD	10	3	469	0.021	10	0.0	0.0	7.861	A
AB-C	570	143			570				
D-ABC	113	28	312	0.362	115	1.1	0.6	18.465	C
C-D	184	46			184				
C-A	598	149			598				
C-B	3	0.75			3				
CD-AB	3	0.76	505	0.006	3	0.0	0.0	7.175	A
CD-A	598	149			598				

2034, 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	The Fairway / Lake Hill / Denness Road Staggered Junction	Left-Right Stagger	Two-way	7.77	A

Junction Network Options

Driving side	Lighting	Res Cap (%)	First arm reaching threshold
Left	Normal/unknown	-20	Stream D-ABC

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	2034	PM	ONE HOUR	16:45	18:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	900	100.000
B		ONE HOUR	✓	21	100.000
C		ONE HOUR	✓	1247	100.000
D		ONE HOUR	✓	136	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	16	871	13
	B	4	0	15	2
	C	975	4	0	268
	D	0	2	134	0

Vehicle Mix

HV %s

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	2	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-ACD	0.07	10.83	0.1	B	19	29
A-B					15	22
A-C					799	1199
A-D					12	18
AB-CD	0.05	9.92	0.1	A	15	23
AB-C					812	1218
D-ABC	1.04	235.91	9.7	F	125	187
C-D					246	369
C-A					895	1342
C-B					4	6
CD-AB	0.02	8.49	0.0	A	6	8
CD-A					895	1342

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	16	4	461	0.034	16	0.0	0.0	8.074	A
A-B	12	3			12				
A-C	656	164			656				
A-D	10	2			10				
AB-CD	12	3	442	0.027	12	0.0	0.0	8.366	A
AB-C	666	167			666				
D-ABC	102	26	269	0.380	100	0.0	0.6	20.994	C
C-D	202	50			202				
C-A	734	184			734				
C-B	3	0.75			3				
CD-AB	5	1	486	0.009	5	0.0	0.0	7.469	A
CD-A	734	183			734				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	19	5	419	0.045	19	0.0	0.0	8.985	A
A-B	14	4			14				
A-C	783	196			783				
A-D	12	3			12				
AB-CD	14	4	414	0.035	14	0.0	0.0	9.013	A
AB-C	795	199			795				
D-ABC	122	31	217	0.564	120	0.6	1.2	36.222	E
C-D	241	60			241				
C-A	877	219			877				
C-B	4	0.90			4				
CD-AB	5	1	462	0.012	5	0.0	0.0	7.877	A
CD-A	876	219			876				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	23	6	355	0.065	23	0.0	0.1	10.828	B
A-B	18	4			18				
A-C	959	240			959				
A-D	14	4			14				
AB-CD	19	5	382	0.050	19	0.0	0.1	9.920	A
AB-C	973	243			973				
D-ABC	150	37	144	1.037	128	1.2	6.5	147.335	F
C-D	295	74			295				
C-A	1073	268			1073				
C-B	4	1			4				
CD-AB	7	2	430	0.015	7	0.0	0.0	8.494	A
CD-A	1073	268			1073				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	23	6	355	0.065	23	0.1	0.1	10.835	B
A-B	18	4			18				
A-C	959	240			959				
A-D	14	4			14				
AB-CD	19	5	382	0.050	19	0.1	0.1	9.923	A
AB-C	973	243			973				
D-ABC	150	37	144	1.037	137	6.5	9.7	235.913	F
C-D	295	74			295				
C-A	1073	268			1073				
C-B	4	1			4				
CD-AB	7	2	431	0.016	7	0.0	0.0	8.492	A
CD-A	1073	268			1073				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	19	5	419	0.045	19	0.1	0.0	8.995	A
A-B	14	4			14				
A-C	783	196			783				
A-D	12	3			12				
AB-CD	14	4	414	0.035	15	0.1	0.0	9.016	A
AB-C	796	199			796				
D-ABC	122	31	217	0.564	155	9.7	1.5	77.776	F
C-D	241	60			241				
C-A	877	219			877				
C-B	4	0.90			4				
CD-AB	6	2	463	0.013	6	0.0	0.0	7.871	A
CD-A	876	219			876				