Appendix R

GRAHAME PARK WAY / BUNNS LANE IMPROVEMENT

Ward Bdy

CR

BUNNS LANE

GRAHAME PARK WAY

BUNNS LANE

Appendix S

2021 & 2026 FUTURE BASE MODEL RESULTS

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.0.1.4646 []

For sales and distribution information, program advice and maintenance, contact TRL:
Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk

Filename: The Broadway - Flower Lane Junction v3.j9
Path: L:\5545 - Healey Development Solutions (Mill Hill) Ltd\001 - Mill Hill\Analysis & Design\Modelling\J1 - The Broadway - Flower Lane Junction
Report generation date: 23/09/2016 17:15:35

Summary of junction performance

	AM					PM				
	Queue (Veh)	Delay (s)	RFC	LOS	Network Residual Capacity	Queue (Veh)	Delay (s)	RFC	LOS	Network Residual Capacity
	Do Nothing - 2016									
Stream B-C	0.3	22.77	0.26	C	-6 % [Stream B-A]	0.4	18.44	0.30	C	-1 % [Stream B-A]
Stream B-A	2.8	47.82	0.75	E		2.3	36.06	0.71	E	
Stream C-A	1.2	9.91	0.40	A		1.1	9.03	0.38	A	
Stream C-B	0.1	11.97	0.43	B		0.2	10.28	0.42	B	

	AM					PM				
	Queue (Veh)	Delay (s)	RFC	LOS	Network Residual Capacity	Queue (Veh)	Delay (s)	RFC	LOS	Network Residual Capacity
	Do Something - 2021 + Committed									
Stream B-C	0.5	31.42	0.34	D	-10 % [Stream B-A]	0.6	27.55	0.40	D	-7 % [Stream B-A]
Stream B-A	3.6	61.28	0.81	F		3.4	52.20	0.79	F	
Stream C-A	1.3	10.15	0.42	B		1.2	9.37	0.41	A	
Stream C-B	0.1	12.28	0.44	B		0.2	10.74	0.45	B	
	Do Something - 2021 + Committed + New Dev with BL									
Stream B-C	0.6	33.20	0.37	D	-10 % [Stream B-A]	0.7	28.99	0.42	D	-7 % [Stream B-A]
Stream B-A	3.8	63.64	0.82	F		3.5	54.12	0.80	F	
Stream C-A	1.3	10.15	0.42	B		1.2	9.41	0.41	A	
Stream C-B	0.1	12.29	0.44	B		0.2	10.84	0.45	B	
	Do Something - 2021 + Committed + New Dev without BL									
Stream B-C	0.5	33.75	0.36	D	-11 % [Stream B-A]	0.6	26.61	0.39	D	-7 % [Stream B-A]
Stream B-A	3.8	64.15	0.82	F		3.3	50.84	0.79	F	
Stream C-A	1.3	10.16	0.42	B		1.2	9.37	0.41	A	
Stream C-B	0.1	12.31	0.44	B		0.2	10.72	0.45	B	
	Do Something - 2026 + Committed									
Stream B-C	0.9	55.57	0.50	F	-13 % [Stream B-A]	1.5	61.08	0.63	F	-12 % [Stream B-A]
Stream B-A	4.9	80.54	0.87	F		5.3	78.82	0.88	F	
Stream C-A	1.4	10.36	0.43	B		1.3	9.66	0.43	A	
Stream C-B	0.1	12.56	0.46	B		0.2	11.11	0.47	B	
	Do Something - 2026 + Committed + New Dev with BL									
Stream B-C	1.1	63.01	0.55	F	-14 % [Stream B-A]	1.7	70.23	0.67	F	-12 % [Stream B-A]
Stream B-A	5.1	84.28	0.87	F		5.6	82.73	0.89	F	
Stream C-A	1.4	10.36	0.43	B		1.3	9.70	0.43	A	
Stream C-B	0.1	12.57	0.46	B		0.2	11.22	0.47	B	
	Do Something - 2026 + Committed + New Dev without BL									
Stream B-C	1.1	65.18	0.55	F	-14 % [Stream B-A]	1.3	55.59	0.60	F	-11 % [Stream B-A]
Stream B-A	5.2	85.05	0.88	F		5.2	76.09	0.87	F	
Stream C-A	1.4	10.37	0.43	B		1.4	9.67	0.43	A	
Stream C-B	0.1	12.59	0.46	B		0.2	11.10	0.47	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	The Broadway - Flower Lane Junction
Location	
Site number	
Date	15/06/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ROBERTWEST\libanbellezza
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	perHour	s	-Min	perMin

Analysis Options

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

Growth Factors

ID	Description	Use TEMPRO	Growth Factor
G1	2016-2021 AM		1.0370
G2	2016-2021 PM		1.0558
G3	2016-2026 AM		1.0740
G4	2016-2026 PM		1.1116

Growth factors are only active if the Demand Set references them in a Relationship.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set(s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Do Nothing	✓	✓	D1,D2	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically	Relationship type	Relationship
D15	2021 + Committed	AM	ONE HOUR	07:45	09:15	15	✓	✓	Simple	D1*G1+D11+D9

Do Nothing - 2021 + Committed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D15 - 2021 + Committed, AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	The Broadway - Flower Lane Junction	T-Junction	Two-way	14.36	B

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-10	Stream B-A

Arms

Arms

Arm	Name	Description	Arm type
A	The Broadway N		Major
B	Flower Lane		Minor
C	The Broadway SW		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	8.87			50.0		-

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B	One lane plus flare	10.00	6.64	5.13	4.58	4.16		2.00	31	31

Pelican/Puffin Crossings

Arm	Space between crossing and junction entry (Signalised) (PCU)	Amber time preceding red (s)	Amber time regarded as green (s)	Time from traffic red start to green man start (s)	Time period green man shown (s)	Clearance Period (s)	Traffic minimum green (s)
C	1.00	3.00	2.90	1.00	6.00	6.00	7.00

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	574	0.091	0.231	0.145	0.330
1	B-C	590	0.079	0.200	-	-
1	C-B	603	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

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	641	100.000
B		ONE HOUR	✓	262	100.000
C		ONE HOUR	✓	527	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
A		
B		
C	Global	200.00

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	139	502
	B	208	0	54
	C	486	40	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	2	7
	B	12	0	17
	C	6	32	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.34	31.42	0.5	D	54	54
B-A	0.81	61.28	3.6	F	208	208
C-A	0.42	10.15	1.3	B	486	486
C-B	0.44	12.28	0.1	B	40	40
A-B					139	139
A-C					502	502

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	48	12		316	0.153	48	0.1	0.2	13.435	B
B-A	187	47		327	0.573	185	0.8	1.3	25.045	D
C-A	437	109	179.80	1330	0.329	436	0.7	0.9	8.702	A
C-B	36	9	179.80	101	0.360	36	0.1	0.1	10.411	B
A-B	125	31				125				
A-C	451	113				451				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	59	15		191	0.310	58	0.2	0.4	26.849	D
B-A	229	57		284	0.808	222	1.3	3.3	51.995	F
C-A	535	134	220.20	1279	0.419	534	0.9	1.3	10.149	B
C-B	45	11	220.20	101	0.443	44	0.1	0.1	12.281	B
A-B	153	38				153				
A-C	552	138				552				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	59	15		173	0.342	59	0.4	0.5	31.415	D
B-A	229	57		284	0.809	228	3.3	3.6	61.282	F
C-A	535	134	220.20	1284	0.417	535	1.3	1.3	10.069	B
C-B	45	11	220.20	102	0.438	45	0.1	0.1	12.132	B
A-B	153	38				153				
A-C	552	138				552				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	48	12		303	0.160	50	0.5	0.2	14.282	B
B-A	187	47		327	0.573	196	3.6	1.4	29.145	D
C-A	437	109	179.80	1338	0.327	439	1.3	0.9	8.591	A
C-B	36	9	179.80	103	0.354	37	0.1	0.1	10.216	B
A-B	125	31				125				
A-C	451	113				451				

Junctions 9

PICADY 9 - Priority Intersection Module

Filename: The Broadway - Flower Lane Junction v3.j9
Path: L:\5545 - Healey Development Solutions (Mill Hill) Ltd\001 - Mill Hill\Analysis & Design\Modelling\J1 - The Broadway - Flower Lane Junction
Report generation date: 23/09/2016 17:16:37

Summary of junction performance

	AM					PM				
	Queue (Veh)	Delay (s)	RFC	LOS	Network Residual Capacity	Queue (Veh)	Delay (s)	RFC	LOS	Network Residual Capacity
	Do Nothing - 2016									
Stream B-C	0.3	22.77	0.26	C	-6 % [Stream B-A]	0.4	18.44	0.30	C	-1 % [Stream B-A]
Stream B-A	2.8	47.82	0.75	E		2.3	36.06	0.71	E	
Stream C-A	1.2	9.91	0.40	A		1.1	9.03	0.38	A	
Stream C-B	0.1	11.97	0.43	B		0.2	10.28	0.42	B	

	AM					PM				
	Queue (Veh)	Delay (s)	RFC	LOS	Network Residual Capacity	Queue (Veh)	Delay (s)	RFC	LOS	Network Residual Capacity
	Do Something - 2021 + Committed									
Stream B-C	0.5	31.42	0.34	D	-10 % [Stream B-A]	0.6	27.55	0.40	D	-7 % [Stream B-A]
Stream B-A	3.6	61.28	0.81	F		3.4	52.20	0.79	F	
Stream C-A	1.3	10.15	0.42	B		1.2	9.37	0.41	A	
Stream C-B	0.1	12.28	0.44	B		0.2	10.74	0.45	B	
	Do Something - 2021 + Committed + New Dev with BL									
Stream B-C	0.6	33.20	0.37	D	-10 % [Stream B-A]	0.7	28.99	0.42	D	-7 % [Stream B-A]
Stream B-A	3.8	63.64	0.82	F		3.5	54.12	0.80	F	
Stream C-A	1.3	10.15	0.42	B		1.2	9.41	0.41	A	
Stream C-B	0.1	12.29	0.44	B		0.2	10.84	0.45	B	
	Do Something - 2021 + Committed + New Dev without BL									
Stream B-C	0.5	33.75	0.36	D	-11 % [Stream B-A]	0.6	26.61	0.39	D	-7 % [Stream B-A]
Stream B-A	3.8	64.15	0.82	F		3.3	50.84	0.79	F	
Stream C-A	1.3	10.16	0.42	B		1.2	9.37	0.41	A	
Stream C-B	0.1	12.31	0.44	B		0.2	10.72	0.45	B	
	Do Something - 2026 + Committed									
Stream B-C	0.9	55.57	0.50	F	-13 % [Stream B-A]	1.5	61.08	0.63	F	-12 % [Stream B-A]
Stream B-A	4.9	80.54	0.87	F		5.3	78.82	0.88	F	
Stream C-A	1.4	10.36	0.43	B		1.3	9.66	0.43	A	
Stream C-B	0.1	12.56	0.46	B		0.2	11.11	0.47	B	
	Do Something - 2026 + Committed + New Dev with BL									
Stream B-C	1.1	63.01	0.55	F	-14 % [Stream B-A]	1.7	70.23	0.67	F	-12 % [Stream B-A]
Stream B-A	5.1	84.28	0.87	F		5.6	82.73	0.89	F	
Stream C-A	1.4	10.36	0.43	B		1.3	9.70	0.43	A	
Stream C-B	0.1	12.57	0.46	B		0.2	11.22	0.47	B	
	Do Something - 2026 + Committed + New Dev without BL									
Stream B-C	1.1	65.18	0.55	F	-14 % [Stream B-A]	1.3	55.59	0.60	F	-11 % [Stream B-A]
Stream B-A	5.2	85.05	0.88	F		5.2	76.09	0.87	F	
Stream C-A	1.4	10.37	0.43	B		1.4	9.67	0.43	A	
Stream C-B	0.1	12.59	0.46	B		0.2	11.10	0.47	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	The Broadway - Flower Lane Junction
Location	
Site number	
Date	15/06/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ROBERTWEST\libanbellezza
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	perHour	s	-Min	perMin

Analysis Options

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

Growth Factors

ID	Description	Use TEMPRO	Growth Factor
G1	2016-2021 AM		1.0370
G2	2016-2021 PM		1.0558
G3	2016-2026 AM		1.0740
G4	2016-2026 PM		1.1116

Growth factors are only active if the Demand Set references them in a Relationship.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set(s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Do Nothing	✓	✓	D1,D2	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically	Relationship type	Relationship
D16	2021 + Committed	PM	ONE HOUR	16:45	18:15	15	✓	✓	Simple	D2*G2+D12+D10

Do Nothing - 2021 + Committed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D16 - 2021 + Committed, PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	The Broadway - Flower Lane Junction	T-Junction	Two-way	13.14	B

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-7	Stream B-A

Arms

Arms

Arm	Name	Description	Arm type
A	The Broadway N		Major
B	Flower Lane		Minor
C	The Broadway SW		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	8.87			50.0		-

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B	One lane plus flare	10.00	6.64	5.13	4.58	4.16		2.00	31	31

Pelican/Puffin Crossings

Arm	Space between crossing and junction entry (Signalised) (PCU)	Amber time preceding red (s)	Amber time regarded as green (s)	Time from traffic red start to green man start (s)	Time period green man shown (s)	Clearance Period (s)	Traffic minimum green (s)
C	1.00	3.00	2.90	1.00	6.00	6.00	7.00

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	564	0.090	0.227	0.143	0.324
1	B-C	603	0.081	0.205	-	-
1	C-B	603	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

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	609	100.000
B		ONE HOUR	✓	307	100.000
C		ONE HOUR	✓	523	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
A		
B		
C	Global	200.00

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	113	495
	B	228	0	79
	C	465	58	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	3	4
	B	1	0	11
	C	4	10	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.40	27.55	0.6	D	79	79
B-A	0.79	52.20	3.4	F	228	228
C-A	0.41	9.37	1.2	A	465	465
C-B	0.45	10.74	0.2	B	58	58
A-B					113	113
A-C					495	495

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	71	18		351	0.203	71	0.2	0.2	12.827	B
B-A	205	51		363	0.565	203	0.7	1.2	22.220	C
C-A	418	105	179.80	1307	0.320	417	0.6	0.8	8.032	A
C-B	52	13	179.80	144	0.363	52	0.1	0.1	9.058	A
A-B	102	25				102				
A-C	445	111				445				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	87	22		232	0.376	86	0.2	0.6	24.417	C
B-A	251	63		317	0.793	244	1.2	3.1	45.277	E
C-A	512	128	220.20	1254	0.408	511	0.8	1.2	9.371	A
C-B	64	16	220.20	143	0.446	64	0.1	0.2	10.736	B
A-B	125	31				125				
A-C	545	136				545				

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	87	22		217	0.401	87	0.6	0.6	27.547	D
B-A	251	63		316	0.794	250	3.1	3.4	52.202	F
C-A	512	128	220.20	1260	0.406	512	1.2	1.2	9.271	A
C-B	64	16	220.20	145	0.440	64	0.2	0.2	10.555	B
A-B	125	31				125				
A-C	545	136				545				

17:45 - 18:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	71	18		340	0.209	73	0.6	0.3	13.528	B
B-A	205	51		363	0.565	213	3.4	1.4	25.170	D
C-A	418	105	179.80	1315	0.318	420	1.2	0.9	7.931	A
C-B	52	13	179.80	146	0.357	52	0.2	0.1	8.881	A
A-B	102	25				102				
A-C	445	111				445				

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.0.1.4646 []

For sales and distribution information, program advice and maintenance, contact TRL:
Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk

Filename: The Broadway - Flower Lane Junction v3.j9
Path: L:\5545 - Healey Development Solutions (Mill Hill) Ltd\001 - Mill Hill\Analysis & Design\Modelling\J1 - The Broadway - Flower Lane Junction
Report generation date: 23/09/2016 17:18:25

Summary of junction performance

	AM					PM				
	Queue (Veh)	Delay (s)	RFC	LOS	Network Residual Capacity	Queue (Veh)	Delay (s)	RFC	LOS	Network Residual Capacity
	Do Nothing - 2016									
Stream B-C	0.3	22.77	0.26	C	-6 % [Stream B-A]	0.4	18.44	0.30	C	-1 % [Stream B-A]
Stream B-A	2.8	47.82	0.75	E		2.3	36.06	0.71	E	
Stream C-A	1.2	9.91	0.40	A		1.1	9.03	0.38	A	
Stream C-B	0.1	11.97	0.43	B		0.2	10.28	0.42	B	

	AM					PM				
	Queue (Veh)	Delay (s)	RFC	LOS	Network Residual Capacity	Queue (Veh)	Delay (s)	RFC	LOS	Network Residual Capacity
	Do Something - 2021 + Committed									
Stream B-C	0.5	31.42	0.34	D	-10 % [Stream B-A]	0.6	27.55	0.40	D	-7 % [Stream B-A]
Stream B-A	3.6	61.28	0.81	F		3.4	52.20	0.79	F	
Stream C-A	1.3	10.15	0.42	B		1.2	9.37	0.41	A	
Stream C-B	0.1	12.28	0.44	B		0.2	10.74	0.45	B	
	Do Something - 2021 + Committed + New Dev with BL									
Stream B-C	0.6	33.20	0.37	D	-10 % [Stream B-A]	0.7	28.99	0.42	D	-7 % [Stream B-A]
Stream B-A	3.8	63.64	0.82	F		3.5	54.12	0.80	F	
Stream C-A	1.3	10.15	0.42	B		1.2	9.41	0.41	A	
Stream C-B	0.1	12.29	0.44	B		0.2	10.84	0.45	B	
	Do Something - 2021 + Committed + New Dev without BL									
Stream B-C	0.5	33.75	0.36	D	-11 % [Stream B-A]	0.6	26.61	0.39	D	-7 % [Stream B-A]
Stream B-A	3.8	64.15	0.82	F		3.3	50.84	0.79	F	
Stream C-A	1.3	10.16	0.42	B		1.2	9.37	0.41	A	
Stream C-B	0.1	12.31	0.44	B		0.2	10.72	0.45	B	
	Do Something - 2026 + Committed									
Stream B-C	0.9	55.57	0.50	F	-13 % [Stream B-A]	1.5	61.08	0.63	F	-12 % [Stream B-A]
Stream B-A	4.9	80.54	0.87	F		5.3	78.82	0.88	F	
Stream C-A	1.4	10.36	0.43	B		1.3	9.66	0.43	A	
Stream C-B	0.1	12.56	0.46	B		0.2	11.11	0.47	B	
	Do Something - 2026 + Committed + New Dev with BL									
Stream B-C	1.1	63.01	0.55	F	-14 % [Stream B-A]	1.7	70.23	0.67	F	-12 % [Stream B-A]
Stream B-A	5.1	84.28	0.87	F		5.6	82.73	0.89	F	
Stream C-A	1.4	10.36	0.43	B		1.3	9.70	0.43	A	
Stream C-B	0.1	12.57	0.46	B		0.2	11.22	0.47	B	
	Do Something - 2026 + Committed + New Dev without BL									
Stream B-C	1.1	65.18	0.55	F	-14 % [Stream B-A]	1.3	55.59	0.60	F	-11 % [Stream B-A]
Stream B-A	5.2	85.05	0.88	F		5.2	76.09	0.87	F	
Stream C-A	1.4	10.37	0.43	B		1.4	9.67	0.43	A	
Stream C-B	0.1	12.59	0.46	B		0.2	11.10	0.47	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	The Broadway - Flower Lane Junction
Location	
Site number	
Date	15/06/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ROBERTWEST\libanbellezza
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	perHour	s	-Min	perMin

Analysis Options

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

Growth Factors

ID	Description	Use TEMPRO	Growth Factor
G1	2016-2021 AM		1.0370
G2	2016-2021 PM		1.0558
G3	2016-2026 AM		1.0740
G4	2016-2026 PM		1.1116

Growth factors are only active if the Demand Set references them in a Relationship.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set(s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Do Nothing	✓	✓	D1,D2	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically	Relationship type	Relationship
D21	2026 + Committed	AM	ONE HOUR	07:45	09:15	15	✓	✓	Simple	D1*G3+D13+D9

Do Nothing - 2026 + Committed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D21 - 2026 + Committed, AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	The Broadway - Flower Lane Junction	T-Junction	Two-way	18.37	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-13	Stream B-A

Arms

Arms

Arm	Name	Description	Arm type
A	The Broadway N		Major
B	Flower Lane		Minor
C	The Broadway SW		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	8.87			50.0		-

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B	One lane plus flare	10.00	6.64	5.13	4.58	4.16		2.00	31	31

Pelican/Puffin Crossings

Arm	Space between crossing and junction entry (Signalised) (PCU)	Amber time preceding red (s)	Amber time regarded as green (s)	Time from traffic red start to green man start (s)	Time period green man shown (s)	Clearance Period (s)	Traffic minimum green (s)
C	1.00	3.00	2.90	1.00	6.00	6.00	7.00

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	574	0.091	0.231	0.145	0.330
1	B-C	591	0.079	0.200	-	-
1	C-B	603	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

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	663	100.000
B		ONE HOUR	✓	273	100.000
C		ONE HOUR	✓	545	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
A		
B		
C	Global	200.00

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	144	520
	B	216	0	57
	C	503	42	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	2	7
	B	12	0	16
	C	6	32	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.50	55.57	0.9	F	57	57
B-A	0.87	80.54	4.9	F	216	216
C-A	0.43	10.36	1.4	B	503	503
C-B	0.46	12.56	0.1	B	42	42
A-B					144	144
A-C					520	520

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	51	13		303	0.169	51	0.1	0.2	14.274	B
B-A	194	49		320	0.606	192	0.8	1.4	27.478	D
C-A	453	113	179.80	1329	0.341	452	0.7	1.0	8.838	A
C-B	38	9	179.80	101	0.372	38	0.1	0.1	10.601	B
A-B	129	32				129				
A-C	467	117				467				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	63	16		154	0.406	61	0.2	0.6	37.906	E
B-A	238	59		275	0.863	227	1.4	4.2	63.327	F
C-A	554	139	220.20	1278	0.434	553	1.0	1.4	10.359	B
C-B	46	12	220.20	101	0.456	46	0.1	0.1	12.561	B
A-B	158	40				158				
A-C	572	143				572				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	63	16		125	0.500	61	0.6	0.9	55.570	F
B-A	238	59		275	0.865	235	4.2	4.9	80.538	F
C-A	554	139	220.20	1281	0.433	554	1.4	1.4	10.329	B
C-B	46	12	220.20	102	0.453	46	0.1	0.1	12.493	B
A-B	158	40				158				
A-C	572	143				572				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	51	13		282	0.181	54	0.9	0.2	15.952	C
B-A	194	49		320	0.607	207	4.9	1.7	34.901	D
C-A	453	113	179.80	1338	0.338	454	1.4	1.0	8.717	A
C-B	38	9	179.80	103	0.365	38	0.1	0.1	10.389	B
A-B	129	32				129				
A-C	467	117				467				

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.0.1.4646 []

For sales and distribution information, program advice and maintenance, contact TRL:
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Filename: The Broadway - Flower Lane Junction v3.j9
Path: L:\5545 - Healey Development Solutions (Mill Hill) Ltd\001 - Mill Hill\Analysis & Design\Modelling\J1 - The Broadway - Flower Lane Junction
Report generation date: 23/09/2016 17:19:15

Summary of junction performance

	AM					PM				
	Queue (Veh)	Delay (s)	RFC	LOS	Network Residual Capacity	Queue (Veh)	Delay (s)	RFC	LOS	Network Residual Capacity
	Do Nothing - 2016									
Stream B-C	0.3	22.77	0.26	C	-6 % [Stream B-A]	0.4	18.44	0.30	C	-1 % [Stream B-A]
Stream B-A	2.8	47.82	0.75	E		2.3	36.06	0.71	E	
Stream C-A	1.2	9.91	0.40	A		1.1	9.03	0.38	A	
Stream C-B	0.1	11.97	0.43	B		0.2	10.28	0.42	B	

	AM					PM				
	Queue (Veh)	Delay (s)	RFC	LOS	Network Residual Capacity	Queue (Veh)	Delay (s)	RFC	LOS	Network Residual Capacity
	Do Something - 2021 + Committed									
Stream B-C	0.5	31.42	0.34	D	-10 % [Stream B-A]	0.6	27.55	0.40	D	-7 % [Stream B-A]
Stream B-A	3.6	61.28	0.81	F		3.4	52.20	0.79	F	
Stream C-A	1.3	10.15	0.42	B		1.2	9.37	0.41	A	
Stream C-B	0.1	12.28	0.44	B		0.2	10.74	0.45	B	
	Do Something - 2021 + Committed + New Dev with BL									
Stream B-C	0.6	33.20	0.37	D	-10 % [Stream B-A]	0.7	28.99	0.42	D	-7 % [Stream B-A]
Stream B-A	3.8	63.64	0.82	F		3.5	54.12	0.80	F	
Stream C-A	1.3	10.15	0.42	B		1.2	9.41	0.41	A	
Stream C-B	0.1	12.29	0.44	B		0.2	10.84	0.45	B	
	Do Something - 2021 + Committed + New Dev without BL									
Stream B-C	0.5	33.75	0.36	D	-11 % [Stream B-A]	0.6	26.61	0.39	D	-7 % [Stream B-A]
Stream B-A	3.8	64.15	0.82	F		3.3	50.84	0.79	F	
Stream C-A	1.3	10.16	0.42	B		1.2	9.37	0.41	A	
Stream C-B	0.1	12.31	0.44	B		0.2	10.72	0.45	B	
	Do Something - 2026 + Committed									
Stream B-C	0.9	55.57	0.50	F	-13 % [Stream B-A]	1.5	61.08	0.63	F	-12 % [Stream B-A]
Stream B-A	4.9	80.54	0.87	F		5.3	78.82	0.88	F	
Stream C-A	1.4	10.36	0.43	B		1.3	9.66	0.43	A	
Stream C-B	0.1	12.56	0.46	B		0.2	11.11	0.47	B	
	Do Something - 2026 + Committed + New Dev with BL									
Stream B-C	1.1	63.01	0.55	F	-14 % [Stream B-A]	1.7	70.23	0.67	F	-12 % [Stream B-A]
Stream B-A	5.1	84.28	0.87	F		5.6	82.73	0.89	F	
Stream C-A	1.4	10.36	0.43	B		1.3	9.70	0.43	A	
Stream C-B	0.1	12.57	0.46	B		0.2	11.22	0.47	B	
	Do Something - 2026 + Committed + New Dev without BL									
Stream B-C	1.1	65.18	0.55	F	-14 % [Stream B-A]	1.3	55.59	0.60	F	-11 % [Stream B-A]
Stream B-A	5.2	85.05	0.88	F		5.2	76.09	0.87	F	
Stream C-A	1.4	10.37	0.43	B		1.4	9.67	0.43	A	
Stream C-B	0.1	12.59	0.46	B		0.2	11.10	0.47	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	The Broadway - Flower Lane Junction
Location	
Site number	
Date	15/06/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ROBERTWEST\libanbellezza
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	perHour	s	-Min	perMin

Analysis Options

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

Growth Factors

ID	Description	Use TEMPRO	Growth Factor
G1	2016-2021 AM		1.0370
G2	2016-2021 PM		1.0558
G3	2016-2026 AM		1.0740
G4	2016-2026 PM		1.1116

Growth factors are only active if the Demand Set references them in a Relationship.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set(s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Do Nothing	✓	✓	D1,D2	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically	Relationship type	Relationship
D22	2026 + Committed	PM	ONE HOUR	16:45	18:15	15	✓	✓	Simple	D2*G4+D14+D10

Do Nothing - 2026 + Committed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D22 - 2026 + Committed, PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	The Broadway - Flower Lane Junction	T-Junction	Two-way	19.36	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-12	Stream B-A

Arms

Arms

Arm	Name	Description	Arm type
A	The Broadway N		Major
B	Flower Lane		Minor
C	The Broadway SW		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	8.87			50.0		-

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B	One lane plus flare	10.00	6.64	5.13	4.58	4.16		2.00	31	31

Pelican/Puffin Crossings

Arm	Space between crossing and junction entry (Signalised) (PCU)	Amber time preceding red (s)	Amber time regarded as green (s)	Time from traffic red start to green man start (s)	Time period green man shown (s)	Clearance Period (s)	Traffic minimum green (s)
C	1.00	3.00	2.90	1.00	6.00	6.00	7.00

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	563	0.090	0.227	0.143	0.324
1	B-C	604	0.081	0.205	-	-
1	C-B	603	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

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	639	100.000
B		ONE HOUR	✓	324	100.000
C		ONE HOUR	✓	551	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
A		
B		
C	Global	200.00

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	119	521
	B	240	0	84
	C	490	61	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	3	4
	B	1	0	11
	C	4	10	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.63	61.08	1.5	F	84	84
B-A	0.88	78.82	5.3	F	240	240
C-A	0.43	9.66	1.3	A	490	490
C-B	0.47	11.11	0.2	B	61	61
A-B					119	119
A-C					521	521

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	76	19		331	0.229	75	0.2	0.3	14.062	B
B-A	216	54		352	0.613	213	0.8	1.5	25.424	D
C-A	440	110	179.80	1305	0.337	439	0.7	0.9	8.219	A
C-B	55	14	179.80	145	0.380	55	0.1	0.1	9.314	A
A-B	107	27				107				
A-C	468	117				468				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	93	23		178	0.522	90	0.3	1.0	39.860	E
B-A	264	66		302	0.874	252	1.5	4.5	60.876	F
C-A	539	135	220.20	1253	0.430	537	0.9	1.3	9.662	A
C-B	67	17	220.20	145	0.465	67	0.1	0.2	11.115	B
A-B	131	33				131				
A-C	573	143				573				

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	93	23		148	0.629	91	1.0	1.5	61.084	F
B-A	264	66		301	0.877	261	4.5	5.3	78.823	F
C-A	539	135	220.20	1259	0.428	539	1.3	1.3	9.547	A
C-B	67	17	220.20	147	0.459	67	0.2	0.2	10.905	B
A-B	131	33				131				
A-C	573	143				573				

17:45 - 18:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	76	19		310	0.245	80	1.5	0.3	16.006	C
B-A	216	54		351	0.614	230	5.3	1.7	32.612	D
C-A	440	110	179.80	1314	0.335	442	1.3	0.9	8.105	A
C-B	55	14	179.80	147	0.373	55	0.2	0.1	9.113	A
A-B	107	27				107				
A-C	468	117				468				

Junctions 9

PICADY 9 - Priority Intersection Module

Filename: Bunn's Lane - Flower Lane Junction v3.j9
Path: L:\5545 - Healey Development Solutions (Mill Hill) Ltd\001 - Mill Hill\Analysis & Design\Modelling\J2 - Bunn's Lane - Flower Lane Junction
Report generation date: 23/09/2016 17:30:32

Summary of junction performance

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
	Do Nothing - 2016							
Stream B-C	1.2	31.99	0.56	D	0.6	12.04	0.37	B
Stream B-A	1.8	107.61	0.68	F	0.2	34.64	0.20	D
Stream C-A	2.8	5.94	0.56	A	1.4	4.43	0.41	A
Stream C-B	0.2	3.36	0.28	A	0.2	3.07	0.25	A

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
	Do Something - 2021 + Committed							
Stream B-C	1.1	32.70	0.54	D	0.6	12.31	0.36	B
Stream B-A	1.8	126.66	0.69	F	0.3	40.76	0.21	E
Stream C-A	4.9	20.90	0.79	C	2.5	12.97	0.62	B
Stream C-B	2.3	32.99	0.80	D	1.1	20.25	0.69	C
	Do Something - 2021 + Committed + New Dev with BL							
Stream B-C	1.9	51.80	0.69	F	0.8	14.08	0.44	B
Stream B-A	2.3	163.25	0.76	F	0.3	45.88	0.23	E
Stream C-A	5.3	22.16	0.81	C	2.6	13.22	0.63	B
Stream C-B	2.4	34.14	0.81	D	1.2	20.82	0.70	C
	Do Something - 2021 + Committed + New Dev without BL							
Stream B-C	1.4	40.68	0.60	E	0.5	12.06	0.34	B
Stream B-A	2.1	139.89	0.73	F	0.3	40.46	0.22	E
Stream C-A	4.9	20.82	0.79	C	2.5	12.96	0.62	B
Stream C-B	2.3	32.80	0.80	D	1.1	20.23	0.69	C
	Do Something - 2026 + Committed							
Stream B-C	5.7	147.32	1.00	F	0.7	14.08	0.41	B
Stream B-A	3.6	233.37	0.91	F	0.3	52.89	0.27	F
Stream C-A	6.2	25.46	0.84	D	3.0	14.58	0.67	B
Stream C-B	2.8	38.00	0.83	E	1.4	23.65	0.73	C
	Do Something - 2026 + Committed + New Dev with BL							
Stream B-C	8.8	203.74	1.06	F	0.9	16.69	0.49	C
Stream B-A	4.6	293.10	0.99	F	0.4	61.91	0.30	F
Stream C-A	6.9	27.54	0.85	D	3.1	14.92	0.68	B
Stream C-B	2.9	39.38	0.83	E	1.5	24.40	0.73	C
	Do Something - 2026 + Committed + New Dev without BL							
Stream B-C	6.7	171.01	1.03	F	0.6	13.76	0.39	B
Stream B-A	4.2	253.66	0.94	F	0.4	52.45	0.27	F
Stream C-A	6.2	25.34	0.84	D	3.0	14.57	0.67	B
Stream C-B	2.8	37.76	0.83	E	1.4	23.62	0.73	C

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.

File summary

File Description

Title	Bunn's Lane - Flower Lane Junction
Location	
Site number	
Date	15/06/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ROBERTWEST\libanbellezza
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	perHour	s	-Min	perMin

Analysis Options

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

Growth Factors

ID	Description	Use TEMPRO	Growth Factor
G1	2016-2021 AM		1.0370
G2	2016-2021 PM		1.0558
G3	2016-2026 AM		1.0740
G4	2016-2026 PM		1.1116

Growth factors are only active if the Demand Set references them in a Relationship.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set (s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	Do Something	✓	✓	D15,D16,D17,D18,D19,D20,D21,D22,D23,D24,D25,D26	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D15	2021 + Committed	AM	ONE HOUR	07:45	09:15	15	✓	Simple	D1*G1+D11+D9

Do Something - 2021 + Committed, 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	Bunn's Lane - Flower Lane Junction	T-Junction	Two-way	17.24	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Bunn's Lane West		Major
B	Flower Lane		Minor
C	Bunn's Lane East		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Bunn's Lane East	7.40		✓	3.10	70.0		-

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B - Flower Lane	One lane plus flare	10.00	6.01	5.29	5.29	5.24		0.50	45	36

Zebra Crossings

Arm	Space between crossing and junction entry (Right / All) (PCU)	Vehicles queueing on exit (Zebra) (PCU)	Central Refuge	Crossing data type	Crossing length (entry side) (m)	Crossing time (entry side) (s)	Crossing length (exit side) (m)	Crossing time (exit side) (s)
C - Bunn's Lane East	5.00	2.80	✓	Distance	4.20	3.00	4.40	3.14

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	473	0.081	0.205	0.129	0.292
1	B-C	717	0.103	0.261	-	-
1	C-B	675	0.245	0.245	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A - Bunn's Lane West		ONE HOUR	✓	830	100.000
B - Flower Lane		ONE HOUR	✓	164	100.000
C - Bunn's Lane East		ONE HOUR	✓	1061	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
A - Bunn's Lane West		
B - Flower Lane		
C - Bunn's Lane East	Global	20.00

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Bunn's Lane West	B - Flower Lane	C - Bunn's Lane East
From	A - Bunn's Lane West	0	103	728
	B - Flower Lane	51	0	113
	C - Bunn's Lane East	815	246	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Bunn's Lane West	B - Flower Lane	C - Bunn's Lane East
From	A - Bunn's Lane West	0	3	1
	B - Flower Lane	0	0	8
	C - Bunn's Lane East	0	5	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.54	32.70	1.1	D	104	155
B-A	0.69	126.66	1.8	F	47	70
C-A	0.79	20.90	4.9	C	748	1122
C-B	0.80	32.99	2.3	D	225	338
A-B					94	141
A-C					668	1002

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	85	21		490	0.173	84	0.0	0.2	8.844	A
B-A	38	10		214	0.179	37	0.0	0.2	20.311	C
C-A	614	153	15.06	1280	0.479	608	0.0	1.5	9.339	A
C-B	185	46	15.06	321	0.577	182	0.0	0.6	12.846	B
A-B	77	19				77				
A-C	548	137				548				

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	102	25		435	0.233	101	0.2	0.3	10.776	B
B-A	46	11		160	0.285	45	0.2	0.4	31.063	D
C-A	733	183	17.98	1226	0.598	730	1.5	2.2	11.905	B
C-B	221	55	17.98	327	0.675	219	0.6	1.1	18.018	C
A-B	92	23				92				
A-C	654	164				654				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	124	31		267	0.465	122	0.3	0.8	24.486	C
B-A	56	14		85	0.659	52	0.4	1.5	98.684	F
C-A	897	224	22.02	1139	0.788	888	2.2	4.7	19.390	C
C-B	271	68	22.02	337	0.803	266	1.1	2.2	30.546	D
A-B	113	28				113				
A-C	801	200				801				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	124	31		232	0.535	123	0.8	1.1	32.696	D
B-A	56	14		81	0.689	55	1.5	1.8	126.658	F
C-A	897	224	22.02	1133	0.792	896	4.7	4.9	20.895	C
C-B	271	68	22.02	339	0.797	270	2.2	2.3	32.989	D
A-B	113	28				113				
A-C	801	200				801				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	102	25		417	0.243	105	1.1	0.3	11.615	B
B-A	46	11		157	0.292	51	1.8	0.4	35.588	E
C-A	733	183	17.98	1218	0.601	743	4.9	2.4	12.703	B
C-B	221	55	17.98	331	0.667	226	2.3	1.2	19.831	C
A-B	92	23				92				
A-C	654	164				654				

09:00 - 09:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	85	21		487	0.175	85	0.3	0.2	8.980	A
B-A	38	10		212	0.181	39	0.4	0.2	20.966	C
C-A	614	153	15.06	1275	0.481	617	2.4	1.5	9.660	A
C-B	185	46	15.06	324	0.572	187	1.2	0.7	13.581	B
A-B	77	19				77				
A-C	548	137				548				

Junctions 9

PICADY 9 - Priority Intersection Module

Filename: Bunn's Lane - Flower Lane Junction v3.j9
Path: L:\5545 - Healey Development Solutions (Mill Hill) Ltd\001 - Mill Hill\Analysis & Design\Modelling\J2 - Bunn's Lane - Flower Lane Junction
Report generation date: 23/09/2016 17:31:08

Summary of junction performance

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
	Do Nothing - 2016							
Stream B-C	1.2	31.99	0.56	D	0.6	12.04	0.37	B
Stream B-A	1.8	107.61	0.68	F	0.2	34.64	0.20	D
Stream C-A	2.8	5.94	0.56	A	1.4	4.43	0.41	A
Stream C-B	0.2	3.36	0.28	A	0.2	3.07	0.25	A

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
	Do Something - 2021 + Committed							
Stream B-C	1.1	32.70	0.54	D	0.6	12.31	0.36	B
Stream B-A	1.8	126.66	0.69	F	0.3	40.76	0.21	E
Stream C-A	4.9	20.90	0.79	C	2.5	12.97	0.62	B
Stream C-B	2.3	32.99	0.80	D	1.1	20.25	0.69	C
	Do Something - 2021 + Committed + New Dev with BL							
Stream B-C	1.9	51.80	0.69	F	0.8	14.08	0.44	B
Stream B-A	2.3	163.25	0.76	F	0.3	45.88	0.23	E
Stream C-A	5.3	22.16	0.81	C	2.6	13.22	0.63	B
Stream C-B	2.4	34.14	0.81	D	1.2	20.82	0.70	C
	Do Something - 2021 + Committed + New Dev without BL							
Stream B-C	1.4	40.68	0.60	E	0.5	12.06	0.34	B
Stream B-A	2.1	139.89	0.73	F	0.3	40.46	0.22	E
Stream C-A	4.9	20.82	0.79	C	2.5	12.96	0.62	B
Stream C-B	2.3	32.80	0.80	D	1.1	20.23	0.69	C
	Do Something - 2026 + Committed							
Stream B-C	5.7	147.32	1.00	F	0.7	14.08	0.41	B
Stream B-A	3.6	233.37	0.91	F	0.3	52.89	0.27	F
Stream C-A	6.2	25.46	0.84	D	3.0	14.58	0.67	B
Stream C-B	2.8	38.00	0.83	E	1.4	23.65	0.73	C
	Do Something - 2026 + Committed + New Dev with BL							
Stream B-C	8.8	203.74	1.06	F	0.9	16.69	0.49	C
Stream B-A	4.6	293.10	0.99	F	0.4	61.91	0.30	F
Stream C-A	6.9	27.54	0.85	D	3.1	14.92	0.68	B
Stream C-B	2.9	39.38	0.83	E	1.5	24.40	0.73	C
	Do Something - 2026 + Committed + New Dev without BL							
Stream B-C	6.7	171.01	1.03	F	0.6	13.76	0.39	B
Stream B-A	4.2	253.66	0.94	F	0.4	52.45	0.27	F
Stream C-A	6.2	25.34	0.84	D	3.0	14.57	0.67	B
Stream C-B	2.8	37.76	0.83	E	1.4	23.62	0.73	C

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.

File summary

File Description

Title	Bunn's Lane - Flower Lane Junction
Location	
Site number	
Date	15/06/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ROBERTWEST\libanbellezza
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	perHour	s	-Min	perMin

Analysis Options

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

Growth Factors

ID	Description	Use TEMPRO	Growth Factor
G1	2016-2021 AM		1.0370
G2	2016-2021 PM		1.0558
G3	2016-2026 AM		1.0740
G4	2016-2026 PM		1.1116

Growth factors are only active if the Demand Set references them in a Relationship.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set (s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	Do Something	✓	✓	D15,D16,D17,D18,D19,D20,D21,D22,D23,D24,D25,D26	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D16	2021 + Committed	PM	ONE HOUR	16:45	18:15	15	✓	Simple	D2*G2+D12+D10

Do Something - 2021 + Committed, 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	Bunn's Lane - Flower Lane Junction	T-Junction	Two-way	8.11	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Bunn's Lane West		Major
B	Flower Lane		Minor
C	Bunn's Lane East		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Bunn's Lane East	7.40		✓	3.10	70.0		-

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B - Flower Lane	One lane plus flare	10.00	6.01	5.29	5.29	5.24		0.50	45	36

Zebra Crossings

Arm	Space between crossing and junction entry (Right / All) (PCU)	Vehicles queueing on exit (Zebra) (PCU)	Central Refuge	Crossing data type	Crossing length (entry side) (m)	Crossing time (entry side) (s)	Crossing length (exit side) (m)	Crossing time (exit side) (s)
C - Bunn's Lane East	5.00	2.80	✓	Distance	4.20	3.00	4.40	3.14

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	437	0.075	0.189	0.119	0.270
1	B-C	762	0.110	0.277	-	-
1	C-B	675	0.245	0.245	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A - Bunn's Lane West		ONE HOUR	✓	862	100.000
B - Flower Lane		ONE HOUR	✓	172	100.000
C - Bunn's Lane East		ONE HOUR	✓	868	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
A - Bunn's Lane West		
B - Flower Lane		
C - Bunn's Lane East	Global	20.00

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Bunn's Lane West	B - Flower Lane	C - Bunn's Lane East
From	A - Bunn's Lane West	0	127	735
	B - Flower Lane	21	0	151
	C - Bunn's Lane East	678	190	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Bunn's Lane West	B - Flower Lane	C - Bunn's Lane East
From	A - Bunn's Lane West	0	0	1
	B - Flower Lane	0	0	4
	C - Bunn's Lane East	1	3	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.36	12.31	0.6	B	139	208
B-A	0.21	40.76	0.3	E	19	29
C-A	0.62	12.97	2.5	B	622	933
C-B	0.69	20.25	1.1	C	174	262
A-B					116	174
A-C					675	1012

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	114	28		563	0.202	113	0.0	0.3	7.978	A
B-A	16	4		219	0.073	16	0.0	0.1	17.672	C
C-A	510	128	15.06	1316	0.388	506	0.0	1.0	8.047	A
C-B	143	36	15.06	298	0.481	141	0.0	0.4	10.159	B
A-B	95	24				95				
A-C	554	138				554				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	136	34		525	0.259	136	0.3	0.3	9.240	A
B-A	19	5		174	0.109	19	0.1	0.1	23.141	C
C-A	609	152	17.98	1273	0.479	608	1.0	1.5	9.538	A
C-B	171	43	17.98	300	0.570	170	0.4	0.6	13.098	B
A-B	114	28				114				
A-C	661	165				661				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	167	42		461	0.362	166	0.3	0.6	12.166	B
B-A	23	6		113	0.207	23	0.1	0.2	39.855	E
C-A	746	187	22.02	1204	0.620	742	1.5	2.4	12.713	B
C-B	209	52	22.02	303	0.691	207	0.6	1.1	19.632	C
A-B	139	35				139				
A-C	810	202				810				

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	167	42		459	0.363	167	0.6	0.6	12.308	B
B-A	23	6		111	0.209	23	0.2	0.3	40.764	E
C-A	746	187	22.02	1201	0.621	746	2.4	2.5	12.970	B
C-B	209	52	22.02	304	0.688	209	1.1	1.1	20.249	C
A-B	139	35				139				
A-C	810	202				810				

17:45 - 18:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	136	34		523	0.260	137	0.6	0.4	9.336	A
B-A	19	5		173	0.110	19	0.3	0.1	23.575	C
C-A	609	152	17.98	1269	0.480	613	2.5	1.5	9.745	A
C-B	171	43	17.98	302	0.566	173	1.1	0.6	13.597	B
A-B	114	28				114				
A-C	661	165				661				

18:00 - 18:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	114	28		562	0.203	114	0.4	0.3	8.044	A
B-A	16	4		218	0.073	16	0.1	0.1	17.884	C
C-A	510	128	15.06	1313	0.389	512	1.5	1.1	8.189	A
C-B	143	36	15.06	299	0.478	144	0.6	0.4	10.456	B
A-B	95	24				95				
A-C	554	138				554				

Junctions 9

PICADY 9 - Priority Intersection Module

Filename: Bunn's Lane - Flower Lane Junction v3.j9
Path: L:\5545 - Healey Development Solutions (Mill Hill) Ltd\001 - Mill Hill\Analysis & Design\Modelling\J2 - Bunn's Lane - Flower Lane Junction
Report generation date: 23/09/2016 17:31:41

Summary of junction performance

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
	Do Nothing - 2016							
Stream B-C	1.2	31.99	0.56	D	0.6	12.04	0.37	B
Stream B-A	1.8	107.61	0.68	F	0.2	34.64	0.20	D
Stream C-A	2.8	5.94	0.56	A	1.4	4.43	0.41	A
Stream C-B	0.2	3.36	0.28	A	0.2	3.07	0.25	A

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
	Do Something - 2021 + Committed							
Stream B-C	1.1	32.70	0.54	D	0.6	12.31	0.36	B
Stream B-A	1.8	126.66	0.69	F	0.3	40.76	0.21	E
Stream C-A	4.9	20.90	0.79	C	2.5	12.97	0.62	B
Stream C-B	2.3	32.99	0.80	D	1.1	20.25	0.69	C
	Do Something - 2021 + Committed + New Dev with BL							
Stream B-C	1.9	51.80	0.69	F	0.8	14.08	0.44	B
Stream B-A	2.3	163.25	0.76	F	0.3	45.88	0.23	E
Stream C-A	5.3	22.16	0.81	C	2.6	13.22	0.63	B
Stream C-B	2.4	34.14	0.81	D	1.2	20.82	0.70	C
	Do Something - 2021 + Committed + New Dev without BL							
Stream B-C	1.4	40.68	0.60	E	0.5	12.06	0.34	B
Stream B-A	2.1	139.89	0.73	F	0.3	40.46	0.22	E
Stream C-A	4.9	20.82	0.79	C	2.5	12.96	0.62	B
Stream C-B	2.3	32.80	0.80	D	1.1	20.23	0.69	C
	Do Something - 2026 + Committed							
Stream B-C	5.7	147.32	1.00	F	0.7	14.08	0.41	B
Stream B-A	3.6	233.37	0.91	F	0.3	52.89	0.27	F
Stream C-A	6.2	25.46	0.84	D	3.0	14.58	0.67	B
Stream C-B	2.8	38.00	0.83	E	1.4	23.65	0.73	C
	Do Something - 2026 + Committed + New Dev with BL							
Stream B-C	8.8	203.74	1.06	F	0.9	16.69	0.49	C
Stream B-A	4.6	293.10	0.99	F	0.4	61.91	0.30	F
Stream C-A	6.9	27.54	0.85	D	3.1	14.92	0.68	B
Stream C-B	2.9	39.38	0.83	E	1.5	24.40	0.73	C
	Do Something - 2026 + Committed + New Dev without BL							
Stream B-C	6.7	171.01	1.03	F	0.6	13.76	0.39	B
Stream B-A	4.2	253.66	0.94	F	0.4	52.45	0.27	F
Stream C-A	6.2	25.34	0.84	D	3.0	14.57	0.67	B
Stream C-B	2.8	37.76	0.83	E	1.4	23.62	0.73	C

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.

File summary

File Description

Title	Bunn's Lane - Flower Lane Junction
Location	
Site number	
Date	15/06/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ROBERTWEST\libanbellezza
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	perHour	s	-Min	perMin

Analysis Options

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

Growth Factors

ID	Description	Use TEMPRO	Growth Factor
G1	2016-2021 AM		1.0370
G2	2016-2021 PM		1.0558
G3	2016-2026 AM		1.0740
G4	2016-2026 PM		1.1116

Growth factors are only active if the Demand Set references them in a Relationship.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set (s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	Do Something	✓	✓	D15,D16,D17,D18,D19,D20,D21,D22,D23,D24,D25,D26	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D21	2026 + Committed	AM	ONE HOUR	07:45	09:15	15	✓	Simple	D1*G3+D13+D9

Do Something - 2026 + Committed, 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	Bunn's Lane - Flower Lane Junction	T-Junction	Two-way	28.97	D

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Bunn's Lane West		Major
B	Flower Lane		Minor
C	Bunn's Lane East		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Bunn's Lane East	7.40		✓	3.10	70.0		-

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B - Flower Lane	One lane plus flare	10.00	6.01	5.29	5.29	5.24		0.50	45	36

Zebra Crossings

Arm	Space between crossing and junction entry (Right / All) (PCU)	Vehicles queueing on exit (Zebra) (PCU)	Central Refuge	Crossing data type	Crossing length (entry side) (m)	Crossing time (entry side) (s)	Crossing length (exit side) (m)	Crossing time (exit side) (s)
C - Bunn's Lane East	5.00	2.80	✓	Distance	4.20	3.00	4.40	3.14

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	473	0.081	0.205	0.129	0.292
1	B-C	717	0.103	0.261	-	-
1	C-B	675	0.245	0.245	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A - Bunn's Lane West		ONE HOUR	✓	861	100.000
B - Flower Lane		ONE HOUR	✓	170	100.000
C - Bunn's Lane East		ONE HOUR	✓	1101	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
A - Bunn's Lane West		
B - Flower Lane		
C - Bunn's Lane East	Global	20.00

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Bunn's Lane West	B - Flower Lane	C - Bunn's Lane East
From	A - Bunn's Lane West	0	106	754
	B - Flower Lane	53	0	118
	C - Bunn's Lane East	846	255	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Bunn's Lane West	B - Flower Lane	C - Bunn's Lane East
From	A - Bunn's Lane West	0	3	1
	B - Flower Lane	0	0	8
	C - Bunn's Lane East	0	5	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	1.00	147.32	5.7	F	108	162
B-A	0.91	233.37	3.6	F	48	72
C-A	0.84	25.46	6.2	D	776	1164
C-B	0.83	38.00	2.8	E	234	352
A-B					98	146
A-C					692	1038

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	89	22		482	0.184	88	0.0	0.2	9.107	A
B-A	40	10		204	0.195	39	0.0	0.2	21.708	C
C-A	637	159	15.06	1271	0.501	631	0.0	1.6	9.702	A
C-B	192	48	15.06	322	0.597	189	0.0	0.7	13.579	B
A-B	80	20				80				
A-C	568	142				568				

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	106	26		419	0.253	105	0.2	0.3	11.470	B
B-A	47	12		148	0.320	46	0.2	0.4	35.266	E
C-A	761	190	17.98	1213	0.627	757	1.6	2.5	12.685	B
C-B	230	57	17.98	329	0.698	228	0.7	1.2	19.564	C
A-B	96	24				96				
A-C	678	170				678				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	130	32		185	0.702	123	0.3	1.9	54.083	F
B-A	58	14		68	0.848	50	0.4	2.5	157.937	F
C-A	931	233	22.02	1119	0.833	918	2.5	5.8	22.671	C
C-B	281	70	22.02	340	0.828	276	1.2	2.6	34.506	D
A-B	117	29				117				
A-C	830	208				830				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	130	32		130	1.000	115	1.9	5.7	147.319	F
B-A	58	14		64	0.907	53	2.5	3.6	233.368	F
C-A	931	233	22.02	1112	0.838	930	5.8	6.2	25.459	D
C-B	281	70	22.02	343	0.820	281	2.6	2.8	37.999	E
A-B	117	29				117				
A-C	830	208				830				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	106	26		377	0.281	127	5.7	0.4	15.619	C
B-A	47	12		138	0.342	59	3.6	0.6	51.405	F
C-A	761	190	17.98	1204	0.632	775	6.2	2.7	13.900	B
C-B	230	57	17.98	334	0.688	235	2.8	1.3	22.140	C
A-B	96	24				96				
A-C	678	170				678				

09:00 - 09:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	89	22		477	0.186	89	0.4	0.2	9.295	A
B-A	40	10		201	0.197	41	0.6	0.3	22.633	C
C-A	637	159	15.06	1265	0.504	641	2.7	1.7	10.098	B
C-B	192	48	15.06	325	0.591	195	1.3	0.8	14.499	B
A-B	80	20				80				
A-C	568	142				568				

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.0.1.4646 []

For sales and distribution information, program advice and maintenance, contact TRL:
Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk

Filename: Bunn's Lane - Flower Lane Junction v3.j9
Path: L:\5545 - Healey Development Solutions (Mill Hill) Ltd\001 - Mill Hill\Analysis & Design\Modelling\J2 - Bunn's Lane - Flower Lane Junction
Report generation date: 23/09/2016 17:32:23

Summary of junction performance

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
	Do Nothing - 2016							
Stream B-C	1.2	31.99	0.56	D	0.6	12.04	0.37	B
Stream B-A	1.8	107.61	0.68	F	0.2	34.64	0.20	D
Stream C-A	2.8	5.94	0.56	A	1.4	4.43	0.41	A
Stream C-B	0.2	3.36	0.28	A	0.2	3.07	0.25	A

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
	Do Something - 2021 + Committed							
Stream B-C	1.1	32.70	0.54	D	0.6	12.31	0.36	B
Stream B-A	1.8	126.66	0.69	F	0.3	40.76	0.21	E
Stream C-A	4.9	20.90	0.79	C	2.5	12.97	0.62	B
Stream C-B	2.3	32.99	0.80	D	1.1	20.25	0.69	C
	Do Something - 2021 + Committed + New Dev with BL							
Stream B-C	1.9	51.80	0.69	F	0.8	14.08	0.44	B
Stream B-A	2.3	163.25	0.76	F	0.3	45.88	0.23	E
Stream C-A	5.3	22.16	0.81	C	2.6	13.22	0.63	B
Stream C-B	2.4	34.14	0.81	D	1.2	20.82	0.70	C
	Do Something - 2021 + Committed + New Dev without BL							
Stream B-C	1.4	40.68	0.60	E	0.5	12.06	0.34	B
Stream B-A	2.1	139.89	0.73	F	0.3	40.46	0.22	E
Stream C-A	4.9	20.82	0.79	C	2.5	12.96	0.62	B
Stream C-B	2.3	32.80	0.80	D	1.1	20.23	0.69	C
	Do Something - 2026 + Committed							
Stream B-C	5.7	147.32	1.00	F	0.7	14.08	0.41	B
Stream B-A	3.6	233.37	0.91	F	0.3	52.89	0.27	F
Stream C-A	6.2	25.46	0.84	D	3.0	14.58	0.67	B
Stream C-B	2.8	38.00	0.83	E	1.4	23.65	0.73	C
	Do Something - 2026 + Committed + New Dev with BL							
Stream B-C	8.8	203.74	1.06	F	0.9	16.69	0.49	C
Stream B-A	4.6	293.10	0.99	F	0.4	61.91	0.30	F
Stream C-A	6.9	27.54	0.85	D	3.1	14.92	0.68	B
Stream C-B	2.9	39.38	0.83	E	1.5	24.40	0.73	C
	Do Something - 2026 + Committed + New Dev without BL							
Stream B-C	6.7	171.01	1.03	F	0.6	13.76	0.39	B
Stream B-A	4.2	253.66	0.94	F	0.4	52.45	0.27	F
Stream C-A	6.2	25.34	0.84	D	3.0	14.57	0.67	B
Stream C-B	2.8	37.76	0.83	E	1.4	23.62	0.73	C

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.

File summary

File Description

Title	Bunn's Lane - Flower Lane Junction
Location	
Site number	
Date	15/06/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ROBERTWEST\libanbellezza
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	perHour	s	-Min	perMin

Analysis Options

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

Growth Factors

ID	Description	Use TEMPRO	Growth Factor
G1	2016-2021 AM		1.0370
G2	2016-2021 PM		1.0558
G3	2016-2026 AM		1.0740
G4	2016-2026 PM		1.1116

Growth factors are only active if the Demand Set references them in a Relationship.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set (s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	Do Something	✓	✓	D15,D16,D17,D18,D19,D20,D21,D22,D23,D24,D25,D26	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D22	2026 + Committed	PM	ONE HOUR	16:45	18:15	15	✓	Simple	D2*G4+D14+D10

Do Something - 2026 + Committed, 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	Bunn's Lane - Flower Lane Junction	T-Junction	Two-way	9.30	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Bunn's Lane West		Major
B	Flower Lane		Minor
C	Bunn's Lane East		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Bunn's Lane East	7.40		✓	3.10	70.0		-

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B - Flower Lane	One lane plus flare	10.00	6.01	5.29	5.29	5.24		0.50	45	36

Zebra Crossings

Arm	Space between crossing and junction entry (Right / All) (PCU)	Vehicles queueing on exit (Zebra) (PCU)	Central Refuge	Crossing data type	Crossing length (entry side) (m)	Crossing time (entry side) (s)	Crossing length (exit side) (m)	Crossing time (exit side) (s)
C - Bunn's Lane East	5.00	2.80	✓	Distance	4.20	3.00	4.40	3.14

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	437	0.075	0.189	0.119	0.270
1	B-C	762	0.110	0.277	-	-
1	C-B	675	0.245	0.245	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A - Bunn's Lane West		ONE HOUR	✓	910	100.000
B - Flower Lane		ONE HOUR	✓	182	100.000
C - Bunn's Lane East		ONE HOUR	✓	915	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
A - Bunn's Lane West		
B - Flower Lane		
C - Bunn's Lane East	Global	20.00

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Bunn's Lane West	B - Flower Lane	C - Bunn's Lane East
From	A - Bunn's Lane West	0	133	777
	B - Flower Lane	22	0	160
	C - Bunn's Lane East	714	201	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Bunn's Lane West	B - Flower Lane	C - Bunn's Lane East
From	A - Bunn's Lane West	0	0	1
	B - Flower Lane	0	0	4
	C - Bunn's Lane East	1	3	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.41	14.08	0.7	B	146	220
B-A	0.27	52.89	0.3	F	20	31
C-A	0.67	14.58	3.0	B	655	982
C-B	0.73	23.65	1.4	C	185	277
A-B					122	184
A-C					713	1069

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	120	30		553	0.217	119	0.0	0.3	8.280	A
B-A	17	4		207	0.081	16	0.0	0.1	18.900	C
C-A	537	134	15.06	1304	0.412	533	0.0	1.1	8.385	A
C-B	151	38	15.06	299	0.507	150	0.0	0.5	10.826	B
A-B	100	25				100				
A-C	585	146				585				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	143	36		511	0.281	143	0.3	0.4	9.776	A
B-A	20	5		159	0.126	20	0.1	0.1	25.804	D
C-A	641	160	17.98	1256	0.511	639	1.1	1.7	10.140	B
C-B	181	45	17.98	301	0.600	180	0.5	0.7	14.364	B
A-B	120	30				120				
A-C	698	175				698				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	176	44		435	0.404	175	0.4	0.7	13.776	B
B-A	24	6		94	0.261	24	0.1	0.3	50.835	F
C-A	786	196	22.02	1179	0.666	781	1.7	2.9	14.165	B
C-B	221	55	22.02	305	0.727	219	0.7	1.4	22.669	C
A-B	147	37				147				
A-C	855	214				855				

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	176	44		431	0.408	176	0.7	0.7	14.083	B
B-A	24	6		92	0.265	24	0.3	0.3	52.889	F
C-A	786	196	22.02	1176	0.668	785	2.9	3.0	14.580	B
C-B	221	55	22.02	306	0.723	221	1.4	1.4	23.654	C
A-B	147	37				147				
A-C	855	214				855				

17:45 - 18:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	143	36		508	0.282	145	0.7	0.4	9.925	A
B-A	20	5		157	0.127	21	0.3	0.2	26.543	D
C-A	641	160	17.98	1251	0.513	646	3.0	1.7	10.443	B
C-B	181	45	17.98	304	0.595	183	1.4	0.7	15.108	C
A-B	120	30				120				
A-C	698	175				698				

18:00 - 18:15

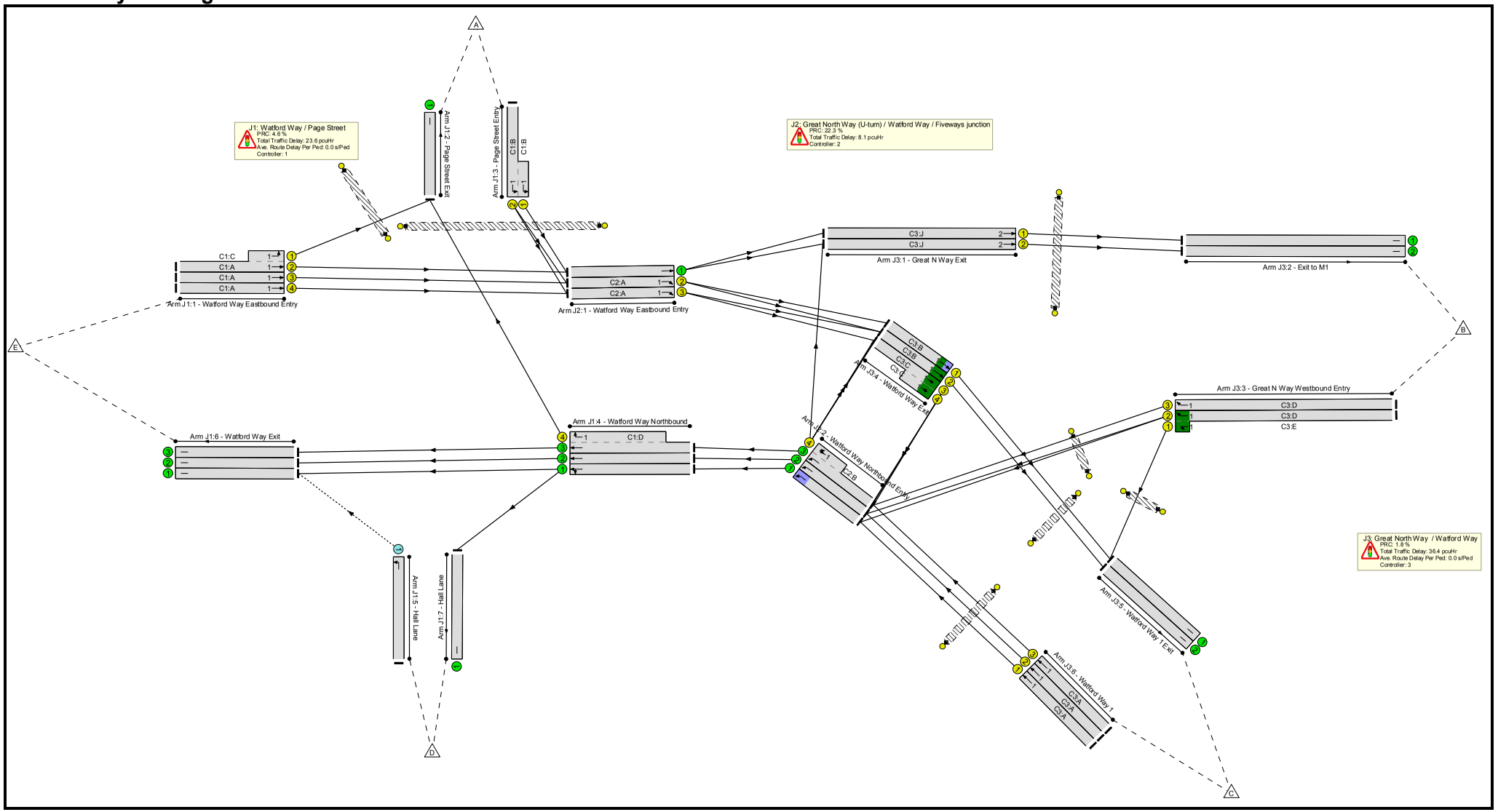
Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	120	30		552	0.218	121	0.4	0.3	8.361	A
B-A	17	4		205	0.082	17	0.2	0.1	19.181	C
C-A	537	134	15.06	1301	0.413	539	1.7	1.2	8.560	A
C-B	151	38	15.06	301	0.504	153	0.7	0.5	11.207	B
A-B	100	25				100				
A-C	585	146				585				

Full Input Data And Results

Scenario 2: '2021+Com_Dev AM+Ex Use' (FG15: '2021+Com_Dev AM+Ex Use', Plan 1: 'Network Control Plan 1')

C1

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Five Ways Corner	-	-	**N/A**	-	-		-	-	-	-	-	-	**88.4%**
J1: Watford Way / Page Street	-	-	**N/A**	-	-		-	-	-	-	-	-	**86.1%**
1/2+1/1	Watford Way Eastbound Entry Left Ahead	U	1:1	N/A	C1:A C1:C		1	37:36	-	934	1960:1960	1021+64	86.1 : 86.1%
1/3	Watford Way Eastbound Entry Ahead	U	1:1	N/A	C1:A		1	37	-	703	1804	979	71.8%
1/4	Watford Way Eastbound Entry Ahead	U	1:1	N/A	C1:A		1	37	-	726	1905	1034	70.2%
2/1	Page Street Exit	U	N/A	N/A	-		-	-	-	471	Inf	Inf	0.0%
3/2+3/1	Page Street Entry Left	U	1:1	N/A	C1:B		1	18	-	592	1846:1858	384+336	82.2 : 82.2%
4/1	Watford Way Northbound Ahead Left	U	N/A	N/A	-		-	-	-	843	1930	1930	43.7%
4/2	Watford Way Northbound Ahead	U	N/A	N/A	-		-	-	-	971	2086	2086	46.5%
4/3+4/4	Watford Way Northbound Right Ahead	U	N/A	N/A	- C1:D		-	-	-	581	2103:2015	217+547	76.1 : 76.1%
5/1	Hall Lane Left	O	N/A	N/A	-		-	-	-	13	1924	663	2.0%
6/1	Watford Way Exit	U	N/A	N/A	-		-	-	-	793	Inf	Inf	0.0%
6/2	Watford Way Exit	U	N/A	N/A	-		-	-	-	971	Inf	Inf	0.0%
6/3	Watford Way Exit	U	N/A	N/A	-		-	-	-	165	Inf	Inf	0.0%
7/1	Hall Lane	U	N/A	N/A	-		-	-	-	63	Inf	Inf	0.0%
Ped Link: P1	Page Street	-	1:1	-	C1:E		1	18	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	1:1	-	C1:F		1	27	-	0	-	0	0.0%

Full Input Data And Results

J2: Great North Way (U-turn) / Watford Way / Fiveways junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**73.6%**
1/1	Watford Way Eastbound Entry Ahead	U	N/A	N/A	-		-	-	-	1155	1986	1986	58.2%
1/2	Watford Way Eastbound Entry Ahead	U	2:1	N/A	C2:A		1	43	-	888	2170	1364	65.1%
1/3	Watford Way Eastbound Entry Ahead	U	2:1	N/A	C2:A		1	43	-	857	2012	1265	67.8%
2/1	Watford Way Northbound Entry Ahead	U	N/A	N/A	-		-	-	-	843	1931	1931	43.7%
2/2	Watford Way Northbound Entry Ahead	U	N/A	N/A	-		-	-	-	971	2021	2021	48.0%
2/3+2/4	Watford Way Northbound Entry U-Turn Ahead U-Turn2	U	N/A	N/A	- C2:B		-	-	-	800	2051:2115	789+298	73.6 : 73.6%
J3: Great North Way / Watford Way	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**88.4%**
1/1	Great N Way Exit Ahead	U	3:2	N/A	C3:J		1	50	-	645	1995	1454	44.4%
1/2	Great N Way Exit Ahead	U	3:2	N/A	C3:J		1	50	-	666	1995	1454	45.8%
2/1	Exit to M1	U	N/A	N/A	-		-	-	-	645	Inf	Inf	0.0%
2/2	Exit to M1	U	N/A	N/A	-		-	-	-	666	Inf	Inf	0.0%
3/2+3/1	Great N Way Westbound Entry Ahead U-Turn	U	3:1	N/A	C3:D C3:E		1	20	-	672	1990:1990	736+24	88.4 : 88.4%
3/3	Great N Way Westbound Entry Ahead	U	3:1	N/A	C3:D		1	20	-	301	1923	577	52.2%
4/1	Watford Way Exit Ahead	U	3:1	N/A	C3:B		1	35	-	790	1955	1061	74.4%
4/2	Watford Way Exit Ahead	U	3:1	N/A	C3:B		1	35	-	892	2121	1151	77.5%

Full Input Data And Results

4/3+4/4	Watford Way Exit U-Turn	U	3:1	N/A	C3:C		1	7	-	126	2091:2005	284+33	39.8 : 39.8%
5/1	Watford Way 1 Exit	U	N/A	N/A	-		-	-	-	811	Inf	Inf	0.0%
5/2	Watford Way 1 Exit	U	N/A	N/A	-		-	-	-	892	Inf	Inf	0.0%
6/1	Watford Way 1 Ahead	U	3:1	N/A	C3:A		1	20	-	528	2007	602	87.7%
6/2	Watford Way 1 Ahead	U	3:1	N/A	C3:A		1	20	-	522	1986	596	87.6%
6/3	Watford Way 1 Ahead	U	3:1	N/A	C3:A		1	20	-	486	1930	579	83.9%
Ped Link: P1	Unnamed Ped Link	-	3:1	-	C3:F		1	33	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	3:1	-	C3:G		1	18	-	0	-	0	0.0%
Ped Link: P3	Signalised Crossing	-	3:1	-	C3:I		1	34	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	3:1	-	C3:H		1	33	-	0	-	0	0.0%
Ped Link: P5	Signalised Crossing	-	3:2	-	C3:K		1	6	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Five Ways Corner	**-**	**-**	**13**	**0**	**0**	**35.8**	**32.3**	**0.0**	**68.1**	**-**	**-**	**-**	**-**
J1: Watford Way / Page Street	**-**	**-**	**13**	**0**	**0**	**13.6**	**10.0**	**0.0**	**23.6**	**-**	**-**	**-**	**-**
1/2+1/1	934	934	-	-	-	3.5	3.0	-	6.4	24.9	15.0	3.0	18.0
1/3	703	703	-	-	-	2.3	1.3	-	3.6	18.4	10.2	1.3	11.4
1/4	726	726	-	-	-	2.4	1.2	-	3.6	17.6	10.3	1.2	11.5
2/1	471	471	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/2+3/1	592	592	-	-	-	3.7	2.2	-	5.9	35.8	6.0	2.2	8.2
4/1	843	843	-	-	-	0.0	0.4	-	0.4	1.7	0.0	0.4	0.4
4/2	971	971	-	-	-	0.0	0.4	-	0.4	1.6	0.0	0.4	0.4
4/3+4/4	581	581	-	-	-	1.7	1.6	-	3.3	20.2	5.8	1.6	7.4
5/1	13	13	13	0	0	0.0	0.0	-	0.0	4.5	0.1	0.0	0.1
6/1	793	793	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	971	971	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/3	165	165	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	63	63	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: Great North Way (U-turn) / Watford Way / Fiveways junction	**-**	**-**	**0**	**0**	**0**	**3.2**	**4.9**	**0.0**	**8.1**	**-**	**-**	**-**	**-**
1/1	1155	1155	-	-	-	0.0	0.7	-	0.7	2.2	0.0	0.7	0.7
1/2	888	888	-	-	-	1.0	0.9	-	1.9	7.8	5.5	0.9	6.4
1/3	857	857	-	-	-	0.7	1.0	-	1.8	7.5	3.6	1.0	4.6
2/1	843	843	-	-	-	0.0	0.4	-	0.4	1.7	0.1	0.4	0.4
2/2	971	971	-	-	-	0.0	0.5	-	0.5	1.7	0.0	0.5	0.5
2/3+2/4	800	800	-	-	-	1.5	1.4	-	2.9	12.9	4.3	1.4	5.6

Full Input Data And Results

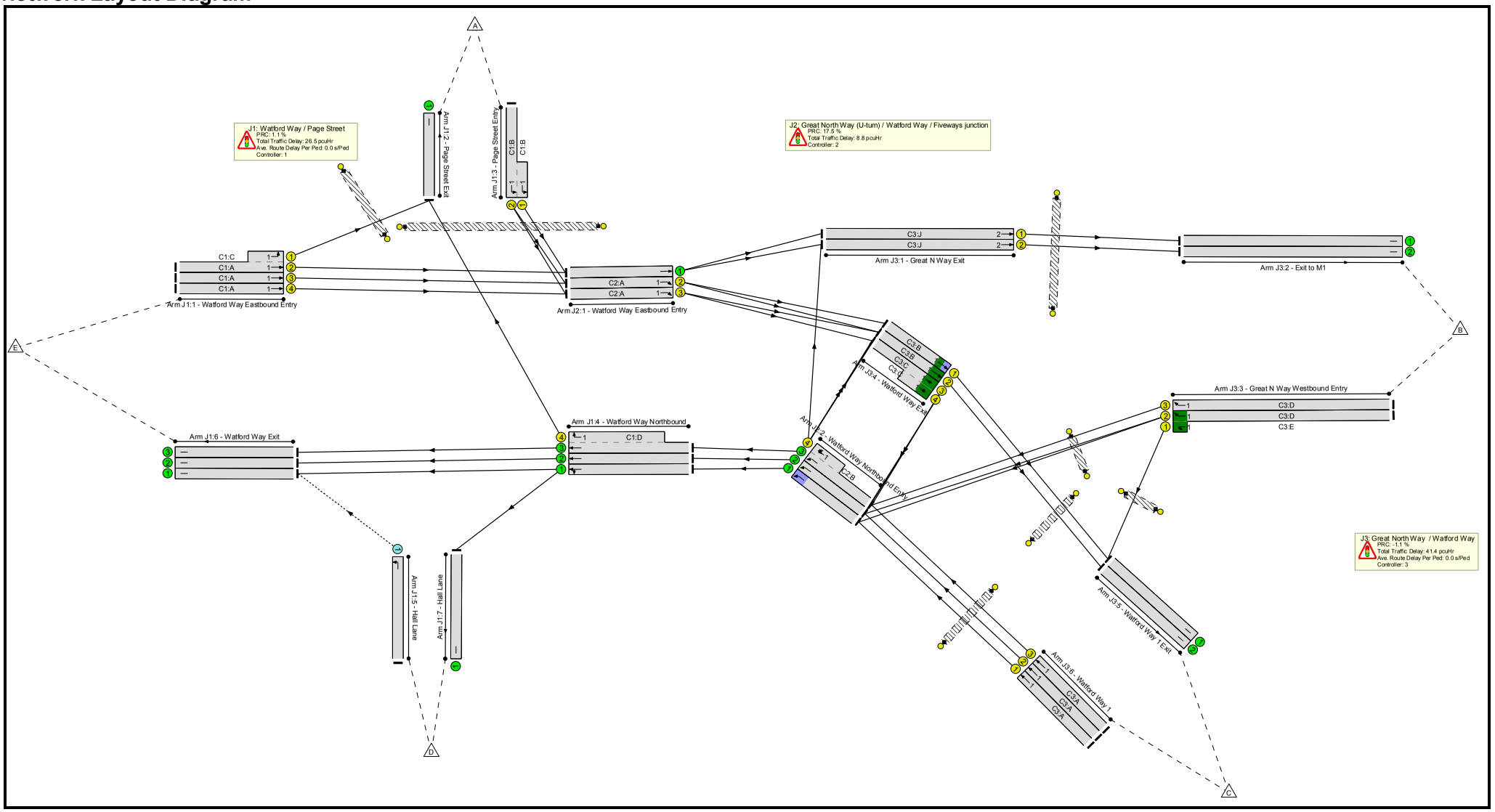
J3: Great North Way / Watford Way	**-**	**-**	**0**	**0**	**0**	**19.0**	**17.4**	**0.0**	**36.4**	**-**	**-**	**-**	**-**
1/1	645	645	-	-	-	0.4	0.4	-	0.8	4.6	3.1	0.4	3.5
1/2	666	666	-	-	-	0.4	0.4	-	0.8	4.3	3.5	0.4	3.9
2/1	645	645	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	666	666	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/2+3/1	672	672	-	-	-	3.8	3.5	-	7.3	39.1	12.1	3.5	15.6
3/3	301	301	-	-	-	1.7	0.5	-	2.2	26.8	4.8	0.5	5.4
4/1	790	790	-	-	-	1.1	1.4	-	2.5	11.6	4.2	1.4	5.6
4/2	892	892	-	-	-	1.2	1.7	-	2.9	11.6	3.5	1.7	5.2
4/3+4/4	126	126	-	-	-	0.6	0.3	-	0.9	27.0	2.0	0.3	2.3
5/1	811	811	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	892	892	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	528	528	-	-	-	3.4	3.3	-	6.7	45.6	9.7	3.3	13.0
6/2	522	522	-	-	-	3.4	3.3	-	6.6	45.7	9.6	3.3	12.8
6/3	486	486	-	-	-	3.1	2.5	-	5.6	41.3	8.8	2.5	11.3
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-

C1	Stream: 1 PRC for Signalled Lanes (%):	4.6	Total Delay for Signalled Lanes (pcuHr):	19.50	Cycle Time (s): 70
C2	Stream: 1 PRC for Signalled Lanes (%):	32.8	Total Delay for Signalled Lanes (pcuHr):	3.72	Cycle Time (s): 70
C3	Stream: 1 PRC for Signalled Lanes (%):	1.8	Total Delay for Signalled Lanes (pcuHr):	34.79	Cycle Time (s): 70
C3	Stream: 2 PRC for Signalled Lanes (%):	96.4	Total Delay for Signalled Lanes (pcuHr):	1.62	Cycle Time (s): 70
	PRC Over All Lanes (%):	1.8	Total Delay Over All Lanes(pcuHr):	68.14	

Full Input Data And Results

Scenario 5: '2026+Com_Dev AM+Ex Use' (FG21: '2026+Com_Dev AM+Ex Use', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Five Ways Corner	-	-	**N/A**	-	-		-	-	-	-	-	-	**91.0%**
J1: Watford Way / Page Street	-	-	**N/A**	-	-		-	-	-	-	-	-	**89.0%**
1/2+1/1	Watford Way Eastbound Entry Left Ahead	U	1:1	N/A	C1:A C1:C		1	37:36	-	966	1960:1960	1021+64	89.0 : 89.0%
1/3	Watford Way Eastbound Entry Ahead	U	1:1	N/A	C1:A		1	37	-	726	1804	979	74.1%
1/4	Watford Way Eastbound Entry Ahead	U	1:1	N/A	C1:A		1	37	-	752	1905	1034	72.7%
2/1	Page Street Exit	U	N/A	N/A	-		-	-	-	489	Inf	Inf	0.0%
3/2+3/1	Page Street Entry Left	U	1:1	N/A	C1:B		1	18	-	617	1846:1858	384+336	85.7 : 85.7%
4/1	Watford Way Northbound Ahead Left	U	N/A	N/A	-		-	-	-	872	1930	1930	45.2%
4/2	Watford Way Northbound Ahead	U	N/A	N/A	-		-	-	-	1003	2086	2086	48.1%
4/3+4/4	Watford Way Northbound Right Ahead	U	N/A	N/A	- C1:D		-	-	-	603	2103:2015	216+547	79.0 : 79.0%
5/1	Hall Lane Left	O	N/A	N/A	-		-	-	-	14	1924	642	2.2%
6/1	Watford Way Exit	U	N/A	N/A	-		-	-	-	821	Inf	Inf	0.0%
6/2	Watford Way Exit	U	N/A	N/A	-		-	-	-	1003	Inf	Inf	0.0%
6/3	Watford Way Exit	U	N/A	N/A	-		-	-	-	171	Inf	Inf	0.0%
7/1	Hall Lane	U	N/A	N/A	-		-	-	-	65	Inf	Inf	0.0%
Ped Link: P1	Page Street	-	1:1	-	C1:E		1	18	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	1:1	-	C1:F		1	27	-	0	-	0	0.0%

Full Input Data And Results

J2: Great North Way (U-turn) / Watford Way / Fiveways junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**76.6%**
1/1	Watford Way Eastbound Entry Ahead	U	N/A	N/A	-		-	-	-	1197	1986	1986	60.3%
1/2	Watford Way Eastbound Entry Ahead	U	2:1	N/A	C2:A		1	43	-	921	2170	1364	67.5%
1/3	Watford Way Eastbound Entry Ahead	U	2:1	N/A	C2:A		1	43	-	886	2012	1265	70.1%
2/1	Watford Way Northbound Entry Ahead	U	N/A	N/A	-		-	-	-	872	1931	1931	45.2%
2/2	Watford Way Northbound Entry Ahead	U	N/A	N/A	-		-	-	-	1003	2021	2021	49.6%
2/3+2/4	Watford Way Northbound Entry U-Turn Ahead U-Turn2	U	N/A	N/A	- C2:B		-	-	-	831	2051:2115	787+298	76.6 : 76.6%
J3: Great North Way / Watford Way	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**91.0%**
1/1	Great N Way Exit Ahead	U	3:2	N/A	C3:J		1	50	-	667	1995	1454	45.9%
1/2	Great N Way Exit Ahead	U	3:2	N/A	C3:J		1	50	-	692	1995	1454	47.6%
2/1	Exit to M1	U	N/A	N/A	-		-	-	-	667	Inf	Inf	0.0%
2/2	Exit to M1	U	N/A	N/A	-		-	-	-	692	Inf	Inf	0.0%
3/2+3/1	Great N Way Westbound Entry Ahead U-Turn	U	3:1	N/A	C3:D C3:E		1	20	-	686	1990:1990	737+23	90.3 : 90.3%
3/3	Great N Way Westbound Entry Ahead	U	3:1	N/A	C3:D		1	20	-	322	1923	577	55.8%
4/1	Watford Way Exit Ahead	U	3:1	N/A	C3:B		1	35	-	824	1955	1061	77.6%
4/2	Watford Way Exit Ahead	U	3:1	N/A	C3:B		1	35	-	921	2121	1151	80.0%

Full Input Data And Results

4/3+4/4	Watford Way Exit U-Turn	U	3:1	N/A	C3:C		1	7	-	128	2091:2005	285+17	42.4 : 42.4%
5/1	Watford Way 1 Exit	U	N/A	N/A	-		-	-	-	845	Inf	Inf	0.0%
5/2	Watford Way 1 Exit	U	N/A	N/A	-		-	-	-	921	Inf	Inf	0.0%
6/1	Watford Way 1 Ahead	U	3:1	N/A	C3:A		1	20	-	547	2007	602	90.8%
6/2	Watford Way 1 Ahead	U	3:1	N/A	C3:A		1	20	-	542	1986	596	91.0%
6/3	Watford Way 1 Ahead	U	3:1	N/A	C3:A		1	20	-	502	1930	579	86.7%
Ped Link: P1	Unnamed Ped Link	-	3:1	-	C3:F		1	33	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	3:1	-	C3:G		1	18	-	0	-	0	0.0%
Ped Link: P3	Signalised Crossing	-	3:1	-	C3:I		1	34	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	3:1	-	C3:H		1	33	-	0	-	0	0.0%
Ped Link: P5	Signalised Crossing	-	3:2	-	C3:K		1	6	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Five Ways Corner	**-**	**-**	**14**	**0**	**0**	**37.8**	**38.9**	**0.0**	**76.7**	**-**	**-**	**-**	**-**
J1: Watford Way / Page Street	**-**	**-**	**14**	**0**	**0**	**14.4**	**12.1**	**0.0**	**26.5**	**-**	**-**	**-**	**-**
1/2+1/1	966	966	-	-	-	3.7	3.8	-	7.5	28.0	16.1	3.8	19.9
1/3	726	726	-	-	-	2.5	1.4	-	3.9	19.3	10.7	1.4	12.1
1/4	752	752	-	-	-	2.5	1.3	-	3.8	18.4	10.9	1.3	12.2
2/1	489	489	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/2+3/1	617	617	-	-	-	3.9	2.8	-	6.7	39.0	6.6	2.8	9.4
4/1	872	872	-	-	-	0.0	0.4	-	0.4	1.7	0.0	0.4	0.4
4/2	1003	1003	-	-	-	0.0	0.5	-	0.5	1.7	0.0	0.5	0.5
4/3+4/4	603	603	-	-	-	1.9	1.8	-	3.7	22.1	6.3	1.8	8.2
5/1	14	14	14	0	0	0.0	0.0	-	0.0	5.0	0.1	0.0	0.1
6/1	821	821	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	1003	1003	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/3	171	171	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	65	65	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: Great North Way (U-turn) / Watford Way / Fiveways junction	**-**	**-**	**0**	**0**	**0**	**3.4**	**5.5**	**0.0**	**8.8**	**-**	**-**	**-**	**-**
1/1	1197	1197	-	-	-	0.0	0.8	-	0.8	2.3	0.0	0.8	0.8
1/2	921	921	-	-	-	1.1	1.0	-	2.1	8.2	6.1	1.0	7.1
1/3	886	886	-	-	-	0.8	1.2	-	1.9	7.8	3.9	1.2	5.1
2/1	872	872	-	-	-	0.0	0.4	-	0.4	1.7	0.1	0.4	0.5
2/2	1003	1003	-	-	-	0.0	0.5	-	0.5	1.8	0.0	0.5	0.5
2/3+2/4	831	831	-	-	-	1.6	1.6	-	3.2	13.7	4.4	1.6	6.0

Full Input Data And Results

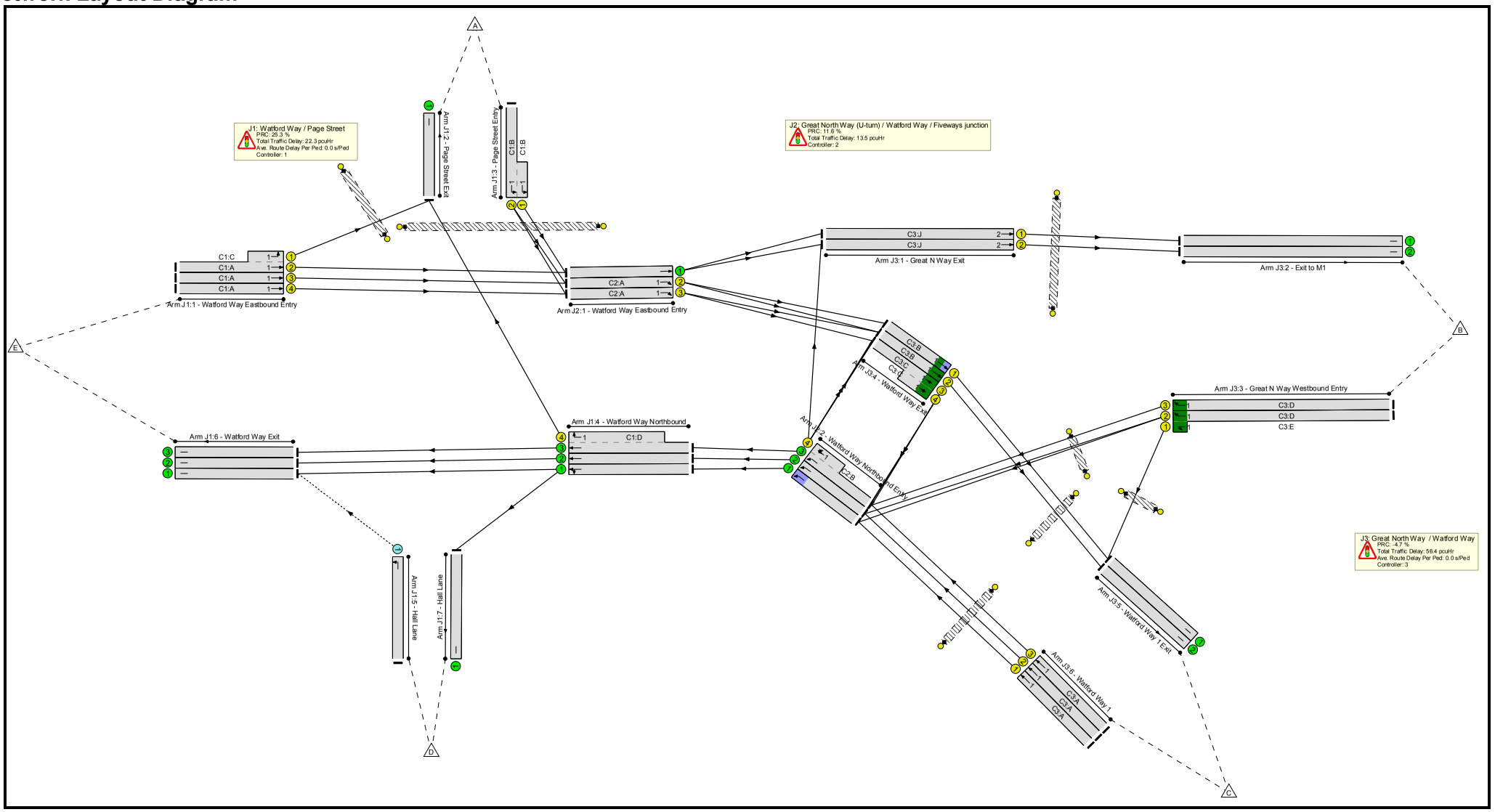
J3: Great North Way / Watford Way	**-**	**-**	**0**	**0**	**0**	**20.0**	**21.4**	**0.0**	**41.4**	**-**	**-**	**-**	**-**
1/1	667	667	-	-	-	0.4	0.4	-	0.9	4.7	3.2	0.4	3.6
1/2	692	692	-	-	-	0.4	0.5	-	0.9	4.5	4.0	0.5	4.5
2/1	667	667	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	692	692	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/2+3/1	686	686	-	-	-	3.9	4.2	-	8.0	42.2	12.5	4.2	16.7
3/3	322	322	-	-	-	1.8	0.6	-	2.5	27.6	5.2	0.6	5.8
4/1	824	824	-	-	-	1.2	1.7	-	2.9	12.7	4.8	1.7	6.5
4/2	921	921	-	-	-	1.2	2.0	-	3.2	12.5	3.7	2.0	5.7
4/3+4/4	128	128	-	-	-	0.6	0.4	-	1.0	28.0	2.1	0.4	2.5
5/1	845	845	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	921	921	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	547	547	-	-	-	3.6	4.3	-	7.9	51.8	10.2	4.3	14.5
6/2	542	542	-	-	-	3.6	4.3	-	7.9	52.4	10.1	4.3	14.4
6/3	502	502	-	-	-	3.2	3.0	-	6.3	44.9	9.2	3.0	12.2
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-

C1	Stream: 1 PRC for Signalled Lanes (%):	1.1	Total Delay for Signalled Lanes (pcuHr):	21.93	Cycle Time (s): 70
C2	Stream: 1 PRC for Signalled Lanes (%):	28.5	Total Delay for Signalled Lanes (pcuHr):	4.01	Cycle Time (s): 70
C3	Stream: 1 PRC for Signalled Lanes (%):	-1.1	Total Delay for Signalled Lanes (pcuHr):	39.65	Cycle Time (s): 70
C3	Stream: 2 PRC for Signalled Lanes (%):	89.0	Total Delay for Signalled Lanes (pcuHr):	1.73	Cycle Time (s): 70
	PRC Over All Lanes (%):	-1.1	Total Delay Over All Lanes(pcuHr):	76.75	

Full Input Data And Results

Scenario 9: '2021+Com_Dev PM+Ex Use' (FG16: '2021+Com_Dev PM+Ex Use', Plan 1: 'Network Control Plan 1')

etwork Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Five Ways Corner	-	-	**N/A**	-	-		-	-	-	-	-	-	**94.2%**
J1: Watford Way / Page Street	-	-	**N/A**	-	-		-	-	-	-	-	-	**71.8%**
1/2+1/1	Watford Way Eastbound Entry Left Ahead	U	1:1	N/A	C1:A C1:C		1	49:48	-	739	1960:1960	1047+57	67.0 : 67.0%
1/3	Watford Way Eastbound Entry Ahead	U	1:1	N/A	C1:A		1	49	-	720	1804	1002	71.8%
1/4	Watford Way Eastbound Entry Ahead	U	1:1	N/A	C1:A		1	49	-	751	1905	1058	71.0%
2/1	Page Street Exit	U	N/A	N/A	-		-	-	-	456	Inf	Inf	0.0%
3/2+3/1	Page Street Entry Left	U	1:1	N/A	C1:B		1	26	-	462	1846:1858	409+276	67.5 : 67.5%
4/1	Watford Way Northbound Ahead Left	U	N/A	N/A	-		-	-	-	1049	1930	1930	54.4%
4/2	Watford Way Northbound Ahead	U	N/A	N/A	-		-	-	-	1117	2086	2086	53.5%
4/3+4/4	Watford Way Northbound Right Ahead	U	N/A	N/A	- C1:D		-	-	-	1061	2103:2015	934+605	68.9 : 69.1%
5/1	Hall Lane Left	O	N/A	N/A	-		-	-	-	4	1924	531	0.8%
6/1	Watford Way Exit	U	N/A	N/A	-		-	-	-	977	Inf	Inf	0.0%
6/2	Watford Way Exit	U	N/A	N/A	-		-	-	-	1117	Inf	Inf	0.0%
6/3	Watford Way Exit	U	N/A	N/A	-		-	-	-	643	Inf	Inf	0.0%
7/1	Hall Lane	U	N/A	N/A	-		-	-	-	76	Inf	Inf	0.0%
Ped Link: P1	Page Street	-	1:1	-	C1:E		1	26	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	1:1	-	C1:F		1	39	-	0	-	0	0.0%

Full Input Data And Results

J2: Great North Way (U-turn) / Watford Way / Fiveways junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**80.6%**
1/1	Watford Way Eastbound Entry Ahead	U	N/A	N/A	-		-	-	-	887	1986	1986	44.7%
1/2	Watford Way Eastbound Entry Ahead	U	2:1	N/A	C2:A		1	51	-	911	2170	1254	72.7%
1/3	Watford Way Eastbound Entry Ahead	U	2:1	N/A	C2:A		1	51	-	836	2012	1162	71.9%
2/1	Watford Way Northbound Entry Ahead	U	N/A	N/A	-		-	-	-	1049	1931	1931	54.3%
2/2	Watford Way Northbound Entry Ahead	U	N/A	N/A	-		-	-	-	1117	2021	2021	55.3%
2/3+2/4	Watford Way Northbound Entry U-Turn Ahead U-Turn2	U	N/A	N/A	- C2:B		-	-	-	1275	2051:2115	1316+265	80.6 : 80.6%
J3: Great North Way / Watford Way	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**94.2%**
1/1	Great N Way Exit Ahead	U	3:2	N/A	C3:J		1	70	-	504	1995	1574	32.0%
1/2	Great N Way Exit Ahead	U	3:2	N/A	C3:J		1	70	-	563	1995	1574	35.8%
2/1	Exit to M1	U	N/A	N/A	-		-	-	-	504	Inf	Inf	0.0%
2/2	Exit to M1	U	N/A	N/A	-		-	-	-	563	Inf	Inf	0.0%
3/2+3/1	Great N Way Westbound Entry Ahead U-Turn	U	3:1	N/A	C3:D C3:E		1	27	-	638	1990:1990	680+22	90.9 : 90.9%
3/3	Great N Way Westbound Entry Ahead	U	3:1	N/A	C3:D		1	27	-	601	1923	684	87.9%
4/1	Watford Way Exit Ahead	U	3:1	N/A	C3:B		1	48	-	777	1955	1108	70.1%
4/2	Watford Way Exit Ahead	U	3:1	N/A	C3:B		1	48	-	877	2121	1202	73.0%

Full Input Data And Results

4/3+4/4	Watford Way Exit U-Turn	U	3:1	N/A	C3:C		1	7	-	127	2091:2005	223+0	56.9 : 0.0%
5/1	Watford Way 1 Exit	U	N/A	N/A	-		-	-	-	797	Inf	Inf	0.0%
5/2	Watford Way 1 Exit	U	N/A	N/A	-		-	-	-	877	Inf	Inf	0.0%
6/1	Watford Way 1 Ahead	U	3:1	N/A	C3:A		1	33	-	714	2007	758	94.2%
6/2	Watford Way 1 Ahead	U	3:1	N/A	C3:A		1	33	-	707	1986	750	94.2%
6/3	Watford Way 1 Ahead	U	3:1	N/A	C3:A		1	33	-	674	1930	729	92.4%
Ped Link: P1	Unnamed Ped Link	-	3:1	-	C3:F		1	40	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	3:1	-	C3:G		1	25	-	0	-	0	0.0%
Ped Link: P3	Signalised Crossing	-	3:1	-	C3:I		1	47	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	3:1	-	C3:H		1	46	-	0	-	0	0.0%
Ped Link: P5	Signalised Crossing	-	3:2	-	C3:K		1	6	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Five Ways Corner	**-**	**-**	**4**	**0**	**0**	**49.9**	**42.2**	**0.0**	**92.2**	**-**	**-**	**-**	**-**
J1: Watford Way / Page Street	**-**	**-**	**4**	**0**	**0**	**15.5**	**6.8**	**0.0**	**22.3**	**-**	**-**	**-**	**-**
1/2+1/1	739	739	-	-	-	2.8	1.0	-	3.9	18.8	12.7	1.0	13.7
1/3	720	720	-	-	-	3.0	1.3	-	4.2	21.1	13.2	1.3	14.5
1/4	751	751	-	-	-	3.1	1.2	-	4.3	20.5	13.8	1.2	15.0
2/1	456	456	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/2+3/1	462	462	-	-	-	3.3	1.0	-	4.3	33.6	6.3	1.0	7.3
4/1	1049	1049	-	-	-	0.0	0.6	-	0.6	2.0	0.0	0.6	0.6
4/2	1117	1117	-	-	-	0.0	0.6	-	0.6	1.9	0.0	0.6	0.6
4/3+4/4	1061	1061	-	-	-	3.4	1.1	-	4.5	15.2	8.6	1.1	9.7
5/1	4	4	4	0	0	0.0	0.0	-	0.0	8.6	0.0	0.0	0.0
6/1	977	977	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	1117	1117	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/3	643	643	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	76	76	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: Great North Way (U-turn) / Watford Way / Fiveways junction	**-**	**-**	**0**	**0**	**0**	**7.2**	**6.3**	**0.0**	**13.5**	**-**	**-**	**-**	**-**
1/1	887	887	-	-	-	0.0	0.4	-	0.4	1.6	0.0	0.4	0.4
1/2	911	911	-	-	-	2.9	1.3	-	4.2	16.7	18.3	1.3	19.7
1/3	836	836	-	-	-	2.7	1.3	-	4.0	17.3	18.7	1.3	20.0
2/1	1049	1049	-	-	-	0.0	0.6	-	0.6	2.2	5.5	0.6	6.1
2/2	1117	1117	-	-	-	0.0	0.6	-	0.6	2.0	0.0	0.6	0.6
2/3+2/4	1275	1275	-	-	-	1.6	2.1	-	3.6	10.2	6.3	2.1	8.3

Full Input Data And Results

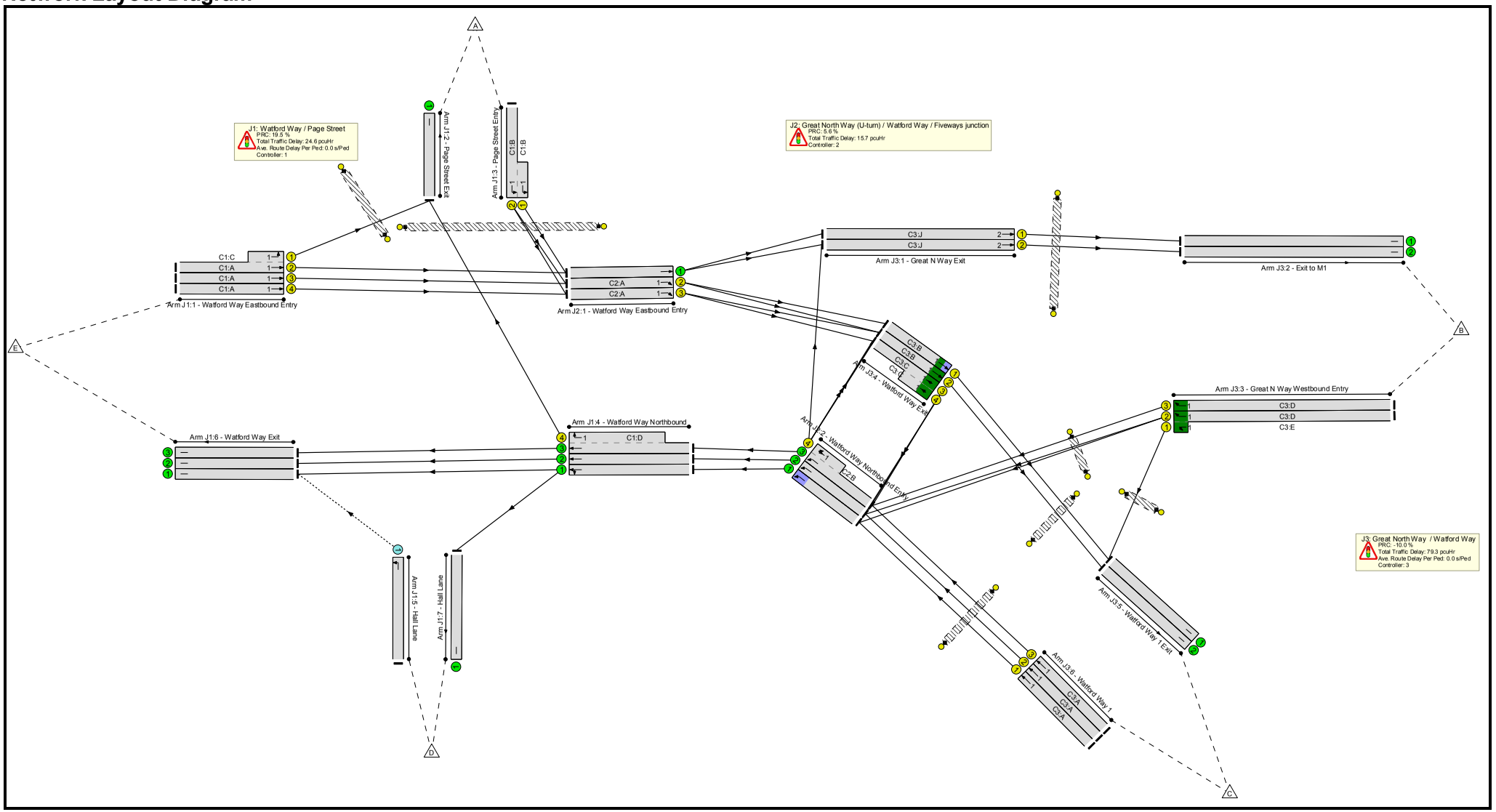
J3: Great North Way / Watford Way	**-**	**-**	**0**	**0**	**0**	**27.2**	**29.2**	**0.0**	**56.4**	**-**	**-**	**-**	**-**
1/1	504	504	-	-	-	0.3	0.2	-	0.5	3.6	2.4	0.2	2.6
1/2	563	563	-	-	-	0.2	0.3	-	0.5	3.0	1.7	0.3	2.0
2/1	504	504	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	563	563	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/2+3/1	638	638	-	-	-	4.9	4.4	-	9.3	52.5	15.0	4.4	19.4
3/3	601	601	-	-	-	4.5	3.4	-	7.9	47.3	14.0	3.4	17.4
4/1	777	777	-	-	-	0.4	1.2	-	1.5	7.1	1.9	1.2	3.1
4/2	877	877	-	-	-	0.3	1.3	-	1.7	6.9	1.9	1.3	3.3
4/3+4/4	127	127	-	-	-	0.9	0.7	-	1.5	42.7	3.0	0.7	3.6
5/1	797	797	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	877	877	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	714	714	-	-	-	5.4	6.3	-	11.7	58.7	17.1	6.3	23.3
6/2	707	707	-	-	-	5.3	6.3	-	11.6	59.2	16.9	6.3	23.2
6/3	674	674	-	-	-	5.0	5.2	-	10.2	54.3	16.1	5.2	21.3
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-

C1	Stream: 1 PRC for Signalled Lanes (%):	25.3	Total Delay for Signalled Lanes (pcuHr):	16.66	Cycle Time (s):	90
C2	Stream: 1 PRC for Signalled Lanes (%):	23.9	Total Delay for Signalled Lanes (pcuHr):	8.23	Cycle Time (s):	90
C3	Stream: 1 PRC for Signalled Lanes (%):	-4.7	Total Delay for Signalled Lanes (pcuHr):	55.38	Cycle Time (s):	90
C3	Stream: 2 PRC for Signalled Lanes (%):	151.6	Total Delay for Signalled Lanes (pcuHr):	0.98	Cycle Time (s):	90
	PRC Over All Lanes (%):	-4.7	Total Delay Over All Lanes(pcuHr):	92.17		

Full Input Data And Results

Scenario 12: '2026+Com_Dev PM+Ex Use' (FG22: '2026+Com_Dev PM+Ex Use', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Five Ways Corner	-	-	**N/A**	-	-		-	-	-	-	-	-	**99.0%**
J1: Watford Way / Page Street	-	-	**N/A**	-	-		-	-	-	-	-	-	**75.3%**
1/2+1/1	Watford Way Eastbound Entry Left Ahead	U	1:1	N/A	C1:A C1:C		1	49:48	-	776	1960:1960	1047+57	70.3 : 70.3%
1/3	Watford Way Eastbound Entry Ahead	U	1:1	N/A	C1:A		1	49	-	755	1804	1002	75.3%
1/4	Watford Way Eastbound Entry Ahead	U	1:1	N/A	C1:A		1	49	-	791	1905	1058	74.7%
2/1	Page Street Exit	U	N/A	N/A	-		-	-	-	480	Inf	Inf	0.0%
3/2+3/1	Page Street Entry Left	U	1:1	N/A	C1:B		1	26	-	486	1846:1858	409+276	71.0 : 71.0%
4/1	Watford Way Northbound Ahead Left	U	N/A	N/A	-		-	-	-	1080	1930	1930	56.0%
4/2	Watford Way Northbound Ahead	U	N/A	N/A	-		-	-	-	1190	2086	2086	57.0%
4/3+4/4	Watford Way Northbound Right Ahead	U	N/A	N/A	- C1:D		-	-	-	1122	2103:2015	945+605	72.2 : 72.8%
5/1	Hall Lane Left	O	N/A	N/A	-		-	-	-	4	1924	515	0.8%
6/1	Watford Way Exit	U	N/A	N/A	-		-	-	-	1004	Inf	Inf	0.0%
6/2	Watford Way Exit	U	N/A	N/A	-		-	-	-	1190	Inf	Inf	0.0%
6/3	Watford Way Exit	U	N/A	N/A	-		-	-	-	682	Inf	Inf	0.0%
7/1	Hall Lane	U	N/A	N/A	-		-	-	-	80	Inf	Inf	0.0%
Ped Link: P1	Page Street	-	1:1	-	C1:E		1	26	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	1:1	-	C1:F		1	39	-	0	-	0	0.0%

Full Input Data And Results

J2: Great North Way (U-turn) / Watford Way / Fiveways junction	-	-	**N/A**	-	-		-	-	-	-	-	-	**85.2%**
1/1	Watford Way Eastbound Entry Ahead	U	N/A	N/A	-		-	-	-	932	1986	1986	46.9%
1/2	Watford Way Eastbound Entry Ahead	U	2:1	N/A	C2:A		1	51	-	958	2170	1254	76.4%
1/3	Watford Way Eastbound Entry Ahead	U	2:1	N/A	C2:A		1	51	-	878	2012	1162	75.5%
2/1	Watford Way Northbound Entry Ahead	U	N/A	N/A	-		-	-	-	1080	1931	1931	55.9%
2/2	Watford Way Northbound Entry Ahead	U	N/A	N/A	-		-	-	-	1190	2021	2021	58.9%
2/3+2/4	Watford Way Northbound Entry U-Turn Ahead U-Turn2	U	N/A	N/A	- C2:B		-	-	-	1348	2051:2115	1317+265	85.2 : 85.2%
J3: Great North Way / Watford Way	-	-	**N/A**	-	-		-	-	-	-	-	-	**99.0%**
1/1	Great N Way Exit Ahead	U	3:2	N/A	C3:J		1	70	-	533	1995	1574	33.9%
1/2	Great N Way Exit Ahead	U	3:2	N/A	C3:J		1	70	-	589	1995	1574	37.4%
2/1	Exit to M1	U	N/A	N/A	-		-	-	-	533	Inf	Inf	0.0%
2/2	Exit to M1	U	N/A	N/A	-		-	-	-	589	Inf	Inf	0.0%
3/2+3/1	Great N Way Westbound Entry Ahead U-Turn	U	3:1	N/A	C3:D C3:E		1	27	-	667	1990:1990	680+22	95.1 : 95.1%
3/3	Great N Way Westbound Entry Ahead	U	3:1	N/A	C3:D		1	27	-	636	1923	684	93.0%
4/1	Watford Way Exit Ahead	U	3:1	N/A	C3:B		1	48	-	822	1955	1108	74.2%
4/2	Watford Way Exit Ahead	U	3:1	N/A	C3:B		1	48	-	919	2121	1202	76.5%

Full Input Data And Results

4/3+4/4	Watford Way Exit U-Turn	U	3:1	N/A	C3:C		1	7	-	131	2091:2005	223+0	58.7 : 0.0%
5/1	Watford Way 1 Exit	U	N/A	N/A	-		-	-	-	843	Inf	Inf	0.0%
5/2	Watford Way 1 Exit	U	N/A	N/A	-		-	-	-	919	Inf	Inf	0.0%
6/1	Watford Way 1 Ahead	U	3:1	N/A	C3:A		1	33	-	750	2007	758	98.9%
6/2	Watford Way 1 Ahead	U	3:1	N/A	C3:A		1	33	-	743	1986	750	99.0%
6/3	Watford Way 1 Ahead	U	3:1	N/A	C3:A		1	33	-	712	1930	729	97.7%
Ped Link: P1	Unnamed Ped Link	-	3:1	-	C3:F		1	40	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	3:1	-	C3:G		1	25	-	0	-	0	0.0%
Ped Link: P3	Signalised Crossing	-	3:1	-	C3:I		1	47	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	3:1	-	C3:H		1	46	-	0	-	0	0.0%
Ped Link: P5	Signalised Crossing	-	3:2	-	C3:K		1	6	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Five Ways Corner	**-**	**-**	**4**	**0**	**0**	**53.9**	**65.7**	**0.0**	**119.7**	**-**	**-**	**-**	**-**
J1: Watford Way / Page Street	**-**	**-**	**4**	**0**	**0**	**16.7**	**8.0**	**0.0**	**24.6**	**-**	**-**	**-**	**-**
1/2+1/1	776	776	-	-	-	3.1	1.2	-	4.3	19.7	13.7	1.2	14.9
1/3	755	755	-	-	-	3.2	1.5	-	4.7	22.5	14.3	1.5	15.8
1/4	791	791	-	-	-	3.3	1.5	-	4.8	21.9	14.9	1.5	16.4
2/1	480	480	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/2+3/1	486	486	-	-	-	3.5	1.2	-	4.7	34.8	6.9	1.2	8.1
4/1	1080	1080	-	-	-	0.0	0.6	-	0.6	2.1	0.0	0.6	0.6
4/2	1190	1190	-	-	-	0.0	0.7	-	0.7	2.0	0.0	0.7	0.7
4/3+4/4	1122	1122	-	-	-	3.5	1.3	-	4.8	15.5	9.2	1.3	10.5
5/1	4	4	4	0	0	0.0	0.0	-	0.0	9.3	0.0	0.0	0.0
6/1	1004	1004	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	1190	1190	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/3	682	682	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	80	80	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: Great North Way (U-turn) / Watford Way / Fiveways junction	**-**	**-**	**0**	**0**	**0**	**8.0**	**7.7**	**0.0**	**15.7**	**-**	**-**	**-**	**-**
1/1	932	932	-	-	-	0.0	0.4	-	0.4	1.7	0.0	0.4	0.4
1/2	958	958	-	-	-	3.2	1.6	-	4.8	18.1	20.0	1.6	21.6
1/3	878	878	-	-	-	3.0	1.5	-	4.5	18.5	20.0	1.5	21.5
2/1	1080	1080	-	-	-	0.0	0.6	-	0.7	2.3	6.7	0.6	7.3
2/2	1190	1190	-	-	-	0.0	0.7	-	0.7	2.2	0.0	0.7	0.7
2/3+2/4	1348	1348	-	-	-	1.7	2.8	-	4.5	12.1	8.6	2.8	11.4

Full Input Data And Results

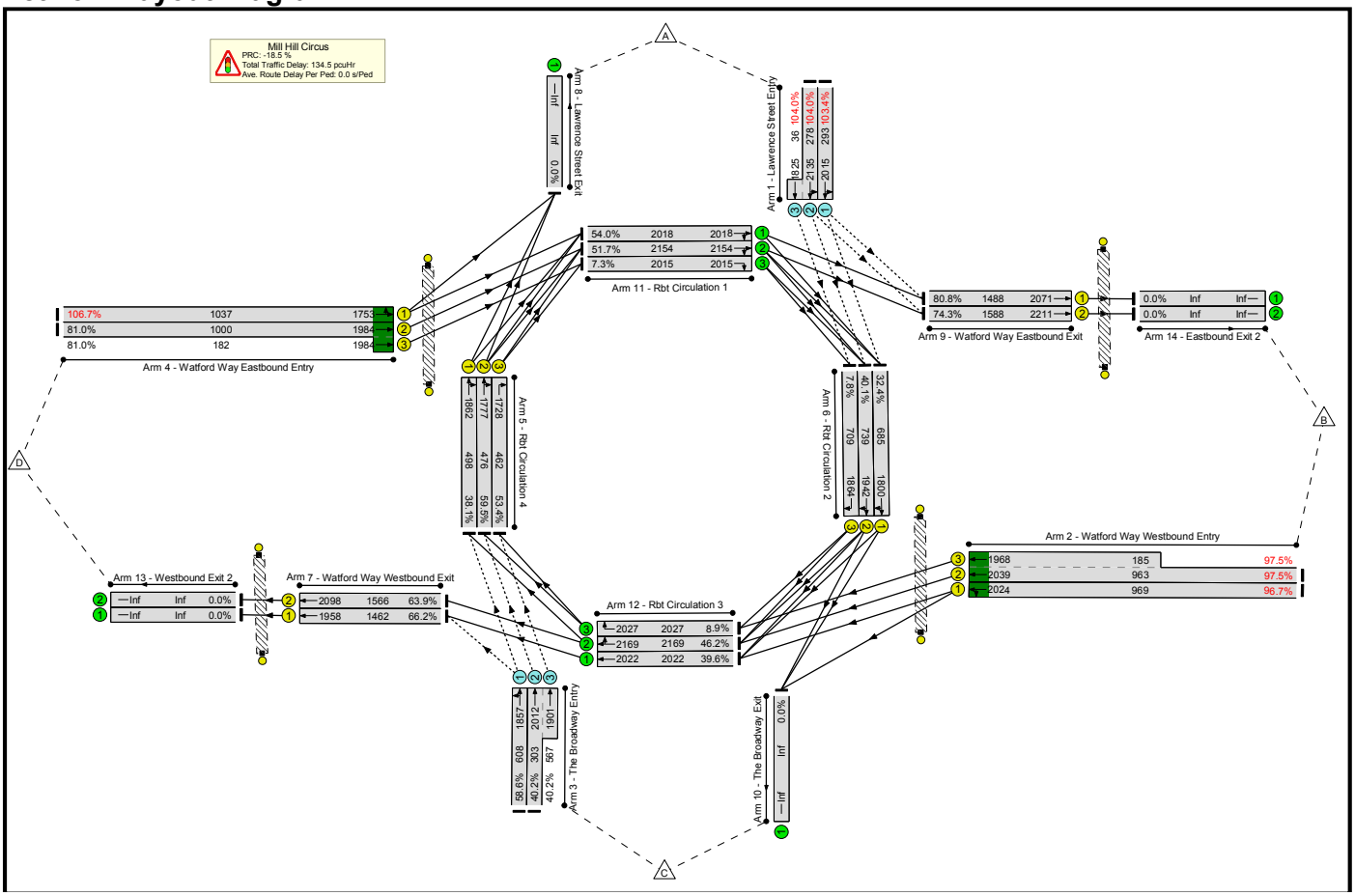
J3: Great North Way / Watford Way	**-**	**-**	**0**	**0**	**0**	**29.3**	**50.1**	**0.0**	**79.3**	**-**	**-**	**-**	**-**
1/1	533	533	-	-	-	0.3	0.3	-	0.5	3.7	2.5	0.3	2.8
1/2	589	589	-	-	-	0.2	0.3	-	0.5	3.1	1.8	0.3	2.1
2/1	533	533	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	589	589	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/2+3/1	667	667	-	-	-	5.2	6.9	-	12.1	65.4	16.1	6.9	22.9
3/3	636	636	-	-	-	4.9	5.4	-	10.4	58.6	15.2	5.4	20.6
4/1	822	822	-	-	-	0.4	1.4	-	1.8	7.9	1.9	1.4	3.3
4/2	919	919	-	-	-	0.4	1.6	-	2.0	7.7	2.5	1.6	4.1
4/3+4/4	131	131	-	-	-	0.9	0.7	-	1.6	43.1	3.1	0.7	3.8
5/1	843	843	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	919	919	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	750	750	-	-	-	5.8	11.8	-	17.6	84.4	18.5	11.8	30.3
6/2	743	743	-	-	-	5.7	11.9	-	17.7	85.7	18.4	11.9	30.3
6/3	712	712	-	-	-	5.5	9.7	-	15.2	76.8	17.4	9.7	27.1
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-

C1	Stream: 1 PRC for Signalled Lanes (%):	19.5	Total Delay for Signalled Lanes (pcuHr):	18.47	Cycle Time (s): 90
C2	Stream: 1 PRC for Signalled Lanes (%):	17.8	Total Delay for Signalled Lanes (pcuHr):	9.32	Cycle Time (s): 90
C3	Stream: 1 PRC for Signalled Lanes (%):	-10.0	Total Delay for Signalled Lanes (pcuHr):	78.29	Cycle Time (s): 90
C3	Stream: 2 PRC for Signalled Lanes (%):	140.5	Total Delay for Signalled Lanes (pcuHr):	1.05	Cycle Time (s): 90
	PRC Over All Lanes (%):	-10.0	Total Delay Over All Lanes(pcuHr):	119.66	

Basic Results Summary

Scenario 3: '2021+Com_Dev AM' (FG15: '2021+Com_Dev AM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Basic Results Summary

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Mill Hill Circus - Roundabout	-	-	-		-	-	-	-	-	-	**106.7%**	**1976**	**0**	**0**	**134.5**	-	-
Mill Hill Circus	-	-	-		-	-	-	-	-	-	**106.7%**	**1976**	**0**	**0**	**134.5**	-	-
1/1	Lawrence Street Entry Ahead Left	O	-		-	-	-	303	2015	293	103.4%	293	0	0	14.0	166.4	27.9
1/2+1/3	Lawrence Street Entry Ahead Left	O	-		-	-	-	326	2135:1825	278+36	104.0 : 104.0%	627	0	0	15.3	169.4	27.0
2/1	Watford Way Westbound Entry Left Ahead	U	D		1	29	-	937	2024	969	96.7%	-	-	-	13.9	53.4	26.9
2/2+2/3	Watford Way Westbound Entry Ahead	U	D		1	29	-	1119	2039:1968	963+185	97.5 : 97.5%	-	-	-	16.2	52.0	28.7
3/1	The Broadway Entry Ahead Left	O	-		-	-	-	356	1857	608	58.6%	356	0	0	2.0	20.7	5.9
3/2+3/3	The Broadway Entry Ahead	O	-		-	-	-	350	2012:1901	303+567	40.2 : 40.2%	700	0	0	1.5	15.5	3.4
4/1	Watford Way Eastbound Entry Left Ahead	U	A		1	39	-	1106	1753	1037	106.7%	-	-	-	47.8	155.5	64.4
4/2+4/3	Watford Way Eastbound Entry Ahead	U	A		1	39	-	957	1984:1984	1000+182	81.0 : 81.0%	-	-	-	5.1	19.1	16.3
5/1	Rbt Circulation 4 Ahead Right	U	B		1	18	-	190	1862	498	38.1%	-	-	-	1.4	26.4	4.0
5/2	Rbt Circulation 4 Ahead Right	U	B		1	18	-	283	1777	476	59.5%	-	-	-	2.2	27.5	5.7
5/3	Rbt Circulation 4 Right	U	B		1	18	-	247	1728	462	53.4%	-	-	-	2.1	30.9	5.4
6/1	Rbt Circulation 2 Ahead Right	U	E		1	26	-	228	1800	685	32.4%	-	-	-	0.6	10.5	2.3

Basic Results Summary

6/2	Rbt Circulation 2 Ahead Right	U	E		1	26	-	303	1942	739	40.1%	-	-	-	1.2	14.8	3.6
6/3	Rbt Circulation 2 Right	U	E		1	26	-	57	1864	709	7.8%	-	-	-	0.2	13.8	0.6
7/1	Watford Way Westbound Exit Ahead	U	G		1	52	-	968	1958	1462	66.2%	-	-	-	1.5	5.5	4.8
7/2	Watford Way Westbound Exit Ahead	U	G		1	52	-	1003	2098	1566	63.9%	-	-	-	1.3	4.5	3.0
9/1	Watford Way Eastbound Exit Ahead	U	I		1	50	-	1274	2071	1488	80.8%	-	-	-	2.7	8.0	6.7
9/2	Watford Way Eastbound Exit Ahead	U	I		1	50	-	1184	2211	1588	74.3%	-	-	-	3.6	10.8	18.0
11/1	Rbt Circulation 1 Right Ahead	U	-		-	-	-	1157	2018	2018	54.0%	-	-	-	0.6	1.9	0.6
11/2	Rbt Circulation 1 Right Ahead	U	-		-	-	-	1113	2154	2154	51.7%	-	-	-	0.5	1.7	3.6
11/3	Rbt Circulation 1 Right	U	-		-	-	-	147	2015	2015	7.3%	-	-	-	0.0	1.0	0.0
12/1	Rbt Circulation 3 Ahead	U	-		-	-	-	802	2022	2022	39.6%	-	-	-	0.3	1.5	0.3
12/2	Rbt Circulation 3 Right Ahead	U	-		-	-	-	1003	2169	2169	46.2%	-	-	-	0.4	1.5	0.4
12/3	Rbt Circulation 3 Right	U	-		-	-	-	180	2027	2027	8.9%	-	-	-	0.0	1.0	0.0
Ped Link: P1	Watford Way Crossing 1	-	C		1	14	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Watford Way Crossing 2	-	H		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P3	Watford Way Crossing 3	-	F		1	22	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P4	Watford Way Crossing 4	-	J		1	6	-	0	-	0	0.0%	-	-	-	-	-	-

C1	Stream: 1 PRC for Signalled Lanes (%):	-18.5	Total Delay for Signalled Lanes (pcuHr):	58.50
C1	Stream: 2 PRC for Signalled Lanes (%):	-8.3	Total Delay for Signalled Lanes (pcuHr):	32.15
C1	Stream: 3 PRC for Signalled Lanes (%):	36.0	Total Delay for Signalled Lanes (pcuHr):	2.73
C1	Stream: 4 PRC for Signalled Lanes (%):	11.4	Total Delay for Signalled Lanes (pcuHr):	6.23
	PRC Over All Lanes (%):	-18.5	Total Delay Over All Lanes(pcuHr):	134.49

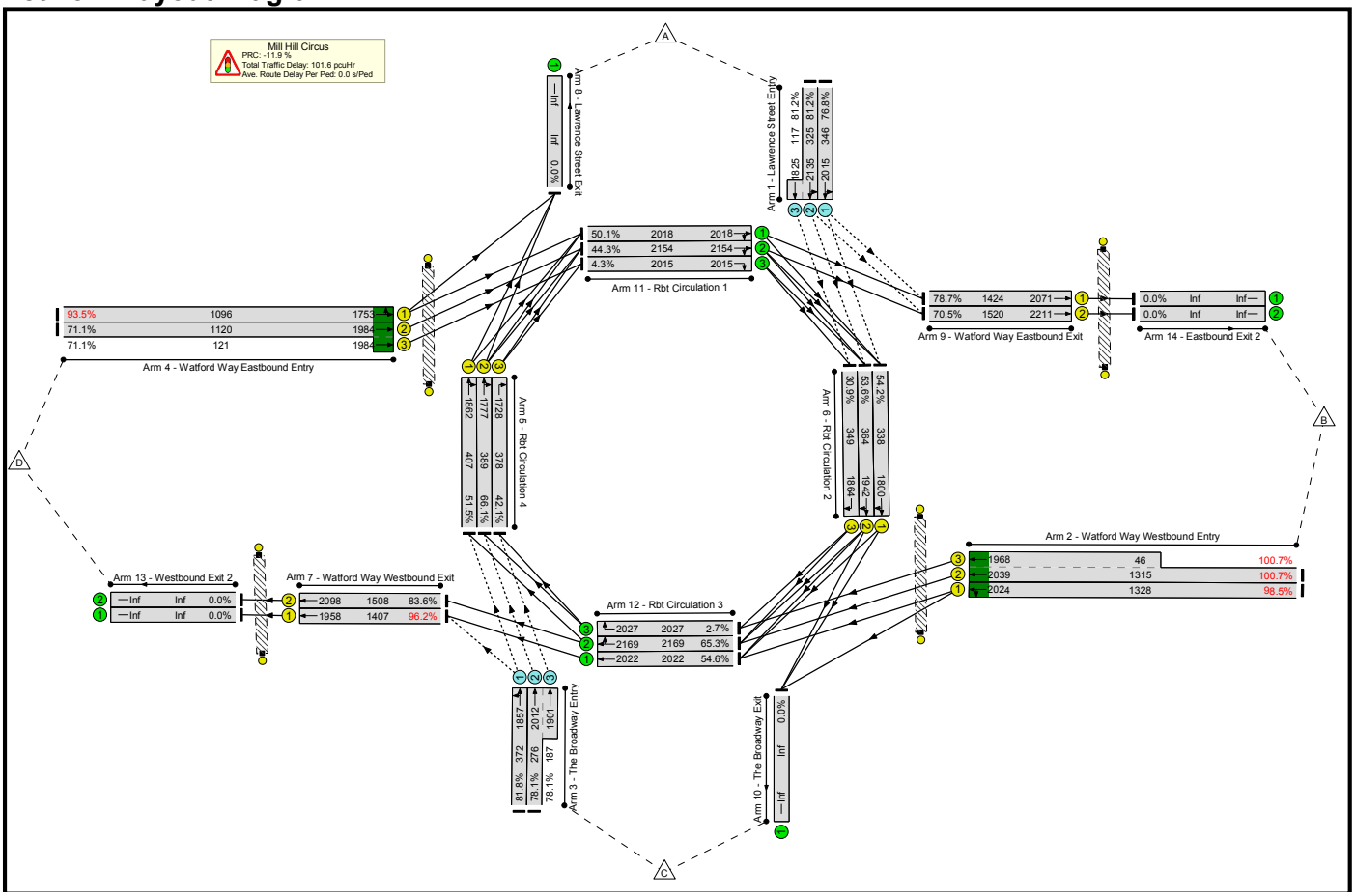
Cycle Time (s):	71
Cycle Time (s):	71
Cycle Time (s):	71
Cycle Time (s):	71

Basic Results Summary

Basic Results Summary

Scenario 4: '2021+Com_Dev PM' (FG16: '2021+Com_Dev PM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Basic Results Summary

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Mill Hill Circus - Roundabout	-	-	-		-	-	-	-	-	-	**100.7%**	**2012**	**0**	**0**	**101.6**	-	-
Mill Hill Circus	-	-	-		-	-	-	-	-	-	**100.7%**	**2012**	**0**	**0**	**101.6**	-	-
1/1	Lawrence Street Entry Ahead Left	O	-		-	-	-	266	2015	346	76.8%	266	0	0	3.1	41.4	6.0
1/2+1/3	Lawrence Street Entry Ahead Left	O	-		-	-	-	359	2135:1825	325+117	81.2 : 81.2%	718	0	0	4.0	39.9	6.5
2/1	Watford Way Westbound Entry Left Ahead	U	D		1	37	-	1308	2024	1328	98.5%	-	-	-	17.6	48.4	36.2
2/2+2/3	Watford Way Westbound Entry Ahead	U	D		1	37	-	1370	2039:1968	1315+46	100.7 : 100.7%	-	-	-	25.4	66.8	45.4
3/1	The Broadway Entry Ahead Left	O	-		-	-	-	304	1857	372	81.8%	304	0	0	3.9	45.7	7.1
3/2+3/3	The Broadway Entry Ahead	O	-		-	-	-	362	2012:1901	276+187	78.1 : 78.1%	724	0	0	3.9	38.6	5.3
4/1	Watford Way Eastbound Entry Left Ahead	U	A		1	37	-	1024	1753	1096	93.5%	-	-	-	9.2	32.3	22.3
4/2+4/3	Watford Way Eastbound Entry Ahead	U	A		1	37	-	882	1984:1984	1120+121	71.1 : 71.1%	-	-	-	3.2	13.0	11.5
5/1	Rbt Circulation 4 Ahead Right	U	B		1	13	-	211	1862	407	51.5%	-	-	-	1.7	29.2	3.7
5/2	Rbt Circulation 4 Ahead Right	U	B		1	13	-	257	1777	389	66.1%	-	-	-	2.9	41.2	5.5
5/3	Rbt Circulation 4 Right	U	B		1	13	-	159	1728	378	42.1%	-	-	-	1.6	36.6	3.2
6/1	Rbt Circulation 2 Ahead Right	U	E		1	11	-	183	1800	338	54.2%	-	-	-	1.4	28.0	2.7

Basic Results Summary

6/2	Rbt Circulation 2 Ahead Right	U	E		1	11	-	195	1942	364	53.6%	-	-	-	1.8	33.2	3.2
6/3	Rbt Circulation 2 Right	U	E		1	11	-	108	1864	349	30.9%	-	-	-	0.6	18.8	1.7
7/1	Watford Way Westbound Exit Ahead	U	G		1	45	-	1354	1958	1407	96.2%	-	-	-	10.6	28.2	27.9
7/2	Watford Way Westbound Exit Ahead	U	G		1	45	-	1269	2098	1508	83.6%	-	-	-	3.2	9.1	6.2
9/1	Watford Way Eastbound Exit Ahead	U	I		1	43	-	1121	2071	1424	78.7%	-	-	-	2.3	7.5	5.4
9/2	Watford Way Eastbound Exit Ahead	U	I		1	43	-	1071	2211	1520	70.5%	-	-	-	2.8	9.4	14.8
11/1	Rbt Circulation 1 Right Ahead	U	-		-	-	-	1012	2018	2018	50.1%	-	-	-	0.5	1.8	0.5
11/2	Rbt Circulation 1 Right Ahead	U	-		-	-	-	955	2154	2154	44.3%	-	-	-	0.4	1.5	0.4
11/3	Rbt Circulation 1 Right	U	-		-	-	-	86	2015	2015	4.3%	-	-	-	0.0	0.9	0.0
12/1	Rbt Circulation 3 Ahead	U	-		-	-	-	1105	2022	2022	54.6%	-	-	-	0.6	2.0	0.6
12/2	Rbt Circulation 3 Right Ahead	U	-		-	-	-	1425	2169	2169	65.3%	-	-	-	0.9	2.4	0.9
12/3	Rbt Circulation 3 Right	U	-		-	-	-	54	2027	2027	2.7%	-	-	-	0.0	0.9	0.0
Ped Link: P1	Watford Way Crossing 1	-	C		1	9	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Watford Way Crossing 2	-	H		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P3	Watford Way Crossing 3	-	F		1	7	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P4	Watford Way Crossing 4	-	J		1	6	-	0	-	0	0.0%	-	-	-	-	-	-

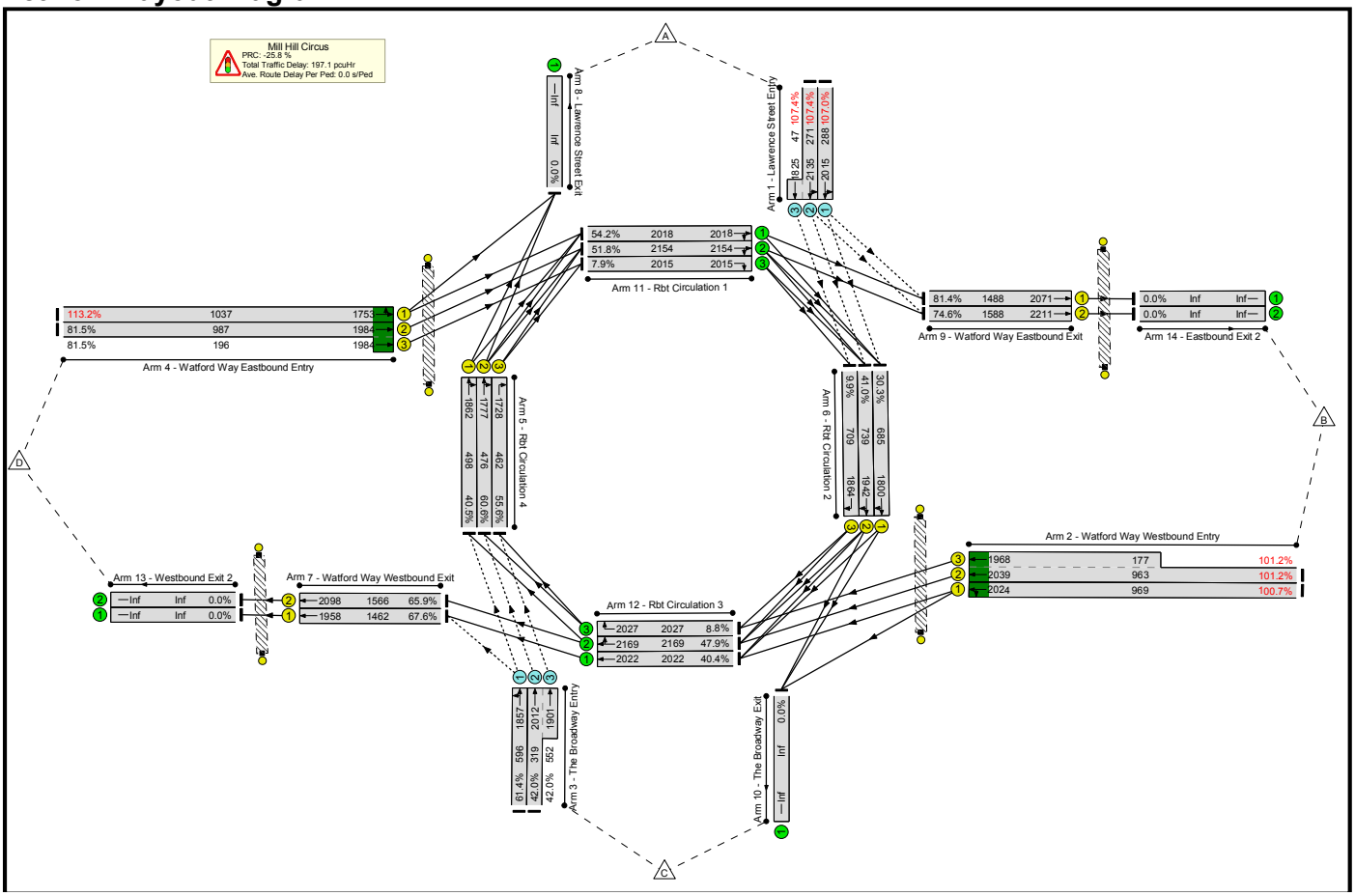
C1	Stream: 1 PRC for Signalled Lanes (%):	-3.8	Total Delay for Signalled Lanes (pcuHr):	18.64	Cycle Time (s): 64
C1	Stream: 2 PRC for Signalled Lanes (%):	-11.9	Total Delay for Signalled Lanes (pcuHr):	46.79	Cycle Time (s): 64
C1	Stream: 3 PRC for Signalled Lanes (%):	-6.9	Total Delay for Signalled Lanes (pcuHr):	13.81	Cycle Time (s): 64
C1	Stream: 4 PRC for Signalled Lanes (%):	14.3	Total Delay for Signalled Lanes (pcuHr):	5.13	Cycle Time (s): 64
	PRC Over All Lanes (%):	-11.9	Total Delay Over All Lanes(pcuHr):	101.62	

Basic Results Summary

Basic Results Summary

Scenario 9: '2026+Com_Dev AM' (FG21: '2026+Com_Dev AM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Basic Results Summary

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Mill Hill Circus - Roundabout	-	-	-		-	-	-	-	-	-	**113.2%**	**2023**	**0**	**0**	**197.1**	-	-
Mill Hill Circus	-	-	-		-	-	-	-	-	-	**113.2%**	**2023**	**0**	**0**	**197.1**	-	-
1/1	Lawrence Street Entry Ahead Left	O	-		-	-	-	308	2015	288	107.0%	288	0	0	18.0	210.6	31.7
1/2+1/3	Lawrence Street Entry Ahead Left	O	-		-	-	-	342	2135:1825	271+47	107.4 : 107.4%	637	0	0	19.9	209.8	30.9
2/1	Watford Way Westbound Entry Left Ahead	U	D		1	29	-	976	2024	969	100.7%	-	-	-	22.7	83.7	36.8
2/2+2/3	Watford Way Westbound Entry Ahead	U	D		1	29	-	1154	2039:1968	963+177	101.2 : 101.2%	-	-	-	26.5	82.6	40.4
3/1	The Broadway Entry Ahead Left	O	-		-	-	-	366	1857	596	61.4%	366	0	0	2.3	22.2	6.4
3/2+3/3	The Broadway Entry Ahead	O	-		-	-	-	366	2012:1901	319+552	42.0 : 42.0%	732	0	0	1.7	16.4	3.6
4/1	Watford Way Eastbound Entry Left Ahead	U	A		1	39	-	1174	1753	1037	113.2%	-	-	-	81.4	249.8	98.4
4/2+4/3	Watford Way Eastbound Entry Ahead	U	A		1	39	-	964	1984:1984	987+196	81.5 : 81.5%	-	-	-	5.2	19.3	16.5
5/1	Rbt Circulation 4 Ahead Right	U	B		1	18	-	202	1862	498	40.5%	-	-	-	1.5	26.1	4.2
5/2	Rbt Circulation 4 Ahead Right	U	B		1	18	-	288	1777	476	60.6%	-	-	-	2.2	27.9	5.9
5/3	Rbt Circulation 4 Right	U	B		1	18	-	257	1728	462	55.6%	-	-	-	2.2	30.5	5.6
6/1	Rbt Circulation 2 Ahead Right	U	E		1	26	-	219	1800	685	30.3%	-	-	-	0.6	10.1	2.0

Basic Results Summary

6/2	Rbt Circulation 2 Ahead Right	U	E		1	26	-	315	1942	739	41.0%	-	-	-	1.3	15.3	3.7
6/3	Rbt Circulation 2 Right	U	E		1	26	-	74	1864	709	9.9%	-	-	-	0.3	12.9	0.7
7/1	Watford Way Westbound Exit Ahead	U	G		1	52	-	995	1958	1462	67.6%	-	-	-	1.6	5.7	5.0
7/2	Watford Way Westbound Exit Ahead	U	G		1	52	-	1046	2098	1566	65.9%	-	-	-	1.4	5.0	3.5
9/1	Watford Way Eastbound Exit Ahead	U	I		1	50	-	1355	2071	1488	81.4%	-	-	-	2.8	8.4	6.9
9/2	Watford Way Eastbound Exit Ahead	U	I		1	50	-	1192	2211	1588	74.6%	-	-	-	3.6	11.0	18.1
11/1	Rbt Circulation 1 Right Ahead	U	-		-	-	-	1230	2018	2018	54.2%	-	-	-	0.6	1.9	0.6
11/2	Rbt Circulation 1 Right Ahead	U	-		-	-	-	1115	2154	2154	51.8%	-	-	-	0.5	1.7	3.5
11/3	Rbt Circulation 1 Right	U	-		-	-	-	160	2015	2015	7.9%	-	-	-	0.0	1.0	0.0
12/1	Rbt Circulation 3 Ahead	U	-		-	-	-	823	2022	2022	40.4%	-	-	-	0.3	1.5	0.3
12/2	Rbt Circulation 3 Right Ahead	U	-		-	-	-	1054	2169	2169	47.9%	-	-	-	0.5	1.6	0.5
12/3	Rbt Circulation 3 Right	U	-		-	-	-	179	2027	2027	8.8%	-	-	-	0.0	1.0	0.0
Ped Link: P1	Watford Way Crossing 1	-	C		1	14	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Watford Way Crossing 2	-	H		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P3	Watford Way Crossing 3	-	F		1	22	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P4	Watford Way Crossing 4	-	J		1	6	-	0	-	0	0.0%	-	-	-	-	-	-

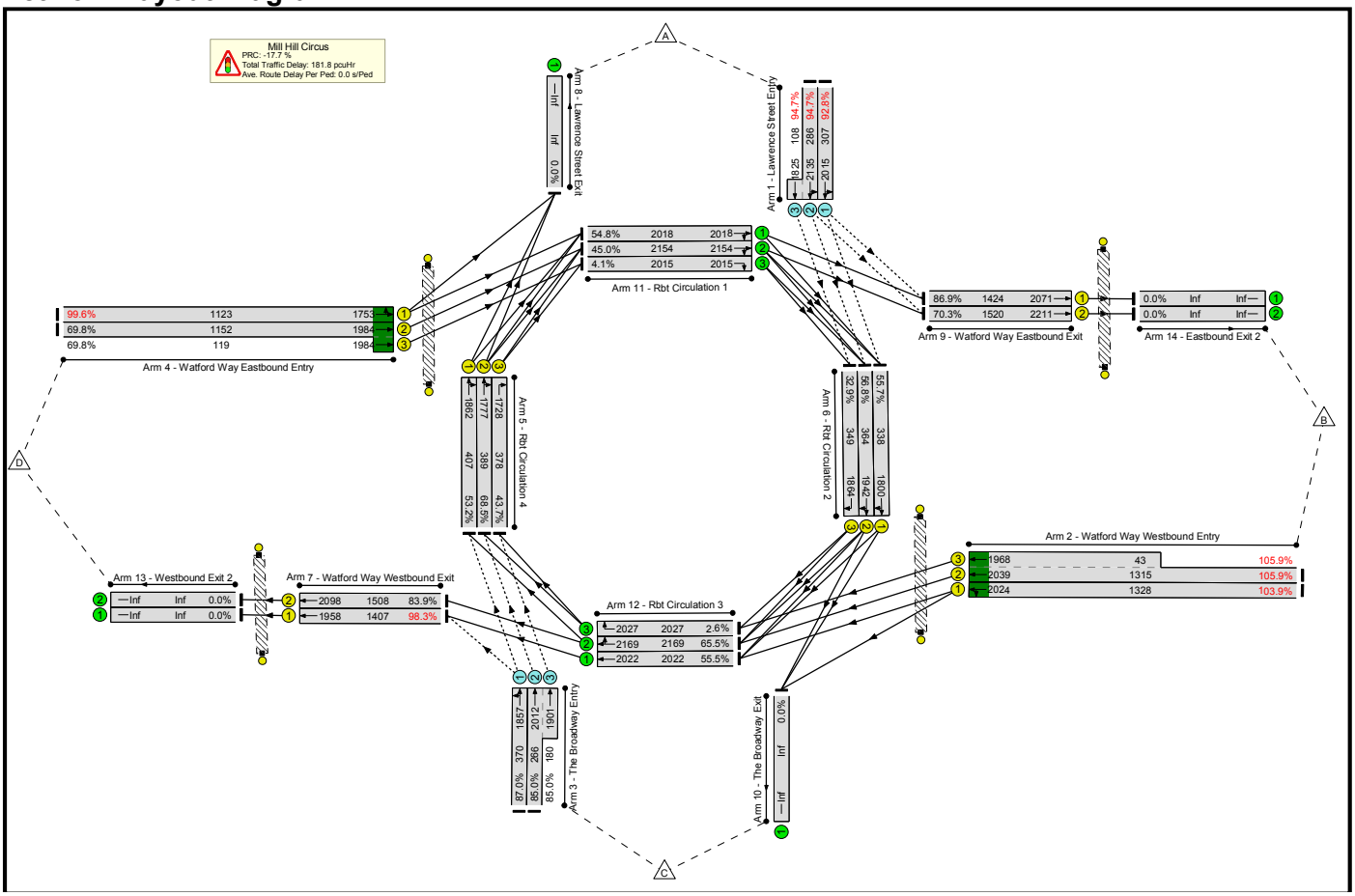
C1	Stream: 1 PRC for Signalled Lanes (%):	-25.8	Total Delay for Signalled Lanes (pcuHr):	92.48	Cycle Time (s): 71
C1	Stream: 2 PRC for Signalled Lanes (%):	-12.5	Total Delay for Signalled Lanes (pcuHr):	51.30	Cycle Time (s): 71
C1	Stream: 3 PRC for Signalled Lanes (%):	33.1	Total Delay for Signalled Lanes (pcuHr):	2.99	Cycle Time (s): 71
C1	Stream: 4 PRC for Signalled Lanes (%):	10.5	Total Delay for Signalled Lanes (pcuHr):	6.42	Cycle Time (s): 71
	PRC Over All Lanes (%):	-25.8	Total Delay Over All Lanes(pcuHr):	197.07	

Basic Results Summary

Basic Results Summary

Scenario 10: '2026+Com_Dev PM' (FG22: '2026+Com_Dev PM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Basic Results Summary

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Mill Hill Circus - Roundabout	-	-	-		-	-	-	-	-	-	**105.9%**	**2111**	**0**	**0**	**181.8**	-	-
Mill Hill Circus	-	-	-		-	-	-	-	-	-	**105.9%**	**2111**	**0**	**0**	**181.8**	-	-
1/1	Lawrence Street Entry Ahead Left	O	-		-	-	-	285	2015	307	92.8%	285	0	0	6.4	80.3	9.5
1/2+1/3	Lawrence Street Entry Ahead Left	O	-		-	-	-	373	2135:1825	286+108	94.7 : 94.7%	746	0	0	8.0	77.5	11.1
2/1	Watford Way Westbound Entry Left Ahead	U	D		1	37	-	1380	2024	1328	103.9%	-	-	-	41.7	108.8	61.0
2/2+2/3	Watford Way Westbound Entry Ahead	U	D		1	37	-	1439	2039:1968	1315+43	105.9 : 105.9%	-	-	-	54.9	137.4	80.3
3/1	The Broadway Entry Ahead Left	O	-		-	-	-	322	1857	370	87.0%	322	0	0	4.9	54.5	8.4
3/2+3/3	The Broadway Entry Ahead	O	-		-	-	-	379	2012:1901	266+180	85.0 : 85.0%	758	0	0	4.9	47.0	6.5
4/1	Watford Way Eastbound Entry Left Ahead	U	A		1	37	-	1118	1753	1123	99.6%	-	-	-	19.1	61.4	35.1
4/2+4/3	Watford Way Eastbound Entry Ahead	U	A		1	37	-	887	1984:1984	1152+119	69.8 : 69.8%	-	-	-	3.0	12.1	11.0
5/1	Rbt Circulation 4 Ahead Right	U	B		1	13	-	226	1862	407	53.2%	-	-	-	1.8	29.7	3.9
5/2	Rbt Circulation 4 Ahead Right	U	B		1	13	-	268	1777	389	68.5%	-	-	-	3.1	42.2	5.8
5/3	Rbt Circulation 4 Right	U	B		1	13	-	166	1728	378	43.7%	-	-	-	1.7	36.7	3.3
6/1	Rbt Circulation 2 Ahead Right	U	E		1	11	-	188	1800	338	55.7%	-	-	-	1.9	35.9	3.0

Basic Results Summary

6/2	Rbt Circulation 2 Ahead Right	U	E		1	11	-	207	1942	364	56.8%	-	-	-	2.2	38.2	3.5
6/3	Rbt Circulation 2 Right	U	E		1	11	-	115	1864	349	32.9%	-	-	-	0.7	20.5	1.7
7/1	Watford Way Westbound Exit Ahead	U	G		1	45	-	1427	1958	1407	98.3%	-	-	-	15.0	39.1	35.3
7/2	Watford Way Westbound Exit Ahead	U	G		1	45	-	1333	2098	1508	83.9%	-	-	-	3.2	9.2	6.3
9/1	Watford Way Eastbound Exit Ahead	U	I		1	43	-	1237	2071	1424	86.9%	-	-	-	3.9	11.5	10.2
9/2	Watford Way Eastbound Exit Ahead	U	I		1	43	-	1070	2211	1520	70.3%	-	-	-	2.8	9.5	14.9
11/1	Rbt Circulation 1 Right Ahead	U	-		-	-	-	1106	2018	2018	54.8%	-	-	-	0.6	2.0	0.6
11/2	Rbt Circulation 1 Right Ahead	U	-		-	-	-	970	2154	2154	45.0%	-	-	-	0.4	1.5	0.4
11/3	Rbt Circulation 1 Right	U	-		-	-	-	83	2015	2015	4.1%	-	-	-	0.0	0.9	0.0
12/1	Rbt Circulation 3 Ahead	U	-		-	-	-	1165	2022	2022	55.5%	-	-	-	0.6	2.0	0.6
12/2	Rbt Circulation 3 Right Ahead	U	-		-	-	-	1499	2169	2169	65.5%	-	-	-	0.9	2.4	0.9
12/3	Rbt Circulation 3 Right	U	-		-	-	-	55	2027	2027	2.6%	-	-	-	0.0	0.9	0.0
Ped Link: P1	Watford Way Crossing 1	-	C		1	9	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Watford Way Crossing 2	-	H		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P3	Watford Way Crossing 3	-	F		1	7	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P4	Watford Way Crossing 4	-	J		1	6	-	0	-	0	0.0%	-	-	-	-	-	-

C1	Stream: 1 PRC for Signalled Lanes (%):	-10.6	Total Delay for Signalled Lanes (pcuHr):	28.63	Cycle Time (s): 64
C1	Stream: 2 PRC for Signalled Lanes (%):	-17.7	Total Delay for Signalled Lanes (pcuHr):	101.36	Cycle Time (s): 64
C1	Stream: 3 PRC for Signalled Lanes (%):	-9.2	Total Delay for Signalled Lanes (pcuHr):	18.27	Cycle Time (s): 64
C1	Stream: 4 PRC for Signalled Lanes (%):	3.6	Total Delay for Signalled Lanes (pcuHr):	6.75	Cycle Time (s): 64
	PRC Over All Lanes (%):	-17.7	Total Delay Over All Lanes(pcuHr):	181.83	

Basic Results Summary

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.1.4646 []

For sales and distribution information, program advice and maintenance, contact TRL:
Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk

Filename: Bunn's Lane - Grahame Park Way Roundabout - Proposed Layout v3.j9
Path: L:\5545 - Healey Development Solutions (Mill Hill) Ltd\001 - Mill Hill\Analysis & Design\Modelling\J5 - Bunn's Lane - Grahame Park Way Mini Roundabout
Report generation date: 23/09/2016 18:41:00

Summary of junction performance

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
Do Nothing - 2016								
Arm A	2.8	11.32	0.74	B	2.8	10.73	0.74	B
Arm B	9.5	39.44	0.92	E	1.9	10.33	0.66	B
Arm C	2.8	18.46	0.74	C	1.6	11.35	0.62	B

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
Do Something - 2021 + Committed								
Arm A	3.4	13.37	0.78	B	3.8	13.81	0.80	B
Arm B	15.1	59.19	0.97	F	2.4	12.11	0.71	B
Arm C	3.5	22.47	0.79	C	2.1	13.64	0.68	B
Do Something - 2021 + Committed + New Dev with BL								
Arm A	3.5	13.54	0.78	B	4.0	14.62	0.81	B
Arm B	17.7	67.31	0.98	F	2.4	12.28	0.71	B
Arm C	3.6	22.98	0.79	C	2.1	13.84	0.68	B
Do Something - 2021 + Committed + New Dev without BL								
Arm A	3.4	13.18	0.78	B	3.7	13.63	0.79	B
Arm B	15.6	60.67	0.97	F	2.4	12.10	0.71	B
Arm C	3.5	22.29	0.79	C	2.1	13.70	0.68	B
Do Something - 2026 + Committed								
Arm A	4.2	15.82	0.81	C	5.1	18.08	0.84	C
Arm B	25.0	89.12	1.01	F	3.0	14.49	0.76	B
Arm C	4.3	27.18	0.83	D	2.7	16.84	0.74	C
Do Something - 2026 + Committed + New Dev with BL								
Arm A	4.3	16.06	0.82	C	5.6	19.46	0.86	C
Arm B	29.3	100.81	1.03	F	3.1	14.73	0.76	B
Arm C	4.4	27.55	0.83	D	2.7	17.15	0.74	C
Do Something - 2026 + Committed + New Dev without BL								
Arm A	4.1	15.55	0.81	C	5.0	17.78	0.84	C
Arm B	25.8	91.30	1.01	F	3.0	14.48	0.76	B
Arm C	4.3	26.86	0.82	D	2.7	16.93	0.74	C

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	Bunn's Lane - Grahame Park Way Miniroundabout
Location	
Site number	
Date	15/06/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ROBERTWEST\libanbellezza
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	perHour	s	-Min	perMin

Analysis Options

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

Growth Factors

ID	Description	Use TEMPRO	Growth Factor
G1	2016-2021 AM		1.0370
G2	2016-2021 PM		1.0558
G3	2016-2026 AM		1.0740
G4	2016-2026 PM		1.1116

Growth factors are only active if the Demand Set references them in a Relationship.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set (s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	Do Something	✓	✓	D15,D16,D17,D18,D19,D20,D21,D22,D23,D24,D25,D26	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D15	2021 + Committed	AM	ONE HOUR	07:45	09:15	15	✓	Simple	D1*G1+D11+D9

Do Something - 2021 + Committed, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	Bunn's Lane - Grahame Park Way	Mini-roundabout	A,B,C	32.90	D

Junction Network Options

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

Arms

Arms

Arm	Name	Description
A	Bunn's Lane NW	
B	Bunn's Lane E	
C	Grahame Park Way	

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
A	4.93	4.59	6.41	24.0	18.05	16.07	0.0	✓
B	2.96	2.63	6.37	20.0	13.75	6.71	0.0	✓
C	6.12	6.10	6.52	10.7	16.33	14.40	0.0	✓

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.638	1328
B	0.554	1109
C	0.629	1197

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

Arm Capacity Adjustments

Arm	Type	Reason	Percentage capacity adjustment (%)
A	Percentage		110.00
B	Percentage		110.00

Traffic Demand

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	866	100.000
B		ONE HOUR	✓	874	100.000
C		ONE HOUR	✓	532	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	1	568	297
	B	631	0	243
	C	264	249	19

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	100	1	5
	B	0	0	1
	C	4	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.78	13.37	3.4	B	794	1192
B	0.97	59.19	15.1	F	802	1203
C	0.79	22.47	3.5	C	488	732

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
A	652	163	200	1286	0.507	648	669	0.0	1.0	5.602	A
B	658	165	237	1065	0.618	652	611	0.0	1.6	8.578	A
C	400	100	472	874	0.458	397	417	0.0	0.8	7.496	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
A	778	195	239	1259	0.618	776	801	1.0	1.6	7.420	A
B	786	196	283	1036	0.759	780	732	1.6	3.0	13.802	B
C	478	120	565	817	0.585	476	499	0.8	1.4	10.481	B

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
A	953	238	291	1223	0.779	946	959	1.6	3.3	12.694	B
B	962	241	346	996	0.966	927	891	3.0	11.8	39.947	E
C	586	146	671	752	0.779	578	602	1.4	3.2	19.919	C

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
A	953	238	294	1221	0.781	953	977	3.3	3.4	13.370	B
B	962	241	348	994	0.968	949	899	11.8	15.1	59.191	F
C	586	146	687	742	0.789	584	610	3.2	3.5	22.472	C

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
A	778	195	244	1255	0.620	785	844	3.4	1.7	7.773	A
B	786	196	287	1033	0.761	833	743	15.1	3.4	21.447	C
C	478	120	602	794	0.602	486	517	3.5	1.6	11.955	B

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
A	652	163	203	1284	0.507	654	682	1.7	1.0	5.735	A
B	658	165	239	1064	0.619	665	618	3.4	1.7	9.178	A
C	400	100	481	868	0.461	403	423	1.6	0.9	7.784	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.1.4646 []

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Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk

Filename: Bunn's Lane - Grahame Park Way Roundabout - Proposed Layout v3.j9
Path: L:\5545 - Healey Development Solutions (Mill Hill) Ltd\001 - Mill Hill\Analysis & Design\Modelling\J5 - Bunn's Lane - Grahame Park Way Mini Roundabout
Report generation date: 23/09/2016 18:41:43

Summary of junction performance

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
Do Nothing - 2016								
Arm A	2.8	11.32	0.74	B	2.8	10.73	0.74	B
Arm B	9.5	39.44	0.92	E	1.9	10.33	0.66	B
Arm C	2.8	18.46	0.74	C	1.6	11.35	0.62	B

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
Do Something - 2021 + Committed								
Arm A	3.4	13.37	0.78	B	3.8	13.81	0.80	B
Arm B	15.1	59.19	0.97	F	2.4	12.11	0.71	B
Arm C	3.5	22.47	0.79	C	2.1	13.64	0.68	B
Do Something - 2021 + Committed + New Dev with BL								
Arm A	3.5	13.54	0.78	B	4.0	14.62	0.81	B
Arm B	17.7	67.31	0.98	F	2.4	12.28	0.71	B
Arm C	3.6	22.98	0.79	C	2.1	13.84	0.68	B
Do Something - 2021 + Committed + New Dev without BL								
Arm A	3.4	13.18	0.78	B	3.7	13.63	0.79	B
Arm B	15.6	60.67	0.97	F	2.4	12.10	0.71	B
Arm C	3.5	22.29	0.79	C	2.1	13.70	0.68	B
Do Something - 2026 + Committed								
Arm A	4.2	15.82	0.81	C	5.1	18.08	0.84	C
Arm B	25.0	89.12	1.01	F	3.0	14.49	0.76	B
Arm C	4.3	27.18	0.83	D	2.7	16.84	0.74	C
Do Something - 2026 + Committed + New Dev with BL								
Arm A	4.3	16.06	0.82	C	5.6	19.46	0.86	C
Arm B	29.3	100.81	1.03	F	3.1	14.73	0.76	B
Arm C	4.4	27.55	0.83	D	2.7	17.15	0.74	C
Do Something - 2026 + Committed + New Dev without BL								
Arm A	4.1	15.55	0.81	C	5.0	17.78	0.84	C
Arm B	25.8	91.30	1.01	F	3.0	14.48	0.76	B
Arm C	4.3	26.86	0.82	D	2.7	16.93	0.74	C

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	Bunn's Lane - Grahame Park Way Miniroundabout
Location	
Site number	
Date	15/06/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ROBERTWEST\libanbellezza
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	perHour	s	-Min	perMin

Analysis Options

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

Growth Factors

ID	Description	Use TEMPRO	Growth Factor
G1	2016-2021 AM		1.0370
G2	2016-2021 PM		1.0558
G3	2016-2026 AM		1.0740
G4	2016-2026 PM		1.1116

Growth factors are only active if the Demand Set references them in a Relationship.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set (s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	Do Something	✓	✓	D15,D16,D17,D18,D19,D20,D21,D22,D23,D24,D25,D26	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D16	2021 + Committed	PM	ONE HOUR	16:45	18:15	15	✓	Simple	D2*G2+D12+D10

Do Something - 2021 + Committed, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	Bunn's Lane - Grahame Park Way	Mini-roundabout	A,B,C	13.23	B

Junction Network Options

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

Arms

Arms

Arm	Name	Description
A	Bunn's Lane NW	
B	Bunn's Lane E	
C	Grahame Park Way	

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
A	4.93	4.59	6.41	24.0	18.05	16.07	0.0	✓
B	2.96	2.63	6.37	20.0	13.75	6.71	0.0	✓
C	6.12	6.10	6.52	10.7	16.33	14.40	0.0	✓

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.638	1328
B	0.554	1109
C	0.629	1197

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

Arm Capacity Adjustments

Arm	Type	Reason	Percentage capacity adjustment (%)
A	Percentage		110.00
B	Percentage		110.00

Traffic Demand

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	915	100.000
B		ONE HOUR	✓	657	100.000
C		ONE HOUR	✓	509	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	627	288
	B	537	2	117
	C	280	227	2

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.80	13.81	3.8	B	839	1259
B	0.71	12.11	2.4	B	603	904
C	0.68	13.64	2.1	B	467	700

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
A	689	172	173	1323	0.521	684	611	0.0	1.1	5.605	A
B	494	124	217	1083	0.457	491	640	0.0	0.8	6.048	A
C	383	96	403	943	0.406	380	305	0.0	0.7	6.366	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
A	822	206	207	1299	0.633	820	732	1.1	1.7	7.479	A
B	590	148	260	1056	0.559	589	767	0.8	1.2	7.671	A
C	457	114	484	893	0.512	456	365	0.7	1.0	8.216	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
A	1007	252	253	1267	0.795	999	894	1.7	3.6	13.075	B
B	723	181	317	1021	0.708	719	935	1.2	2.3	11.739	B
C	560	140	590	825	0.679	556	445	1.0	2.0	13.176	B

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
A	1007	252	254	1266	0.796	1007	899	3.6	3.8	13.808	B
B	723	181	319	1020	0.709	723	942	2.3	2.4	12.106	B
C	560	140	594	823	0.680	560	448	2.0	2.1	13.638	B

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
A	822	206	209	1297	0.634	830	740	3.8	1.8	7.838	A
B	590	148	263	1054	0.560	595	776	2.4	1.3	7.906	A
C	457	114	489	889	0.514	461	369	2.1	1.1	8.484	A

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
A	689	172	175	1321	0.521	691	618	1.8	1.1	5.741	A
B	494	124	219	1082	0.457	496	647	1.3	0.9	6.167	A
C	383	96	408	940	0.407	384	308	1.1	0.7	6.494	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.1.4646 []

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Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk

Filename: Bunn's Lane - Grahame Park Way Roundabout - Proposed Layout v3.j9
Path: L:\5545 - Healey Development Solutions (Mill Hill) Ltd\001 - Mill Hill\Analysis & Design\Modelling\J5 - Bunn's Lane - Grahame Park Way Mini Roundabout
Report generation date: 23/09/2016 18:42:19

Summary of junction performance

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
Do Nothing - 2016								
Arm A	2.8	11.32	0.74	B	2.8	10.73	0.74	B
Arm B	9.5	39.44	0.92	E	1.9	10.33	0.66	B
Arm C	2.8	18.46	0.74	C	1.6	11.35	0.62	B

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
Do Something - 2021 + Committed								
Arm A	3.4	13.37	0.78	B	3.8	13.81	0.80	B
Arm B	15.1	59.19	0.97	F	2.4	12.11	0.71	B
Arm C	3.5	22.47	0.79	C	2.1	13.64	0.68	B
Do Something - 2021 + Committed + New Dev with BL								
Arm A	3.5	13.54	0.78	B	4.0	14.62	0.81	B
Arm B	17.7	67.31	0.98	F	2.4	12.28	0.71	B
Arm C	3.6	22.98	0.79	C	2.1	13.84	0.68	B
Do Something - 2021 + Committed + New Dev without BL								
Arm A	3.4	13.18	0.78	B	3.7	13.63	0.79	B
Arm B	15.6	60.67	0.97	F	2.4	12.10	0.71	B
Arm C	3.5	22.29	0.79	C	2.1	13.70	0.68	B
Do Something - 2026 + Committed								
Arm A	4.2	15.82	0.81	C	5.1	18.08	0.84	C
Arm B	25.0	89.12	1.01	F	3.0	14.49	0.76	B
Arm C	4.3	27.18	0.83	D	2.7	16.84	0.74	C
Do Something - 2026 + Committed + New Dev with BL								
Arm A	4.3	16.06	0.82	C	5.6	19.46	0.86	C
Arm B	29.3	100.81	1.03	F	3.1	14.73	0.76	B
Arm C	4.4	27.55	0.83	D	2.7	17.15	0.74	C
Do Something - 2026 + Committed + New Dev without BL								
Arm A	4.1	15.55	0.81	C	5.0	17.78	0.84	C
Arm B	25.8	91.30	1.01	F	3.0	14.48	0.76	B
Arm C	4.3	26.86	0.82	D	2.7	16.93	0.74	C

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	Bunn's Lane - Grahame Park Way Miniroundabout
Location	
Site number	
Date	15/06/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ROBERTWEST\libanbellezza
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	perHour	s	-Min	perMin

Analysis Options

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

Growth Factors

ID	Description	Use TEMPRO	Growth Factor
G1	2016-2021 AM		1.0370
G2	2016-2021 PM		1.0558
G3	2016-2026 AM		1.0740
G4	2016-2026 PM		1.1116

Growth factors are only active if the Demand Set references them in a Relationship.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set (s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	Do Something	✓	✓	D15,D16,D17,D18,D19,D20,D21,D22,D23,D24,D25,D26	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D21	2026 + Committed	AM	ONE HOUR	07:45	09:15	15	✓	Simple	D1*G3+D13+D9

Do Something - 2026 + Committed, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	Bunn's Lane - Grahame Park Way	Mini-roundabout	A,B,C	46.31	E

Junction Network Options

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

Arms

Arms

Arm	Name	Description
A	Bunn's Lane NW	
B	Bunn's Lane E	
C	Grahame Park Way	

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
A	4.93	4.59	6.41	24.0	18.05	16.07	0.0	✓
B	2.96	2.63	6.37	20.0	13.75	6.71	0.0	✓
C	6.12	6.10	6.52	10.7	16.33	14.40	0.0	✓

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.638	1328
B	0.554	1109
C	0.629	1197

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

Arm Capacity Adjustments

Arm	Type	Reason	Percentage capacity adjustment (%)
A	Percentage		110.00
B	Percentage		110.00

Traffic Demand

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	897	100.000
B		ONE HOUR	✓	906	100.000
C		ONE HOUR	✓	552	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	1	589	307
	B	655	0	251
	C	274	259	19

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	100	1	5
	B	0	0	1
	C	4	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.81	15.82	4.2	C	823	1235
B	1.01	89.12	25.0	F	832	1247
C	0.83	27.18	4.3	D	506	759

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
A	676	169	207	1281	0.527	671	693	0.0	1.1	5.861	A
B	682	171	245	1060	0.644	675	634	0.0	1.8	9.195	A
C	415	104	489	864	0.481	412	431	0.0	0.9	7.904	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
A	807	202	249	1252	0.644	804	830	1.1	1.8	7.980	A
B	815	204	293	1029	0.792	808	759	1.8	3.5	15.757	C
C	496	124	585	805	0.616	493	516	0.9	1.6	11.460	B

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
A	988	247	301	1216	0.813	979	980	1.8	4.0	14.683	B
B	998	249	357	988	1.009	944	923	3.5	17.0	52.141	F
C	607	152	683	745	0.816	598	618	1.6	3.9	23.218	C

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
A	988	247	305	1213	0.815	987	1000	4.0	4.2	15.816	C
B	998	249	360	986	1.011	966	932	17.0	25.0	89.123	F
C	607	152	699	735	0.827	606	627	3.9	4.3	27.178	D

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
A	807	202	255	1248	0.646	816	901	4.2	1.9	8.502	A
B	815	204	298	1026	0.794	897	773	25.0	4.3	38.969	E
C	496	124	650	765	0.648	506	546	4.3	1.9	14.346	B

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
A	676	169	211	1278	0.528	679	709	1.9	1.1	6.031	A
B	682	171	248	1058	0.645	692	642	4.3	1.9	10.077	B
C	415	104	501	856	0.485	419	439	1.9	1.0	8.308	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.1.4646 []

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Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk

Filename: Bunn's Lane - Grahame Park Way Roundabout - Proposed Layout v3.j9
Path: L:\5545 - Healey Development Solutions (Mill Hill) Ltd\001 - Mill Hill\Analysis & Design\Modelling\J5 - Bunn's Lane - Grahame Park Way Mini Roundabout
Report generation date: 23/09/2016 18:42:50

Summary of junction performance

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
	Do Nothing - 2016							
Arm A	2.8	11.32	0.74	B	2.8	10.73	0.74	B
Arm B	9.5	39.44	0.92	E	1.9	10.33	0.66	B
Arm C	2.8	18.46	0.74	C	1.6	11.35	0.62	B

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
	Do Something - 2021 + Committed							
Arm A	3.4	13.37	0.78	B	3.8	13.81	0.80	B
Arm B	15.1	59.19	0.97	F	2.4	12.11	0.71	B
Arm C	3.5	22.47	0.79	C	2.1	13.64	0.68	B
	Do Something - 2021 + Committed + New Dev with BL							
Arm A	3.5	13.54	0.78	B	4.0	14.62	0.81	B
Arm B	17.7	67.31	0.98	F	2.4	12.28	0.71	B
Arm C	3.6	22.98	0.79	C	2.1	13.84	0.68	B
	Do Something - 2021 + Committed + New Dev without BL							
Arm A	3.4	13.18	0.78	B	3.7	13.63	0.79	B
Arm B	15.6	60.67	0.97	F	2.4	12.10	0.71	B
Arm C	3.5	22.29	0.79	C	2.1	13.70	0.68	B
	Do Something - 2026 + Committed							
Arm A	4.2	15.82	0.81	C	5.1	18.08	0.84	C
Arm B	25.0	89.12	1.01	F	3.0	14.49	0.76	B
Arm C	4.3	27.18	0.83	D	2.7	16.84	0.74	C
	Do Something - 2026 + Committed + New Dev with BL							
Arm A	4.3	16.06	0.82	C	5.6	19.46	0.86	C
Arm B	29.3	100.81	1.03	F	3.1	14.73	0.76	B
Arm C	4.4	27.55	0.83	D	2.7	17.15	0.74	C
	Do Something - 2026 + Committed + New Dev without BL							
Arm A	4.1	15.55	0.81	C	5.0	17.78	0.84	C
Arm B	25.8	91.30	1.01	F	3.0	14.48	0.76	B
Arm C	4.3	26.86	0.82	D	2.7	16.93	0.74	C

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	Bunn's Lane - Grahame Park Way Miniroundabout
Location	
Site number	
Date	15/06/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ROBERTWEST\libanbellezza
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	perHour	s	-Min	perMin

Analysis Options

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

Growth Factors

ID	Description	Use TEMPRO	Growth Factor
G1	2016-2021 AM		1.0370
G2	2016-2021 PM		1.0558
G3	2016-2026 AM		1.0740
G4	2016-2026 PM		1.1116

Growth factors are only active if the Demand Set references them in a Relationship.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set (s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	Do Something	✓	✓	D15,D16,D17,D18,D19,D20,D21,D22,D23,D24,D25,D26	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D22	2026 + Committed	PM	ONE HOUR	16:45	18:15	15	✓	Simple	D2*G4+D14+D10

Do Something - 2026 + Committed, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	Bunn's Lane - Grahame Park Way	Mini-roundabout	A,B,C	16.65	C

Junction Network Options

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

Arms

Arms

Arm	Name	Description
A	Bunn's Lane NW	
B	Bunn's Lane E	
C	Grahame Park Way	

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
A	4.93	4.59	6.41	24.0	18.05	16.07	0.0	✓
B	2.96	2.63	6.37	20.0	13.75	6.71	0.0	✓
C	6.12	6.10	6.52	10.7	16.33	14.40	0.0	✓

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.638	1328
B	0.554	1109
C	0.629	1197

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

Arm Capacity Adjustments

Arm	Type	Reason	Percentage capacity adjustment (%)
A	Percentage		110.00
B	Percentage		110.00

Traffic Demand

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	964	100.000
B		ONE HOUR	✓	692	100.000
C		ONE HOUR	✓	536	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	661	303
	B	567	2	123
	C	295	240	2

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.84	18.08	5.1	C	884	1326
B	0.76	14.49	3.0	B	635	953
C	0.74	16.84	2.7	C	492	738

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
A	725	181	182	1316	0.551	721	644	0.0	1.2	6.001	A
B	521	130	228	1076	0.484	517	675	0.0	0.9	6.404	A
C	404	101	425	929	0.435	401	320	0.0	0.8	6.774	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
A	866	217	219	1291	0.671	863	772	1.2	2.0	8.357	A
B	622	156	274	1048	0.594	620	808	0.9	1.4	8.379	A
C	482	121	510	876	0.550	480	384	0.8	1.2	9.058	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
A	1061	265	266	1258	0.843	1050	941	2.0	4.8	16.442	C
B	762	191	333	1011	0.754	756	983	1.4	2.9	13.813	B
C	591	148	622	806	0.733	585	467	1.2	2.6	15.925	C

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
A	1061	265	268	1256	0.845	1060	948	4.8	5.1	18.084	C
B	762	191	336	1009	0.755	762	992	2.9	3.0	14.490	B
C	591	148	626	803	0.736	590	472	2.6	2.7	16.838	C

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
A	866	217	222	1288	0.672	878	782	5.1	2.1	9.018	A
B	622	156	278	1045	0.596	628	822	3.0	1.5	8.759	A
C	482	121	516	872	0.553	488	390	2.7	1.3	9.504	A

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
A	725	181	185	1314	0.552	729	651	2.1	1.3	6.184	A
B	521	130	231	1074	0.485	523	683	1.5	1.0	6.559	A
C	404	101	430	926	0.436	406	324	1.3	0.8	6.940	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.1.4646 []

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Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk

Filename: The Broadway - Bunn's Lane - Hale Lane Roundabout v3.j9
Path: L:\5545 - Healey Development Solutions (Mill Hill) Ltd\001 - Mill Hill\Analysis & Design\Modelling\J6 - The Broadway - Bunn's Lane - Hale Lane Mini Roundabout
Report generation date: 23/09/2016 17:51:17

Summary of junction performance

	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	Do nothing - 2016					
Arm A	24.7	118.60	1.06	27.7	131.71	1.07
Arm B	17.4	95.16	1.02	20.5	106.34	1.03
Arm C	8.2	85.66	0.96	10.7	95.96	0.99

	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	Do something - 2021 + Committed					
Arm A	44.4	202.82	1.14	57.8	292.46	1.19
Arm B	30.3	156.53	1.08	43.6	206.61	1.12
Arm C	13.4	134.18	1.03	20.1	169.63	1.07
	Do something - 2021 + Committed + New Dev with BL					
Arm A	42.5	194.27	1.13	54.7	269.11	1.17
Arm B	29.6	151.99	1.08	41.7	197.36	1.11
Arm C	12.9	129.86	1.02	19.1	161.97	1.06
	Do something - 2021 + Committed + New Dev without BL					
Arm A	43.7	199.79	1.13	57.5	292.08	1.19
Arm B	30.9	156.96	1.08	42.5	203.74	1.12
Arm C	13.3	133.09	1.02	20.4	170.49	1.07
	Do something - 2026 + Committed					
Arm A	61.8	319.04	1.20	87.9	497.07	1.28
Arm B	42.1	209.51	1.13	66.4	366.13	1.21
Arm C	17.8	169.70	1.06	28.4	244.67	1.12
	Do something - 2026 + Committed + New Dev with BL					
Arm A	59.9	301.44	1.19	84.5	476.45	1.27
Arm B	41.7	204.89	1.12	64.6	353.32	1.20
Arm C	17.4	165.67	1.06	27.5	231.01	1.12
	Do something - 2026 + Committed + New Dev without BL					
Arm A	61.0	310.54	1.20	87.4	496.64	1.28
Arm B	43.2	210.71	1.13	65.0	360.11	1.20
Arm C	17.8	168.85	1.06	28.8	246.74	1.12

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	The Broadway - Bunn's Lane - Hale Lane Miniroundabout
Location	
Site number	
Date	15/06/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ROBERTWEST\libanbellezza
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	perHour	s	-Min	perMin

Analysis Options

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

Growth Factors

ID	Description	Use TEMPRO	Growth Factor
G1	2016-2021 AM		1.0370
G2	2016-2021 PM		1.0558
G3	2016-2026 AM		1.0740
G4	2016-2026 PM		1.1116

Growth factors are only active if the Demand Set references them in a Relationship.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set (s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	Do something	✓	✓	D15,D16,D17,D18,D19,D20,D21,D22,D23,D24,D25,D26	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D15	2021 + Committed	AM	ONE HOUR	07:45	09:15	15	✓	Simple	D1*G1+D11+D9

Do something - 2021 + Committed, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	The Broadway - Bunn's Lane - Hale Lane	Mini-roundabout	A,B,C	166.09	F

Junction Network Options

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

Arms

Arms

Arm	Name	Description
A	Hale Lane	
B	The Broadway	
C	Bunns Lane	

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
A	5.55	5.51	5.73	0.4	14.86	9.25	0.0	✓
B	5.12	5.12	5.12	0.0	16.77	14.07	0.0	✓
C	4.30	4.30	4.30	0.0	8.77	3.62	0.0	✓

Bypass

Arm	Arm has bypass	Bypass utilisation (%)
A		
B		
C	✓	100

Exit Restrictions

Arm	Exit restriction present	Linked exit restriction present	Maximum capacity (PCU/hr)
A			
B	✓		710
C			

Pelican/Puffin Crossings

Arm	Space between crossing and junction entry (Signalised) (PCU)	Amber time preceding red (s)	Amber time regarded as green (s)	Time from traffic red start to green man start (s)	Time period green man shown (s)	Clearance Period (s)	Traffic minimum green (s)
B	37.00	3.00	2.90	1.00	6.00	6.00	7.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.579	1061
B	0.575	1204
C	0.528	932

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

Traffic Demand

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	652	100.000
B		ONE HOUR	✓	592	100.000
C		ONE HOUR	✓	542	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
A		
B	Global	300.00
C		

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	1	331	320
	B	224	5	363
	C	216	327	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	4	2
	B	7	0	12
	C	0	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	1.14	202.82	44.4	F	598	898
B	1.08	156.53	30.3	F	543	815
C	1.03	134.18	13.4	F	478	450

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
A	491	491	123	0	162	248		876	0.561	486	168	0.0
B	446	446	111	0	0	240	225.86	799	0.558	441	494	0.0
C	392	246	61	162	0	171		752	0.327	244	509	0.0

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
A	586	586	147	0	194	298		845	0.694	583	202	1.2
B	532	532	133	0	0	287	269.69	855	0.622	531	593	1.2
C	468	294	73	194	0	206		734	0.400	293	612	0.5

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
A	718	718	179	0	237	337		661	1.086	638	225	2.2
B	652	652	163	0	0	315	330.31	624	1.045	593	661	1.6
C	574	360	90	237	0	230		373	0.965	332	677	0.7

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
A	718	718	179	0	237	342		632	1.136	628	227	22.0
B	652	652	163	0	0	310	330.31	603	1.080	596	660	16.4
C	574	360	90	237	0	232		351	1.025	337	674	7.6

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
A	586	586	147	0	194	326		677	0.865	662	228	44.4
B	532	532	133	0	0	327	269.69	621	0.857	601	661	30.3
C	468	294	73	194	0	234		352	0.835	320	694	13.4

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
A	491	491	123	0	162	275		859	0.572	587	188	25.4
B	446	446	111	0	0	289	225.86	941	0.474	494	573	13.1
C	392	246	61	162	0	192		742	0.332	271	591	6.7

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.1.4646 []

For sales and distribution information, program advice and maintenance, contact TRL:
Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk

Filename: The Broadway - Bunn's Lane - Hale Lane Roundabout v3.j9
Path: L:\5545 - Healey Development Solutions (Mill Hill) Ltd\001 - Mill Hill\Analysis & Design\Modelling\J6 - The Broadway - Bunn's Lane - Hale Lane Mini Roundabout
Report generation date: 23/09/2016 18:01:25

Summary of junction performance

	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	Do nothing - 2016					
Arm A	24.7	118.60	1.06	27.7	131.71	1.07
Arm B	17.4	95.16	1.02	20.5	106.34	1.03
Arm C	8.2	85.66	0.96	10.7	95.96	0.99

	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	Do something - 2021 + Committed					
Arm A	44.4	202.82	1.14	57.8	292.46	1.19
Arm B	30.3	156.53	1.08	43.6	206.61	1.12
Arm C	13.4	134.18	1.03	20.1	169.63	1.07
	Do something - 2021 + Committed + New Dev with BL					
Arm A	42.5	194.27	1.13	54.7	269.11	1.17
Arm B	29.6	151.99	1.08	41.7	197.36	1.11
Arm C	12.9	129.86	1.02	19.1	161.97	1.06
	Do something - 2021 + Committed + New Dev without BL					
Arm A	43.7	199.79	1.13	57.5	292.08	1.19
Arm B	30.9	156.96	1.08	42.5	203.74	1.12
Arm C	13.3	133.09	1.02	20.4	170.49	1.07
	Do something - 2026 + Committed					
Arm A	61.8	319.04	1.20	87.9	497.07	1.28
Arm B	42.1	209.51	1.13	66.4	366.13	1.21
Arm C	17.8	169.70	1.06	28.4	244.67	1.12
	Do something - 2026 + Committed + New Dev with BL					
Arm A	59.9	301.44	1.19	84.5	476.45	1.27
Arm B	41.7	204.89	1.12	64.6	353.32	1.20
Arm C	17.4	165.67	1.06	27.5	231.01	1.12
	Do something - 2026 + Committed + New Dev without BL					
Arm A	61.0	310.54	1.20	87.4	496.64	1.28
Arm B	43.2	210.71	1.13	65.0	360.11	1.20
Arm C	17.8	168.85	1.06	28.8	246.74	1.12

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	The Broadway - Bunn's Lane - Hale Lane Miniroundabout
Location	
Site number	
Date	15/06/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ROBERTWEST\libanbellezza
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	perHour	s	-Min	perMin

Analysis Options

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

Growth Factors

ID	Description	Use TEMPRO	Growth Factor
G1	2016-2021 AM		1.0370
G2	2016-2021 PM		1.0558
G3	2016-2026 AM		1.0740
G4	2016-2026 PM		1.1116

Growth factors are only active if the Demand Set references them in a Relationship.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set (s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	Do something	✓	✓	D15,D16,D17,D18,D19,D20,D21,D22,D23,D24,D25,D26	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D16	2021 + Committed	PM	ONE HOUR	16:45	18:15	15	✓	Simple	D2*G2+D12+D10

Do something - 2021 + Committed, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	The Broadway - Bunn's Lane - Hale Lane	Mini-roundabout	A,B,C	223.57	F

Junction Network Options

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

Arms

Arms

Arm	Name	Description
A	Hale Lane	
B	The Broadway	
C	Bunns Lane	

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
A	5.55	5.51	5.73	0.4	14.86	9.25	0.0	✓
B	5.12	5.12	5.12	0.0	16.77	14.07	0.0	✓
C	4.30	4.30	4.30	0.0	8.77	3.62	0.0	✓

Bypass

Arm	Arm has bypass	Bypass utilisation (%)
A		
B		
C	✓	100

Exit Restrictions

Arm	Exit restriction present	Linked exit restriction present	Maximum capacity (PCU/hr)
A			
B	✓		710
C			

Pelican/Puffin Crossings

Arm	Space between crossing and junction entry (Signalised) (PCU)	Amber time preceding red (s)	Amber time regarded as green (s)	Time from traffic red start to green man start (s)	Time period green man shown (s)	Clearance Period (s)	Traffic minimum green (s)
B	37.00	3.00	2.90	1.00	6.00	6.00	7.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.579	1061
B	0.575	1204
C	0.528	932

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

Traffic Demand

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	668	100.000
B		ONE HOUR	✓	641	100.000
C		ONE HOUR	✓	627	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
A		
B	Global	500.00
C		

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	1	303	364
	B	269	11	362
	C	250	376	1

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	4	1
	B	5	0	9
	C	0	8	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	1.19	292.46	57.8	F	613	919
B	1.12	206.61	43.6	F	588	882
C	1.07	169.63	20.1	F	559	519

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
A	503	503	126	0	188	289		860	0.584	497	201	0.0
B	483	483	121	0	0	273	376.43	776	0.622	476	514	0.0
C	458	284	71	188	0	208		756	0.375	281	541	0.0

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
A	600	600	150	0	225	347		825	0.728	596	242	1.4
B	576	576	144	0	0	327	449.49	868	0.664	575	616	1.6
C	547	339	85	225	0	252		734	0.462	338	650	0.6

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
A	735	735	184	0	276	384		647	1.137	631	261	2.5
B	706	706	176	0	0	346	550.51	640	1.102	619	669	1.9
C	670	415	104	276	0	271		404	1.026	374	695	0.8

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
A	735	735	184	0	276	390		620	1.185	619	263	28.6
B	706	706	176	0	0	339	550.51	629	1.122	625	669	23.5
C	670	415	104	276	0	274		387	1.071	379	691	11.1

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
A	600	600	150	0	225	382		648	0.927	637	268	57.8
B	576	576	144	0	0	349	449.49	651	0.885	636	669	43.6
C	547	339	85	225	0	278		384	0.883	371	707	20.1

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
A	503	503	126	0	188	339		830	0.606	691	250	48.7
B	483	483	121	0	0	379	376.43	919	0.525	592	651	28.6
C	458	284	71	188	0	259		730	0.389	329	712	12.0

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.1.4646 []

For sales and distribution information, program advice and maintenance, contact TRL:
Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk

Filename: The Broadway - Bunn's Lane - Hale Lane Roundabout v3.j9
Path: L:\5545 - Healey Development Solutions (Mill Hill) Ltd\001 - Mill Hill\Analysis & Design\Modelling\J6 - The Broadway - Bunn's Lane - Hale Lane Mini Roundabout
Report generation date: 23/09/2016 18:01:59

Summary of junction performance

	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	Do nothing - 2016					
Arm A	24.7	118.60	1.06	27.7	131.71	1.07
Arm B	17.4	95.16	1.02	20.5	106.34	1.03
Arm C	8.2	85.66	0.96	10.7	95.96	0.99

	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	Do something - 2021 + Committed					
Arm A	44.4	202.82	1.14	57.8	292.46	1.19
Arm B	30.3	156.53	1.08	43.6	206.61	1.12
Arm C	13.4	134.18	1.03	20.1	169.63	1.07
	Do something - 2021 + Committed + New Dev with BL					
Arm A	42.5	194.27	1.13	54.7	269.11	1.17
Arm B	29.6	151.99	1.08	41.7	197.36	1.11
Arm C	12.9	129.86	1.02	19.1	161.97	1.06
	Do something - 2021 + Committed + New Dev without BL					
Arm A	43.7	199.79	1.13	57.5	292.08	1.19
Arm B	30.9	156.96	1.08	42.5	203.74	1.12
Arm C	13.3	133.09	1.02	20.4	170.49	1.07
	Do something - 2026 + Committed					
Arm A	61.8	319.04	1.20	87.9	497.07	1.28
Arm B	42.1	209.51	1.13	66.4	366.13	1.21
Arm C	17.8	169.70	1.06	28.4	244.67	1.12
	Do something - 2026 + Committed + New Dev with BL					
Arm A	59.9	301.44	1.19	84.5	476.45	1.27
Arm B	41.7	204.89	1.12	64.6	353.32	1.20
Arm C	17.4	165.67	1.06	27.5	231.01	1.12
	Do something - 2026 + Committed + New Dev without BL					
Arm A	61.0	310.54	1.20	87.4	496.64	1.28
Arm B	43.2	210.71	1.13	65.0	360.11	1.20
Arm C	17.8	168.85	1.06	28.8	246.74	1.12

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	The Broadway - Bunn's Lane - Hale Lane Miniroundabout
Location	
Site number	
Date	15/06/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ROBERTWEST\libanbellezza
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	perHour	s	-Min	perMin

Analysis Options

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

Growth Factors

ID	Description	Use TEMPRO	Growth Factor
G1	2016-2021 AM		1.0370
G2	2016-2021 PM		1.0558
G3	2016-2026 AM		1.0740
G4	2016-2026 PM		1.1116

Growth factors are only active if the Demand Set references them in a Relationship.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set (s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	Do something	✓	✓	D15,D16,D17,D18,D19,D20,D21,D22,D23,D24,D25,D26	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D21	2026 + Committed	AM	ONE HOUR	07:45	09:15	15	✓	Simple	D1*G3+D13+D9

Do something - 2026 + Committed, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	The Broadway - Bunn's Lane - Hale Lane	Mini-roundabout	A,B,C	236.10	F

Junction Network Options

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

Arms

Arms

Arm	Name	Description
A	Hale Lane	
B	The Broadway	
C	Bunns Lane	

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
A	5.55	5.51	5.73	0.4	14.86	9.25	0.0	✓
B	5.12	5.12	5.12	0.0	16.77	14.07	0.0	✓
C	4.30	4.30	4.30	0.0	8.77	3.62	0.0	✓

Bypass

Arm	Arm has bypass	Bypass utilisation (%)
A		
B		
C	✓	100

Exit Restrictions

Arm	Exit restriction present	Linked exit restriction present	Maximum capacity (PCU/hr)
A			
B	✓		710
C			

Pelican/Puffin Crossings

Arm	Space between crossing and junction entry (Signalised) (PCU)	Amber time preceding red (s)	Amber time regarded as green (s)	Time from traffic red start to green man start (s)	Time period green man shown (s)	Clearance Period (s)	Traffic minimum green (s)
B	37.00	3.00	2.90	1.00	6.00	6.00	7.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.579	1061
B	0.575	1204
C	0.528	932

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

Traffic Demand

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	676	100.000
B		ONE HOUR	✓	613	100.000
C		ONE HOUR	✓	563	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
A		
B	Global	300.00
C		

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	1	342	333
	B	232	5	376
	C	224	338	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	4	2
	B	7	0	12
	C	0	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	1.20	319.04	61.8	F	620	931
B	1.13	209.51	42.1	F	563	844
C	1.06	169.70	17.8	F	496	466

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
A	509	509	127	0	169	257		870	0.585	504	173	0.0
B	462	462	115	0	0	249	225.86	800	0.577	456	512	0.0
C	407	255	64	169	0	177		749	0.340	253	527	0.0

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
A	608	608	152	0	202	308		838	0.725	603	209	1.4
B	551	551	138	0	0	298	269.69	863	0.639	550	614	1.3
C	486	304	76	202	0	214		731	0.416	303	634	0.5

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
A	744	744	186	0	247	340		648	1.150	633	225	2.5
B	675	675	169	0	0	312	330.31	614	1.099	592	660	1.7
C	595	372	93	247	0	230		366	1.019	335	675	0.7

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
A	744	744	186	0	247	347		620	1.200	619	226	30.4
B	675	675	169	0	0	306	330.31	599	1.126	596	660	22.4
C	595	372	93	247	0	232		350	1.063	342	670	10.1

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
A	608	608	152	0	202	337		649	0.937	638	230	61.8
B	551	551	138	0	0	315	269.69	619	0.890	605	661	42.1
C	486	304	76	202	0	235		346	0.878	332	685	17.8

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
A	509	509	127	0	169	300		777	0.655	717	217	54.2
B	462	462	115	0	0	354	225.86	805	0.574	571	663	28.7
C	407	255	64	169	0	222		634	0.402	295	703	10.8

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.1.4646 []

For sales and distribution information, program advice and maintenance, contact TRL:
Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk

Filename: The Broadway - Bunn's Lane - Hale Lane Roundabout v3.j9
Path: L:\5545 - Healey Development Solutions (Mill Hill) Ltd\001 - Mill Hill\Analysis & Design\Modelling\J6 - The Broadway - Bunn's Lane - Hale Lane Mini Roundabout
Report generation date: 23/09/2016 18:02:30

Summary of junction performance

	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	Do nothing - 2016					
Arm A	24.7	118.60	1.06	27.7	131.71	1.07
Arm B	17.4	95.16	1.02	20.5	106.34	1.03
Arm C	8.2	85.66	0.96	10.7	95.96	0.99

	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	Do something - 2021 + Committed					
Arm A	44.4	202.82	1.14	57.8	292.46	1.19
Arm B	30.3	156.53	1.08	43.6	206.61	1.12
Arm C	13.4	134.18	1.03	20.1	169.63	1.07
	Do something - 2021 + Committed + New Dev with BL					
Arm A	42.5	194.27	1.13	54.7	269.11	1.17
Arm B	29.6	151.99	1.08	41.7	197.36	1.11
Arm C	12.9	129.86	1.02	19.1	161.97	1.06
	Do something - 2021 + Committed + New Dev without BL					
Arm A	43.7	199.79	1.13	57.5	292.08	1.19
Arm B	30.9	156.96	1.08	42.5	203.74	1.12
Arm C	13.3	133.09	1.02	20.4	170.49	1.07
	Do something - 2026 + Committed					
Arm A	61.8	319.04	1.20	87.9	497.07	1.28
Arm B	42.1	209.51	1.13	66.4	366.13	1.21
Arm C	17.8	169.70	1.06	28.4	244.67	1.12
	Do something - 2026 + Committed + New Dev with BL					
Arm A	59.9	301.44	1.19	84.5	476.45	1.27
Arm B	41.7	204.89	1.12	64.6	353.32	1.20
Arm C	17.4	165.67	1.06	27.5	231.01	1.12
	Do something - 2026 + Committed + New Dev without BL					
Arm A	61.0	310.54	1.20	87.4	496.64	1.28
Arm B	43.2	210.71	1.13	65.0	360.11	1.20
Arm C	17.8	168.85	1.06	28.8	246.74	1.12

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	The Broadway - Bunn's Lane - Hale Lane Miniroundabout
Location	
Site number	
Date	15/06/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ROBERTWEST\libanbellezza
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	perHour	s	-Min	perMin

Analysis Options

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

Growth Factors

ID	Description	Use TEMPRO	Growth Factor
G1	2016-2021 AM		1.0370
G2	2016-2021 PM		1.0558
G3	2016-2026 AM		1.0740
G4	2016-2026 PM		1.1116

Growth factors are only active if the Demand Set references them in a Relationship.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set (s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	Do something	✓	✓	D15,D16,D17,D18,D19,D20,D21,D22,D23,D24,D25,D26	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D22	2026 + Committed	PM	ONE HOUR	16:45	18:15	15	✓	Simple	D2*G4+D14+D10

Do something - 2026 + Committed, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	The Broadway - Bunn's Lane - Hale Lane	Mini-roundabout	A,B,C	370.88	F

Junction Network Options

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

Arms

Arms

Arm	Name	Description
A	Hale Lane	
B	The Broadway	
C	Bunns Lane	

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
A	5.55	5.51	5.73	0.4	14.86	9.25	0.0	✓
B	5.12	5.12	5.12	0.0	16.77	14.07	0.0	✓
C	4.30	4.30	4.30	0.0	8.77	3.62	0.0	✓

Bypass

Arm	Arm has bypass	Bypass utilisation (%)
A		
B		
C	✓	100

Exit Restrictions

Arm	Exit restriction present	Linked exit restriction present	Maximum capacity (PCU/hr)
A			
B	✓		710
C			

Pelican/Puffin Crossings

Arm	Space between crossing and junction entry (Signalised) (PCU)	Amber time preceding red (s)	Amber time regarded as green (s)	Time from traffic red start to green man start (s)	Time period green man shown (s)	Clearance Period (s)	Traffic minimum green (s)
B	37.00	3.00	2.90	1.00	6.00	6.00	7.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.579	1061
B	0.575	1204
C	0.528	932

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

Traffic Demand

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	704	100.000
B		ONE HOUR	✓	674	100.000
C		ONE HOUR	✓	661	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
A		
B	Global	500.00
C		

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	1	318	384
	B	283	11	380
	C	264	396	1

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	4	1
	B	5	0	9
	C	0	8	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	1.28	497.07	87.9	F	646	969
B	1.21	366.13	66.4	F	619	928
C	1.12	244.67	28.4	F	589	546

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
A	530	530	132	0	199	304		851	0.623	524	211	0.0
B	508	508	127	0	0	288	376.43	782	0.649	500	540	0.0
C	483	299	75	199	0	219		751	0.398	296	569	0.0

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
A	633	633	158	0	238	366		814	0.777	626	255	1.6
B	606	606	152	0	0	344	449.49	886	0.684	605	648	1.8
C	577	357	89	238	0	265		727	0.491	356	684	0.7

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
A	775	775	194	0	291	389		631	1.229	622	258	3.2
B	742	742	186	0	0	342	550.51	627	1.184	614	669	2.1
C	707	437	109	291	0	269		400	1.093	378	687	0.9

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
A	775	775	194	0	291	396		607	1.277	606	258	41.5
B	742	742	186	0	0	333	550.51	615	1.208	613	668	34.2
C	707	437	109	291	0	268		390	1.122	385	678	15.6

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
A	633	633	158	0	238	391		618	1.024	616	263	83.8
B	606	606	152	0	0	339	449.49	635	0.955	626	669	66.4
C	577	357	89	238	0	274		394	0.905	381	690	28.4

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)
A	530	530	132	0	199	368		676	0.784	668	274	87.9
B	508	508	127	0	0	367	376.43	660	0.769	650	670	61.6
C	483	299	75	199	0	284		372	0.802	358	732	22.4

Junctions 9

ARCADY 9 - Roundabout Module

Filename: Bunns Lane - Pursley Road - Page Street Miniroundabouts with Direct Input.j9
Path: L:\5545 - Healey Development Solutions (Mill Hill) Ltd\001 - Mill Hill\Analysis & Design\Modelling\J7 - Bunn's Lane - Pursley Road - Page Street Mini Roundabouts\Network
Report generation date: 23/09/2016 18:12:22

Summary of junction performance

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
	Do nothing - 2016							
1 - Page Street - Bunns Lane - A1 - Page Street N	25.1	338.60	1.25	F	2.9	45.30	0.79	E
1 - Page Street - Bunns Lane - B1 - Page Street S	8.0	41.85	0.93	E	7.9	39.54	0.93	E
1 - Page Street - Bunns Lane - C1 - Bunns Lane	91.3	462.57	1.30	F	20.1	105.15	1.01	F
2 - Page Street - Pursley Road - A2 - Pursley Road	163.7	882.77	1.32	F	82.2	431.48	1.20	F
2 - Page Street - Pursley Road - B2 - Page Street S	100.7	955.41	1.36	F	83.7	561.02	1.34	F
2 - Page Street - Pursley Road - C2 - Page Street N	7.9	37.75	0.91	E	7.9	35.67	0.92	E

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
	Do something - 2021 Future							
1 - Page Street - Bunns Lane - A1 - Page Street N	34.3	401.62	1.28	F	6.7	121.74	0.95	F
1 - Page Street - Bunns Lane - B1 - Page Street S	8.0	41.69	0.93	E	7.9	39.56	0.93	E
1 - Page Street - Bunns Lane - C1 - Bunns Lane	126.1	690.02	1.38	F	77.3	358.31	1.15	F
2 - Page Street - Pursley Road - A2 - Pursley Road	200.0	1046.58	1.38	F	126.1	660.02	1.28	F
2 - Page Street - Pursley Road - B2 - Page Street S	119.6	1115.30	1.43	F	108.9	735.15	1.40	F
2 - Page Street - Pursley Road - C2 - Page Street N	7.9	37.87	0.91	E	7.9	37.03	0.91	E
	Do something - 2021 Future + New Dev with BL							
1 - Page Street - Bunns Lane - A1 - Page Street N	38.8	450.64	1.32	F	6.8	124.28	0.95	F
1 - Page Street - Bunns Lane - B1 - Page Street S	8.0	41.58	0.93	E	7.9	39.69	0.93	E
1 - Page Street - Bunns Lane - C1 - Bunns Lane	187.3	978.09	1.47	F	88.3	404.90	1.16	F
2 - Page Street - Pursley Road - A2 - Pursley Road	201.9	1058.33	1.39	F	140.8	746.33	1.30	F
2 - Page Street - Pursley Road - B2 - Page Street S	120.1	1120.99	1.43	F	116.8	805.88	1.43	F

2 - Page Street - Pursley Road - C2 - Page Street N	7.9	38.08	0.91	E	7.9	36.94	0.91	E
	Do something - 2021 Future + New Dev without BL							
1 - Page Street - Bunns Lane - A1 - Page Street N	40.7	449.48	1.31	F	6.9	124.38	0.95	F
1 - Page Street - Bunns Lane - B1 - Page Street S	8.0	41.59	0.93	E	7.9	39.55	0.93	E
1 - Page Street - Bunns Lane - C1 - Bunns Lane	132.8	732.51	1.40	F	72.5	338.37	1.14	F
2 - Page Street - Pursley Road - A2 - Pursley Road	201.9	1058.39	1.38	F	128.9	668.91	1.28	F
2 - Page Street - Pursley Road - B2 - Page Street S	120.0	1119.90	1.43	F	107.5	722.18	1.40	F
2 - Page Street - Pursley Road - C2 - Page Street N	7.9	38.09	0.91	E	7.9	37.07	0.91	E
	Do something - 2026 Future							
1 - Page Street - Bunns Lane - A1 - Page Street N	42.7	473.81	1.33	F	9.7	164.66	1.02	F
1 - Page Street - Bunns Lane - B1 - Page Street S	8.0	41.74	0.93	E	7.9	39.62	0.93	E
1 - Page Street - Bunns Lane - C1 - Bunns Lane	153.8	829.76	1.43	F	124.3	574.41	1.24	F
2 - Page Street - Pursley Road - A2 - Pursley Road	241.1	1241.39	1.44	F	171.3	898.00	1.35	F
2 - Page Street - Pursley Road - B2 - Page Street S	141.5	1315.10	1.50	F	138.0	943.07	1.48	F
2 - Page Street - Pursley Road - C2 - Page Street N	7.9	38.01	0.91	E	7.9	36.31	0.92	E
	Do something - 2026 Future + New Dev with BL							
1 - Page Street - Bunns Lane - A1 - Page Street N	46.9	530.57	1.36	F	9.7	165.36	1.02	F
1 - Page Street - Bunns Lane - B1 - Page Street S	8.0	41.65	0.93	E	7.9	39.74	0.93	E
1 - Page Street - Bunns Lane - C1 - Bunns Lane	215.1	1114.14	1.52	F	136.0	624.15	1.25	F
2 - Page Street - Pursley Road - A2 - Pursley Road	242.9	1252.84	1.45	F	186.3	988.45	1.38	F
2 - Page Street - Pursley Road - B2 - Page Street S	142.0	1320.99	1.51	F	144.9	1009.22	1.51	F
2 - Page Street - Pursley Road - C2 - Page Street N	7.9	38.09	0.91	E	7.9	36.42	0.92	E
	Do something - 2026 Future + New Dev without BL							
1 - Page Street - Bunns Lane - A1 - Page Street N	49.9	537.79	1.36	F	10.3	171.86	1.03	F
1 - Page Street - Bunns Lane - B1 - Page Street S	8.0	41.62	0.93	E	7.9	39.61	0.93	E
1 - Page Street - Bunns Lane - C1 - Bunns Lane	160.2	870.78	1.45	F	119.8	556.69	1.24	F
2 - Page Street - Pursley Road - A2 - Pursley Road	242.7	1251.28	1.44	F	174.2	905.94	1.35	F
2 - Page Street - Pursley Road - B2 - Page Street S	141.8	1318.50	1.50	F	136.7	930.29	1.48	F
2 - Page Street - Pursley Road - C2 - Page Street N	7.9	38.11	0.91	E	7.9	36.13	0.92	E

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.

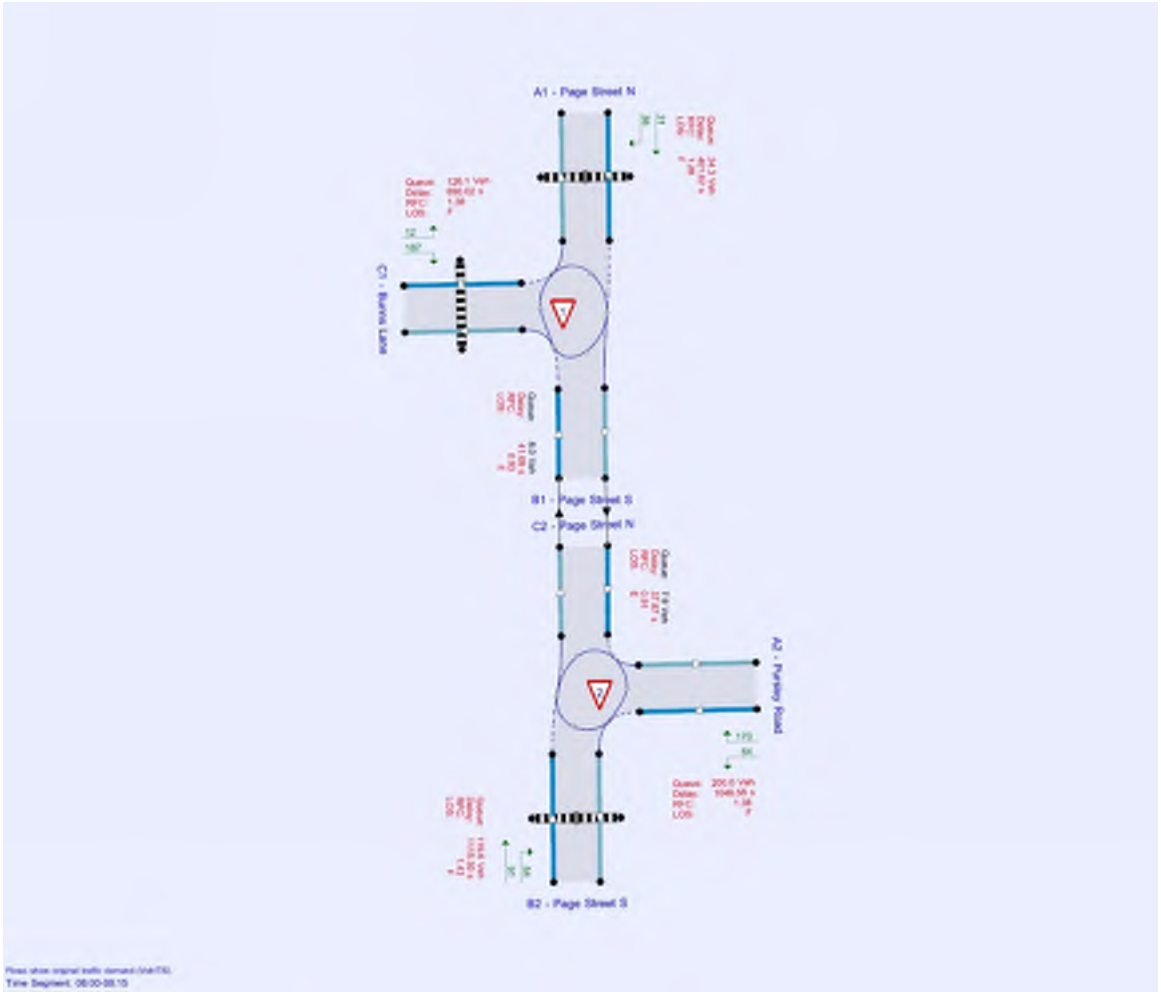
File summary

File Description

Title	Bunns Lane - Pursley Road - Page Street Miniroundabouts
Location	
Site number	
Date	15/06/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ROBERTWEST\libanbellezza
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



The junction diagram reflects the last run of Junctions.

Analysis Options

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

Growth Factors

ID	Description	Use TEMPRO	Growth Factor
G1	2016-2021 AM		1.0370
G2	2016-2021 PM		1.0558
G3	2016-2026 AM		1.0740
G4	2016-2026 PM		1.1116

Growth factors are only active if the Demand Set references them in a Relationship.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set (s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	Do something	✓	✓	D15,D16,D17,D18,D19,D20,D21,D22,D23,D24,D25,D26	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically	Relationship type	Relationship
D15	2021 Future	AM	DIRECT	08:00	09:00	60	15	✓	Simple	D1*G1+D11+D9

Do something - 2021 Future, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout	1 - Page Street - Bunns Lane	Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms B1 and C1 have 86% of the total flow for the roundabout for one or more time segments]
Last Run	Last Run	1 - Page Street - Bunns Lane - B1 - Page Street S - Capacity	Pedestrian Crossing causes blocking on previous arm due to traffic queing to leave the junction in 4 timesegment(s).

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	Page Street - Bunns Lane	Mini-roundabout	A1,B1,C1	388.89	F
2	Page Street - Pursley Road	Mini-roundabout	A2,B2,C2	693.10	F

Junction Network Options

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

Arms

Arms

Junction	Arm	Name	Description
1 - Page Street - Bunns Lane	A1	Page Street N	
	B1	Page Street S	
	C1	Bunns Lane	
2 - Page Street - Pursley Road	A2	Pursley Road	
	B2	Page Street S	
	C2	Page Street N	

Mini Roundabout Geometry

Junction	Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
1 - Page Street - Bunns Lane	A1 - Page Street N	3.37	3.11	5.39	9.2	16.05	13.16	0.0	✓
	B1 - Page Street S	3.92	3.55	5.68	8.1	19.15	15.69	0.0	✓
	C1 - Bunns Lane	3.82	3.09	4.47	11.1	16.00	10.80	0.0	
2 - Page Street - Pursley Road	A2 - Pursley Road	4.58	4.30	5.76	1.9	9.56	5.53	0.0	
	B2 - Page Street S	3.58	3.26	3.97	5.8	16.78	16.76	0.0	
	C2 - Page Street N	3.42	3.02	3.70	1.0	12.98	8.81	0.0	

Zebra Crossings

Junction	Arm	Space between crossing and junction entry (Zebra) (PCU)	Vehicles queueing on exit (Zebra) (PCU)	Central Refuge	Crossing data type	Crossing length (m)	Crossing time (s)	Crossing length (entry side) (m)	Crossi time (entr side)
1 - Page Street - Bunns Lane	A1 - Page Street N	3.50	3.50	✓	Distance			3.13	2.2
	C1 - Bunns Lane	1.00	1.20		Distance	7.70	5.50		
2 - Page Street - Pursley Road	B2 - Page Street S	3.00	3.00	✓	Distance			3.29	2.3

Slope / Intercept / Capacity

Arm Intercept Adjustments

Junction	Arm	Type	Reason	Direct intercept adjustment (PCU/TS)
1 - Page Street - Bunns Lane	A1 - Page Street N	Direct		-59.70
	B1 - Page Street S	Direct		-21.36
	C1 - Bunns Lane	Direct		-13.89
2 - Page Street - Pursley Road	A2 - Pursley Road	Direct		15.25
	B2 - Page Street S	Direct		-26.77
	C2 - Page Street N	Direct		20.89

Roundabout Slope and Intercept used in model

Junction	Arm	Final slope	Final intercept (PCU/TS)
1 - Page Street - Bunns Lane	A1 - Page Street N	0.541	171.137
	B1 - Page Street S	0.579	245.305
	C1 - Bunns Lane	0.634	210.179
2 - Page Street - Pursley Road	A2 - Pursley Road	0.655	253.069
	B2 - Page Street S	0.679	227.945
	C2 - Page Street N	0.600	246.604

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

Traffic Demand

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

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (Veh/TS)	Flow multiplier (%)	Internal storage space (PCU)
1 - Page Street - Bunns Lane	B1 - Page Street S	2	C2	Queue limited	Normal	0.00	100.00	8.00
2 - Page Street - Pursley Road	C2 - Page Street N	1	B1	Queue limited	Normal	0.00	100.00	8.00

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1 - Page Street - Bunns Lane	A1 - Page Street N		DIRECT	✓	100.000
	B1 - Page Street S	✓			
	C1 - Bunns Lane		DIRECT	✓	100.000
2 - Page Street - Pursley Road	A2 - Pursley Road		DIRECT	✓	100.000
	B2 - Page Street S		DIRECT	✓	100.000
	C2 - Page Street N	✓			

Demand overview (Pedestrians)

Junction	Arm	Profile type
1 - Page Street - Bunns Lane	A1 - Page Street N	Global
	B1 - Page Street S	
	C1 - Bunns Lane	Global
2 - Page Street - Pursley Road	A2 - Pursley Road	
	B2 - Page Street S	Global
	C2 - Page Street N	

Origin-Destination Data

1 - Page Street - Bunns Lane 08:00 - 08:15

Demand (Veh/TS)

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0.00	31.04	38.37
	B1 - Page Street S	51.81	0.00	210.47
	C1 - Bunns Lane	12.44	186.55	0.00

Proportions

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0.00	0.45	0.55
	B1 - Page Street S	0.20	0.00	0.80
	C1 - Bunns Lane	0.06	0.94	0.00

1 - Page Street - Bunns Lane 08:15 - 08:30

Demand (Veh/TS)

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0.00	61.11	38.37
	B1 - Page Street S	27.96	0.00	213.59
	C1 - Bunns Lane	15.56	189.66	0.00

Proportions

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0.00	0.61	0.39
	B1 - Page Street S	0.12	0.00	0.88
	C1 - Bunns Lane	0.08	0.92	0.00

1 - Page Street - Bunns Lane 08:30 - 08:45

Demand (Veh/TS)

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0.00	39.33	33.18
	B1 - Page Street S	33.15	0.00	190.77
	C1 - Bunns Lane	18.67	214.55	0.00

Proportions

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0.00	0.54	0.46
	B1 - Page Street S	0.15	0.00	0.85
	C1 - Bunns Lane	0.08	0.92	0.00

1 - Page Street - Bunns Lane 08:45 - 09:00

Demand (Veh/TS)

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0.00	45.55	37.33
	B1 - Page Street S	16.56	0.00	195.96
	C1 - Bunns Lane	18.67	148.18	0.00

Proportions

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0.00	0.55	0.45
	B1 - Page Street S	0.08	0.00	0.92
	C1 - Bunns Lane	0.11	0.89	0.00

2 - Page Street - Pursley Road 08:00 - 08:15

Demand (Veh/TS)

From \ To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
A2 - Pursley Road	0.00	64.18	170.03
B2 - Page Street S	53.92	0.00	91.26
C2 - Page Street N	144.07	72.52	0.00

Proportions

From \ To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
A2 - Pursley Road	0.00	0.27	0.73
B2 - Page Street S	0.37	0.00	0.63
C2 - Page Street N	0.67	0.33	0.00

2 - Page Street - Pursley Road 08:15 - 08:30

Demand (Veh/TS)

From \ To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
A2 - Pursley Road	0.00	49.67	161.74
B2 - Page Street S	53.92	0.00	78.81
C2 - Page Street N	159.62	90.15	0.00

Proportions

From \ To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
A2 - Pursley Road	0.00	0.23	0.77
B2 - Page Street S	0.41	0.00	0.59
C2 - Page Street N	0.64	0.36	0.00

2 - Page Street - Pursley Road 08:30 - 08:45

Demand (Veh/TS)

From \ To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
A2 - Pursley Road	0.00	51.74	153.44
B2 - Page Street S	61.18	0.00	69.48
C2 - Page Street N	183.48	98.44	0.00

Proportions

From \ To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
A2 - Pursley Road	0.00	0.25	0.75
B2 - Page Street S	0.47	0.00	0.53
C2 - Page Street N	0.65	0.35	0.00

2 - Page Street - Pursley Road 08:45 - 09:00

Demand (Veh/TS)

From \ To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
A2 - Pursley Road	0.00	38.26	151.37
B2 - Page Street S	42.52	0.00	60.15
C2 - Page Street N	105.70	87.03	0.00

Proportions

From \ To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
A2 - Pursley Road	0.00	0.20	0.80
B2 - Page Street S	0.41	0.00	0.59
C2 - Page Street N	0.55	0.45	0.00

Vehicle Mix

1 - Page Street - Bunns Lane 08:00 - 08:15

Heavy Vehicle Percentages

From \ To	A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
A1 - Page Street N	0	10	3
B1 - Page Street S	0	0	1
C1 - Bunns Lane	0	1	0

Average PCU Per Veh

From \ To	A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
A1 - Page Street N	1.000	1.103	1.030
B1 - Page Street S	1.000	1.000	1.010
C1 - Bunns Lane	1.000	1.010	1.000

1 - Page Street - Bunns Lane 08:15 - 08:30

Heavy Vehicle Percentages

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0	0	3
	B1 - Page Street S	0	0	1
	C1 - Bunns Lane	7	2	0

Average PCU Per Veh

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	1.000	1.000	1.030
	B1 - Page Street S	1.000	1.000	1.010
	C1 - Bunns Lane	1.070	1.020	1.000

1 - Page Street - Bunns Lane 08:30 - 08:45

Heavy Vehicle Percentages

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0	0	0
	B1 - Page Street S	0	0	3
	C1 - Bunns Lane	0	1	0

Average PCU Per Veh

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	1.000	1.000	1.000
	B1 - Page Street S	1.000	1.000	1.030
	C1 - Bunns Lane	1.000	1.010	1.000

1 - Page Street - Bunns Lane 08:45 - 09:00

Heavy Vehicle Percentages

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0	0	0
	B1 - Page Street S	0	0	2
	C1 - Bunns Lane	0	1	0

Average PCU Per Veh

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	1.000	1.000	1.000
	B1 - Page Street S	1.000	1.000	1.020
	C1 - Bunns Lane	1.000	1.010	1.000

2 - Page Street - Pursley Road 08:00 - 08:15

Heavy Vehicle Percentages

		To		
		A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
From	A2 - Pursley Road	0	2	1
	B2 - Page Street S	0	0	2
	C2 - Page Street N	1	4	0

Average PCU Per Veh

		To		
		A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
From	A2 - Pursley Road	1.000	1.019	1.010
	B2 - Page Street S	1.000	1.000	1.020
	C2 - Page Street N	1.010	1.039	1.000

2 - Page Street - Pursley Road 08:15 - 08:30

Heavy Vehicle Percentages

		To		
		A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
From	A2 - Pursley Road	0	7	1
	B2 - Page Street S	4	0	0
	C2 - Page Street N	3	0	0

Average PCU Per Veh

		To		
		A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
From	A2 - Pursley Road	1.000	1.066	1.010
	B2 - Page Street S	1.040	1.000	1.000
	C2 - Page Street N	1.030	1.000	1.000

2 - Page Street - Pursley Road 08:30 - 08:45

Heavy Vehicle Percentages

		To		
		A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
From	A2 - Pursley Road	0	0	3
	B2 - Page Street S	0	0	1
	C2 - Page Street N	1	1	0

Average PCU Per Veh

		To		
		A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
From	A2 - Pursley Road	1.000	1.000	1.030
	B2 - Page Street S	1.000	1.000	1.010
	C2 - Page Street N	1.010	1.010	1.000

2 - Page Street - Pursley Road 08:45 - 09:00

Heavy Vehicle Percentages

From	To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
A2 - Pursley Road		0	0	3
B2 - Page Street S		2	0	0
C2 - Page Street N		2	0	0

Average PCU Per Veh

From	To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
A2 - Pursley Road		1.000	1.000	1.030
B2 - Page Street S		1.020	1.000	1.000
C2 - Page Street N		1.020	1.000	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Junction	Arm	Demand (Veh/TS)	Demand in PCU (PCU/TS)	Pedestrian Demand (Ped/TS)
08:00-08:15	1 - Page Street - Bunns Lane	A1 - Page Street N	69.41	73.75	3.76
		B1 - Page Street S	262.29	264.38	
		C1 - Bunns Lane	198.99	200.83	3.76
	2 - Page Street - Pursley Road	A2 - Pursley Road	234.21	237.13	
		B2 - Page Street S	145.18	147.01	3.76
		C2 - Page Street N	216.59	220.83	
08:15-08:30	1 - Page Street - Bunns Lane	A1 - Page Street N	99.48	100.63	4.49
		B1 - Page Street S	241.55	243.67	
		C1 - Bunns Lane	205.22	210.04	4.49
	2 - Page Street - Pursley Road	A2 - Pursley Road	211.40	216.27	
		B2 - Page Street S	132.74	134.89	4.49
		C2 - Page Street N	249.77	254.50	
08:30-08:45	1 - Page Street - Bunns Lane	A1 - Page Street N	72.52	72.52	5.51
		B1 - Page Street S	223.92	229.61	
		C1 - Bunns Lane	233.21	235.33	5.51
	2 - Page Street - Pursley Road	A2 - Pursley Road	205.18	209.75	
		B2 - Page Street S	130.66	131.36	5.51
		C2 - Page Street N	281.92	284.70	
08:45-09:00	1 - Page Street - Bunns Lane	A1 - Page Street N	82.89	82.89	5.51
		B1 - Page Street S	212.51	216.41	
		C1 - Bunns Lane	166.85	168.30	5.51
	2 - Page Street - Pursley Road	A2 - Pursley Road	189.62	194.13	
		B2 - Page Street S	102.66	103.51	5.51
		C2 - Page Street N	192.73	194.81	

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
1 - Page Street - Bunns Lane	A1 - Page Street N	1.28	401.62	34.3	F	80.87	323.47
	B1 - Page Street S	0.93	41.69	8.0	E	176.97	707.87
	C1 - Bunns Lane	1.38	690.02	126.1	F	200.92	803.67
2 - Page Street - Pursley Road	A2 - Pursley Road	1.38	1046.58	200.0	F	210.30	841.20
	B2 - Page Street S	1.43	1115.30	119.6	F	127.70	510.79
	C2 - Page Street N	0.91	37.87	7.9	E	195.95	783.79

Main Results for each time segment

08:00 - 08:15

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Pedestrian demand (Ped/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Thr (e (
1 - Page Street - Bunns Lane	A1 - Page Street N	69.41	69.41	166.72	3.76	75.27	0.922	63.83	
	B1 - Page Street S	185.04	185.04	35.29		199.42	0.928	177.11	
	C1 - Bunns Lane	198.99	198.99	34.99	3.76	186.25	1.068	177.84	
2 - Page Street - Pursley Road	A2 - Pursley Road	234.21	234.21	63.53		169.86	1.379	167.35	
	B2 - Page Street S	145.18	145.18	121.49	3.76	101.72	1.427	99.54	
	C2 - Page Street N	196.00	196.00	36.97		220.11	0.890	189.75	

08:15 - 08:30

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Pedestrian demand (Ped/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Thr (e (
1 - Page Street - Bunns Lane	A1 - Page Street N	99.48	99.48	154.03	4.49	77.18	1.282	76.00	
	B1 - Page Street S	176.94	176.94	30.29		199.19	0.888	176.94	
	C1 - Bunns Lane	205.21	205.21	21.13	4.49	166.88	1.232	166.37	
2 - Page Street - Pursley Road	A2 - Pursley Road	211.40	211.40	71.14		156.45	1.357	156.31	
	B2 - Page Street S	132.74	132.74	117.03	4.49	98.03	1.357	97.99	
	C2 - Page Street N	199.17	199.17	38.23		219.01	0.909	197.56	

08:30 - 08:45

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Pedestrian demand (Ped/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Thr (e (
1 - Page Street - Bunns Lane	A1 - Page Street N	72.52	72.52	154.47	5.51	70.01	1.030	69.23	
	B1 - Page Street S	175.38	175.38	29.58		197.98	0.886	175.38	
	C1 - Bunns Lane	233.21	233.21	25.71	5.51	167.71	1.383	167.62	
2 - Page Street - Pursley Road	A2 - Pursley Road	205.18	205.18	67.93		158.13	1.296	158.06	
	B2 - Page Street S	130.66	130.66	120.32	5.51	99.13	1.306	99.04	
	C2 - Page Street N	194.28	194.28	41.37		218.73	0.888	194.27	

08:45 - 09:00

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Pedestrian demand (Ped/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Thr (e (
1 - Page Street - Bunns Lane	A1 - Page Street N	82.89	82.89	151.21	5.51	80.96	1.024	80.10	
	B1 - Page Street S	170.49	170.49	36.31		192.14	0.887	170.49	
	C1 - Bunns Lane	166.85	166.85	13.84	5.51	166.30	1.003	165.76	
2 - Page Street - Pursley Road	A2 - Pursley Road	189.62	189.62	86.94		159.49	1.191	159.46	
	B2 - Page Street S	102.66	102.66	119.25	5.51	94.72	1.087	94.62	
	C2 - Page Street N	194.40	194.40	44.31		217.66	0.893	194.32	

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.1.4646 []

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Filename: Bunns Lane - Pursley Road - Page Street Miniroundabouts with Direct Input.j9
Path: L:\5545 - Healey Development Solutions (Mill Hill) Ltd\001 - Mill Hill\Analysis & Design\Modelling\J7 - Bunn's Lane - Pursley Road - Page Street Mini Roundabouts\Network
Report generation date: 23/09/2016 18:13:13

Summary of junction performance

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
	Do nothing - 2016							
1 - Page Street - Bunns Lane - A1 - Page Street N	25.1	338.60	1.25	F	2.9	45.30	0.79	E
1 - Page Street - Bunns Lane - B1 - Page Street S	8.0	41.85	0.93	E	7.9	39.54	0.93	E
1 - Page Street - Bunns Lane - C1 - Bunns Lane	91.3	462.57	1.30	F	20.1	105.15	1.01	F
2 - Page Street - Pursley Road - A2 - Pursley Road	163.7	882.77	1.32	F	82.2	431.48	1.20	F
2 - Page Street - Pursley Road - B2 - Page Street S	100.7	955.41	1.36	F	83.7	561.02	1.34	F
2 - Page Street - Pursley Road - C2 - Page Street N	7.9	37.75	0.91	E	7.9	35.67	0.92	E

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
	Do something - 2021 Future							
1 - Page Street - Bunns Lane - A1 - Page Street N	34.3	401.62	1.28	F	6.7	121.74	0.95	F
1 - Page Street - Bunns Lane - B1 - Page Street S	8.0	41.69	0.93	E	7.9	39.56	0.93	E
1 - Page Street - Bunns Lane - C1 - Bunns Lane	126.1	690.02	1.38	F	77.3	358.31	1.15	F
2 - Page Street - Pursley Road - A2 - Pursley Road	200.0	1046.58	1.38	F	126.1	660.02	1.28	F
2 - Page Street - Pursley Road - B2 - Page Street S	119.6	1115.30	1.43	F	108.9	735.15	1.40	F
2 - Page Street - Pursley Road - C2 - Page Street N	7.9	37.87	0.91	E	7.9	37.03	0.91	E
	Do something - 2021 Future + New Dev with BL							
1 - Page Street - Bunns Lane - A1 - Page Street N	38.8	450.64	1.32	F	6.8	124.28	0.95	F
1 - Page Street - Bunns Lane - B1 - Page Street S	8.0	41.58	0.93	E	7.9	39.69	0.93	E
1 - Page Street - Bunns Lane - C1 - Bunns Lane	187.3	978.09	1.47	F	88.3	404.90	1.16	F
2 - Page Street - Pursley Road - A2 - Pursley Road	201.9	1058.33	1.39	F	140.8	746.33	1.30	F
2 - Page Street - Pursley Road - B2 - Page Street S	120.1	1120.99	1.43	F	116.8	805.88	1.43	F

2 - Page Street - Pursley Road - C2 - Page Street N	7.9	38.08	0.91	E	7.9	36.94	0.91	E
	Do something - 2021 Future + New Dev without BL							
1 - Page Street - Bunns Lane - A1 - Page Street N	40.7	449.48	1.31	F	6.9	124.38	0.95	F
1 - Page Street - Bunns Lane - B1 - Page Street S	8.0	41.59	0.93	E	7.9	39.55	0.93	E
1 - Page Street - Bunns Lane - C1 - Bunns Lane	132.8	732.51	1.40	F	72.5	338.37	1.14	F
2 - Page Street - Pursley Road - A2 - Pursley Road	201.9	1058.39	1.38	F	128.9	668.91	1.28	F
2 - Page Street - Pursley Road - B2 - Page Street S	120.0	1119.90	1.43	F	107.5	722.18	1.40	F
2 - Page Street - Pursley Road - C2 - Page Street N	7.9	38.09	0.91	E	7.9	37.07	0.91	E
	Do something - 2026 Future							
1 - Page Street - Bunns Lane - A1 - Page Street N	42.7	473.81	1.33	F	9.7	164.66	1.02	F
1 - Page Street - Bunns Lane - B1 - Page Street S	8.0	41.74	0.93	E	7.9	39.62	0.93	E
1 - Page Street - Bunns Lane - C1 - Bunns Lane	153.8	829.76	1.43	F	124.3	574.41	1.24	F
2 - Page Street - Pursley Road - A2 - Pursley Road	241.1	1241.39	1.44	F	171.3	898.00	1.35	F
2 - Page Street - Pursley Road - B2 - Page Street S	141.5	1315.10	1.50	F	138.0	943.07	1.48	F
2 - Page Street - Pursley Road - C2 - Page Street N	7.9	38.01	0.91	E	7.9	36.31	0.92	E
	Do something - 2026 Future + New Dev with BL							
1 - Page Street - Bunns Lane - A1 - Page Street N	46.9	530.57	1.36	F	9.7	165.36	1.02	F
1 - Page Street - Bunns Lane - B1 - Page Street S	8.0	41.65	0.93	E	7.9	39.74	0.93	E
1 - Page Street - Bunns Lane - C1 - Bunns Lane	215.1	1114.14	1.52	F	136.0	624.15	1.25	F
2 - Page Street - Pursley Road - A2 - Pursley Road	242.9	1252.84	1.45	F	186.3	988.45	1.38	F
2 - Page Street - Pursley Road - B2 - Page Street S	142.0	1320.99	1.51	F	144.9	1009.22	1.51	F
2 - Page Street - Pursley Road - C2 - Page Street N	7.9	38.09	0.91	E	7.9	36.42	0.92	E
	Do something - 2026 Future + New Dev without BL							
1 - Page Street - Bunns Lane - A1 - Page Street N	49.9	537.79	1.36	F	10.3	171.86	1.03	F
1 - Page Street - Bunns Lane - B1 - Page Street S	8.0	41.62	0.93	E	7.9	39.61	0.93	E
1 - Page Street - Bunns Lane - C1 - Bunns Lane	160.2	870.78	1.45	F	119.8	556.69	1.24	F
2 - Page Street - Pursley Road - A2 - Pursley Road	242.7	1251.28	1.44	F	174.2	905.94	1.35	F
2 - Page Street - Pursley Road - B2 - Page Street S	141.8	1318.50	1.50	F	136.7	930.29	1.48	F
2 - Page Street - Pursley Road - C2 - Page Street N	7.9	38.11	0.91	E	7.9	36.13	0.92	E

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.

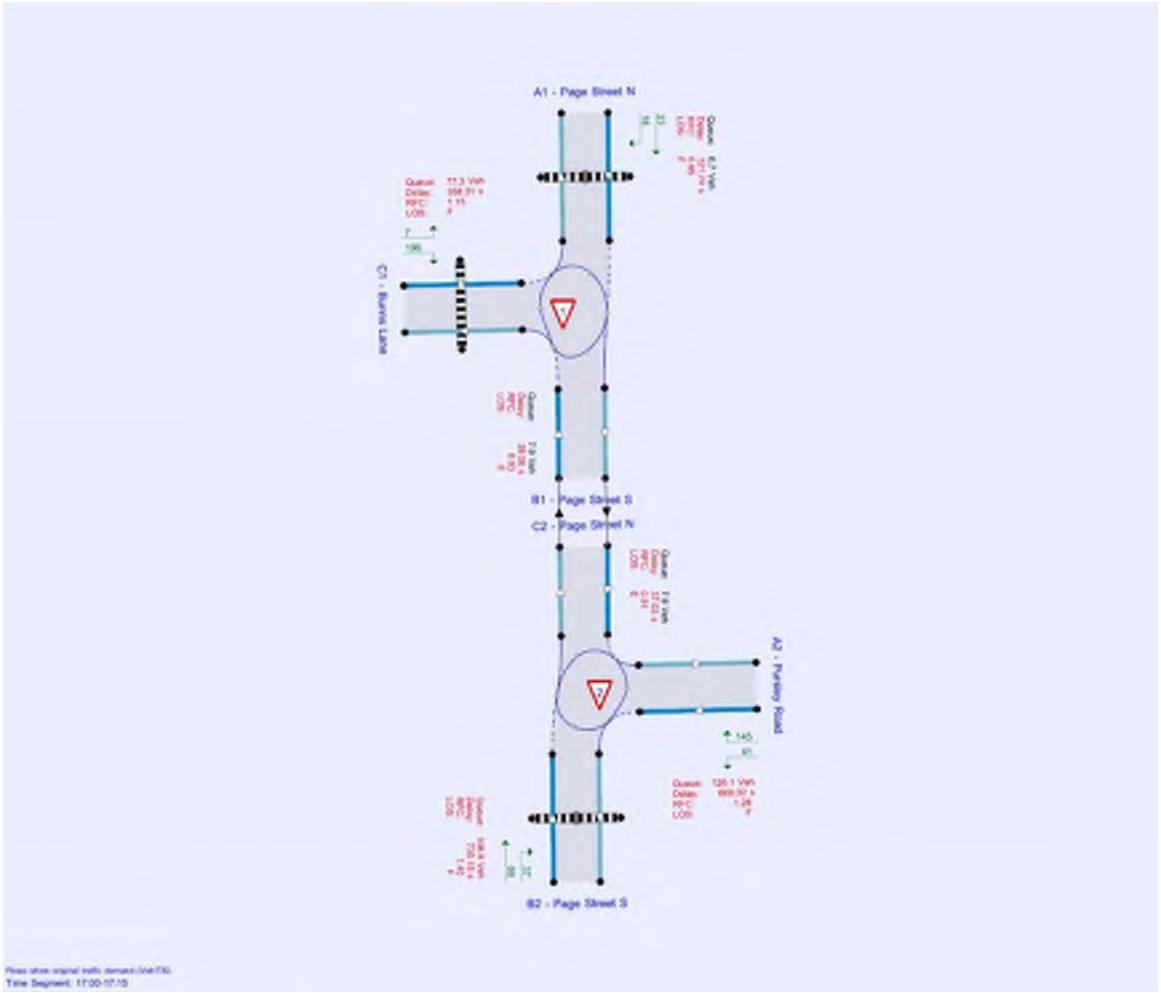
File summary

File Description

Title	Bunns Lane - Pursley Road - Page Street Miniroundabouts
Location	
Site number	
Date	15/06/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ROBERTWEST\libanbellezza
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



The junction diagram reflects the last run of Junctions.

Analysis Options

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

Growth Factors

ID	Description	Use TEMPRO	Growth Factor
G1	2016-2021 AM		1.0370
G2	2016-2021 PM		1.0558
G3	2016-2026 AM		1.0740
G4	2016-2026 PM		1.1116

Growth factors are only active if the Demand Set references them in a Relationship.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set (s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	Do something	✓	✓	D15,D16,D17,D18,D19,D20,D21,D22,D23,D24,D25,D26	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically	Relationship type	Relationship
D16	2021 Future	PM	DIRECT	17:00	18:00	60	15	✓	Simple	D2*G2+D12+D10

Do something - 2021 Future, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout	1 - Page Street - Bunns Lane	Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms B1 and C1 have 90% of the total flow for the roundabout for one or more time segments]
Last Run	Last Run	1 - Page Street - Bunns Lane - B1 - Page Street S - Capacity	Pedestrian Crossing causes blocking on previous arm due to traffic queing to leave the junction in 2 timesegment(s).

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	Page Street - Bunns Lane	Mini-roundabout	A1,B1,C1	195.30	F
2	Page Street - Pursley Road	Mini-roundabout	A2,B2,C2	434.50	F

Junction Network Options

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

Arms

Arms

Junction	Arm	Name	Description
1 - Page Street - Bunns Lane	A1	Page Street N	
	B1	Page Street S	
	C1	Bunns Lane	
2 - Page Street - Pursley Road	A2	Pursley Road	
	B2	Page Street S	
	C2	Page Street N	

Mini Roundabout Geometry

Junction	Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
1 - Page Street - Bunns Lane	A1 - Page Street N	3.37	3.11	5.39	9.2	16.05	13.16	0.0	✓
	B1 - Page Street S	3.92	3.55	5.68	8.1	19.15	15.69	0.0	✓
	C1 - Bunns Lane	3.82	3.09	4.47	11.1	16.00	10.80	0.0	
2 - Page Street - Pursley Road	A2 - Pursley Road	4.58	4.30	5.76	1.9	9.56	5.53	0.0	
	B2 - Page Street S	3.58	3.26	3.97	5.8	16.78	16.76	0.0	
	C2 - Page Street N	3.42	3.02	3.70	1.0	12.98	8.81	0.0	

Zebra Crossings

Junction	Arm	Space between crossing and junction entry (Zebra) (PCU)	Vehicles queueing on exit (Zebra) (PCU)	Central Refuge	Crossing data type	Crossing length (m)	Crossing time (s)	Crossing length (entry side) (m)	Crossi time (entr side)
1 - Page Street - Bunns Lane	A1 - Page Street N	3.50	3.50	✓	Distance			3.13	2.2
	C1 - Bunns Lane	1.00	1.20		Distance	7.70	5.50		
2 - Page Street - Pursley Road	B2 - Page Street S	3.00	3.00	✓	Distance			3.29	2.3

Slope / Intercept / Capacity

Arm Intercept Adjustments

Junction	Arm	Type	Reason	Direct intercept adjustment (PCU/TS)
1 - Page Street - Bunns Lane	A1 - Page Street N	Direct		-59.70
	B1 - Page Street S	Direct		-21.36
	C1 - Bunns Lane	Direct		-13.89
2 - Page Street - Pursley Road	A2 - Pursley Road	Direct		15.25
	B2 - Page Street S	Direct		-26.77
	C2 - Page Street N	Direct		20.89

Roundabout Slope and Intercept used in model

Junction	Arm	Final slope	Final intercept (PCU/TS)
1 - Page Street - Bunns Lane	A1 - Page Street N	0.541	171.137
	B1 - Page Street S	0.579	245.305
	C1 - Bunns Lane	0.634	210.179
2 - Page Street - Pursley Road	A2 - Pursley Road	0.655	253.069
	B2 - Page Street S	0.679	227.945
	C2 - Page Street N	0.600	246.604

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

Traffic Demand

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

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (Veh/TS)	Flow multiplier (%)	Internal storage space (PCU)
1 - Page Street - Bunns Lane	B1 - Page Street S	2	C2	Queue limited	Normal	0.00	100.00	8.00
2 - Page Street - Pursley Road	C2 - Page Street N	1	B1	Queue limited	Normal	0.00	100.00	8.00

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1 - Page Street - Bunns Lane	A1 - Page Street N		DIRECT	✓	100.000
	B1 - Page Street S	✓			
	C1 - Bunns Lane		DIRECT	✓	100.000
2 - Page Street - Pursley Road	A2 - Pursley Road		DIRECT	✓	100.000
	B2 - Page Street S		DIRECT	✓	100.000
	C2 - Page Street N	✓			

Demand overview (Pedestrians)

Junction	Arm	Profile type
1 - Page Street - Bunns Lane	A1 - Page Street N	Global
	B1 - Page Street S	
	C1 - Bunns Lane	Global
2 - Page Street - Pursley Road	A2 - Pursley Road	
	B2 - Page Street S	Global
	C2 - Page Street N	

Origin-Destination Data

1 - Page Street - Bunns Lane 17:00 - 17:15

Demand (Veh/TS)

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0.00	23.12	17.95
	B1 - Page Street S	23.23	0.00	184.77
	C1 - Bunns Lane	7.39	196.04	0.00

Proportions

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0.00	0.56	0.44
	B1 - Page Street S	0.11	0.00	0.89
	C1 - Bunns Lane	0.04	0.96	0.00

1 - Page Street - Bunns Lane 17:15 - 17:30

Demand (Veh/TS)

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0.00	22.06	10.56
	B1 - Page Street S	41.18	0.00	213.27
	C1 - Bunns Lane	11.61	185.49	0.00

Proportions

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0.00	0.68	0.32
	B1 - Page Street S	0.16	0.00	0.84
	C1 - Bunns Lane	0.06	0.94	0.00

1 - Page Street - Bunns Lane 17:30 - 17:45

Demand (Veh/TS)

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0.00	40.01	23.23
	B1 - Page Street S	30.62	0.00	176.32
	C1 - Bunns Lane	11.61	193.93	0.00

Proportions

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0.00	0.63	0.37
	B1 - Page Street S	0.15	0.00	0.85
	C1 - Bunns Lane	0.06	0.94	0.00

1 - Page Street - Bunns Lane 17:45 - 18:00

Demand (Veh/TS)

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0.00	33.67	20.06
	B1 - Page Street S	43.29	0.00	209.05
	C1 - Bunns Lane	9.50	185.49	0.00

Proportions

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0.00	0.63	0.37
	B1 - Page Street S	0.17	0.00	0.83
	C1 - Bunns Lane	0.05	0.95	0.00

2 - Page Street - Pursley Road 17:00 - 17:15

Demand (Veh/TS)

From \ To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
A2 - Pursley Road	0.00	41.01	144.64
B2 - Page Street S	36.95	0.00	67.57
C2 - Page Street N	126.42	92.74	0.00

Proportions

From \ To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
A2 - Pursley Road	0.00	0.22	0.78
B2 - Page Street S	0.35	0.00	0.65
C2 - Page Street N	0.58	0.42	0.00

2 - Page Street - Pursley Road 17:15 - 17:30

Demand (Veh/TS)

From \ To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
A2 - Pursley Road	0.00	36.79	148.87
B2 - Page Street S	38.01	0.00	105.58
C2 - Page Street N	120.08	87.46	0.00

Proportions

From \ To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
A2 - Pursley Road	0.00	0.20	0.80
B2 - Page Street S	0.26	0.00	0.74
C2 - Page Street N	0.58	0.42	0.00

2 - Page Street - Pursley Road 17:30 - 17:45

Demand (Veh/TS)

From \ To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
A2 - Pursley Road	0.00	45.23	131.98
B2 - Page Street S	36.95	0.00	74.96
C2 - Page Street N	135.92	98.02	0.00

Proportions

From \ To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
A2 - Pursley Road	0.00	0.26	0.74
B2 - Page Street S	0.33	0.00	0.67
C2 - Page Street N	0.58	0.42	0.00

2 - Page Street - Pursley Road 17:45 - 18:00

Demand (Veh/TS)

From \ To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
A2 - Pursley Road	0.00	48.40	140.42
B2 - Page Street S	41.18	0.00	111.91
C2 - Page Street N	134.86	84.30	0.00

Proportions

From \ To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
A2 - Pursley Road	0.00	0.26	0.74
B2 - Page Street S	0.27	0.00	0.73
C2 - Page Street N	0.62	0.38	0.00

Vehicle Mix

1 - Page Street - Bunns Lane 17:00 - 17:15

Heavy Vehicle Percentages

From \ To	A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
A1 - Page Street N	0	0	6
B1 - Page Street S	0	0	2
C1 - Bunns Lane	0	2	0

Average PCU Per Veh

From \ To	A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
A1 - Page Street N	1.000	1.000	1.060
B1 - Page Street S	1.000	1.000	1.020
C1 - Bunns Lane	1.000	1.019	1.000

1 - Page Street - Bunns Lane 17:15 - 17:30

Heavy Vehicle Percentages

	To			
From		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
	A1 - Page Street N	0	0	10
	B1 - Page Street S	3	0	1
	C1 - Bunns Lane	0	1	0

Average PCU Per Veh

	To			
From		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
	A1 - Page Street N	1.000	1.000	1.100
	B1 - Page Street S	1.030	1.000	1.010
	C1 - Bunns Lane	1.000	1.010	1.000

1 - Page Street - Bunns Lane 17:30 - 17:45

Heavy Vehicle Percentages

	To			
From		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
	A1 - Page Street N	0	0	0
	B1 - Page Street S	0	0	1
	C1 - Bunns Lane	0	2	0

Average PCU Per Veh

	To			
From		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
	A1 - Page Street N	1.000	1.000	1.000
	B1 - Page Street S	1.000	1.000	1.010
	C1 - Bunns Lane	1.000	1.019	1.000

1 - Page Street - Bunns Lane 17:45 - 18:00

Heavy Vehicle Percentages

	To			
From		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
	A1 - Page Street N	0	0	0
	B1 - Page Street S	0	0	0
	C1 - Bunns Lane	0	1	0

Average PCU Per Veh

	To			
From		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
	A1 - Page Street N	1.000	1.000	1.000
	B1 - Page Street S	1.000	1.000	1.000
	C1 - Bunns Lane	1.000	1.010	1.000

2 - Page Street - Pursley Road 17:00 - 17:15

Heavy Vehicle Percentages

	To			
From		A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
	A2 - Pursley Road	0	0	2
	B2 - Page Street S	3	0	0
	C2 - Page Street N	3	1	0

Average PCU Per Veh

	To			
From		A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
	A2 - Pursley Road	1.000	1.000	1.020
	B2 - Page Street S	1.030	1.000	1.000
	C2 - Page Street N	1.029	1.010	1.000

2 - Page Street - Pursley Road 17:15 - 17:30

Heavy Vehicle Percentages

	To			
From		A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
	A2 - Pursley Road	0	0	1
	B2 - Page Street S	0	0	1
	C2 - Page Street N	2	0	0

Average PCU Per Veh

	To			
From		A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
	A2 - Pursley Road	1.000	1.000	1.010
	B2 - Page Street S	1.000	1.000	1.010
	C2 - Page Street N	1.019	1.000	1.000

2 - Page Street - Pursley Road 17:30 - 17:45

Heavy Vehicle Percentages

	To			
From		A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
	A2 - Pursley Road	0	0	2
	B2 - Page Street S	0	0	0
	C2 - Page Street N	2	0	0

Average PCU Per Veh

	To			
From		A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
	A2 - Pursley Road	1.000	1.000	1.020
	B2 - Page Street S	1.000	1.000	1.000
	C2 - Page Street N	1.019	1.000	1.000

2 - Page Street - Pursley Road 17:45 - 18:00

Heavy Vehicle Percentages

From	To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
	A2 - Pursley Road	0	0	0
	B2 - Page Street S	0	0	0
	C2 - Page Street N	1	1	0

Average PCU Per Veh

From	To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
	A2 - Pursley Road	1.000	1.000	1.000
	B2 - Page Street S	1.000	1.000	1.000
	C2 - Page Street N	1.010	1.010	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Junction	Arm	Demand (Veh/TS)	Demand in PCU (PCU/TS)	Pedestrian Demand (Ped/TS)
17:00-17:15	1 - Page Street - Bunns Lane	A1 - Page Street N	41.06	42.14	3.76
		B1 - Page Street S	207.99	211.69	
		C1 - Bunns Lane	203.43	207.24	3.76
	2 - Page Street - Pursley Road	A2 - Pursley Road	185.65	188.55	
		B2 - Page Street S	104.52	105.63	3.76
		C2 - Page Street N	219.16	223.70	
17:15-17:30	1 - Page Street - Bunns Lane	A1 - Page Street N	32.62	33.67	4.49
		B1 - Page Street S	254.45	257.82	
		C1 - Bunns Lane	197.10	198.89	4.49
	2 - Page Street - Pursley Road	A2 - Pursley Road	185.65	187.14	
		B2 - Page Street S	143.59	144.64	4.49
		C2 - Page Street N	207.55	209.85	
17:30-17:45	1 - Page Street - Bunns Lane	A1 - Page Street N	63.24	63.24	5.51
		B1 - Page Street S	206.94	208.70	
		C1 - Bunns Lane	205.55	209.30	5.51
	2 - Page Street - Pursley Road	A2 - Pursley Road	177.21	179.85	
		B2 - Page Street S	111.91	111.91	5.51
		C2 - Page Street N	233.94	236.56	
17:45-18:00	1 - Page Street - Bunns Lane	A1 - Page Street N	53.73	53.73	5.51
		B1 - Page Street S	252.34	252.34	
		C1 - Bunns Lane	194.99	196.78	5.51
	2 - Page Street - Pursley Road	A2 - Pursley Road	188.82	188.82	
		B2 - Page Street S	153.09	153.09	5.51
		C2 - Page Street N	219.16	221.27	

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
1 - Page Street - Bunns Lane	A1 - Page Street N	0.95	121.74	6.7	F	47.64	190.57
	B1 - Page Street S	0.93	39.56	7.9	E	187.89	751.56
	C1 - Bunns Lane	1.15	358.31	77.3	F	200.17	800.66
2 - Page Street - Pursley Road	A2 - Pursley Road	1.28	660.02	126.1	F	183.96	735.84
	B2 - Page Street S	1.40	735.15	108.9	F	128.15	512.59
	C2 - Page Street N	0.91	37.03	7.9	E	200.38	801.54

Main Results for each time segment

17:00 - 17:15

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Pedestrian demand (Ped/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Thr (e (
1 - Page Street - Bunns Lane	A1 - Page Street N	41.06	41.06	177.41	3.76	71.35	0.576	39.80	
	B1 - Page Street S	190.20	190.20	17.40		205.54	0.925	182.34	
	C1 - Bunns Lane	203.44	203.44	20.36	3.76	193.62	1.051	184.10	
2 - Page Street - Pursley Road	A2 - Pursley Road	185.65	185.65	81.43		174.20	1.066	165.83	
	B2 - Page Street S	104.52	104.52	129.20	3.76	106.29	0.983	95.59	
	C2 - Page Street N	199.13	199.13	33.80		221.13	0.900	192.43	

17:15 - 17:30

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Pedestrian demand (Ped/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Thr (e (
1 - Page Street - Bunns Lane	A1 - Page Street N	32.62	32.62	175.53	4.49	72.73	0.448	33.03	
	B1 - Page Street S	189.11	189.11	10.83		212.97	0.888	189.13	
	C1 - Bunns Lane	197.10	197.10	30.22	4.49	188.52	1.044	186.06	
2 - Page Street - Pursley Road	A2 - Pursley Road	185.65	185.65	83.21		145.23	1.277	144.80	
	B2 - Page Street S	143.59	143.59	115.66	4.49	102.20	1.405	101.70	
	C2 - Page Street N	197.42	197.42	27.73		227.33	0.868	197.42	

17:30 - 17:45

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Pedestrian demand (Ped/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Thr (e (
1 - Page Street - Bunns Lane	A1 - Page Street N	63.24	63.24	168.31	5.51	66.74	0.947	58.00	
	B1 - Page Street S	184.42	184.42	21.26		206.72	0.892	184.38	
	C1 - Bunns Lane	205.55	205.55	27.39	5.51	179.04	1.150	178.46	
2 - Page Street - Pursley Road	A2 - Pursley Road	177.21	177.21	85.71		150.23	1.183	150.05	
	B2 - Page Street S	111.91	111.91	115.21	5.51	97.59	1.143	97.42	
	C2 - Page Street N	205.73	205.73	28.83		226.76	0.907	204.51	

17:45 - 18:00

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Pedestrian demand (Ped/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Thr (e (
1 - Page Street - Bunns Lane	A1 - Page Street N	53.73	53.73	165.78	5.51	59.25	0.907	53.08	
	B1 - Page Street S	187.88	187.88	19.78		210.47	0.892	187.84	
	C1 - Bunns Lane	194.99	194.99	32.04	5.51	175.05	1.111	174.74	
2 - Page Street - Pursley Road	A2 - Pursley Road	188.82	188.82	76.93		149.10	1.255	149.04	
	B2 - Page Street S	153.09	153.09	110.93	5.51	108.99	1.405	108.94	
	C2 - Page Street N	199.30	199.30	33.30		224.44	0.888	199.30	

Junctions 9

ARCADY 9 - Roundabout Module

Filename: Bunns Lane - Pursley Road - Page Street Miniroundabouts with Direct Input.j9
Path: L:\5545 - Healey Development Solutions (Mill Hill) Ltd\001 - Mill Hill\Analysis & Design\Modelling\J7 - Bunn's Lane - Pursley Road - Page Street Mini Roundabouts\Network
Report generation date: 23/09/2016 18:13:52

Summary of junction performance

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
	Do nothing - 2016							
1 - Page Street - Bunns Lane - A1 - Page Street N	25.1	338.60	1.25	F	2.9	45.30	0.79	E
1 - Page Street - Bunns Lane - B1 - Page Street S	8.0	41.85	0.93	E	7.9	39.54	0.93	E
1 - Page Street - Bunns Lane - C1 - Bunns Lane	91.3	462.57	1.30	F	20.1	105.15	1.01	F
2 - Page Street - Pursley Road - A2 - Pursley Road	163.7	882.77	1.32	F	82.2	431.48	1.20	F
2 - Page Street - Pursley Road - B2 - Page Street S	100.7	955.41	1.36	F	83.7	561.02	1.34	F
2 - Page Street - Pursley Road - C2 - Page Street N	7.9	37.75	0.91	E	7.9	35.67	0.92	E

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
	Do something - 2021 Future							
1 - Page Street - Bunns Lane - A1 - Page Street N	34.3	401.62	1.28	F	6.7	121.74	0.95	F
1 - Page Street - Bunns Lane - B1 - Page Street S	8.0	41.69	0.93	E	7.9	39.56	0.93	E
1 - Page Street - Bunns Lane - C1 - Bunns Lane	126.1	690.02	1.38	F	77.3	358.31	1.15	F
2 - Page Street - Pursley Road - A2 - Pursley Road	200.0	1046.58	1.38	F	126.1	660.02	1.28	F
2 - Page Street - Pursley Road - B2 - Page Street S	119.6	1115.30	1.43	F	108.9	735.15	1.40	F
2 - Page Street - Pursley Road - C2 - Page Street N	7.9	37.87	0.91	E	7.9	37.03	0.91	E
	Do something - 2021 Future + New Dev with BL							
1 - Page Street - Bunns Lane - A1 - Page Street N	38.8	450.64	1.32	F	6.8	124.28	0.95	F
1 - Page Street - Bunns Lane - B1 - Page Street S	8.0	41.58	0.93	E	7.9	39.69	0.93	E
1 - Page Street - Bunns Lane - C1 - Bunns Lane	187.3	978.09	1.47	F	88.3	404.90	1.16	F
2 - Page Street - Pursley Road - A2 - Pursley Road	201.9	1058.33	1.39	F	140.8	746.33	1.30	F
2 - Page Street - Pursley Road - B2 - Page Street S	120.1	1120.99	1.43	F	116.8	805.88	1.43	F

2 - Page Street - Pursley Road - C2 - Page Street N	7.9	38.08	0.91	E	7.9	36.94	0.91	E
	Do something - 2021 Future + New Dev without BL							
1 - Page Street - Bunns Lane - A1 - Page Street N	40.7	449.48	1.31	F	6.9	124.38	0.95	F
1 - Page Street - Bunns Lane - B1 - Page Street S	8.0	41.59	0.93	E	7.9	39.55	0.93	E
1 - Page Street - Bunns Lane - C1 - Bunns Lane	132.8	732.51	1.40	F	72.5	338.37	1.14	F
2 - Page Street - Pursley Road - A2 - Pursley Road	201.9	1058.39	1.38	F	128.9	668.91	1.28	F
2 - Page Street - Pursley Road - B2 - Page Street S	120.0	1119.90	1.43	F	107.5	722.18	1.40	F
2 - Page Street - Pursley Road - C2 - Page Street N	7.9	38.09	0.91	E	7.9	37.07	0.91	E
	Do something - 2026 Future							
1 - Page Street - Bunns Lane - A1 - Page Street N	42.7	473.81	1.33	F	9.7	164.66	1.02	F
1 - Page Street - Bunns Lane - B1 - Page Street S	8.0	41.74	0.93	E	7.9	39.62	0.93	E
1 - Page Street - Bunns Lane - C1 - Bunns Lane	153.8	829.76	1.43	F	124.3	574.41	1.24	F
2 - Page Street - Pursley Road - A2 - Pursley Road	241.1	1241.39	1.44	F	171.3	898.00	1.35	F
2 - Page Street - Pursley Road - B2 - Page Street S	141.5	1315.10	1.50	F	138.0	943.07	1.48	F
2 - Page Street - Pursley Road - C2 - Page Street N	7.9	38.01	0.91	E	7.9	36.31	0.92	E
	Do something - 2026 Future + New Dev with BL							
1 - Page Street - Bunns Lane - A1 - Page Street N	46.9	530.57	1.36	F	9.7	165.36	1.02	F
1 - Page Street - Bunns Lane - B1 - Page Street S	8.0	41.65	0.93	E	7.9	39.74	0.93	E
1 - Page Street - Bunns Lane - C1 - Bunns Lane	215.1	1114.14	1.52	F	136.0	624.15	1.25	F
2 - Page Street - Pursley Road - A2 - Pursley Road	242.9	1252.84	1.45	F	186.3	988.45	1.38	F
2 - Page Street - Pursley Road - B2 - Page Street S	142.0	1320.99	1.51	F	144.9	1009.22	1.51	F
2 - Page Street - Pursley Road - C2 - Page Street N	7.9	38.09	0.91	E	7.9	36.42	0.92	E
	Do something - 2026 Future + New Dev without BL							
1 - Page Street - Bunns Lane - A1 - Page Street N	49.9	537.79	1.36	F	10.3	171.86	1.03	F
1 - Page Street - Bunns Lane - B1 - Page Street S	8.0	41.62	0.93	E	7.9	39.61	0.93	E
1 - Page Street - Bunns Lane - C1 - Bunns Lane	160.2	870.78	1.45	F	119.8	556.69	1.24	F
2 - Page Street - Pursley Road - A2 - Pursley Road	242.7	1251.28	1.44	F	174.2	905.94	1.35	F
2 - Page Street - Pursley Road - B2 - Page Street S	141.8	1318.50	1.50	F	136.7	930.29	1.48	F
2 - Page Street - Pursley Road - C2 - Page Street N	7.9	38.11	0.91	E	7.9	36.13	0.92	E

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.

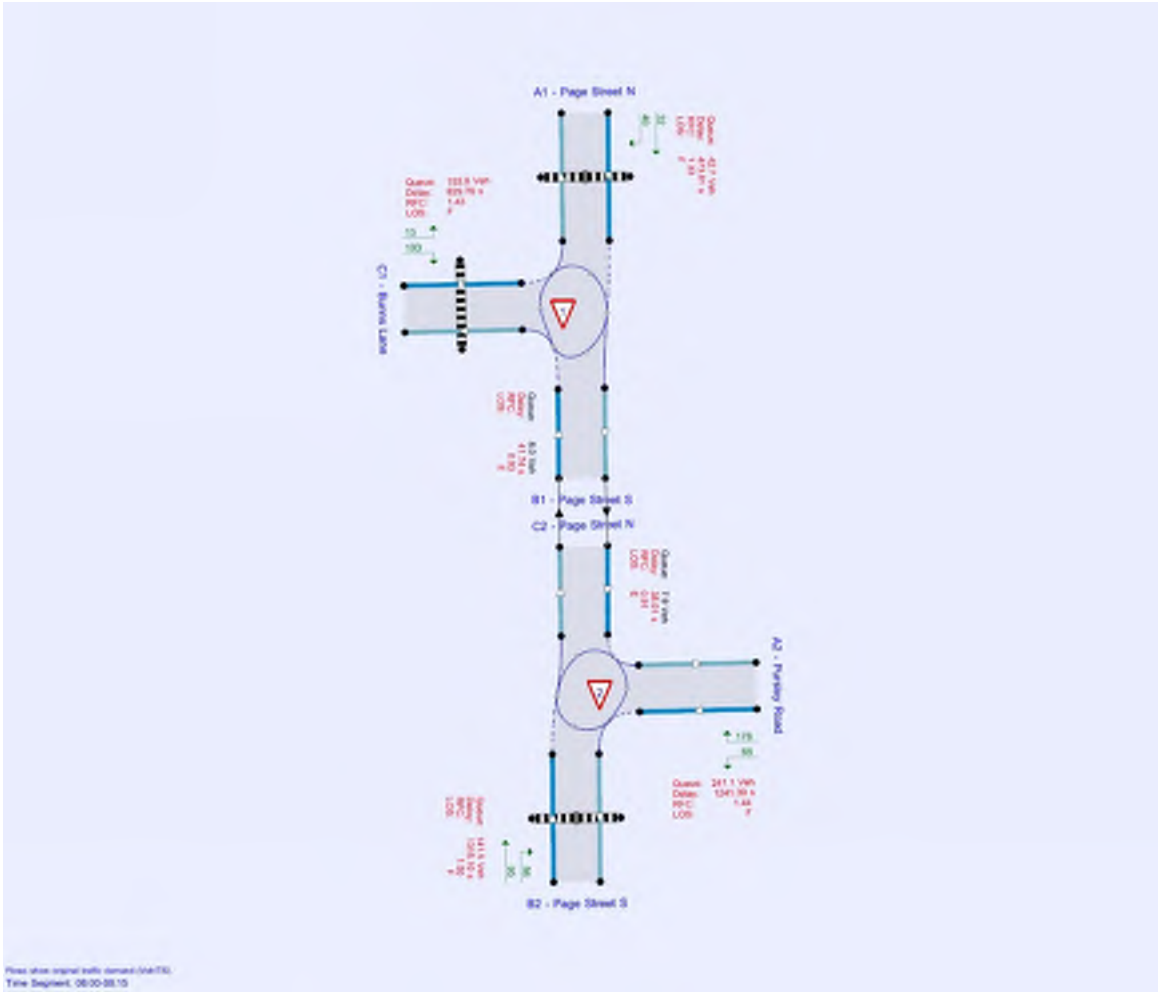
File summary

File Description

Title	Bunns Lane - Pursley Road - Page Street Miniroundabouts
Location	
Site number	
Date	15/06/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ROBERTWEST\libanbellezza
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



The junction diagram reflects the last run of Junctions.

Analysis Options

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

Growth Factors

ID	Description	Use TEMPRO	Growth Factor
G1	2016-2021 AM		1.0370
G2	2016-2021 PM		1.0558
G3	2016-2026 AM		1.0740
G4	2016-2026 PM		1.1116

Growth factors are only active if the Demand Set references them in a Relationship.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set (s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	Do something	✓	✓	D15,D16,D17,D18,D19,D20,D21,D22,D23,D24,D25,D26	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically	Relationship type	Relationship
D21	2026 Future	AM	DIRECT	08:00	09:00	60	15	✓	Simple	D1*G3+D13+D9

Do something - 2026 Future, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout	1 - Page Street - Bunns Lane	Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms B1 and C1 have 86% of the total flow for the roundabout for one or more time segments]
Last Run	Last Run	1 - Page Street - Bunns Lane - B1 - Page Street S - Capacity	Pedestrian Crossing causes blocking on previous arm due to traffic queing to leave the junction in 4 timesegment(s).

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	Page Street - Bunns Lane	Mini-roundabout	A1,B1,C1	468.60	F
2	Page Street - Pursley Road	Mini-roundabout	A2,B2,C2	829.59	F

Junction Network Options

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

Arms

Arms

Junction	Arm	Name	Description
1 - Page Street - Bunns Lane	A1	Page Street N	
	B1	Page Street S	
	C1	Bunns Lane	
2 - Page Street - Pursley Road	A2	Pursley Road	
	B2	Page Street S	
	C2	Page Street N	

Mini Roundabout Geometry

Junction	Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
1 - Page Street - Bunns Lane	A1 - Page Street N	3.37	3.11	5.39	9.2	16.05	13.16	0.0	✓
	B1 - Page Street S	3.92	3.55	5.68	8.1	19.15	15.69	0.0	✓
	C1 - Bunns Lane	3.82	3.09	4.47	11.1	16.00	10.80	0.0	
2 - Page Street - Pursley Road	A2 - Pursley Road	4.58	4.30	5.76	1.9	9.56	5.53	0.0	
	B2 - Page Street S	3.58	3.26	3.97	5.8	16.78	16.76	0.0	
	C2 - Page Street N	3.42	3.02	3.70	1.0	12.98	8.81	0.0	

Zebra Crossings

Junction	Arm	Space between crossing and junction entry (Zebra) (PCU)	Vehicles queueing on exit (Zebra) (PCU)	Central Refuge	Crossing data type	Crossing length (m)	Crossing time (s)	Crossing length (entry side) (m)	Crossi time (entr side)
1 - Page Street - Bunns Lane	A1 - Page Street N	3.50	3.50	✓	Distance			3.13	2.2
	C1 - Bunns Lane	1.00	1.20		Distance	7.70	5.50		
2 - Page Street - Pursley Road	B2 - Page Street S	3.00	3.00	✓	Distance			3.29	2.3

Slope / Intercept / Capacity

Arm Intercept Adjustments

Junction	Arm	Type	Reason	Direct intercept adjustment (PCU/TS)
1 - Page Street - Bunns Lane	A1 - Page Street N	Direct		-59.70
	B1 - Page Street S	Direct		-21.36
	C1 - Bunns Lane	Direct		-13.89
2 - Page Street - Pursley Road	A2 - Pursley Road	Direct		15.25
	B2 - Page Street S	Direct		-26.77
	C2 - Page Street N	Direct		20.89

Roundabout Slope and Intercept used in model

Junction	Arm	Final slope	Final intercept (PCU/TS)
1 - Page Street - Bunns Lane	A1 - Page Street N	0.541	171.137
	B1 - Page Street S	0.579	245.305
	C1 - Bunns Lane	0.634	210.179
2 - Page Street - Pursley Road	A2 - Pursley Road	0.655	253.069
	B2 - Page Street S	0.679	227.945
	C2 - Page Street N	0.600	246.604

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

Traffic Demand

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

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (Veh/TS)	Flow multiplier (%)	Internal storage space (PCU)
1 - Page Street - Bunns Lane	B1 - Page Street S	2	C2	Queue limited	Normal	0.00	100.00	8.00
2 - Page Street - Pursley Road	C2 - Page Street N	1	B1	Queue limited	Normal	0.00	100.00	8.00

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1 - Page Street - Bunns Lane	A1 - Page Street N		DIRECT	✓	100.000
	B1 - Page Street S	✓			
	C1 - Bunns Lane		DIRECT	✓	100.000
2 - Page Street - Pursley Road	A2 - Pursley Road		DIRECT	✓	100.000
	B2 - Page Street S		DIRECT	✓	100.000
	C2 - Page Street N	✓			

Demand overview (Pedestrians)

Junction	Arm	Profile type
1 - Page Street - Bunns Lane	A1 - Page Street N	Global
	B1 - Page Street S	
	C1 - Bunns Lane	Global
2 - Page Street - Pursley Road	A2 - Pursley Road	
	B2 - Page Street S	Global
	C2 - Page Street N	

Origin-Destination Data

1 - Page Street - Bunns Lane 08:00 - 08:15

Demand (Veh/TS)

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0.00	32.07	39.74
	B1 - Page Street S	53.63	0.00	218.95
	C1 - Bunns Lane	12.89	193.10	0.00

Proportions

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0.00	0.45	0.55
	B1 - Page Street S	0.20	0.00	0.80
	C1 - Bunns Lane	0.06	0.94	0.00

1 - Page Street - Bunns Lane 08:15 - 08:30

Demand (Veh/TS)

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0.00	63.22	39.74
	B1 - Page Street S	28.92	0.00	222.17
	C1 - Bunns Lane	16.11	196.32	0.00

Proportions

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0.00	0.61	0.39
	B1 - Page Street S	0.12	0.00	0.88
	C1 - Bunns Lane	0.08	0.92	0.00

1 - Page Street - Bunns Lane 08:30 - 08:45

Demand (Veh/TS)

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0.00	40.66	34.37
	B1 - Page Street S	34.29	0.00	198.54
	C1 - Bunns Lane	19.33	222.10	0.00

Proportions

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0.00	0.54	0.46
	B1 - Page Street S	0.15	0.00	0.85
	C1 - Bunns Lane	0.08	0.92	0.00

1 - Page Street - Bunns Lane 08:45 - 09:00

Demand (Veh/TS)

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0.00	47.11	38.66
	B1 - Page Street S	17.11	0.00	203.91
	C1 - Bunns Lane	19.33	153.36	0.00

Proportions

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0.00	0.55	0.45
	B1 - Page Street S	0.08	0.00	0.92
	C1 - Bunns Lane	0.11	0.89	0.00

2 - Page Street - Pursley Road 08:00 - 08:15

Demand (Veh/TS)

From \ To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
A2 - Pursley Road	0.00	68.37	178.06
B2 - Page Street S	55.85	0.00	94.51
C2 - Page Street N	151.14	75.03	0.00

Proportions

From \ To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
A2 - Pursley Road	0.00	0.28	0.72
B2 - Page Street S	0.37	0.00	0.63
C2 - Page Street N	0.67	0.33	0.00

2 - Page Street - Pursley Road 08:15 - 08:30

Demand (Veh/TS)

From \ To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
A2 - Pursley Road	0.00	53.33	169.47
B2 - Page Street S	55.85	0.00	81.62
C2 - Page Street N	167.25	93.29	0.00

Proportions

From \ To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
A2 - Pursley Road	0.00	0.24	0.76
B2 - Page Street S	0.41	0.00	0.59
C2 - Page Street N	0.64	0.36	0.00

2 - Page Street - Pursley Road 08:30 - 08:45

Demand (Veh/TS)

From \ To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
A2 - Pursley Road	0.00	55.48	160.88
B2 - Page Street S	63.37	0.00	71.96
C2 - Page Street N	191.95	101.88	0.00

Proportions

From \ To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
A2 - Pursley Road	0.00	0.26	0.74
B2 - Page Street S	0.47	0.00	0.53
C2 - Page Street N	0.65	0.35	0.00

2 - Page Street - Pursley Road 08:45 - 09:00

Demand (Veh/TS)

From \ To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
A2 - Pursley Road	0.00	41.52	158.73
B2 - Page Street S	44.03	0.00	62.29
C2 - Page Street N	111.40	90.07	0.00

Proportions

From \ To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
A2 - Pursley Road	0.00	0.21	0.79
B2 - Page Street S	0.41	0.00	0.59
C2 - Page Street N	0.55	0.45	0.00

Vehicle Mix

1 - Page Street - Bunns Lane 08:00 - 08:15

Heavy Vehicle Percentages

From \ To	A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
A1 - Page Street N	0	10	3
B1 - Page Street S	0	0	1
C1 - Bunns Lane	0	1	0

Average PCU Per Veh

From \ To	A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
A1 - Page Street N	1.000	1.103	1.030
B1 - Page Street S	1.000	1.000	1.010
C1 - Bunns Lane	1.000	1.010	1.000

1 - Page Street - Bunns Lane 08:15 - 08:30

Heavy Vehicle Percentages

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0	0	3
	B1 - Page Street S	0	0	1
	C1 - Bunns Lane	7	2	0

Average PCU Per Veh

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	1.000	1.000	1.030
	B1 - Page Street S	1.000	1.000	1.010
	C1 - Bunns Lane	1.070	1.020	1.000

1 - Page Street - Bunns Lane 08:30 - 08:45

Heavy Vehicle Percentages

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0	0	0
	B1 - Page Street S	0	0	3
	C1 - Bunns Lane	0	1	0

Average PCU Per Veh

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	1.000	1.000	1.000
	B1 - Page Street S	1.000	1.000	1.030
	C1 - Bunns Lane	1.000	1.010	1.000

1 - Page Street - Bunns Lane 08:45 - 09:00

Heavy Vehicle Percentages

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0	0	0
	B1 - Page Street S	0	0	2
	C1 - Bunns Lane	0	1	0

Average PCU Per Veh

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	1.000	1.000	1.000
	B1 - Page Street S	1.000	1.000	1.020
	C1 - Bunns Lane	1.000	1.010	1.000

2 - Page Street - Pursley Road 08:00 - 08:15

Heavy Vehicle Percentages

		To		
		A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
From	A2 - Pursley Road	0	2	1
	B2 - Page Street S	0	0	2
	C2 - Page Street N	1	4	0

Average PCU Per Veh

		To		
		A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
From	A2 - Pursley Road	1.000	1.019	1.010
	B2 - Page Street S	1.000	1.000	1.020
	C2 - Page Street N	1.010	1.039	1.000

2 - Page Street - Pursley Road 08:15 - 08:30

Heavy Vehicle Percentages

		To		
		A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
From	A2 - Pursley Road	0	6	1
	B2 - Page Street S	4	0	0
	C2 - Page Street N	3	0	0

Average PCU Per Veh

		To		
		A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
From	A2 - Pursley Road	1.000	1.063	1.010
	B2 - Page Street S	1.040	1.000	1.000
	C2 - Page Street N	1.029	1.000	1.000

2 - Page Street - Pursley Road 08:30 - 08:45

Heavy Vehicle Percentages

		To		
		A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
From	A2 - Pursley Road	0	0	3
	B2 - Page Street S	0	0	1
	C2 - Page Street N	1	1	0

Average PCU Per Veh

		To		
		A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
From	A2 - Pursley Road	1.000	1.000	1.029
	B2 - Page Street S	1.000	1.000	1.010
	C2 - Page Street N	1.010	1.010	1.000

2 - Page Street - Pursley Road 08:45 - 09:00

Heavy Vehicle Percentages

From	To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
	A2 - Pursley Road	0	0	3
	B2 - Page Street S	2	0	0
	C2 - Page Street N	2	0	0

Average PCU Per Veh

From	To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
	A2 - Pursley Road	1.000	1.000	1.029
	B2 - Page Street S	1.020	1.000	1.000
	C2 - Page Street N	1.019	1.000	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Junction	Arm	Demand (Veh/TS)	Demand in PCU (PCU/TS)	Pedestrian Demand (Ped/TS)
08:00-08:15	1 - Page Street - Bunns Lane	A1 - Page Street N	71.81	76.31	3.76
		B1 - Page Street S	272.57	274.74	
		C1 - Bunns Lane	205.99	207.89	3.76
	2 - Page Street - Pursley Road	A2 - Pursley Road	246.43	249.45	
		B2 - Page Street S	150.36	152.25	3.76
		C2 - Page Street N	226.17	230.56	
08:15-08:30	1 - Page Street - Bunns Lane	A1 - Page Street N	102.96	104.15	4.49
		B1 - Page Street S	251.09	253.30	
		C1 - Bunns Lane	212.43	217.42	4.49
	2 - Page Street - Pursley Road	A2 - Pursley Road	222.80	227.85	
		B2 - Page Street S	137.47	139.71	4.49
		C2 - Page Street N	260.54	265.44	
08:30-08:45	1 - Page Street - Bunns Lane	A1 - Page Street N	75.03	75.03	5.51
		B1 - Page Street S	232.84	238.73	
		C1 - Bunns Lane	241.43	243.62	5.51
	2 - Page Street - Pursley Road	A2 - Pursley Road	216.36	221.09	
		B2 - Page Street S	135.32	136.04	5.51
		C2 - Page Street N	293.83	296.71	
08:45-09:00	1 - Page Street - Bunns Lane	A1 - Page Street N	85.77	85.77	5.51
		B1 - Page Street S	221.02	225.06	
		C1 - Bunns Lane	172.69	174.20	5.51
	2 - Page Street - Pursley Road	A2 - Pursley Road	200.25	204.92	
		B2 - Page Street S	106.33	107.21	5.51
		C2 - Page Street N	201.47	203.62	

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
1 - Page Street - Bunns Lane	A1 - Page Street N	1.33	473.81	42.7	F	83.64	334.55
	B1 - Page Street S	0.93	41.74	8.0	E	176.74	706.96
	C1 - Bunns Lane	1.43	829.76	153.8	F	207.95	831.78
2 - Page Street - Pursley Road	A2 - Pursley Road	1.44	1241.39	241.1	F	221.70	886.80
	B2 - Page Street S	1.50	1315.10	141.5	F	132.22	528.90
	C2 - Page Street N	0.91	38.01	7.9	E	196.64	786.54

Main Results for each time segment

08:00 - 08:15

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Pedestrian demand (Ped/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Thr (e (
1 - Page Street - Bunns Lane	A1 - Page Street N	71.81	71.81	168.35	3.76	74.42	0.965	64.95	
	B1 - Page Street S	184.62	184.62	35.94		198.94	0.928	176.68	
	C1 - Bunns Lane	205.99	205.99	34.76	3.76	186.39	1.105	179.59	
2 - Page Street - Pursley Road	A2 - Pursley Road	246.43	246.43	63.54		171.07	1.441	168.89	
	B2 - Page Street S	150.36	150.36	122.03	3.76	99.91	1.505	98.04	
	C2 - Page Street N	198.16	198.16	36.41		220.47	0.899	191.54	

08:15 - 08:30

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Pedestrian demand (Ped/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Thr (e (
1 - Page Street - Bunns Lane	A1 - Page Street N	102.96	102.96	154.01	4.49	76.93	1.330	76.03	
	B1 - Page Street S	176.77	176.77	30.54		198.99	0.888	176.77	
	C1 - Bunns Lane	212.43	212.43	21.01	4.49	166.60	1.278	166.28	
2 - Page Street - Pursley Road	A2 - Pursley Road	222.80	222.80	70.63		157.58	1.420	157.47	
	B2 - Page Street S	137.47	137.47	116.88	4.49	97.45	1.414	97.43	
	C2 - Page Street N	198.99	198.99	37.77		219.38	0.907	197.75	

08:30 - 08:45

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Pedestrian demand (Ped/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Thr (e (
1 - Page Street - Bunns Lane	A1 - Page Street N	75.03	75.03	154.13	5.51	70.60	1.056	70.09	
	B1 - Page Street S	175.29	175.29	29.66		197.88	0.886	175.29	
	C1 - Bunns Lane	241.43	241.43	25.57	5.51	167.26	1.434	167.19	
2 - Page Street - Pursley Road	A2 - Pursley Road	216.36	216.36	67.64		158.68	1.362	158.64	
	B2 - Page Street S	135.32	135.32	120.40	5.51	98.10	1.365	98.06	
	C2 - Page Street N	194.83	194.83	40.18		219.35	0.888	194.83	

08:45 - 09:00

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Pedestrian demand (Ped/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Thr (e (
1 - Page Street - Bunns Lane	A1 - Page Street N	85.77	85.77	151.12	5.51	81.25	1.056	80.78	
	B1 - Page Street S	170.27	170.27	36.69		191.88	0.887	170.26	
	C1 - Bunns Lane	172.69	172.69	13.73	5.51	165.03	1.046	164.90	
2 - Page Street - Pursley Road	A2 - Pursley Road	200.25	200.25	86.18		160.69	1.248	160.67	
	B2 - Page Street S	106.33	106.33	119.47	5.51	93.90	1.136	93.82	
	C2 - Page Street N	194.62	194.62	43.93		217.91	0.893	194.54	

Junctions 9

ARCADY 9 - Roundabout Module

Filename: Bunns Lane - Pursley Road - Page Street Miniroundabouts with Direct Input.j9
Path: L:\5545 - Healey Development Solutions (Mill Hill) Ltd\001 - Mill Hill\Analysis & Design\Modelling\J7 - Bunn's Lane - Pursley Road - Page Street Mini Roundabouts\Network
Report generation date: 23/09/2016 18:14:33

Summary of junction performance

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
	Do nothing - 2016							
1 - Page Street - Bunns Lane - A1 - Page Street N	25.1	338.60	1.25	F	2.9	45.30	0.79	E
1 - Page Street - Bunns Lane - B1 - Page Street S	8.0	41.85	0.93	E	7.9	39.54	0.93	E
1 - Page Street - Bunns Lane - C1 - Bunns Lane	91.3	462.57	1.30	F	20.1	105.15	1.01	F
2 - Page Street - Pursley Road - A2 - Pursley Road	163.7	882.77	1.32	F	82.2	431.48	1.20	F
2 - Page Street - Pursley Road - B2 - Page Street S	100.7	955.41	1.36	F	83.7	561.02	1.34	F
2 - Page Street - Pursley Road - C2 - Page Street N	7.9	37.75	0.91	E	7.9	35.67	0.92	E

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
	Do something - 2021 Future							
1 - Page Street - Bunns Lane - A1 - Page Street N	34.3	401.62	1.28	F	6.7	121.74	0.95	F
1 - Page Street - Bunns Lane - B1 - Page Street S	8.0	41.69	0.93	E	7.9	39.56	0.93	E
1 - Page Street - Bunns Lane - C1 - Bunns Lane	126.1	690.02	1.38	F	77.3	358.31	1.15	F
2 - Page Street - Pursley Road - A2 - Pursley Road	200.0	1046.58	1.38	F	126.1	660.02	1.28	F
2 - Page Street - Pursley Road - B2 - Page Street S	119.6	1115.30	1.43	F	108.9	735.15	1.40	F
2 - Page Street - Pursley Road - C2 - Page Street N	7.9	37.87	0.91	E	7.9	37.03	0.91	E
	Do something - 2021 Future + New Dev with BL							
1 - Page Street - Bunns Lane - A1 - Page Street N	38.8	450.64	1.32	F	6.8	124.28	0.95	F
1 - Page Street - Bunns Lane - B1 - Page Street S	8.0	41.58	0.93	E	7.9	39.69	0.93	E
1 - Page Street - Bunns Lane - C1 - Bunns Lane	187.3	978.09	1.47	F	88.3	404.90	1.16	F
2 - Page Street - Pursley Road - A2 - Pursley Road	201.9	1058.33	1.39	F	140.8	746.33	1.30	F
2 - Page Street - Pursley Road - B2 - Page Street S	120.1	1120.99	1.43	F	116.8	805.88	1.43	F

2 - Page Street - Pursley Road - C2 - Page Street N	7.9	38.08	0.91	E	7.9	36.94	0.91	E
	Do something - 2021 Future + New Dev without BL							
1 - Page Street - Bunns Lane - A1 - Page Street N	40.7	449.48	1.31	F	6.9	124.38	0.95	F
1 - Page Street - Bunns Lane - B1 - Page Street S	8.0	41.59	0.93	E	7.9	39.55	0.93	E
1 - Page Street - Bunns Lane - C1 - Bunns Lane	132.8	732.51	1.40	F	72.5	338.37	1.14	F
2 - Page Street - Pursley Road - A2 - Pursley Road	201.9	1058.39	1.38	F	128.9	668.91	1.28	F
2 - Page Street - Pursley Road - B2 - Page Street S	120.0	1119.90	1.43	F	107.5	722.18	1.40	F
2 - Page Street - Pursley Road - C2 - Page Street N	7.9	38.09	0.91	E	7.9	37.07	0.91	E
	Do something - 2026 Future							
1 - Page Street - Bunns Lane - A1 - Page Street N	42.7	473.81	1.33	F	9.7	164.66	1.02	F
1 - Page Street - Bunns Lane - B1 - Page Street S	8.0	41.74	0.93	E	7.9	39.62	0.93	E
1 - Page Street - Bunns Lane - C1 - Bunns Lane	153.8	829.76	1.43	F	124.3	574.41	1.24	F
2 - Page Street - Pursley Road - A2 - Pursley Road	241.1	1241.39	1.44	F	171.3	898.00	1.35	F
2 - Page Street - Pursley Road - B2 - Page Street S	141.5	1315.10	1.50	F	138.0	943.07	1.48	F
2 - Page Street - Pursley Road - C2 - Page Street N	7.9	38.01	0.91	E	7.9	36.31	0.92	E
	Do something - 2026 Future + New Dev with BL							
1 - Page Street - Bunns Lane - A1 - Page Street N	46.9	530.57	1.36	F	9.7	165.36	1.02	F
1 - Page Street - Bunns Lane - B1 - Page Street S	8.0	41.65	0.93	E	7.9	39.74	0.93	E
1 - Page Street - Bunns Lane - C1 - Bunns Lane	215.1	1114.14	1.52	F	136.0	624.15	1.25	F
2 - Page Street - Pursley Road - A2 - Pursley Road	242.9	1252.84	1.45	F	186.3	988.45	1.38	F
2 - Page Street - Pursley Road - B2 - Page Street S	142.0	1320.99	1.51	F	144.9	1009.22	1.51	F
2 - Page Street - Pursley Road - C2 - Page Street N	7.9	38.09	0.91	E	7.9	36.42	0.92	E
	Do something - 2026 Future + New Dev without BL							
1 - Page Street - Bunns Lane - A1 - Page Street N	49.9	537.79	1.36	F	10.3	171.86	1.03	F
1 - Page Street - Bunns Lane - B1 - Page Street S	8.0	41.62	0.93	E	7.9	39.61	0.93	E
1 - Page Street - Bunns Lane - C1 - Bunns Lane	160.2	870.78	1.45	F	119.8	556.69	1.24	F
2 - Page Street - Pursley Road - A2 - Pursley Road	242.7	1251.28	1.44	F	174.2	905.94	1.35	F
2 - Page Street - Pursley Road - B2 - Page Street S	141.8	1318.50	1.50	F	136.7	930.29	1.48	F
2 - Page Street - Pursley Road - C2 - Page Street N	7.9	38.11	0.91	E	7.9	36.13	0.92	E

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.

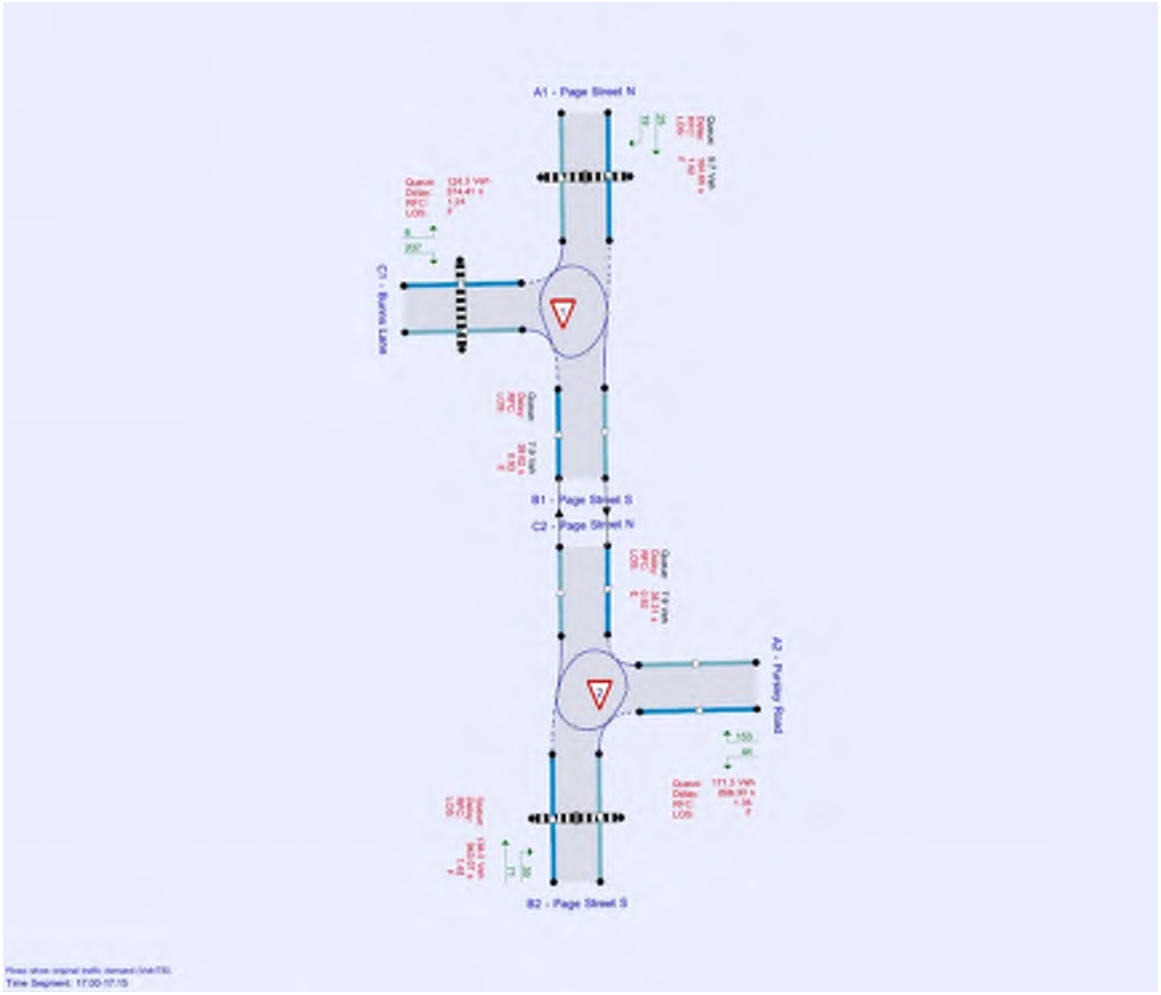
File summary

File Description

Title	Bunns Lane - Pursley Road - Page Street Miniroundabouts
Location	
Site number	
Date	15/06/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ROBERTWEST\libanbellezza
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



The junction diagram reflects the last run of Junctions.

Analysis Options

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

Growth Factors

ID	Description	Use TEMPRO	Growth Factor
G1	2016-2021 AM		1.0370
G2	2016-2021 PM		1.0558
G3	2016-2026 AM		1.0740
G4	2016-2026 PM		1.1116

Growth factors are only active if the Demand Set references them in a Relationship.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set (s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	Do something	✓	✓	D15,D16,D17,D18,D19,D20,D21,D22,D23,D24,D25,D26	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically	Relationship type	Relationship
D22	2026 Future	PM	DIRECT	17:00	18:00	60	15	✓	Simple	D2*G4+D14+D10

Do something - 2026 Future, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout	1 - Page Street - Bunns Lane	Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms B1 and C1 have 90% of the total flow for the roundabout for one or more time segments]
Last Run	Last Run	1 - Page Street - Bunns Lane - B1 - Page Street S - Capacity	Pedestrian Crossing causes blocking on previous arm due to traffic queing to leave the junction in 3 timesegment(s).

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	Page Street - Bunns Lane	Mini-roundabout	A1,B1,C1	305.64	F
2	Page Street - Pursley Road	Mini-roundabout	A2,B2,C2	581.74	F

Junction Network Options

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

Arms

Arms

Junction	Arm	Name	Description
1 - Page Street - Bunns Lane	A1	Page Street N	
	B1	Page Street S	
	C1	Bunns Lane	
2 - Page Street - Pursley Road	A2	Pursley Road	
	B2	Page Street S	
	C2	Page Street N	

Mini Roundabout Geometry

Junction	Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
1 - Page Street - Bunns Lane	A1 - Page Street N	3.37	3.11	5.39	9.2	16.05	13.16	0.0	✓
	B1 - Page Street S	3.92	3.55	5.68	8.1	19.15	15.69	0.0	✓
	C1 - Bunns Lane	3.82	3.09	4.47	11.1	16.00	10.80	0.0	
2 - Page Street - Pursley Road	A2 - Pursley Road	4.58	4.30	5.76	1.9	9.56	5.53	0.0	
	B2 - Page Street S	3.58	3.26	3.97	5.8	16.78	16.76	0.0	
	C2 - Page Street N	3.42	3.02	3.70	1.0	12.98	8.81	0.0	

Zebra Crossings

Junction	Arm	Space between crossing and junction entry (Zebra) (PCU)	Vehicles queueing on exit (Zebra) (PCU)	Central Refuge	Crossing data type	Crossing length (m)	Crossing time (s)	Crossing length (entry side) (m)	Crossi time (entr side)
1 - Page Street - Bunns Lane	A1 - Page Street N	3.50	3.50	✓	Distance			3.13	2.2
	C1 - Bunns Lane	1.00	1.20		Distance	7.70	5.50		
2 - Page Street - Pursley Road	B2 - Page Street S	3.00	3.00	✓	Distance			3.29	2.3

Slope / Intercept / Capacity

Arm Intercept Adjustments

Junction	Arm	Type	Reason	Direct intercept adjustment (PCU/TS)
1 - Page Street - Bunns Lane	A1 - Page Street N	Direct		-59.70
	B1 - Page Street S	Direct		-21.36
	C1 - Bunns Lane	Direct		-13.89
2 - Page Street - Pursley Road	A2 - Pursley Road	Direct		15.25
	B2 - Page Street S	Direct		-26.77
	C2 - Page Street N	Direct		20.89

Roundabout Slope and Intercept used in model

Junction	Arm	Final slope	Final intercept (PCU/TS)
1 - Page Street - Bunns Lane	A1 - Page Street N	0.541	171.137
	B1 - Page Street S	0.579	245.305
	C1 - Bunns Lane	0.634	210.179
2 - Page Street - Pursley Road	A2 - Pursley Road	0.655	253.069
	B2 - Page Street S	0.679	227.945
	C2 - Page Street N	0.600	246.604

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

Traffic Demand

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

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (Veh/TS)	Flow multiplier (%)	Internal storage space (PCU)
1 - Page Street - Bunns Lane	B1 - Page Street S	2	C2	Queue limited	Normal	0.00	100.00	8.00
2 - Page Street - Pursley Road	C2 - Page Street N	1	B1	Queue limited	Normal	0.00	100.00	8.00

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1 - Page Street - Bunns Lane	A1 - Page Street N		DIRECT	✓	100.000
	B1 - Page Street S	✓			
	C1 - Bunns Lane		DIRECT	✓	100.000
2 - Page Street - Pursley Road	A2 - Pursley Road		DIRECT	✓	100.000
	B2 - Page Street S		DIRECT	✓	100.000
	C2 - Page Street N	✓			

Demand overview (Pedestrians)

Junction	Arm	Profile type
1 - Page Street - Bunns Lane	A1 - Page Street N	Global
	B1 - Page Street S	
	C1 - Bunns Lane	Global
2 - Page Street - Pursley Road	A2 - Pursley Road	
	B2 - Page Street S	Global
	C2 - Page Street N	

Origin-Destination Data

1 - Page Street - Bunns Lane 17:00 - 17:15

Demand (Veh/TS)

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0.00	25.23	18.90
	B1 - Page Street S	24.46	0.00	195.53
	C1 - Bunns Lane	7.78	207.09	0.00

Proportions

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0.00	0.57	0.43
	B1 - Page Street S	0.11	0.00	0.89
	C1 - Bunns Lane	0.04	0.96	0.00

1 - Page Street - Bunns Lane 17:15 - 17:30

Demand (Veh/TS)

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0.00	24.12	11.12
	B1 - Page Street S	43.35	0.00	225.54
	C1 - Bunns Lane	12.23	195.97	0.00

Proportions

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0.00	0.68	0.32
	B1 - Page Street S	0.16	0.00	0.84
	C1 - Bunns Lane	0.06	0.94	0.00

1 - Page Street - Bunns Lane 17:30 - 17:45

Demand (Veh/TS)

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0.00	43.02	24.46
	B1 - Page Street S	32.24	0.00	186.64
	C1 - Bunns Lane	12.23	204.86	0.00

Proportions

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0.00	0.64	0.36
	B1 - Page Street S	0.15	0.00	0.85
	C1 - Bunns Lane	0.06	0.94	0.00

1 - Page Street - Bunns Lane 17:45 - 18:00

Demand (Veh/TS)

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0.00	36.35	21.12
	B1 - Page Street S	45.58	0.00	221.10
	C1 - Bunns Lane	10.00	195.97	0.00

Proportions

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0.00	0.63	0.37
	B1 - Page Street S	0.17	0.00	0.83
	C1 - Bunns Lane	0.05	0.95	0.00

2 - Page Street - Pursley Road 17:00 - 17:15

Demand (Veh/TS)

From \ To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
A2 - Pursley Road	0.00	44.02	153.29
B2 - Page Street S	38.91	0.00	71.14
C2 - Page Street N	134.83	97.49	0.00

Proportions

From \ To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
A2 - Pursley Road	0.00	0.22	0.78
B2 - Page Street S	0.35	0.00	0.65
C2 - Page Street N	0.58	0.42	0.00

2 - Page Street - Pursley Road 17:15 - 17:30

Demand (Veh/TS)

From \ To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
A2 - Pursley Road	0.00	39.57	157.74
B2 - Page Street S	40.02	0.00	111.16
C2 - Page Street N	128.16	91.93	0.00

Proportions

From \ To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
A2 - Pursley Road	0.00	0.20	0.80
B2 - Page Street S	0.26	0.00	0.74
C2 - Page Street N	0.58	0.42	0.00

2 - Page Street - Pursley Road 17:30 - 17:45

Demand (Veh/TS)

From \ To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
A2 - Pursley Road	0.00	48.46	139.95
B2 - Page Street S	38.91	0.00	78.92
C2 - Page Street N	144.84	103.04	0.00

Proportions

From \ To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
A2 - Pursley Road	0.00	0.26	0.74
B2 - Page Street S	0.33	0.00	0.67
C2 - Page Street N	0.58	0.42	0.00

2 - Page Street - Pursley Road 17:45 - 18:00

Demand (Veh/TS)

From \ To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
A2 - Pursley Road	0.00	51.80	148.84
B2 - Page Street S	43.35	0.00	117.83
C2 - Page Street N	143.73	88.59	0.00

Proportions

From \ To	A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
A2 - Pursley Road	0.00	0.26	0.74
B2 - Page Street S	0.27	0.00	0.73
C2 - Page Street N	0.62	0.38	0.00

Vehicle Mix

1 - Page Street - Bunns Lane 17:00 - 17:15

Heavy Vehicle Percentages

From \ To	A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
A1 - Page Street N	0	0	6
B1 - Page Street S	0	0	2
C1 - Bunns Lane	0	2	0

Average PCU Per Veh

From \ To	A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
A1 - Page Street N	1.000	1.000	1.060
B1 - Page Street S	1.000	1.000	1.020
C1 - Bunns Lane	1.000	1.019	1.000

1 - Page Street - Bunns Lane 17:15 - 17:30

Heavy Vehicle Percentages

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0	0	10
	B1 - Page Street S	3	0	1
	C1 - Bunns Lane	0	1	0

Average PCU Per Veh

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	1.000	1.000	1.100
	B1 - Page Street S	1.030	1.000	1.010
	C1 - Bunns Lane	1.000	1.010	1.000

1 - Page Street - Bunns Lane 17:30 - 17:45

Heavy Vehicle Percentages

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0	0	0
	B1 - Page Street S	0	0	1
	C1 - Bunns Lane	0	2	0

Average PCU Per Veh

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	1.000	1.000	1.000
	B1 - Page Street S	1.000	1.000	1.010
	C1 - Bunns Lane	1.000	1.019	1.000

1 - Page Street - Bunns Lane 17:45 - 18:00

Heavy Vehicle Percentages

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	0	0	0
	B1 - Page Street S	0	0	0
	C1 - Bunns Lane	0	1	0

Average PCU Per Veh

		To		
		A1 - Page Street N	B1 - Page Street S	C1 - Bunns Lane
From	A1 - Page Street N	1.000	1.000	1.000
	B1 - Page Street S	1.000	1.000	1.000
	C1 - Bunns Lane	1.000	1.010	1.000

2 - Page Street - Pursley Road 17:00 - 17:15

Heavy Vehicle Percentages

		To		
		A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
From	A2 - Pursley Road	0	0	2
	B2 - Page Street S	3	0	0
	C2 - Page Street N	3	1	0

Average PCU Per Veh

		To		
		A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
From	A2 - Pursley Road	1.000	1.000	1.020
	B2 - Page Street S	1.030	1.000	1.000
	C2 - Page Street N	1.028	1.010	1.000

2 - Page Street - Pursley Road 17:15 - 17:30

Heavy Vehicle Percentages

		To		
		A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
From	A2 - Pursley Road	0	0	1
	B2 - Page Street S	0	0	1
	C2 - Page Street N	2	0	0

Average PCU Per Veh

		To		
		A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
From	A2 - Pursley Road	1.000	1.000	1.010
	B2 - Page Street S	1.000	1.000	1.010
	C2 - Page Street N	1.019	1.000	1.000

2 - Page Street - Pursley Road 17:30 - 17:45

Heavy Vehicle Percentages

		To		
		A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
From	A2 - Pursley Road	0	0	2
	B2 - Page Street S	0	0	0
	C2 - Page Street N	2	0	0

Average PCU Per Veh

		To		
		A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
From	A2 - Pursley Road	1.000	1.000	1.020
	B2 - Page Street S	1.000	1.000	1.000
	C2 - Page Street N	1.019	1.000	1.000

2 - Page Street - Pursley Road 17:45 - 18:00

Heavy Vehicle Percentages

		To		
		A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
From	A2 - Pursley Road	0	0	0
	B2 - Page Street S	0	0	0
	C2 - Page Street N	1	1	0

Average PCU Per Veh

		To		
		A2 - Pursley Road	B2 - Page Street S	C2 - Page Street N
From	A2 - Pursley Road	1.000	1.000	1.000
	B2 - Page Street S	1.000	1.000	1.000
	C2 - Page Street N	1.010	1.010	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Junction	Arm	Demand (Veh/TS)	Demand in PCU (PCU/TS)	Pedestrian Demand (Ped/TS)
17:00-17:15	1 - Page Street - Bunns Lane	A1 - Page Street N	44.13	45.26	3.76
		B1 - Page Street S	219.99	223.88	
		C1 - Bunns Lane	214.87	218.87	3.76
	2 - Page Street - Pursley Road	A2 - Pursley Road	197.31	200.35	
		B2 - Page Street S	110.05	111.22	3.76
		C2 - Page Street N	232.32	237.10	
17:15-17:30	1 - Page Street - Bunns Lane	A1 - Page Street N	35.24	36.35	4.49
		B1 - Page Street S	268.90	272.44	
		C1 - Bunns Lane	208.20	210.09	4.49
	2 - Page Street - Pursley Road	A2 - Pursley Road	197.31	198.87	
		B2 - Page Street S	151.18	152.29	4.49
		C2 - Page Street N	220.09	222.52	
17:30-17:45	1 - Page Street - Bunns Lane	A1 - Page Street N	67.47	67.47	5.51
		B1 - Page Street S	218.87	220.73	
		C1 - Bunns Lane	217.09	221.05	5.51
	2 - Page Street - Pursley Road	A2 - Pursley Road	188.41	191.19	
		B2 - Page Street S	117.83	117.83	5.51
		C2 - Page Street N	247.88	250.64	
17:45-18:00	1 - Page Street - Bunns Lane	A1 - Page Street N	57.47	57.47	5.51
		B1 - Page Street S	266.67	266.67	
		C1 - Bunns Lane	205.98	207.87	5.51
	2 - Page Street - Pursley Road	A2 - Pursley Road	200.64	200.64	
		B2 - Page Street S	161.18	161.18	5.51
		C2 - Page Street N	232.32	234.54	

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
1 - Page Street - Bunns Lane	A1 - Page Street N	1.02	164.66	9.7	F	51.05	204.18
	B1 - Page Street S	0.93	39.62	7.9	E	187.45	749.79
	C1 - Bunns Lane	1.24	574.41	124.3	F	211.36	845.45
2 - Page Street - Pursley Road	A2 - Pursley Road	1.35	898.00	171.3	F	195.39	781.55
	B2 - Page Street S	1.48	943.07	138.0	F	134.88	539.53
	C2 - Page Street N	0.92	36.31	7.9	E	201.86	807.45

Main Results for each time segment

17:00 - 17:15

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Pedestrian demand (Ped/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Thr (e (
1 - Page Street - Bunns Lane	A1 - Page Street N	44.13	44.13	180.24	3.76	69.87	0.632	42.57	
	B1 - Page Street S	189.69	189.69	18.23		204.96	0.926	181.83	
	C1 - Bunns Lane	214.87	214.87	20.21	3.76	193.72	1.109	187.01	
2 - Page Street - Pursley Road	A2 - Pursley Road	197.31	197.31	82.28		171.15	1.153	165.88	
	B2 - Page Street S	110.05	110.05	128.87	3.76	101.77	1.081	95.31	
	C2 - Page Street N	203.87	203.87	33.70		221.23	0.922	196.07	

17:15 - 17:30

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Pedestrian demand (Ped/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Thr (e (
1 - Page Street - Bunns Lane	A1 - Page Street N	35.24	35.24	177.26	4.49	71.84	0.491	35.78	
	B1 - Page Street S	188.65	188.64	11.46		212.52	0.888	188.66	
	C1 - Bunns Lane	208.20	208.20	30.03	4.49	188.57	1.103	187.65	
2 - Page Street - Pursley Road	A2 - Pursley Road	197.31	197.31	84.11		145.76	1.351	145.57	
	B2 - Page Street S	151.18	151.18	115.66	4.49	101.92	1.483	101.70	
	C2 - Page Street N	201.33	201.33	28.25		226.99	0.887	201.33	

17:30 - 17:45

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Pedestrian demand (Ped/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Thr (e (
1 - Page Street - Bunns Lane	A1 - Page Street N	67.47	67.47	165.00	5.51	65.82	1.024	59.78	
	B1 - Page Street S	184.20	184.20	21.62		206.46	0.892	184.16	
	C1 - Bunns Lane	217.09	217.09	27.24	5.51	175.15	1.243	174.97	
2 - Page Street - Pursley Road	A2 - Pursley Road	188.41	188.41	84.62		149.12	1.268	149.03	
	B2 - Page Street S	117.83	117.83	115.40	5.51	95.66	1.226	95.59	
	C2 - Page Street N	203.65	203.65	27.35		227.66	0.895	203.53	

17:45 - 18:00

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Pedestrian demand (Ped/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Thr (e (
1 - Page Street - Bunns Lane	A1 - Page Street N	57.47	57.47	162.46	5.51	60.27	0.954	56.34	
	B1 - Page Street S	187.32	187.32	20.66		209.85	0.892	187.28	
	C1 - Bunns Lane	205.98	205.98	31.82	5.51	171.58	1.195	171.49	
2 - Page Street - Pursley Road	A2 - Pursley Road	200.64	200.64	76.02		149.79	1.324	149.76	
	B2 - Page Street S	161.18	161.18	111.21	5.51	108.91	1.480	108.89	
	C2 - Page Street N	198.64	198.64	34.58		223.69	0.888	198.63	

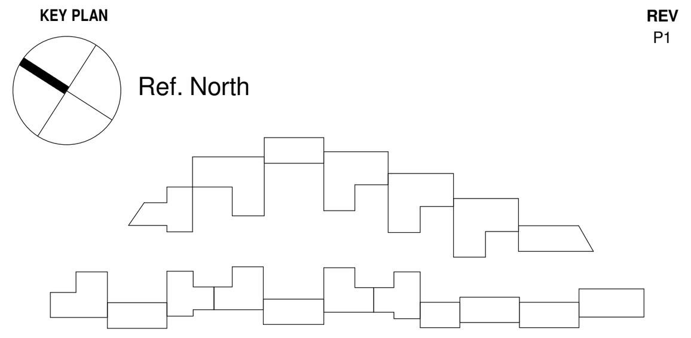
Appendix T

PROPOSED DEVELOPMENT PLANS

SITE BOUNDARY

APPLICATION BOUNDARY

KEY PLAN



REV	DATE	DESCRIPTION
P1	01.02.19	For information

NOTES

Check and verify all dimensions prior to commencement of work.
This drawing shall be read in conjunction with all other contract documents including those by other consultants, and including specifications.
Seek clarification of inconsistancies/ conflicts.
Figured dimensions shall take precedence to scaled dimensions.

CLIENT

Meadow Residential

ARCHITECTS:
AFK ARCHITECTURE + INTERIORS
44-46 SCRUTTON STREET, LEVEL 1
LONDON, EC2A 4HH, UNITED KINGDOM.

CLIENT:
MEADOW RESIDENTIAL
FIRST FLOOR, 50 GREAT
MARLBOROUGH STREET, LONDON,
W1F 7JS.

STRUCTURAL ENGINEER:
HTS
4 PEAR TREE COURT, LONDON,
EC1R 0DS.

MECHANICAL / ELECTRICAL ENGINEER:
CHAPMAN BDSP
SAFFRON HOUSE, 6-10 KIRBY STREET,
LONDON, EC1N 8TS.

LANDSCAPE ARCHITECT:
OUTERSPACE
THE BOATHOUSE, 27 FERRY
ROAD, TEDDINGTON, TW11 9NN.

Arney Fender Katsalidis

DRAWN	CHECKED	JOB NO.
Author	Checker	44032

PROJECT

Mill Hill - London

DRAWING TITLE

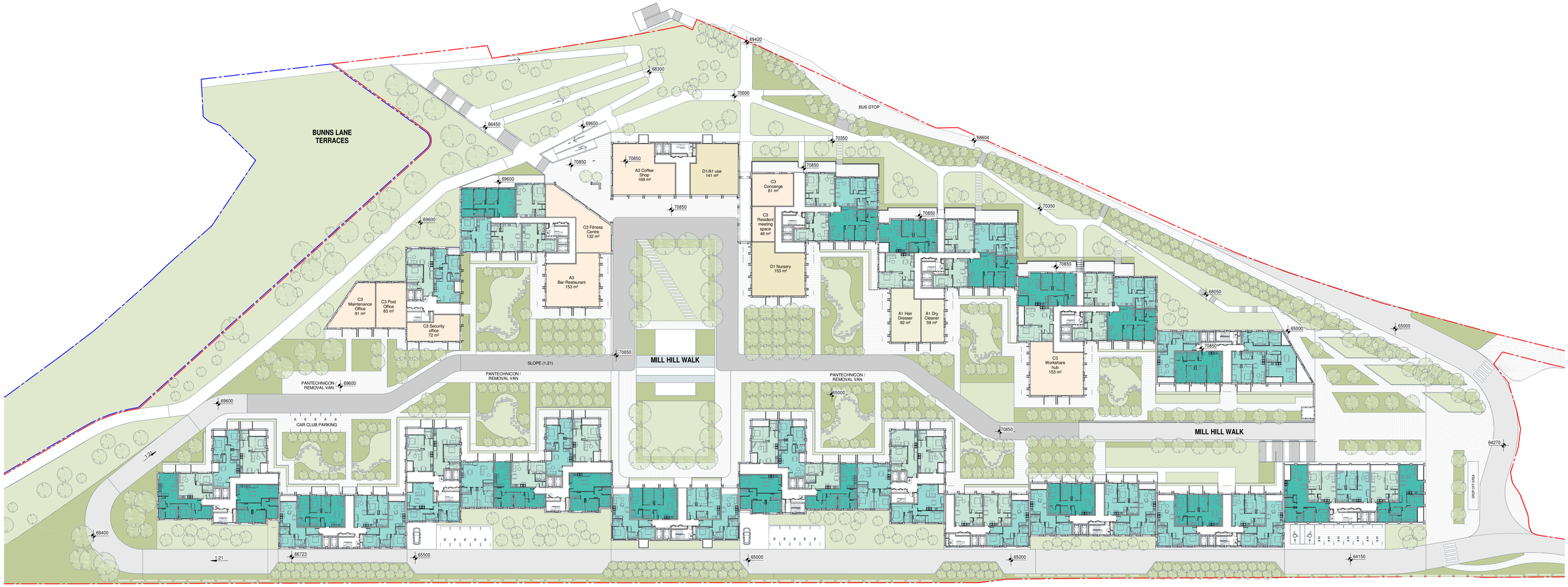
SITE PLAN

SCALE

1 : 1000@ A1

REVISION / DRAWING No.

P1	PLANNING	A01-00-03



LEVELS ARE SUBJECTED TO CHANGE

KEY PLAN

Ref. North

REV	DATE	DESCRIPTION
P1	01.02.19	For information

0m 10m 20m 30m 40m 50m

SITE BOUNDARY

APPLICATION BOUNDARY

NOTES

Check and verify all dimensions prior to commencement of work.
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CLIENT

Meadow Residential

ARCHITECTS:
AFK ARCHITECTURE + INTERIORS
44-46 SCRUTTON STREET, LEVEL 1
LONDON, EC2A 4HH, UNITED KINGDOM.

CLIENT:
MEADOW RESIDENTIAL
FIRST FLOOR, 50 GREAT MARLBOROUGH STREET, LONDON, W1F 7JS.

STRUCTURAL ENGINEER:
HTS
4 PEAR TREE COURT, LONDON, EC1R 0DS.

MECHANICAL / ELECTRICAL ENGINEER:
CHAPMAN BDSP
SAFFRON HOUSE, 6-10 KIRBY STREET, LONDON, EC1N 8TS.

LANDSCAPE ARCHITECT:
OUTERSPACE
THE BOATHOUSE, 27 FERRY ROAD, TEDDINGTON, TW11 9NN.

Arney Fender Katsalidis

DRAWN	CHECKED	JOB NO.
MMR	JC	44032

PROJECT

Mill Hill - London

DRAWING TITLE

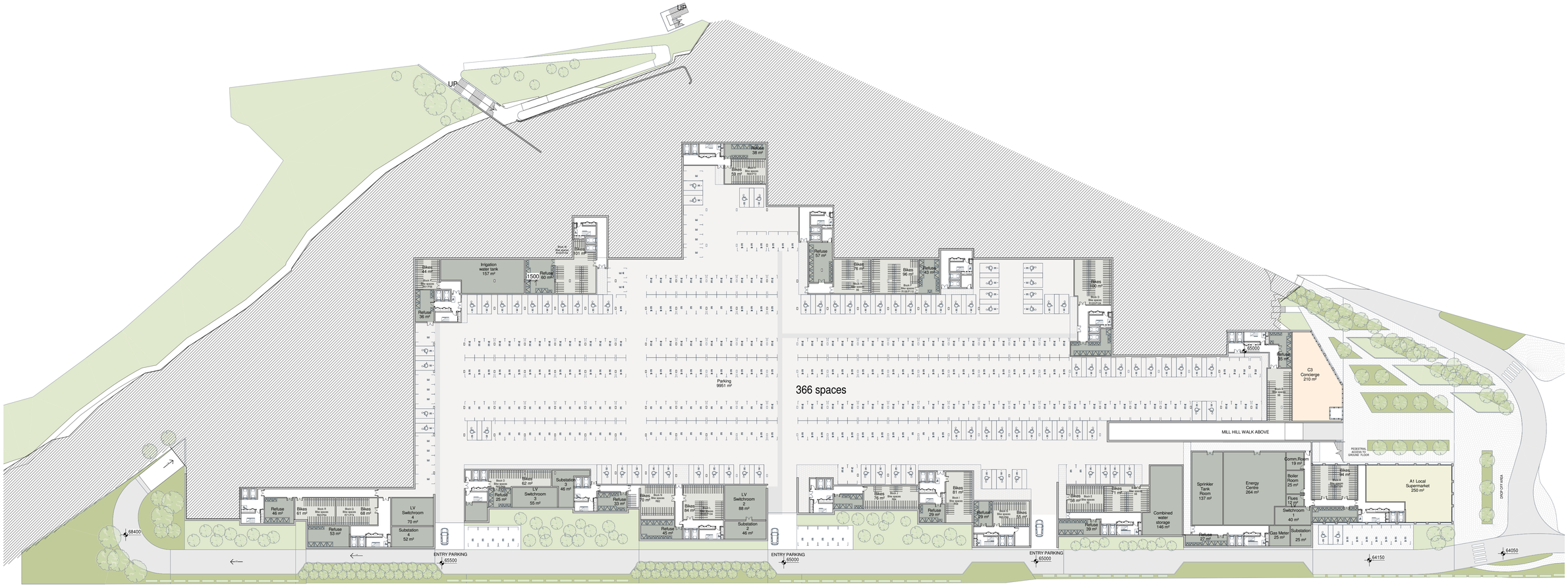
GA_LEVEL 00_OVERALL PLAN

SCALE

1 : 500@ A1

REVISION / DRAWING No.

P1	PLANNING	A10-00-01



STRUCTURE TO BE COORDINATED

KEY PLAN

Ref. North

REV	DATE	DESCRIPTION
P1	01.02.19	For information

0m 10m 20m 30m 40m 50m

NOTES

Check and verify all dimensions prior to commencement of work.
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Seek clarification of inconsistancies/ conflicts.
Figured dimensions shall take precedence to scaled dimensions.

CLIENT

Meadow Residential

ARCHITECTS:
AFK ARCHITECTURE + INTERIORS
44-46 SCRUTTON STREET, LEVEL 1
LONDON, EC2A 4HH, UNITED KINGDOM.

CLIENT:
MEADOW RESIDENTIAL
FIRST FLOOR, 50 GREAT
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W1F 7JS.

STRUCTURAL ENGINEER:
HTS
4 PEAR TREE COURT, LONDON,
EC1R 0DS.

MECHANICAL / ELECTRICAL ENGINEER:
CHAPMAN BDSP
SAFFRON HOUSE, 6-10 KIRBY STREET,
LONDON, EC1N 8TS.

LANDSCAPE ARCHITECT:
OUTERSPACE
THE BOATHOUSE, 27 FERRY
ROAD, TEDDINGTON, TW11 9NN.

Arney Fender Katsalidis

DRAWN	CHECKED	JOB NO.
MMR	JC	44032

PROJECT

Mill Hill - London

DRAWING TITLE

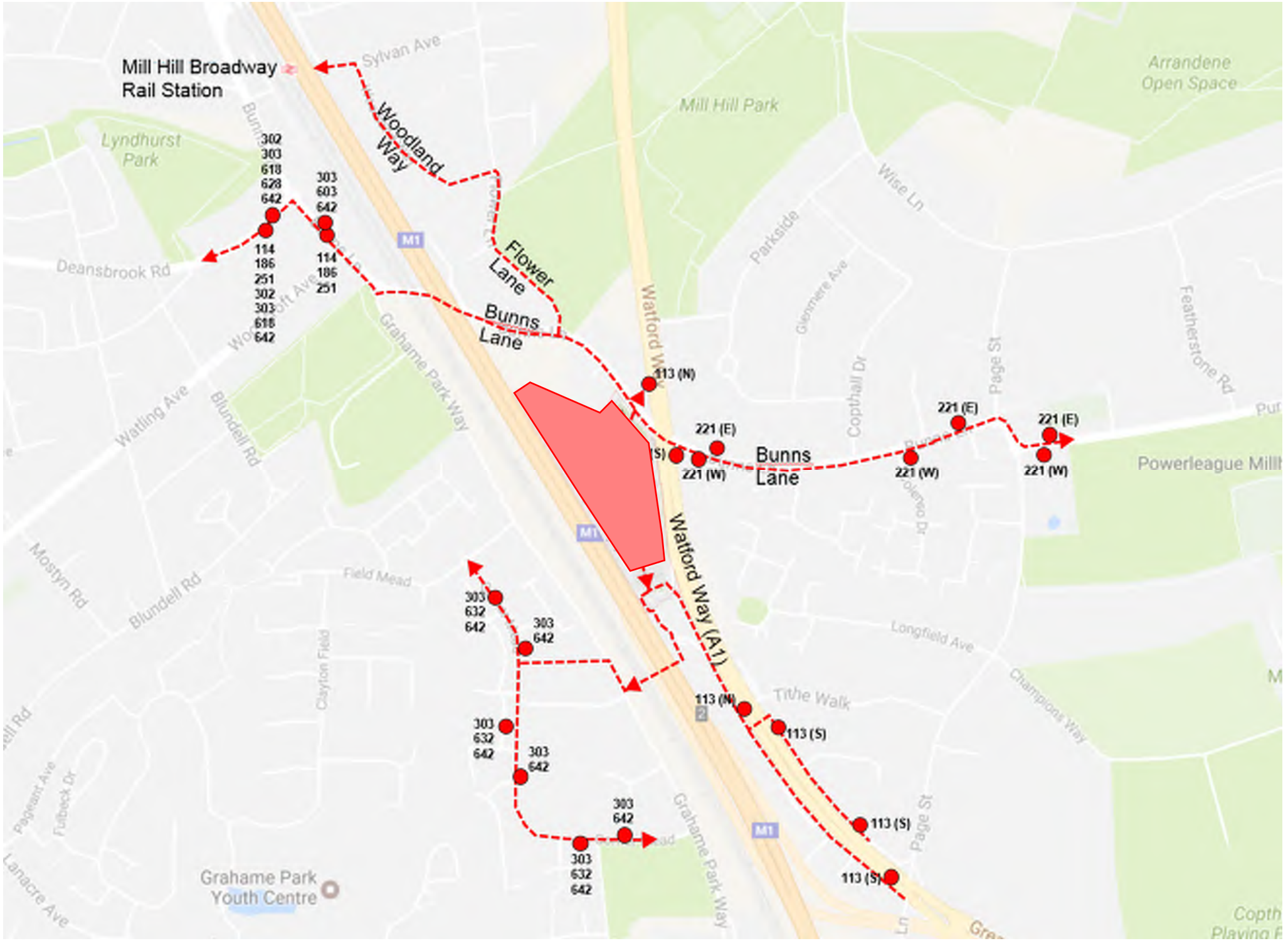
GA_LEVEL LG_OVERALL PLAN

SCALE

1 : 500@ A1

REVISION / DRAWING No.

P1	PLANNING	A10-LG-01


Mill Hill Broadway
Rail Station
Woodland Way
Flower Lane
Bunns Lane
Watford Way (A1)
Bunns Lane
Sylvan Ave
Lyndhurst Park
Mill Hill Park
Arrandene Open Space
Deansbrook Rd
Watling Ave
Blundell Rd
Grahame Park Way
Mostyn Rd
Field Mead
Clayton Field
Longfield Ave
Tithe Walk
Wise Ln
Parkside
Glenmere Ave
Copthall Dr
Page St
Featherstone Rd
Champions Way
Powerleague Mill
Grahame Park Youth Centre
Lanacre Ave
Pageant Ave
Fullbeck Dr
M1
302 303 618 628 642
303 603 642
114 186 251 302 303 618 642
114 186 251
303 632 642
303 642
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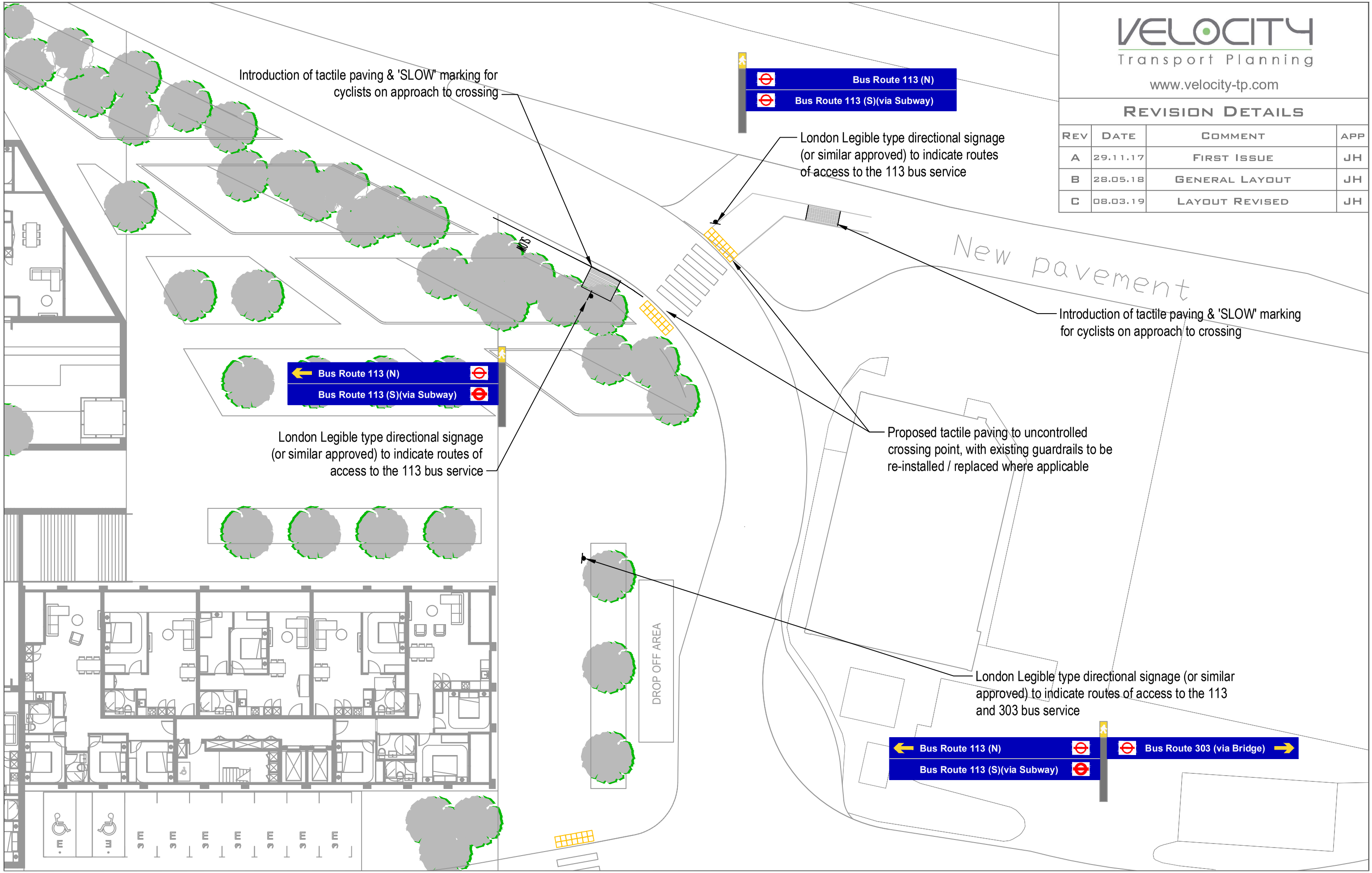
113 (S)
221 (E)
221 (W)

VELOCITY
Transport Planning
www.velocity-tp.com

Revision Details

Rev	Date	Comment	App
A	29.11.17	First Issue	JH
B	28.05.18	General Layout	JH
C	08.03.19	Layout Revised	JH



Client
Meadow Residential

Project
Pentavia Mill Hill

Drawing Title
Proposed Improvements To Southern Pedestrian Access

Drawn	Approved	Scale
LJB	JH	1:250 @ A3

Drawing No.
2110 | 1130 | T | 103 | Rev C

VELOCITY
Transport Planning
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Revision Details

Rev	Date	Comment	App
A	28.05.18	First Issue	JH
B	08.03.19	Layout Revised	JH

BUNNS LANE

BUS STOP

Bus Shelter

Bus Route 113 (N)

Bus Route 221

BUNNS LANE TERRACE

A3 Coffee Shop 169 m²

D1/A1 use 141 m²

C3 Concierge 81 m²

C3 Resident meeting space 48 m²

C3 Fitness Centre 132 m²

D1 Nursery 153 m²

153 m²

C3 Maintenance Office 91 m²

C3 Post Office 83 m²

C3 Security office 72 m²

A1 Hair Dresser 92 m²

A1 Dry Cleaner 59 m²

SLOPE (1:21)

MILL HILL WALK

CAR CLUB PARKING

WATFO

Client
Meadow Residential

Project
Pentavia Mill Hill

Drawing Title
Proposed Signage Strategy
Northern Area

Drawn: LJB | Approved: JH | Scale: 1:500 @ A3

Drawing No.: 2110 | 1130 | T | 112 | Rev: B

Appendix U

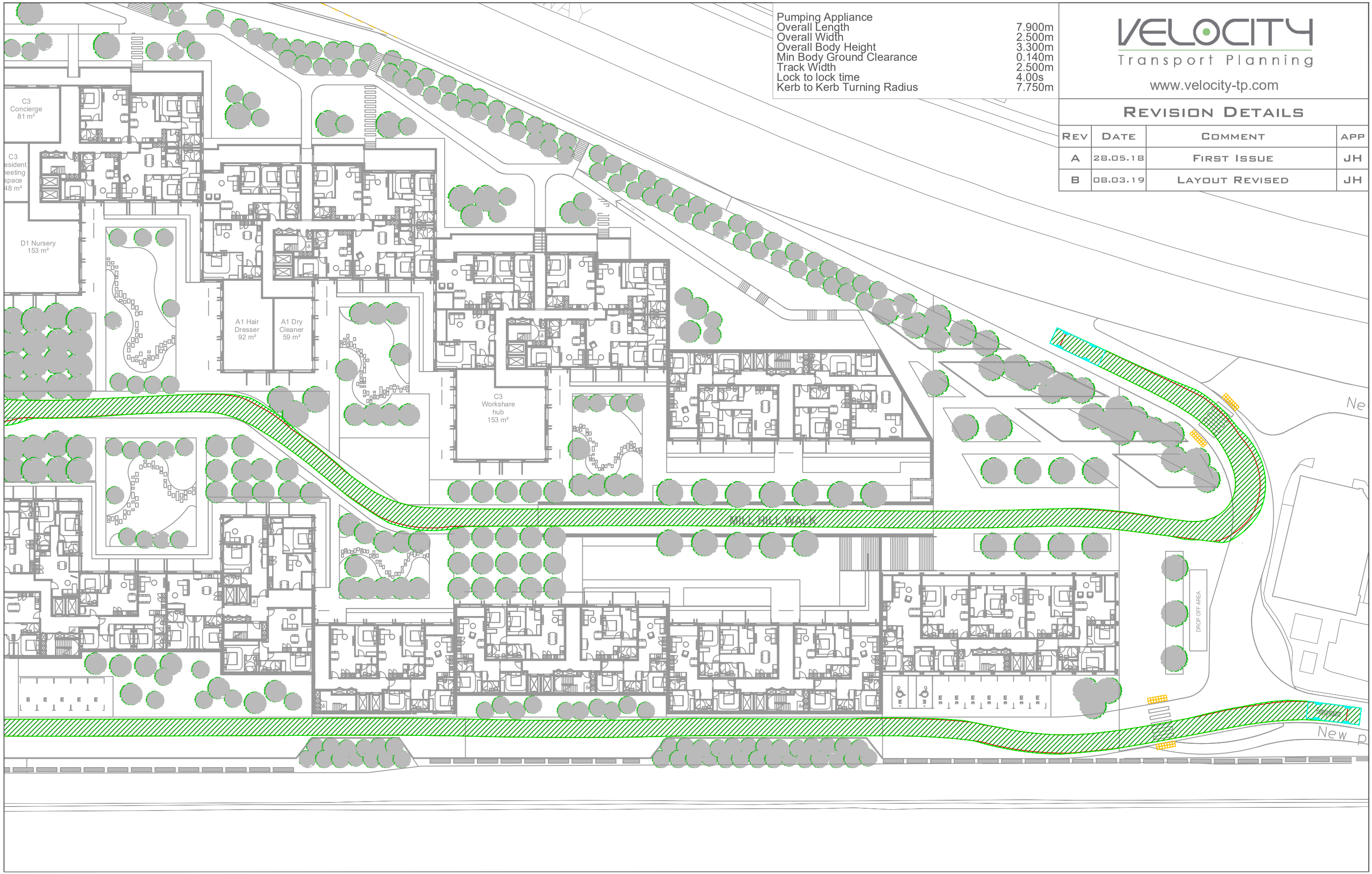
FIRE TENDER ACCESS

Pumping Appliance	
Overall Length	7.900m
Overall Width	2.500m
Overall Body Height	3.300m
Min Body Ground Clearance	0.140m
Track Width	2.500m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	7.750m

VELOCITY
Transport Planning
www.velocity-tp.com

Revision Details

Rev	Date	Comment	App
A	28.05.18	First Issue	JH
B	08.03.19	Layout Revised	JH



Client
Meadow Residential

Project
Pentavia Mill Hill

Drawing Title
LFB Fire Tender Swept Path
South End of Site

Drawn: LJB | Approved: JH | Scale: 1:500 @ A3

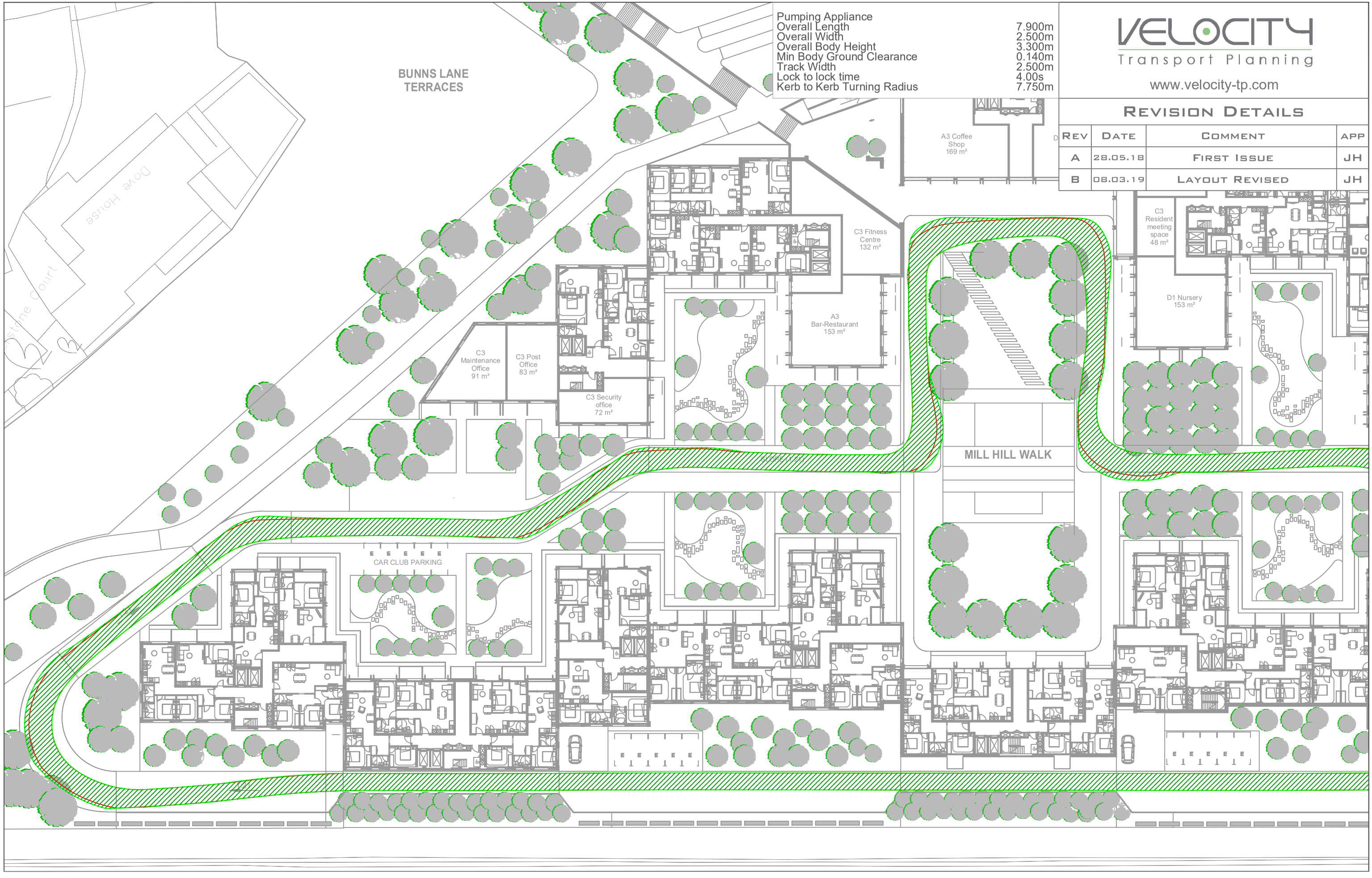
Drawing No.: 2110 | 1130 | T | 113 | Rev: B

Pumping Appliance	
Overall Length	7.900m
Overall Width	2.500m
Overall Body Height	3.300m
Min Body Ground Clearance	0.140m
Track Width	2.500m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	7.750m

VELOCITY
Transport Planning
www.velocity-tp.com

Revision Details

Rev	Date	Comment	App
A	28.05.18	First Issue	JH
B	08.03.19	Layout Revised	JH



Client
Meadow Residential

Project
Pentavia Mill Hill

Drawing Title
LFB Fire Tender Swept Path
North End of Site

Drawn: LJB | Approved: JH | Scale: 1:500 @ A3

Drawing No. 2110 | 1130 | T | 114 | Rev B

Appendix V

2011 CENSUS CAR OWNERSHIP DATA ANALYSIS

LB Barnet

				Total: Car or van availability	No cars or vans in household	1 car or van in household	2 cars or vans in household	3 cars or vans in household	4 or more cars or vans in household
E41000294 Barnet	Flat, maisonette or apartment	Owned: Owned outright or with a mortgage or loan	Total: Number of bedrooms	18712	5177	10735	2554	200	46
E41000294 Barnet	Flat, maisonette or apartment	Owned: Owned outright or with a mortgage or loan	1 bedroom	4696	1826	2576	273	11	10
E41000294 Barnet	Flat, maisonette or apartment	Owned: Owned outright or with a mortgage or loan	2 bedrooms	11380	2826	6739	1680	115	20
E41000294 Barnet	Flat, maisonette or apartment	Owned: Owned outright or with a mortgage or loan	3 bedrooms	2385	466	1311	533	64	11
E41000294 Barnet	Flat, maisonette or apartment	Owned: Owned outright or with a mortgage or loan	4 bedrooms	193	38	90	54	8	3
E41000294 Barnet	Flat, maisonette or apartment	Owned: Owned outright or with a mortgage or loan	5 or more bedrooms	58	21	19	14	2	2

Summary

	Unit Type	No. Units	% Car ownership per unit				
			No. Car	1 Car	2 Cars	3 cars	4+ Cars
Owned: Owned outright or with a mortgage or loan	1 bedroom	4696	38.9%	54.9%	5.8%	0.2%	0.2%
Owned: Owned outright or with a mortgage or loan	2 bedrooms	11380	24.8%	59.2%	14.8%	1.0%	0.2%
Owned: Owned outright or with a mortgage or loan	3 bedrooms	2385	19.5%	55.0%	22.3%	2.7%	0.5%

Application to Development Schedule

Unit Type	No. Units	Car ownership per unit					**Total Cars**	**Ratio**
		No. Car	1 Car	2 Cars	3 cars	4+ Cars		
1 bedroom	84	0	46	10	0	0	**56**	0.67
2 bedrooms	98	0	58	28	3	0	**89**	0.91
3 bedrooms	47	0	26	22	3	0	**51**	1.09
Total	**229**	**0**	**130**	**60**	**6**	**0**	**196**	**0.86**

Outer London

				Total: Car or van availability	No cars or vans in household	1 car or van in household	2 cars or vans in household	3 cars or vans in household	4 or more cars or vans in household
E42000090 Outer London	Flat, maisonette or apartment	Owned: Owned outright or with a mortgage or loan	Total: Number of bedrooms	206217	65528	114266	23586	2307	530
E42000090 Outer London	Flat, maisonette or apartment	Owned: Owned outright or with a mortgage or loan	1 bedroom	61100	25625	31453	3651	271	100
E42000090 Outer London	Flat, maisonette or apartment	Owned: Owned outright or with a mortgage or loan	2 bedrooms	121860	34677	70174	15485	1275	249
E42000090 Outer London	Flat, maisonette or apartment	Owned: Owned outright or with a mortgage or loan	3 bedrooms	20879	4705	11561	3862	615	136
E42000090 Outer London	Flat, maisonette or apartment	Owned: Owned outright or with a mortgage or loan	4 bedrooms	1854	376	870	474	107	27
E42000090 Outer London	Flat, maisonette or apartment	Owned: Owned outright or with a mortgage or loan	5 or more bedrooms	524	145	208	114	39	18

Summary

	Unit Type	No. Units	% Car ownership per unit				
			No. Car	1 Car	2 Cars	3 cars	4+ Cars
Owned: Owned outright or with a mortgage or loan	1 bedroom	61100	41.9%	51.5%	6.0%	0.4%	0.2%
Owned: Owned outright or with a mortgage or loan	2 bedrooms	121860	28.5%	57.6%	12.7%	1.0%	0.2%
Owned: Owned outright or with a mortgage or loan	3 bedrooms	20879	22.5%	55.4%	18.5%	2.9%	0.7%

Application to Development Schedule

Unit Type	No. Units	Car ownership per unit					**Total Cars**	**Ratio**
		No. Car	1 Car	2 Cars	3 cars	4+ Cars		
1 bedroom	84	0	43	10	0	0	**53**	0.63
2 bedrooms	98	0	56	24	3	0	**83**	0.85
3 bedrooms	47	0	26	18	3	0	**47**	1.00
Total	**229**	**0**	**125**	**52**	**6**	**0**	**183**	**0.80**

London

				Total: Car or van availability	No cars or vans in household	1 car or van in household	2 cars or vans in household	3 cars or vans in household	4 or more cars or vans in household
E12000007 London	Flat, maisonette or apartment	Owned: Owned outright or with a mortgage or loan	Total: Number of bedrooms	447197	172696	227540	41358	4394	1209
E12000007 London	Flat, maisonette or apartment	Owned: Owned outright or with a mortgage or loan	1 bedroom	131939	65919	59130	6130	546	214
E12000007 London	Flat, maisonette or apartment	Owned: Owned outright or with a mortgage or loan	2 bedrooms	241133	84611	129883	24028	2087	524
E12000007 London	Flat, maisonette or apartment	Owned: Owned outright or with a mortgage or loan	3 bedrooms	63778	19401	33624	9114	1317	322
E12000007 London	Flat, maisonette or apartment	Owned: Owned outright or with a mortgage or loan	4 bedrooms	8329	2205	4065	1652	311	96
E12000007 London	Flat, maisonette or apartment	Owned: Owned outright or with a mortgage or loan	5 or more bedrooms	2018	560	838	434	133	53

Summary

	Unit Type	No. Units	% Car ownership per unit				
			No. Car	1 Car	2 Cars	3 cars	4+ Cars
Owned: Owned outright or with a mortgage or loan	1 bedroom	131939	50.0%	44.8%	4.6%	0.4%	0.2%
Owned: Owned outright or with a mortgage or loan	2 bedrooms	241133	35.1%	53.9%	10.0%	0.9%	0.2%
Owned: Owned outright or with a mortgage or loan	3 bedrooms	63778	30.4%	52.7%	14.3%	2.1%	0.5%

Application to Development Schedule

Unit Type	No. Units	Car ownership per unit					**Total Cars**	**Ratio**
		No. Car	1 Car	2 Cars	3 cars	4+ Cars		
1 bedroom	84	0	38	8	0	0	**46**	0.55
2 bedrooms	98	0	53	20	3	0	**76**	0.78
3 bedrooms	47	0	25	14	3	0	**42**	0.89
Total	**229**	**0**	**116**	**42**	**6**	**0**	**164**	**0.72**

LB Barnet

				Total: Car or van availability	No cars or vans in household	1 car or van in household	2 cars or vans in household	3 cars or vans in household	4 or more cars or vans in household
E41000294 Barnet	Flat, maisonette or apartment	Rented (private or social rented) and living rent free	Total: Number of bedrooms	38442	20621	15027	2443	276	75
E41000294 Barnet	Flat, maisonette or apartment	Rented (private or social rented) and living rent free	1 bedroom	15333	10075	4798	410	32	18
E41000294 Barnet	Flat, maisonette or apartment	Rented (private or social rented) and living rent free	2 bedrooms	17993	8277	8164	1427	94	31
E41000294 Barnet	Flat, maisonette or apartment	Rented (private or social rented) and living rent free	3 bedrooms	4091	1763	1738	477	103	10
E41000294 Barnet	Flat, maisonette or apartment	Rented (private or social rented) and living rent free	4 bedrooms	670	330	214	93	26	7
E41000294 Barnet	Flat, maisonette or apartment	Rented (private or social rented) and living rent free	5 or more bedrooms	355	176	113	36	21	9

Summary

	Unit Type	No. Units	% Car ownership per unit				
			No. Car	1 Car	2 Cars	3 cars	4+ Cars
Rented (private or social rented) and living rent free	1 bedroom	15333	65.7%	31.3%	2.7%	0.2%	0.1%
Rented (private or social rented) and living rent free	2 bedrooms	17993	46.0%	45.4%	7.9%	0.5%	0.2%
Rented (private or social rented) and living rent free	3 bedrooms	4091	43.1%	42.5%	11.7%	2.5%	0.2%

Application to Development Schedule

Unit Type		No. Units	Car ownership per unit					**Total Cars**	**Ratio**
			No. Car	1 Car	2 Cars	3 cars	4+ Cars		
1 bedroom		179	0	56	10	0	0	**66**	0.37
2 bedrooms		299	0	136	48	6	4	**194**	0.65
3 bedrooms		74	0	31	18	6	0	**55**	0.74
	Total	**552**	**0**	**223**	**76**	**12**	**4**	**315**	**0.57**

Outer London

				Total: Car or van availability	No cars or vans in household	1 car or van in household	2 cars or vans in household	3 cars or vans in household	4 or more cars or vans in household
E42000090 Outer London	Flat, maisonette or apartment	Rented (private or social rented) and living rent free	Total: Number of bedrooms	472055	273431	171046	24361	2468	749
E42000090 Outer London	Flat, maisonette or apartment	Rented (private or social rented) and living rent free	1 bedroom	210303	142360	62345	5002	321	275
E42000090 Outer London	Flat, maisonette or apartment	Rented (private or social rented) and living rent free	2 bedrooms	205385	103910	86676	13612	957	230
E42000090 Outer London	Flat, maisonette or apartment	Rented (private or social rented) and living rent free	3 bedrooms	46775	22219	18967	4644	805	140
E42000090 Outer London	Flat, maisonette or apartment	Rented (private or social rented) and living rent free	4 bedrooms	6576	3239	2285	790	228	34
E42000090 Outer London	Flat, maisonette or apartment	Rented (private or social rented) and living rent free	5 or more bedrooms	3016	1703	773	313	157	70

Summary

	Unit Type	No. Units	% Car ownership per unit				
			No. Car	1 Car	2 Cars	3 cars	4+ Cars
Rented (private or social rented) and living rent free	1 bedroom	210303	67.7%	29.6%	2.4%	0.2%	0.1%
Rented (private or social rented) and living rent free	2 bedrooms	205385	50.6%	42.2%	6.6%	0.5%	0.1%
Rented (private or social rented) and living rent free	3 bedrooms	46775	47.5%	40.5%	9.9%	1.7%	0.3%

Application to Development Schedule

Unit Type		No. Units	Car ownership per unit					**Total Cars**	**Ratio**
			No. Car	1 Car	2 Cars	3 cars	4+ Cars		
1 bedroom		179	0	53	8	0	0	**61**	0.34
2 bedrooms		299	0	126	40	3	0	**169**	0.57
3 bedrooms		74	0	30	14	3	0	**47**	0.64
	Total	**552**	**0**	**209**	**62**	**6**	**0**	**277**	**0.50**

London

				Total: Car or van availability	No cars or vans in household	1 car or van in household	2 cars or vans in household	3 cars or vans in household	4 or more cars or vans in household
E12000007 London	Flat, maisonette or apartment	Rented (private or social rented) and living rent free	Total: Number of bedrooms	1204248	796868	357541	43967	4446	1426
E12000007 London	Flat, maisonette or apartment	Rented (private or social rented) and living rent free	1 bedroom	528128	396722	122061	8252	610	483
E12000007 London	Flat, maisonette or apartment	Rented (private or social rented) and living rent free	2 bedrooms	482079	287337	170426	22337	1536	443
E12000007 London	Flat, maisonette or apartment	Rented (private or social rented) and living rent free	3 bedrooms	156529	89948	54256	10455	1577	293
E12000007 London	Flat, maisonette or apartment	Rented (private or social rented) and living rent free	4 bedrooms	28256	16795	8652	2263	453	93
E12000007 London	Flat, maisonette or apartment	Rented (private or social rented) and living rent free	5 or more bedrooms	9256	6066	2146	660	270	114

Summary

	Unit Type	No. Units	% Car ownership per unit				
			No. Car	1 Car	2 Cars	3 cars	4+ Cars
Rented (private or social rented) and living rent free	1 bedroom	528128	75.1%	23.1%	1.6%	0.1%	0.1%
Rented (private or social rented) and living rent free	2 bedrooms	482079	59.6%	35.4%	4.6%	0.3%	0.1%
Rented (private or social rented) and living rent free	3 bedrooms	156529	57.5%	34.7%	6.7%	1.0%	0.2%

Application to Development Schedule

Unit Type		No. Units	Car ownership per unit					**Total Cars**	**Ratio**
			No. Car	1 Car	2 Cars	3 cars	4+ Cars		
1 bedroom		179	0	41	6	0	0	**47**	0.26
2 bedrooms		299	0	106	28	3	0	**137**	0.46
3 bedrooms		74	0	26	10	3	0	**39**	0.53
	Total	**552**	**0**	**173**	**44**	**6**	**0**	**223**	**0.40**

IT IS NOTED THAT NONE OF THE ABOVE CALCULATIONS SEEK TO ACCOUNT FOR THE EFFECTS ON CAR OWNERSHIP RESULTANT FROM THE PROPOSED DEVELOPMENT BEING BUILD TO RENT, WHERE REDUCED CAR OWNERSHIP LEVELS WILL BE SUPPORTED BY PROVISION OF AN ON-SITE CAR CLUB (REDUCTIONS OF CAR OWNERSHIP BETWEEN 10-20%).

LB Barnet

				Total: Car or van availability	No cars or vans in household	1 car or van in household	2 cars or vans in household	3 cars or vans in household	4 or more cars or vans in household
E41000294 Barnet	Flat, maisonette or apartment	Shared ownership (part owned and part rented)	Total: Number of bedrooms	757	256	419	73	9	0
E41000294 Barnet	Flat, maisonette or apartment	Shared ownership (part owned and part rented)	1 bedroom	309	116	167	19	7	0
E41000294 Barnet	Flat, maisonette or apartment	Shared ownership (part owned and part rented)	2 bedrooms	388	123	218	46	1	0
E41000294 Barnet	Flat, maisonette or apartment	Shared ownership (part owned and part rented)	3 bedrooms	52	11	32	8	1	0
E41000294 Barnet	Flat, maisonette or apartment	Shared ownership (part owned and part rented)	4 bedrooms	4	2	2	0	0	0
E41000294 Barnet	Flat, maisonette or apartment	Shared ownership (part owned and part rented)	5 or more bedrooms	4	4	0	0	0	0

Summary

	Unit Type	No. Units	% Car ownership per unit				
			No. Car	1 Car	2 Cars	3 cars	4+ Cars
Shared ownership (part owned and part rented)	1 bedroom	309	37.5%	54.0%	6.1%	2.3%	0.0%
Shared ownership (part owned and part rented)	2 bedrooms	388	31.7%	56.2%	11.9%	0.3%	0.0%
Shared ownership (part owned and part rented)	3 bedrooms	52	21.2%	61.5%	15.4%	1.9%	0.0%

Application to Development Schedule

Unit Type	No. Units	Car ownership per unit					**Total Cars**	**Ratio**
		No. Car	1 Car	2 Cars	3 cars	4+ Cars		
1 bedroom	22	0	12	2	0	0	**14**	0.64
2 bedrooms	39	0	22	10	0	0	**32**	0.82
3 bedrooms	2	0	1	0	0	0	**1**	0.50
Total	**63**	**0**	**35**	**12**	**0**	**0**	**47**	**0.75**

Outer London

				Total: Car or van availability	No cars or vans in household	1 car or van in household	2 cars or vans in household	3 cars or vans in household	4 or more cars or vans in household
E42000090 Outer London	House or bungalow	Shared ownership (part owned and part rented)	Total: Number of bedrooms	6929	1558	3579	1434	292	66
E42000090 Outer London	House or bungalow	Shared ownership (part owned and part rented)	1 bedroom	316	139	142	32	3	0
E42000090 Outer London	House or bungalow	Shared ownership (part owned and part rented)	2 bedrooms	2482	617	1388	419	51	7
E42000090 Outer London	House or bungalow	Shared ownership (part owned and part rented)	3 bedrooms	3472	664	1774	805	187	42
E42000090 Outer London	House or bungalow	Shared ownership (part owned and part rented)	4 bedrooms	494	103	213	134	36	8
E42000090 Outer London	House or bungalow	Shared ownership (part owned and part rented)	5 or more bedrooms	165	35	62	44	15	9

Summary

	Unit Type	No. Units	% Car ownership per unit				
			No. Car	1 Car	2 Cars	3 cars	4+ Cars
Shared ownership (part owned and part rented)	1 bedroom	316	44.0%	44.9%	10.1%	0.9%	0.0%
Shared ownership (part owned and part rented)	2 bedrooms	2482	24.9%	55.9%	16.9%	2.1%	0.3%
Shared ownership (part owned and part rented)	3 bedrooms	3472	19.1%	51.1%	23.2%	5.4%	1.2%

Application to Development Schedule

Unit Type	No. Units	Car ownership per unit					**Total Cars**	**Ratio**
		No. Car	1 Car	2 Cars	3 cars	4+ Cars		
1 bedroom	22	0	10	4	0	0	**14**	0.64
2 bedrooms	39	0	22	14	3	0	**39**	1.00
3 bedrooms	2	0	1	0	0	0	**1**	0.50
Total	**63**	**0**	**33**	**18**	**3**	**0**	**54**	**0.86**

London

				Total: Car or van availability	No cars or vans in household	1 car or van in household	2 cars or vans in household	3 cars or vans in household	4 or more cars or vans in household
E12000007 London	Total: Accommodation type	Shared ownership (part owned and part rented)	Total: Number of bedrooms	42032	19369	18555	3522	482	104
E12000007 London	Total: Accommodation type	Shared ownership (part owned and part rented)	1 bedroom	14120	8567	5109	404	33	7
E12000007 London	Total: Accommodation type	Shared ownership (part owned and part rented)	2 bedrooms	19825	8341	9606	1706	149	23
E12000007 London	Total: Accommodation type	Shared ownership (part owned and part rented)	3 bedrooms	6577	1941	3223	1138	223	52
E12000007 London	Total: Accommodation type	Shared ownership (part owned and part rented)	4 bedrooms	1102	352	477	208	55	10
E12000007 London	Total: Accommodation type	Shared ownership (part owned and part rented)	5 or more bedrooms	408	168	140	66	22	12

Summary

	Unit Type	No. Units	% Car ownership per unit				
			No. Car	1 Car	2 Cars	3 cars	4+ Cars
Shared ownership (part owned and part rented)	1 bedroom	14120	60.7%	36.2%	2.9%	0.2%	0.0%
Shared ownership (part owned and part rented)	2 bedrooms	19825	42.1%	48.5%	8.6%	0.8%	0.1%
Shared ownership (part owned and part rented)	3 bedrooms	6577	29.5%	49.0%	17.3%	3.4%	0.8%

Application to Development Schedule

Unit Type	No. Units	Car ownership per unit					**Total Cars**	**Ratio**
		No. Car	1 Car	2 Cars	3 cars	4+ Cars		
1 bedroom	22	0	8	2	0	0	**10**	0.45
2 bedrooms	39	0	19	6	0	0	**25**	0.64
3 bedrooms	2	0	1	0	0	0	**1**	0.50
Total	**63**	**0**	**28**	**8**	**0**	**0**	**36**	**0.57**

IT IS NOTED THAT NONE OF THE ABOVE CALCULATIONS SEEK TO ACCOUNT FOR THE EFFECTS ON CAR OWNERSHIP RESULTANT FROM THE PROPOSED SHARED OWNERSHIP FLATS, WHERE REDUCED CAR OWNERSHIP LEVELS WILL BE SUPPORTED BY PROVISION OF AN ON-SITE CAR CLUB (REDUCTIONS OF CAR OWNERSHIP BETWEEN 10-20%).

LB Barnet

Unit Type	No. Units	Car ownership per unit					Total Cars	Ratio
		No. Car	1 Car	2 Cars	3 cars	4+ Cars		
1 bedroom	285	0	114	22	0	0	136	0.48
2 bedrooms	436	0	216	86	9	4	315	0.72
3 bedrooms	123	0	58	40	9	0	107	0.87
Total	844	0	388	148	18	4	**558**	0.66

Outer London

Unit Type	No. Units	Car ownership per unit					Total Cars	Ratio
		No. Car	1 Car	2 Cars	3 cars	4+ Cars		
1 bedroom	285	0	106	22	0	0	128	0.45
2 bedrooms	436	0	204	78	9	0	291	0.67
3 bedrooms	123	0	57	32	6	0	95	0.77
Total	844	0	367	132	15	0	**514**	0.61

London

Unit Type	No. Units	Car ownership per unit					Total Cars	Ratio
		No. Car	1 Car	2 Cars	3 cars	4+ Cars		
1 bedroom	285	0	87	16	0	0	103	0.36
2 bedrooms	436	0	178	54	6	0	238	0.55
3 bedrooms	123	0	52	24	6	0	82	0.67
Total	844	0	317	94	12	0	**423**	0.50

Putting the Community First

BARNET
LONDON BOROUGH

Local Development Framework

Submission Stage Development Management policies

Residential Car Parking Standards

September 2011

Residential Car Parking Standards in Barnet

1. Introduction and Background

The London Plan has set a range of maximum residential parking standards that are intended to apply across London. This is broadly consistent with guidance set out in PPG13 (January 2011) which was recently revised with respect to parking standards. In this revision of PPG13 the government encouraged councils to set what they considered were the right parking policies for their area. This has weakened but not removed the national planning policy backing for the approach adopted by the GLA. However, the Mayor's approach does not preclude borough's such as Barnet from setting variant standards, provided Barnet has regard to the London Plan standards, and can justify a variation based on local evidence.

Barnet's UDP already contains an approved departure from the previous London Plan for residential parking standards, which was subject to extensive scrutiny and challenge throughout the UDP adoption process and subsequent approval required for 'saving' UDP policies. This paper contains Barnet's case for this position to be continued, particularly in light of the latest version of the London Plan, which seeks to further reduce the level of parking provision where developments are in areas of good public transport accessibility which is considered will have a detrimental impact on Barnet. The Barnet UDP contains residential car parking standards which are considered to be locally appropriate and justified by experience and evidence.

2. Barnet UDP and London Plan residential parking standards

The table below summarises the differences between the Barnet UDP and London Plan residential parking standards. It can be seen that the standards for 4 or more bed and 3 bed residential units are identical, but that there is a difference with the respect to units with 1, and particularly 2 bedrooms. This is reinforced by the more restrictive statement that now accompanies the tabulated standards on page 205 of the London Plan, which refers to significantly less than one space per unit being provided in locations where the public transport accessibility is deemed to be "good".

Number of beds	Barnet UDP (Policy M14)	London Plan*
4 or more	2 to 1.5 per unit	2 to 1.5 per unit
3	1.5 to 1 per unit	1.5 to 1 per unit
2	1.5 to 1 per unit	Less than 1 per unit
1	1 to less than 1 per unit	Less than 1 per unit

* London Plan states below the table on page 205 that "all developments in areas of good public transport accessibility should aim for significantly less than 1 space per unit"

A "Good" public transport accessibility level (PTAL) is not defined explicitly by the GLA in the London Plan, although according to TfL 2010 guidance it is equivalent to PTAL 4 (and therefore, or better), and the statement is presumed to apply to the lowest level of parking in the London Plan, one and two bed flats, although it is somewhat ambiguous, and as written it could in theory apply to 3 or 4 bed flats or houses as well.

The London borough of Barnet does not agree with the London Plan in the above respects and strongly believes that the existing UDP residential parking standards, unmodified, should be adopted as part of the Barnet LDF. Barnet's local position has already been justified as part of a formal review of the UDP. Also, it was clearly stated in detailed representations made by the council at the London Plan EIP that, whilst the GLA and LBB parking standards are identical in some respects, the council would continue to apply its own residential parking standards which provide greater flexibility to take into account issues such as public transport accessibility and local parking stress. Concern was expressed at the Examination in Public about the continued approach of uniformly adopting a harsh parking restraint approach in new development regardless of context or low PTAL levels in outer London.

3. Barnet's experience of using PTALS and applying the UDP parking standards

Barnet's concern with PTALs is that the PTAL scores measure ease of access to any public transport route, so a location may have a high score because it has good radial links to central London, but this is not necessarily a reflection of more general public transport provision. In the north of the borough, such as High Barnet, many relatively local destinations in the surrounding areas, such as Hertsmere or adjoining boroughs are simply not accessible by public transport to the extent that equivalent local destinations for residents in the south of the borough would be, even though the PTAL score of the locations may be the same. The score in this case reflects accessibility in one direction only and so the real life experience of a level 5 PTAL (for example) is different in different parts of the borough and for many residents at the periphery of the GLA boundary travel to towns in Hertfordshire may be just as important as travel into central London. This needs to be carefully considered as part of the process in determining what the appropriate parking standards should be as part of residential planning applications.

Since adoption in 2006 the Council has assessed the residential parking requirements of each application on its individual merits in line with the UDP standards set out policy M14 and has exercised flexibility, taking into account locality, PTAL and local parking stress. The council takes into account the likelihood of parking occurring on-street, and any detrimental effect on highway conditions and road safety. The council has, in appropriate circumstances, insisted on complementary controls implemented to prevent displacement parking into the area surrounding a development, and secured developer funds to partially or fully fund controls.

UDP policy M14 is considered to have worked very well over the last 5 years, because it has the inherent flexibility to account for the diverse nature of the borough. The standards are not considered to have resulted in an over provision of parking or to have stifled development. In fact developers generally understand Barnet's position given the varied nature of the borough and want to deliver an appropriate level of parking based on the generally more suburban type of development (and market demand) we entertain. Barnet is a diverse borough ranging from locations like Brent Cross Cricklewood (BXC) that are clearly inner suburban to places like Mill Hill East which is clearly far more rural in nature.

With respect to the PTAL parts of BXC for example have a very low PTAL score, and we have only a few locations where the PTAL is sufficiently high to potentially entertain low car development, especially when consideration is also given to the range of destinations served, which as emphasised above, is also an important factor. Our approach to residential (expected to be mostly flatted) parking provision at BXC illustrates this, with capped ratios, reducing down from a sliding scale of 1:1 for the first phase of housing to 0.7:1 for the last phase, consistent with the improvement in PTAL and the increasing density and mixed use nature of the

development, which will include a new town centre and comprehensive improvements to public transport including a major new railway station.

Barnet's flexible approach rarely causes difficulties or any unreasonableness from developers, and we are always mindful of the technical submissions on parking and accept parking ratios that meet our UDP standards where they are supported by technically sound pieces of work.

4. 2009 UDP Policy Review

In May 2009 the Secretary of State via GOL directed (agreed with) Barnet to save a range of policies within the UDP including policy M14. Barnet's reasoning at the time, which continues to be relevant, including to flatted developments, for adopting a different approach for residential car parking was that the provision of suitable car parking within residential development facilitates car *ownership* as opposed to car *use.* Many areas of Barnet have poor levels of public transport provision and public transport does not always meet the needs of people living in the suburbs. As a result, car ownership in Barnet is relatively high, although evidence suggests that many residents chose to leave their car at home and travel by other means for commuting trips. The council recognises that in some cases, the use of a motor car is the only transport option.

The council also considers that off-street residential parking will become increasingly important with the growth in ownership of electric vehicles as the parking will provide a place where the vehicle can be recharged. There are legal, practical and safety implications resulting from the charging of electric vehicles on-street and owners of dwellings without off-street parking are likely to encounter difficulties in choosing to operate an electric vehicle rather than fossil fuel powered vehicle.

Also relevant to developments of new flats in Barnet the council considered it necessary to save policy M14 in order to be able to effectively deal with circumstances where a developer is seeking to save money or increase density by not providing off-street parking, particularly in locations where public transport provision is relatively poor and the nature of the development would suggest the future occupiers of the development are likely to want to own a motor car. It would be impracticable to impose parking restrictions on all roads in the borough, especially in more rural areas, and therefore the ability to require the provision of off-street residential parking in some cases is an essential tool in the Council's ability to manage parking.

5. Parking Demand at flatted developments in Barnet

In Policy 6.13 of the London Plan it is noted that the Mayor wants to see an appropriate balance struck between promoting new development and preventing excessive car parking provision that can undermine use of other modes. Barnet generally supports this stance as the earlier table shows with London Plan and UDP standards being identical apart from those for one and two bed flats, particularly the latter where the Barnet standard is up to 1.5 spaces per unit, whereas the London Plan only permits less than one space per unit. However, the additional note in the London Plan, which refers to all developments in areas of "good" public transport accessibility aiming for significantly less than one space per unit is a potentially significant difference. This is illustrated in the table below, which summarises the results of 2011 car parking surveys carried out at six flatted residential developments in Barnet.

Development	Number of units & mix	Total number of parked	Cars per unit	PTAL*	Estimated number of spaces	Notes

		vehicles			as per London Plan**	
165 – 175 Great North Way NW4	24 flats (2 one bed, 22 two bed)	37	1.54	1a (very poor)	24	There is also parking on adjacent highway access road
94 – 96 Nether Street N12	9 flats (2 bed)	8	0.88	3 (moderate)	Approx 5 - 6	There is also parking on adjacent highway access road
Land adjacent to Bunns Lane car park	36 flats (2 bed)	46	1.28	3 (moderate)	Approx 18 - 22	
Spencer House 156 – 162 Station Road NW4	29 flats (3 one bed, 21 two bed, 5 three bed	20	0.69	4 (good)	Approx 15	There is also parking on adjacent highway access road
Friern Barnet town hall N11	49 flats (16 one bed, 33 two or three bed	38	0.78	3 (moderate)	Approx 25 - 30	
Brookside Court, Woodside Grange Road N12	15 flats (2 bed)	13	0.87	1a (very poor)	15	1 hour CPZ with available on-street parking in close proximity to the site

*as defined by TfL in their 2010 Transport Assessment best practice guidance document
**given site PTAL level assumes an approximate 50% reduction would be applicable for PTAL 4 (and approximately 40% for PTAL 3) in line with wording beneath table of residential parking standards in the London Plan (page 205)

The surveys sought to determine the level of residential parking for a variety of sites in the borough, by carrying out counts of parked vehicles at 6am on a typical weekday. Four of the sites were in locations where the PTAL was 3 or 4 which matches the TfL definition of 'moderate' or 'good' PTAL respectively. In comparing the level of residential parking for these sites an approximate 50% reduction in spaces is assumed for PTAL 4 (and approximately 40% for PTAL 3), as an approximation for the term "significantly less than one space per unit". It is clear that for all four sites the application of the London Plan standards would result in less car parking than is currently taking place. This is also the case for the first site, 165-175 Great North Way, which is in a location with a very poor PTAL, where the application of the London Plan standards would result in a level of parking provision substantially less than the parking demand observed in the borough survey. Of the six sites in the table only the final one has a level of observed residential parking that can be accommodated by the London Plan standards.

The table is considered to provide a good 'snapshot' of the parking situation with flatted developments in Barnet. It is clear that application of the London Plan standards for developments consisting of one and two bed flats is likely to result in parking stress in adjacent streets, particularly if those streets have no parking controls. Depending on the local situation a deterioration in highway conditions and road safety may also occur. It is likely that new and / or additional parking controls, including new or extended Controlled Parking Zones, would need to be introduced to manage the available on-street parking, which could be unpopular with local communities and have a negative impact on the streetscene.

6. Comparison with Hertsmere parking standards

In section 6.42 of the London Plan it highlights that parking provision can affect patterns of development and the economic success of an area. It goes on to highlight the need to ensure that boroughs adjoining other regions ensure a consistent approach to the level of parking provision. The residential parking standards in the adjacent authority of Hertsmere in Hertfordshire are more generous than those in the London Plan, specifying maximum levels of parking for bedsits / 1 bed properties of 1.5 spaces per unit and 2 spaces per unit for 2 bed properties, which are higher than Barnet's standards and potentially double those of the London Plan. Accepting that much of Hertsmere is rural in character then a different level of provision is considered appropriate. However, it also clear that there are parts of Barnet which are also essentially suburban fringe / rural in nature, where arguably similar standards would be appropriate and this supports the existing Barnet standards which reflect its "outer" outer London character, and are considered to provide a reasonable balance between London Plan standards that are intended to apply to both inner and outer London, and those of Barnet's neighbouring local authority in Hertfordshire.

7. Conclusions

In light of the above, in particular our experience to date of successfully applying the adopted 2006 UDP residential car parking standards, the council firmly believes that the UDP standards should continue to apply locally as they are proven to work effectively in Barnet. The parking standards for 1 and 2 bed flats allow Barnet flexibility to vary the provision according to all relevant local circumstances, which is absolutely essential, and was comprehensively justified as part of the GOL UDP review.

The very different circumstances applying between inner and outer London parking demands are not considered to be properly reflected in the London Plan, particularly with respect to Barnet where our communities are generally dependant on the use of the private car for many journeys, and where car ownership, at 1.09, is relatively high. Barnet in particular has a

generally low PTAL, such as in Totteridge, Mill Hill and Friern Barnet, with relatively few locations having high levels of public transport accessibility.

Given the evidence of relatively high levels of parking demand at new developments of 1 and 2 bed flats the council is firmly of the view that the existing and fully examined departure from the London Plan continues to be justified, particularly in light of the change in government stance taken in the January 2011 version of PPG13 and proceedings of the London Plan Examination In Public process, which acknowledges that boroughs could set variant standards.

In conclusion it should be emphasised that Barnet varies considerably in terms of development patterns, accessibility levels and parking demands and therefore requires a locally sensitive and evidenced based approach to car parking standards, particularly for new 1 and 2 bed flats, in order to achieve appropriate and balanced delivery. The council considers that this paper has demonstrated that one size does not, and should not, fit all, and that the survey data and evidence presented here clearly demonstrates that Barnet UDP standards should continue to be applied.

The Planning Inspectorate

Report to the London Borough of Barnet

by Vincent Maher MA (Cantab) MCD MSc MBA MRTPI

an Inspector appointed by the Secretary of State for Communities and Local Government

Date: 22nd June 2012

PLANNING AND COMPULSORY PURCHASE ACT 2004 (AS AMENDED)

SECTION 20

REPORT ON THE EXAMINATION INTO BARNET'S CORE STRATEGY AND DEVELOPMENT MANAGEMENT POLICIES DEVELOPMENT PLAN DOCUMENTS

Core Strategy DPD submitted for examination on 16 August 2011

Development Management Policies DPD submitted on 8 September 2011

Examination hearings held between 6 and 14 December 2011

File Ref: PINS/N5090/429/6

Non-Technical Summary

This report concludes that Barnet's Core Strategy or (CS) and Development Management Policies (DMP) Development Plan Documents (DPDs) which form part of the Barnet Local Plan provide an appropriate basis for the planning of the borough over the next 15 years providing a number of modifications are made to the plans. The Council has specifically requested that I recommend any modifications necessary to enable them to adopt these DPDs. All of the modifications were proposed by the LPA, and I have recommended their inclusion after full consideration of the representations from other parties on these issues.

The modifications can be summarised as follows:

- **Introducing a new Policy CS NPPF that asserts the presumption in favour of sustainable development;**
- **Clarifying when it would be appropriate to launch a review of policy in the Brent Cross Cricklewood area, and confirming which policies will apply to development proposals that do not prejudice the major redevelopment of the area;**
- **Increasing the proportion of affordable housing to be sought, and removing imprecise references to the application of policy as it affects developments of between 10 and 15 homes;**
- **Indicating the range of homes anticipated on the North London Business Park site;**
- **Clarifying criteria relating to the assessment of housing for gypsies, travellers and travelling showpeople;**
- **Clarifying situations where tall buildings and flat conversions might be appropriate; and**
- **Clarifying that parking standards for residential development are maximum standards.**

initiatives including the Council's Leisure Review. Other nearby projects may go some way to addressing local open space deficiency such as the new park at the Finchley Memorial Hospital site[20].

Issue 7 – Do the two plans provide an appropriate framework for managing transport in the borough, including promoting a range of transport options? Are the Council's proposed parking standards for residential development locally justified and sustainable?

77. The Council has responded to most London wide transport challenges as is reflected in a number of PC changes made to address TfL concerns. The FPCs to the CS show greater alignment between the Council's draft Local Implementation Plan (EVD031) to set targets to increase cycling as a proportion of all travel movements. DMP Policy DM17 provides an appropriate way of ensuring that major development embraces alternative forms of transport to the car through the provision of transport assessments and travel planning. While the DPDs in combination seek to improve road safety, it is not necessary to make the plan sound to be specific about the use of specific measures such as 20mph zones to achieve it.

78. The Council has largely followed the London Plan's parking standards with the exception of one and two bedroom homes. For the avoidance of doubt, **MM24** clarifies the standards are to be interpreted as maximum standards and is necessary to be consistent with LP2011. I therefore endorse this main modification. The only area of difference between the two plans relates to one and two bedroom developments where there is a marginal departure from LP2011 Table 6.2. The Mayor of London states that, as such, this policy is not in general conformity with LP2011.

79. Having reviewed LP2011 Policy 6.13, it is clear that LP2011 indicates that the parking standards **should** rather than **must** be applied locally. LP2011 states at paragraph 6.42 that 'London is a diverse city that requires a flexible approach to identifying appropriate levels of car parking provision across boundaries. This means ensuring a level of accessibility by private car consistent with the overall balance of the transport system at the local level'. This wording is critical to understanding how LP2011 policy should be interpreted locally.

80. The Council has provided substantial empirical evidence including surveys of recently completed development to show car parking demand in new developments and the consequences of providing inadequate parking. Barnet is a large outer London borough broadly characterised by two linear settlements along each of the two branches of the Northern Line and separated by a substantial swathe of MOL/GB. This settlement pattern makes cross-borough movements difficult by public transport as was demonstrated at the examination by reference to a trip from Edgware to Chipping Barnet by public transport in contrast with cross borough

[20] IDP, page 27 of 34 of Appendix table

movements in other local authorities closer to central London. Difficulties of connectivity would appear to provide some justification for a loosening of LP2011 Table 6.2 standards. By contrast, it should be noted that maximum parking standards stricter than those in LP2011 will continue to be applied in BXC.

81. The Council's approach can therefore be shown to be both more restrictive in parts and marginally less restrictive elsewhere when assessed against LP2011. On balance, the Council's approach is broadly consistent with the thrust of LP2011 Policy 6.13 which seeks to balance promoting new development against excessive subsequent car parking provision. As such, I find the Council's localist approach in general conformity with LP2011 and, furthermore, one that is supported by paragraph 39 of the NPPF. It therefore complies with section 24 of the Act.

Issue 8 – Do the two plans provide a basis for facilitating the population growth anticipated while, at the same time, promoting good urban design which protects the distinct characteristics of the borough's neighbourhoods and supports sustainable development?

82. CS Policy CS5 provides the principal policy basis for promoting good design and is supported by DM Policy DM01. Suburban residential development comprising two storey dwellings is the predominant urban character in the borough, much of which has a high quality of amenity as is evidenced by the Characterisation Study of Barnet[21]. The protection of this suburban form is an integral part of the Three Strands Approach. The Council's articulation of its approach to design management clearly reflects local circumstances and national policy. It is not necessary to weave additional clarifying text from the NPPF into the Council's design policies.

Tall buildings and housing density

83. The Tall Buildings Study (CD 069) is the principal basis for supporting the local plan-led response required by LP2011 Policy 7.7 for the preferred siting of tall buildings within the borough. LP2011 does not define the height of a 'tall building' but I concur with the study's findings that buildings of eight or more stories take on the attributes of a tall building in the context of a suburban borough such as Barnet. This study acknowledges the existing clusters of development in strategic locations where it is more appropriate in principle to consolidate new development. These locations include public housing estates and a number of priority town centres such as Finchley Church End and North Finchley with potential development sites where the Council is preparing town centre frameworks (CD 061 d and e).

84. The logic for prioritising tall buildings into these centres appears appropriate and locally justified reflecting other regeneration activity and other development opportunities. It would be inappropriate to remove these centres from the list of strategic locations. DMP Policy DM01 and DM05

[21] DM036, pp 70 to 77

Appendix X

APPEAL CASE REVIEW

Review of Approved Appeal Cases (Parking)

100-102 Lancaster Road (15/07008/PNP)

PTAL: 3

Parking Ratio Proposed: 0.29 spaces per dwelling

Reason for LBB Refusal: The proposed development does not provide adequate off-street parking and the applicant has failed to demonstrate that there is sufficient on street parking availability at all times to accommodate on street parking demand resulting from the proposal. The proposal would be likely to result in the unacceptable increase parking pressure in the area detrimental to the free flow of traffic and highway and pedestrian safety contrary to policies CS9 of the Adopted Local Plan Core Strategy and Policy DM17 of the Adopted Development Management Policies 2012. The proposal would have therefore cause demonstrable and significant harm.

Key points within Inspectorates decision to approve on appeal:

"I find that there is sufficient on street parking capacity in the area immediate to the appeal site to absorb the increased demand arising from the proposed development. Consequently, there would be no significant increase in the risk to pedestrian safety as a result of cars not being appropriately parked."

"although the off street parking provided would be less than is suggested in the Council's car parking standards, those standards are maximum standards which among other things, aim to encourage more sustainable non car modes of transport. The appeal site is located within a relatively short walking distance to a variety of public transport choices. It is also relatively close to services and facilities such that the occupants of the proposed development would not necessarily need to rely on the use of a private car, thus reducing the demand for parking generated by the development."

"even if each of the proposed households chose to own a car, the evidence before me indicates that the demand for parking generated by the proposal, not met off street could be accommodated on street nearby."

"Paragraph W10 (b) of the GPDO states that in determining an application for prior approval the local planning authority should have regard to the National Planning Policy Framework (the Framework) so far as is relevant to the subject matter of the prior approval, as if the application were a planning application. Paragraph 32 of the Framework indicates that development should only be resisted on transport grounds where the residual cumulative impacts of the development are severe. For the reasons given, I find that the proposed development would not be harmful to highway or pedestrian safety or cause undue congestion as a result of insufficient parking provision. Thus the impact of the proposed development on transport and highways in the area would not be severe and the proposed development would not therefore be in conflict with the Framework."

Tudor Court, 2 Crewys Road (F/03198/14)

PTAL: 4

Parking Ratio Proposed: 0 spaces per dwelling

Reason for LBB Refusal: The development would require an undertaking to prevent residents from obtaining parking permits and no formal undertaking has been given to provide this. In the absence of this agreement it is considered that the proposals would have a harmful impact on highway and pedestrian safety contrary to Policy DM17 of the Adopted Development Management Policies 2012.

Key points within Inspectorates decision to approve on appeal:

"The Council refers to the need for an obligation under section 106 of the Town and County Planning Act 1990 which would limit the ability of the new occupiers to purchase resident's parking permits. Paragraph 204 of the Framework requires that an obligation should only be sought if it makes the development acceptable in planning terms, is directly related to the development and is fairly and reasonably related in scale and kind to the development."

"The Council Highways Department indicates that there is a car parking requirement for 2-3 spaces whereas the Council's appeal statement indicates 6 spaces. The higher requirement is based on 2001 Census average car ownership figure for the Borough, 0.9 vehicles per household. However, the higher requirement would be unjustified given that it is based on an average of all types of accommodation throughout the Borough. Moreover, these studio flats are small in extent between 37m2 and 38m2 which would limit the number of occupiers and therefore car use. The development would also be in a location that has a reasonable Public Transport Accessibility Level of 4 and would be close to shopping facilities. For these reasons, there would be unlikely to be a need for more than 2-3 car parking spaces"

"The Council state that its approach is consistent with other similar developments in Barnet. However, the details of these other developments have not been brought to my attention so it is not possible to draw any meaningful comparisons. In any case, it is necessary to consider every proposal on its planning merits which I have done so here."

"the development would not result in inadequate car parking provision and significant risk to highway safety for road users and pedestrians based on the balance of evidence before me. Accordingly, an obligation limiting the ability of residents to purchase residents parking permits would not meet the tests of paragraph 204 of the Framework."

Cornwall Works, Cornwall Avenue (15/01229/PNO)

PTAL: 4

Parking Ratio Proposed: 0.25 spaces per dwelling

Reason for LBB Refusal: it is considered that an insufficient number of parking spaces are provided for the development proposed and the scheme is likely to lead to conditions detrimental to the free flow of traffic and highway and pedestrian safety.

Key points within Inspectorates decision to approve on appeal:

"Although there are restrictions in place on Cornwall Avenue, car parking can take place throughout much of the day without restriction. There is space for cars to park on both sides of the road without prejudicing traffic or pedestrian movements"

"The Council states that four off-street parking spaces would be required. The proposal would provide two off-street parking spaces which may result in additional on-street car parking. However the number of additional vehicles would be limited and there is no evidence that this would be harmful to highway or pedestrian safety. In any case the availability of good public transport services would allow for future occupants to travel without owning a car."

"The National Planning Policy Framework in paragraph 32 advises that development should only be prevented or refused on transport grounds where the residual cumulative impacts are severe. For the reasons given the proposal would not harm highway or pedestrian safety and would accord with policy DM17 of the DMP in this regard"