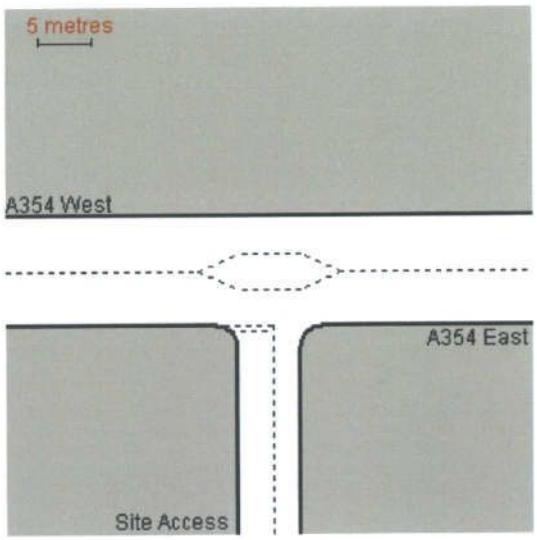
Junction Diagram



Demand Data

Modelling Periods

Parameter	Period	Duration (min)	Segment Length (min)
First Modelling Period	07:45-09:15	90	15
Second Modelling Period	16:45-18:15	90	15

ODTAB Turning Counts

Demand Set: 2014 AM
Modelling Period: 07:45-09:15

From/To	Arm A	Arm B	Arm C
Arm A	0.0	7.0	509.5
Arm B	21.1	0.0	21.2
Arm C	505.5	6.9	0.0

Demand Set: 2014 PM
Modelling Period: 16:45-18:15

From/To	Arm A	Arm B	Arm C
Arm A	0.0	16.9	486.0
Arm B	8.1	0.0	8.6
Arm C	456.0	15.9	0.0

Demand Set: 2029 AM
Modelling Period: 07:45-09:15

From/To	Arm A	Arm B	Arm C
Arm A	0.0	7.0	598.9
Arm B	21.1	0.0	21.2
Arm C	594.2	6.9	0.0

Demand Set: 2029 PM
Modelling Period: 16:45-18:15

From/To	Arm A	Arm B	Arm C
Arm A	0.0	16.9	582.1
Arm B	8.1	0.0	8.6
Arm C	546.1	15.9	0.0

ODTAB Synthesised Flows

Demand Set: 2014 AM
Modelling Period: 07:45-09:15

Arm	Rising Time	Rising Flow (veh/min)	Peak Time	Peak Flow (veh/min)	Falling Time	Falling Flow (veh/min)
Arm A	08:00	6.456	08:00	9.684	08:30	6.456
Arm B	08:00	0.529	08:00	0.793	08:30	0.529
Arm C	08:00	6.405	08:00	9.608	08:30	6.405

Heavy Vehicles Percentages

Demand Set: 2014 AM
Modelling Period: 07:45-09:15

From/To	Arm A	Arm B	Arm C
Arm A	-	10.0	10.0
Arm B	10.0	-	10.0
Arm C	10.0	10.0	-

Demand Set: 2014 PM
Modelling Period: 16:45-18:15

From/To	Arm A	Arm B	Arm C
Arm A	-	10.0	10.0
Arm B	10.0	-	10.0
Arm C	10.0	10.0	-

Demand Set: 2029 AM
Modelling Period: 07:45-09:15

From/To	Arm A	Arm B	Arm C
Arm A	-	10.0	10.0
Arm B	10.0	-	10.0
Arm C	10.0	10.0	-

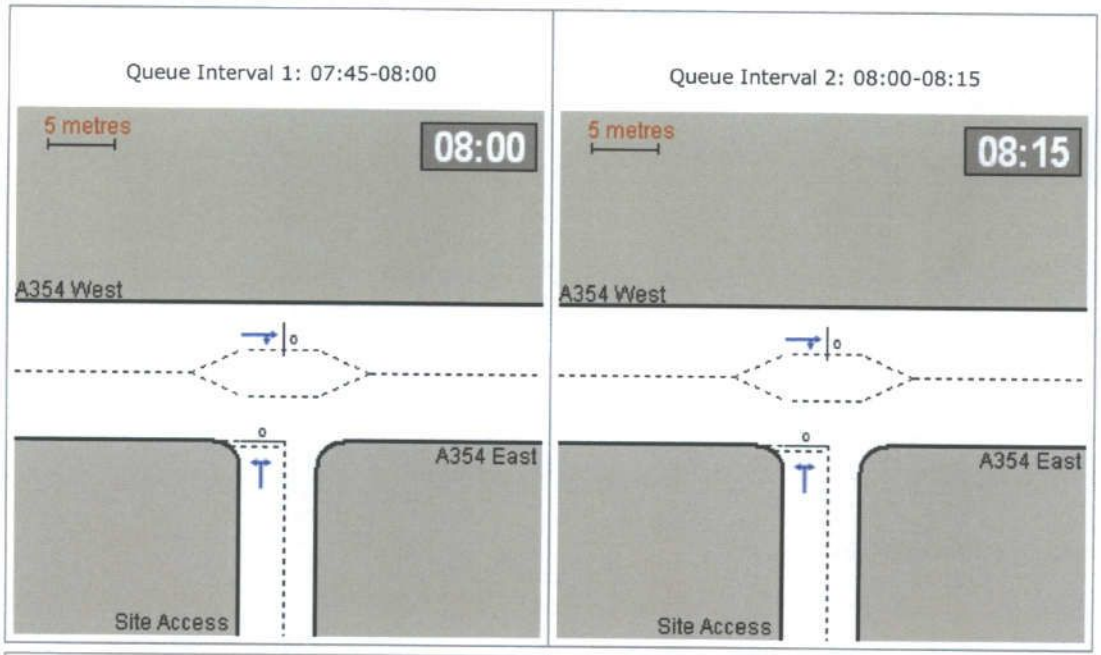
Demand Set: 2029 PM
Modelling Period: 16:45-18:15

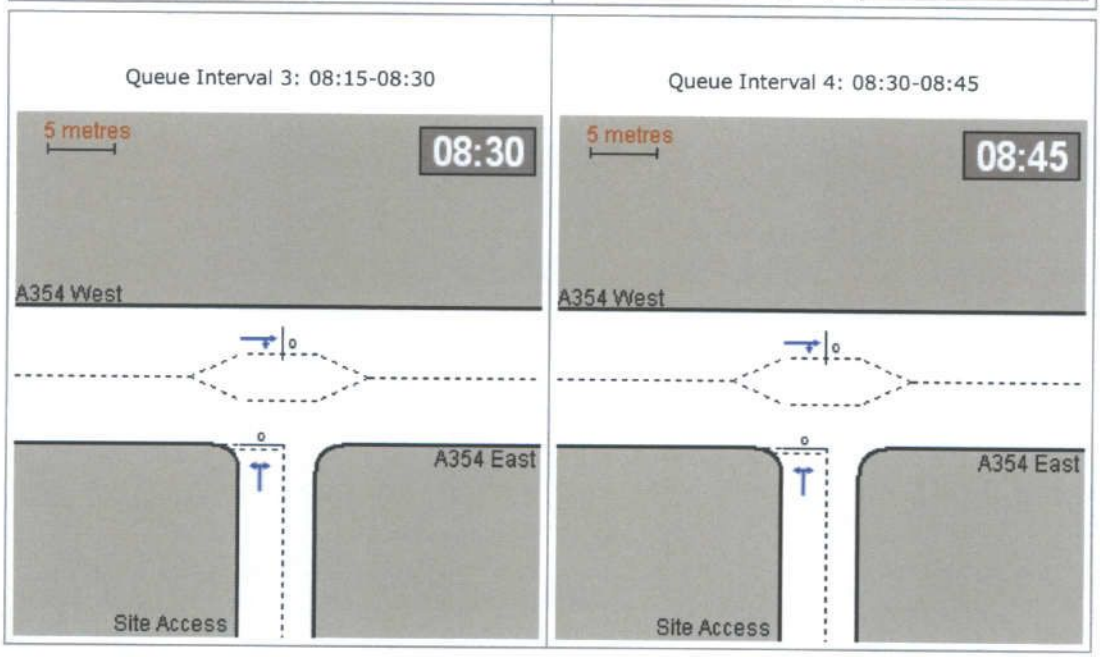
From/To	Arm A	Arm B	Arm C
Arm A	-	10.0	10.0
Arm B	10.0	-	10.0
Arm C	10.0	10.0	-

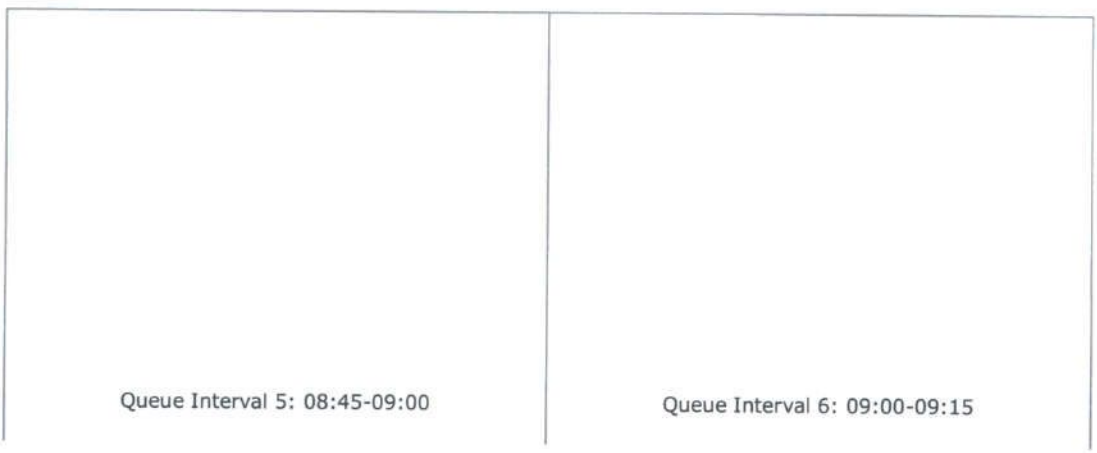
Default proportions of heavy vehicles are used

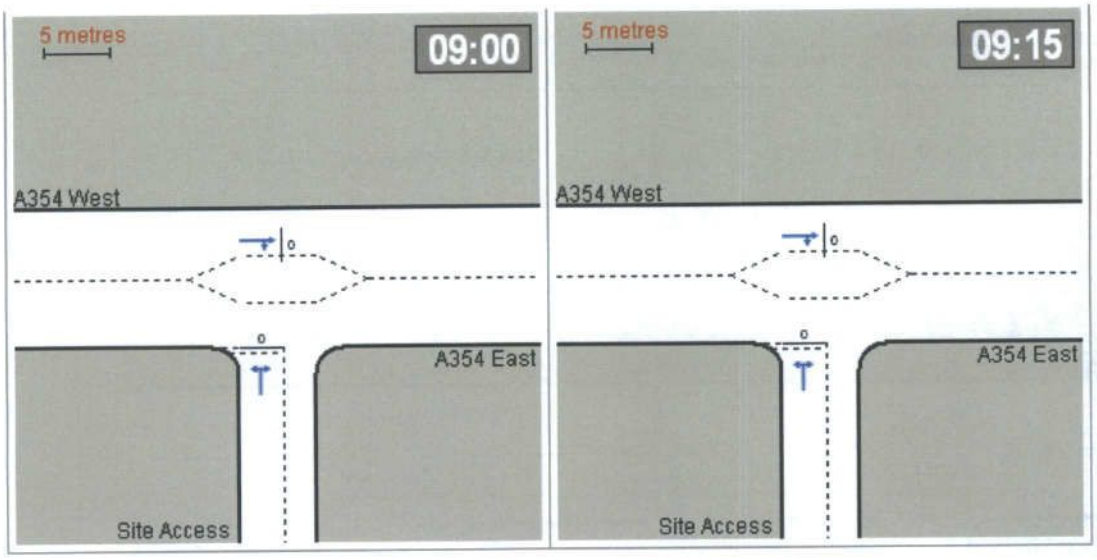
Queue Diagrams

Demand Set: 2014 AM
Modelling Period: 07:45-09:15
View Extent: 40m



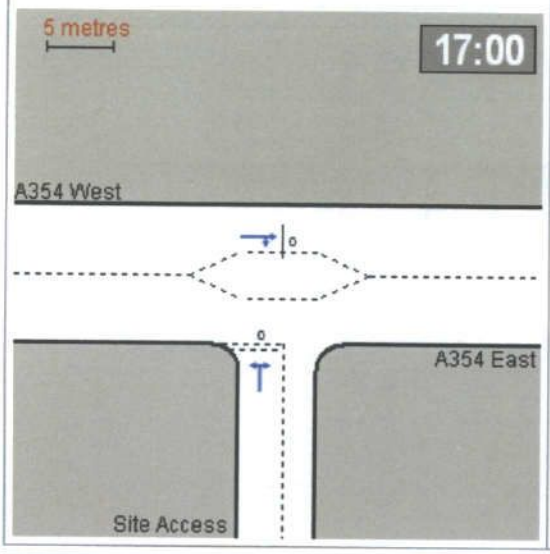




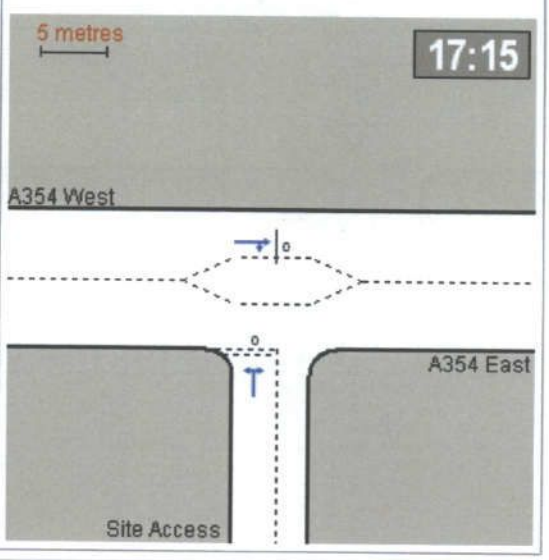

5 metres
09:00
A354 West
A354 East
Site Access
5 metres
09:15
A354 West
A354 East
Site Access

Demand Set: 2014 PM
Modelling Period: 16:45-18:15
View Extent: 40m

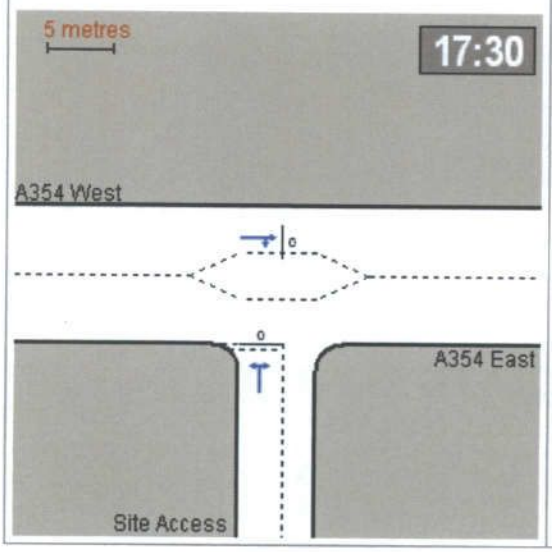
Queue Interval 1: 16:45-17:00



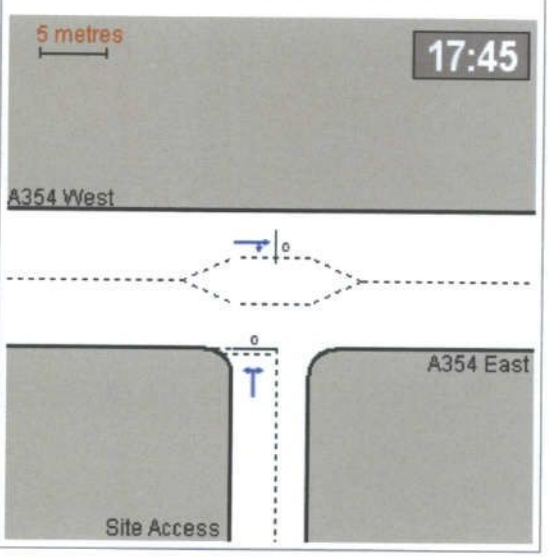
Queue Interval 2: 17:00-17:15



Queue Interval 3: 17:15-17:30

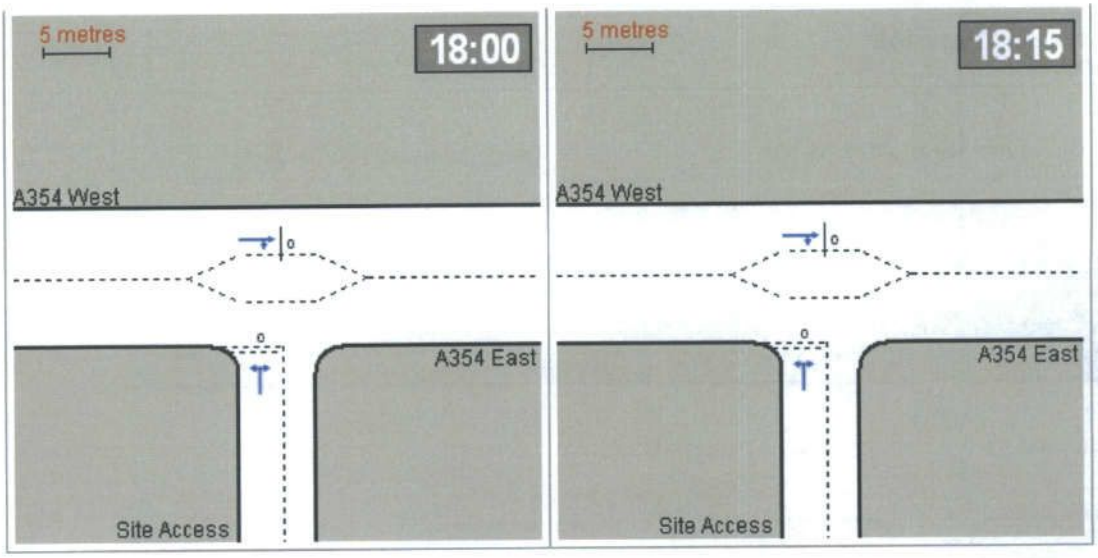


Queue Interval 4: 17:30-17:45

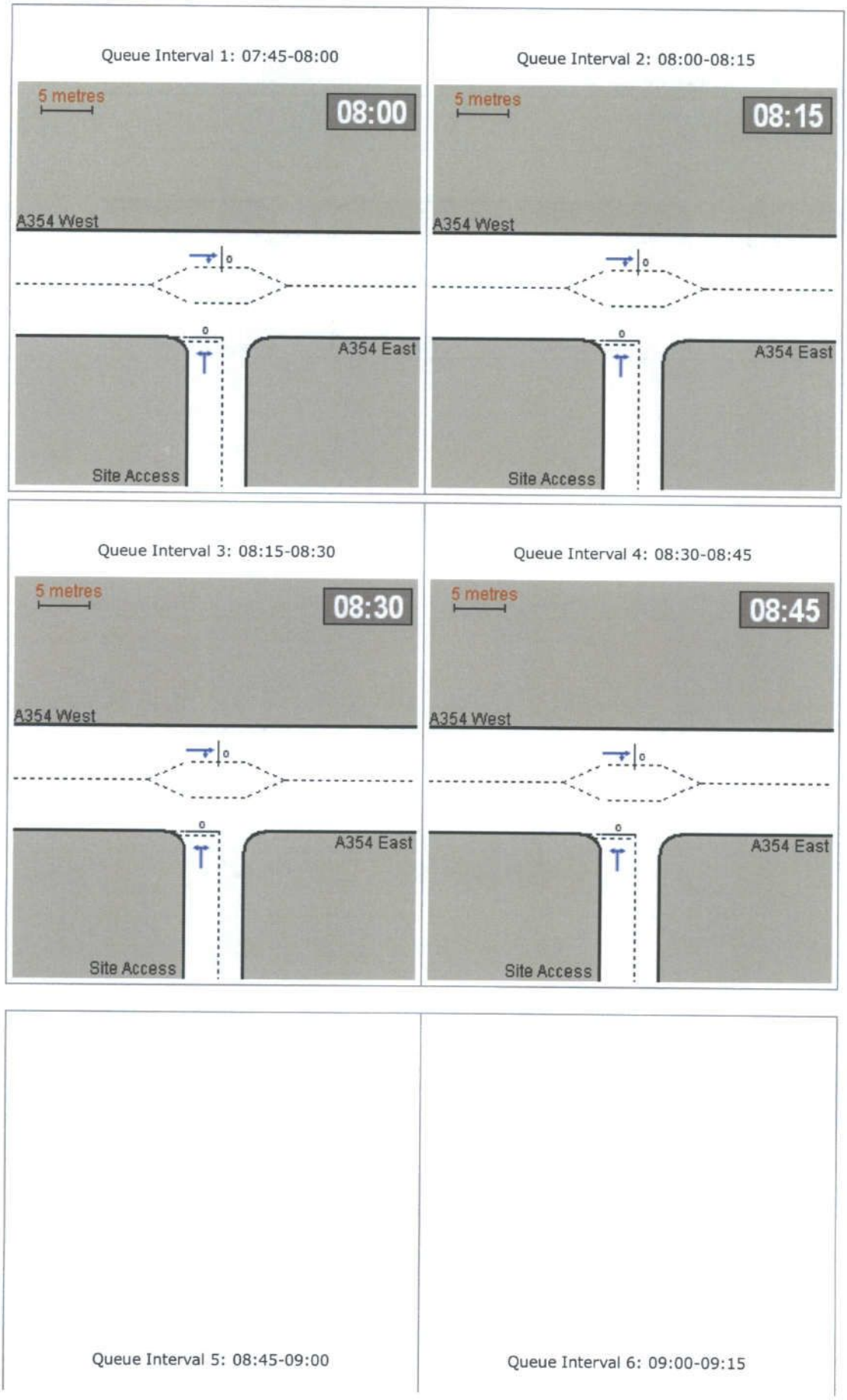


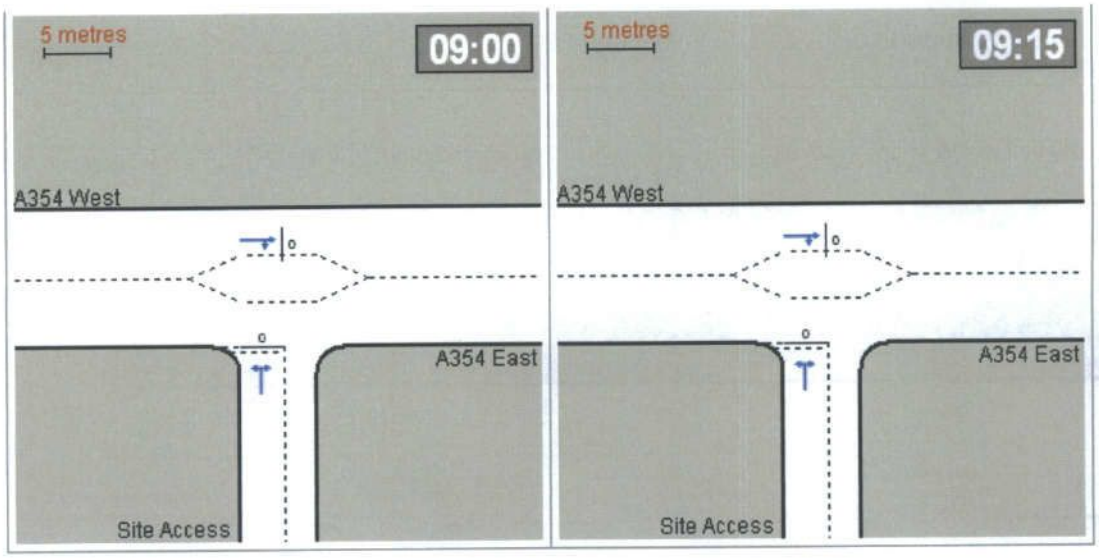
Queue Interval 5: 17:45-18:00

Queue Interval 6: 18:00-18:15

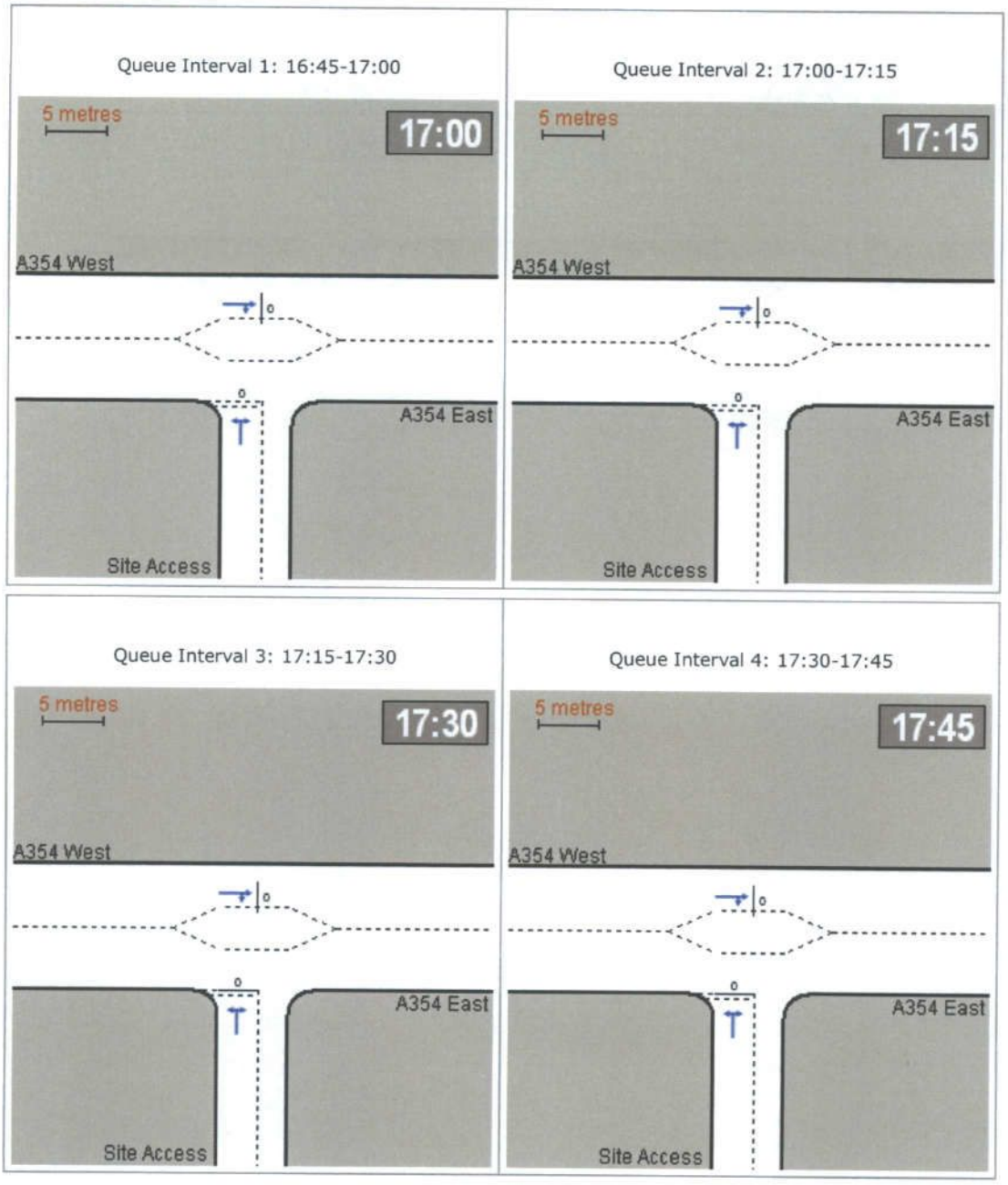

5 metres
18:00
A354 West
A354 East
Site Access
5 metres
18:15
A354 West
A354 East
Site Access

Demand Set: 2029 AM
Modelling Period: 07:45-09:15
View Extent: 40m

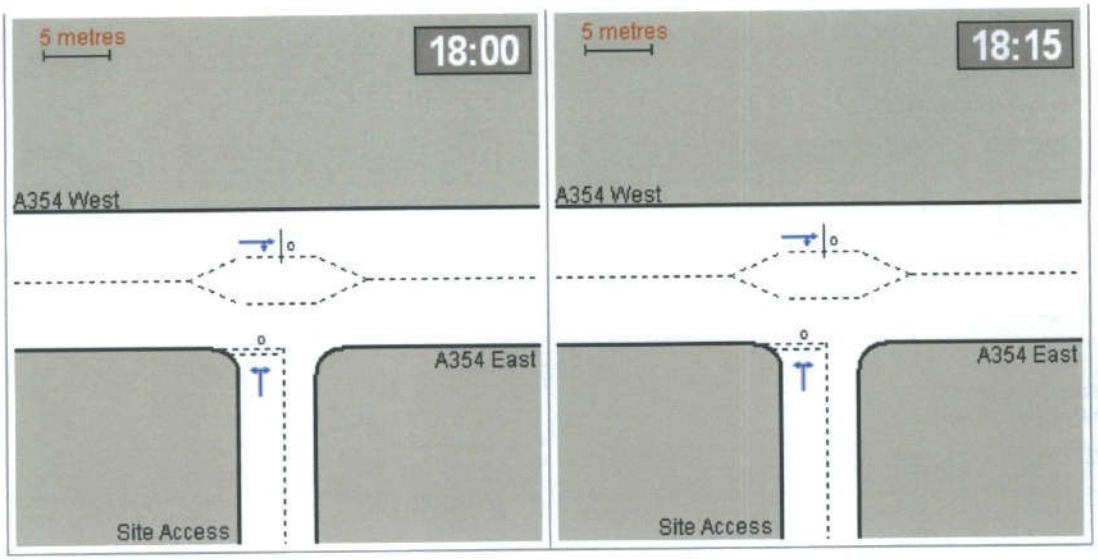



5 metres
09:00
A354 West
A354 East
Site Access
5 metres
09:15
A354 West
A354 East
Site Access

Demand Set: 2029 PM
Modelling Period: 16:45-18:15
View Extent: 40m

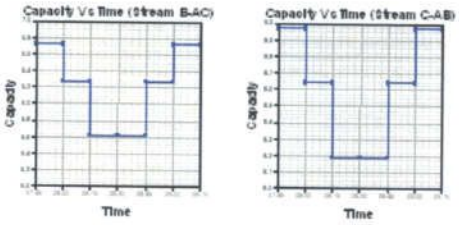


St Mary's Hill Transport Assessment - APPENDIX 1

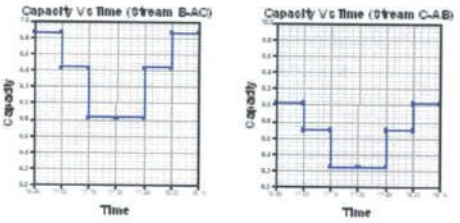


Capacity Graph

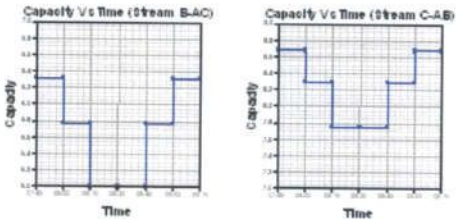
Demand Set: 2014 AM
Modelling Period: 07:45-09:15



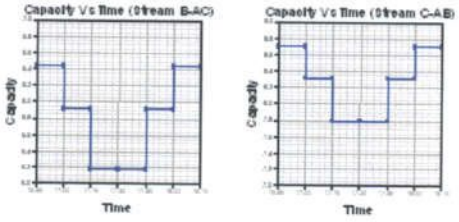
Demand Set: 2014 PM
Modelling Period: 16:45-18:15



Demand Set: 2029 AM
Modelling Period: 07:45-09:15

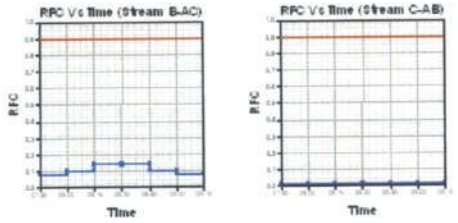


Demand Set: 2029 PM
Modelling Period: 16:45-18:15

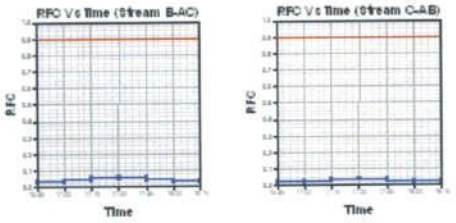


RFC Graph

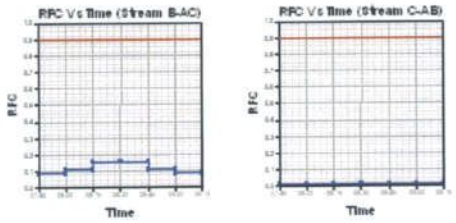
Demand Set: 2014 AM
Modelling Period: 07:45-09:15



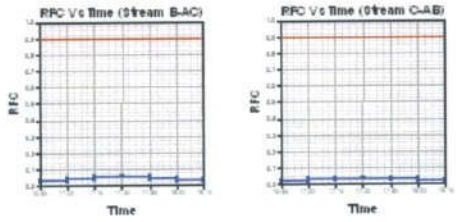
Demand Set: 2014 PM
Modelling Period: 16:45-18:15



Demand Set: 2029 AM
Modelling Period: 07:45-09:15

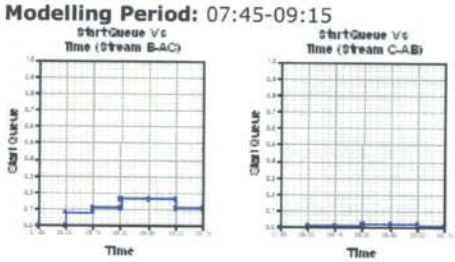


Demand Set: 2029 PM
Modelling Period: 16:45-18:15

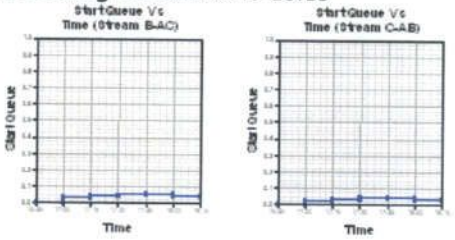


Start Queue Graph

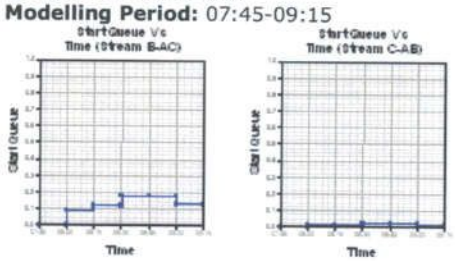
Demand Set: 2014 AM
Modelling Period: 07:45-09:15



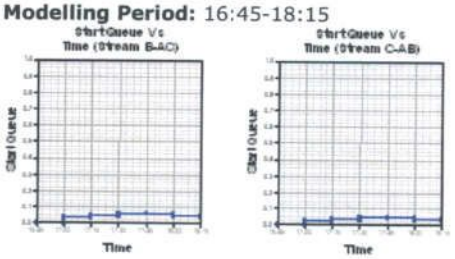
Demand Set: 2014 PM
Modelling Period: 16:45-18:15



Demand Set: 2029 AM
Modelling Period: 07:45-09:15

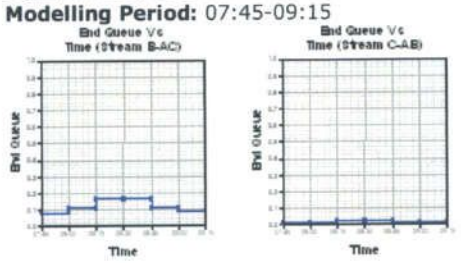


Demand Set: 2029 PM
Modelling Period: 16:45-18:15

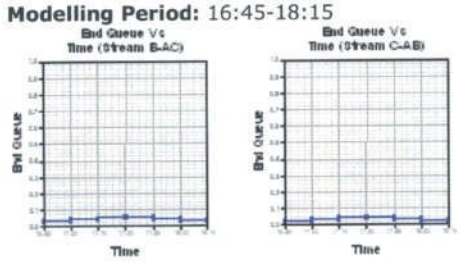


End Queue Graph

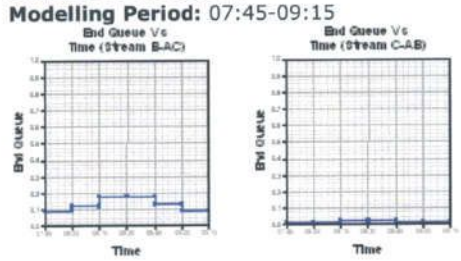
Demand Set: 2014 AM
Modelling Period: 07:45-09:15



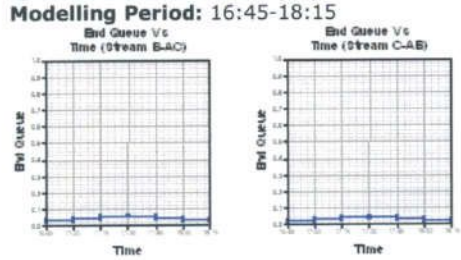
Demand Set: 2014 PM
Modelling Period: 16:45-18:15



Demand Set: 2029 AM
Modelling Period: 07:45-09:15

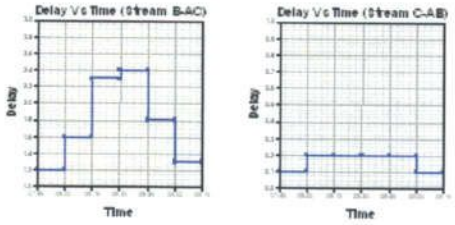


Demand Set: 2029 PM
Modelling Period: 16:45-18:15

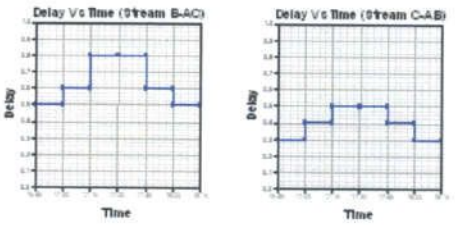


Delay Graph

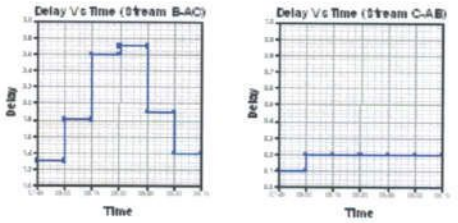
Demand Set: 2014 AM
Modelling Period: 07:45-09:15



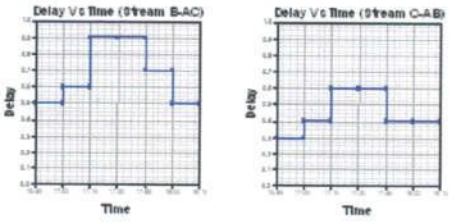
Demand Set: 2014 PM
Modelling Period: 16:45-18:15



Demand Set: 2029 AM
Modelling Period: 07:45-09:15



Demand Set: 2029 PM
Modelling Period: 16:45-18:15



Queues & Delays

Demand Set: 2014 AM
Modelling Period: 07:45-09:15

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
07:45-08:00	B-AC	0.53	6.72	0.079	-	0.00	0.08	-	1.2	0.16
	C-AB	0.09	8.97	0.010	-	0.00	0.01	-	0.1	0.11
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.09	-	-	-	-	-	-	-	-
	A-C	6.39	-	-	-	-	-	-	-	-

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
08:00-08:15	B-AC	0.63	6.27	0.101	-	0.08	0.11	-	1.6	0.18
	C-AB	0.10	8.64	0.012	-	0.01	0.01	-	0.2	0.12
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.10	-	-	-	-	-	-	-	-
	A-C	7.63	-	-	-	-	-	-	-	-

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
08:15-08:30	B-AC	0.78	5.62	0.138	-	0.11	0.16	-	2.3	0.21
	C-AB	0.13	8.19	0.015	-	0.01	0.02	-	0.2	0.12
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.13	-	-	-	-	-	-	-	-
	A-C	9.35	-	-	-	-	-	-	-	-

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
08:30-08:45	B-AC	0.78	5.62	0.138	-	0.16	0.16	-	2.4	0.21
	C-AB	0.13	8.19	0.015	-	0.02	0.02	-	0.2	0.12
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.13	-	-	-	-	-	-	-	-
	A-C	9.35	-	-	-	-	-	-	-	-

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
08:45-09:00	B-AC	0.63	6.27	0.101	-	0.16	0.11	-	1.8	0.18
	C-AB	0.10	8.64	0.012	-	0.02	0.01	-	0.2	0.12
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.10	-	-	-	-	-	-	-	-
	A-C	7.63	-	-	-	-	-	-	-	-

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
09:00-09:15	B-AC	0.53	6.72	0.079	-	0.11	0.09	-	1.3	0.16
	C-AB	0.09	8.97	0.010	-	0.01	0.01	-	0.1	0.11
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.09	-	-	-	-	-	-	-	-
	A-C	6.39	-	-	-	-	-	-	-	-

Demand Set: 2014 PM
Modelling Period: 16:45-18:15

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
16:45-17:00	B-AC	0.21	6.86	0.031	-	0.00	0.03	-	0.5	0.15
	C-AB	0.20	9.02	0.022	-	0.00	0.02	-	0.3	0.11
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.21	-	-	-	-	-	-	-	-
	A-C	6.10	-	-	-	-	-	-	-	-

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
17:00-17:15	B-AC	0.25	6.43	0.039	-	0.03	0.04	-	0.6	0.16
	C-AB	0.24	8.70	0.027	-	0.02	0.03	-	0.4	0.12
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.25	-	-	-	-	-	-	-	-
	A-C	7.28	-	-	-	-	-	-	-	-

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
17:15-17:30	B-AC	0.31	5.82	0.053	-	0.04	0.05	-	0.8	0.18
	C-AB	0.29	8.25	0.035	-	0.03	0.04	-	0.5	0.13
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.31	-	-	-	-	-	-	-	-
	A-C	8.92	-	-	-	-	-	-	-	-

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
17:30-17:45	B-AC	0.31	5.82	0.053	-	0.05	0.06	-	0.8	0.18
	C-AB	0.29	8.25	0.035	-	0.04	0.04	-	0.5	0.13
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.31	-	-	-	-	-	-	-	-
	A-C	8.92	-	-	-	-	-	-	-	-

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
17:45-18:00	B-AC	0.25	6.43	0.039	-	0.06	0.04	-	0.6	0.16
	C-AB	0.24	8.70	0.027	-	0.04	0.03	-	0.4	0.12
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.25	-	-	-	-	-	-	-	-
	A-C	7.28	-	-	-	-	-	-	-	-

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
18:00-18:15	B-AC	0.21	6.86	0.031	-	0.04	0.03	-	0.5	0.15
	C-AB	0.20	9.02	0.022	-	0.03	0.02	-	0.3	0.11
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.21	-	-	-	-	-	-	-	-
	A-C	6.10	-	-	-	-	-	-	-	-

Demand Set: 2029 AM
Modelling Period: 07:45-09:15

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
07:45-08:00	B-AC	0.53	6.32	0.084	-	0.00	0.09	-	1.3	0.17
	C-AB	0.09	8.68	0.010	-	0.00	0.01	-	0.1	0.12
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.09	-	-	-	-	-	-	-	-
	A-C	7.51	-	-	-	-	-	-	-	-

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
08:00-08:15	B-AC	0.63	5.77	0.110	-	0.09	0.12	-	1.8	0.19
	C-AB	0.10	8.29	0.012	-	0.01	0.01	-	0.2	0.12
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.10	-	-	-	-	-	-	-	-
	A-C	8.97	-	-	-	-	-	-	-	-

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
08:15-08:30	B-AC	0.78	5.00	0.155	-	0.12	0.18	-	2.6	0.24
	C-AB	0.13	7.75	0.016	-	0.01	0.02	-	0.2	0.13
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.13	-	-	-	-	-	-	-	-
	A-C	10.99	-	-	-	-	-	-	-	-

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
08:30-08:45	B-AC	0.78	5.00	0.155	-	0.18	0.18	-	2.7	0.24
	C-AB	0.13	7.75	0.016	-	0.02	0.02	-	0.2	0.13
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.13	-	-	-	-	-	-	-	-
	A-C	10.99	-	-	-	-	-	-	-	-

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
08:45-09:00	B-AC	0.63	5.77	0.110	-	0.18	0.13	-	1.9	0.20
	C-AB	0.10	8.29	0.012	-	0.02	0.01	-	0.2	0.12
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.10	-	-	-	-	-	-	-	-
	A-C	8.97	-	-	-	-	-	-	-	-

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
09:00-09:15	B-AC	0.53	6.32	0.084	-	0.13	0.09	-	1.4	0.17
	C-AB	0.09	8.68	0.010	-	0.01	0.01	-	0.2	0.12
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.09	-	-	-	-	-	-	-	-
	A-C	7.51	-	-	-	-	-	-	-	-

Demand Set: 2029 PM
Modelling Period: 16:45-18:15

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
16:45-17:00	B-AC	0.21	6.44	0.033	-	0.00	0.03	-	0.5	0.16
	C-AB	0.20	8.70	0.023	-	0.00	0.02	-	0.3	0.12
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.21	-	-	-	-	-	-	-	-
	A-C	7.30	-	-	-	-	-	-	-	-

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
17:00-17:15	B-AC	0.25	5.91	0.042	-	0.03	0.04	-	0.6	0.18
	C-AB	0.24	8.32	0.029	-	0.02	0.03	-	0.4	0.12
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.25	-	-	-	-	-	-	-	-
	A-C	8.72	-	-	-	-	-	-	-	-

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
17:15-17:30	B-AC	0.31	5.17	0.059	-	0.04	0.06	-	0.9	0.21
	C-AB	0.29	7.79	0.037	-	0.03	0.04	-	0.6	0.13
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.31	-	-	-	-	-	-	-	-
	A-C	10.68	-	-	-	-	-	-	-	-

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
17:30-17:45	B-AC	0.31	5.17	0.059	-	0.06	0.06	-	0.9	0.21
	C-AB	0.29	7.79	0.037	-	0.04	0.04	-	0.6	0.13
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.31	-	-	-	-	-	-	-	-
	A-C	10.68	-	-	-	-	-	-	-	-

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
17:45-18:00	B-AC	0.25	5.91	0.042	-	0.06	0.04	-	0.7	0.18
	C-AB	0.24	8.32	0.029	-	0.04	0.03	-	0.4	0.12
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.25	-	-	-	-	-	-	-	-
	A-C	8.72	-	-	-	-	-	-	-	-

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
18:00-18:15	B-AC	0.21	6.44	0.033	-	0.04	0.03	-	0.5	0.16
	C-AB	0.20	8.70	0.023	-	0.03	0.02	-	0.4	0.12
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.21	-	-	-	-	-	-	-	-
	A-C	7.30	-	-	-	-	-	-	-	-

Entry capacities marked with an '(X)' are dominated by a pedestrian crossing in that time segment.
In time segments marked with a '(B)', traffic leaving the junction may block back from a crossing so impairing normal operation of the junction.
Delays marked with '##' could not be calculated.

Overall Queues & Delays

Queueing Delay Information Over Whole Period

Demand Set: 2014 AM
Modelling Period: 07:45-09:15

Stream	Total Demand (veh)	Total Demand (veh/h)	Queueing Delay (min)	Queueing Delay (min/veh)	Inclusive Delay (min)	Inclusive Delay (min/veh)
B-AC	58.2	38.8	10.6	0.2	10.6	0.2
C-AB	9.5	6.3	1.1	0.1	1.1	0.1
C-A	-	-	-	-	-	-
A-B	9.6	6.4	-	-	-	-
A-C	701.3	467.5	-	-	-	-
All	**1474.4**	**983.0**	**11.7**	**0.0**	**11.7**	**0.0**

Demand Set: 2014 PM
Modelling Period: 16:45-18:15

Stream	Total Demand (veh)	Total Demand (veh/h)	Queueing Delay (min)	Queueing Delay (min/veh)	Inclusive Delay (min)	Inclusive Delay (min/veh)
B-AC	23.0	15.3	3.8	0.2	3.8	0.2
C-AB	21.9	14.6	2.6	0.1	2.6	0.1
C-A	-	-	-	-	-	-
A-B	23.3	15.5	-	-	-	-
A-C	668.9	446.0	-	-	-	-
All	**1364.7**	**909.8**	**6.4**	**0.0**	**6.4**	**0.0**

Demand Set: 2029 AM
Modelling Period: 07:45-09:15

Stream	Total Demand (veh)	Total Demand (veh/h)	Queueing Delay (min)	Queueing Delay (min/veh)	Inclusive Delay (min)	Inclusive Delay (min/veh)
B-AC	58.2	38.8	11.8	0.2	11.8	0.2
C-AB	9.5	6.3	1.2	0.1	1.2	0.1
C-A	-	-	-	-	-	-
A-B	9.6	6.4	-	-	-	-
A-C	824.3	549.6	-	-	-	-
All	**1719.6**	**1146.4**	**13.0**	**0.0**	**13.0**	**0.0**

Demand Set: 2029 PM
Modelling Period: 16:45-18:15

Stream	Total Demand (veh)	Total Demand (veh/h)	Queueing Delay (min)	Queueing Delay (min/veh)	Inclusive Delay (min)	Inclusive Delay (min/veh)
B-AC	23.0	15.3	4.2	0.2	4.2	0.2
C-AB	21.9	14.6	2.8	0.1	2.8	0.1
C-A	-	-	-	-	-	-
A-B	23.3	15.5	-	-	-	-
A-C	801.2	534.1	-	-	-	-
All	**1621.0**	**1080.7**	**6.9**	**0.0**	**6.9**	**0.0**

Delay is that occurring only within the time period.
Inclusive delay includes delay suffered by vehicles which are still queuing after the end of the time period.
These will only be significantly different if there is a large queue remaining at the end of the time period.

PICADY 5 Run Successful

Appendix 2 – Scoping Note and Email Approval from Dorset County Council

PARSONS BRINCKERHOFF

AKERMAN INFRASTRURE SOLUTIONS (AIS)

RESIDENTIAL DEVELOPMENT AT BLANDFORD ST MARY, BLANDFORD FORUM

TRANSPORT ASSESSMENT AND TRAVEL PLAN SCOPING NOTE

FOR DISCUSSION

23 SEPTEMBER 2013
PROJECT: PTT\3513028A

Document Reference:	PTT\3513028A	Version 1
Prepared by	Carolyne Morgan	23 September 2013
Agreed by	Marcus Chick	23 September 2013
Approved for Issue	Rob Akerman	23 September 2013
Distribution (via email)	Steven Savage, Dorset County Council (DCC)	09 October 2013
	Wayne Sayers, DCC	09 October 2013
	Chris Hook, DCC	09 October 2013

1. INTRODUCTION

Parsons Brinckerhoff has been appointed by Akerman Infrastructure Solutions (AIS) to provide traffic and transportation advice in support of a development proposal for up to 350 dwellings on a site to south of the A350/A354 Blandford St Mary Roundabout, south of Blandford Forum, Dorset.

PB have undertaken some initial modelling work of the A354/A350 roundabout measuring the impact of the proposed residential development at this location, however, it is now been agreed that a full Transport Assessment is required to measure the impact of the development upon the local highway network.

The Department for Transport Guidance on Transport Assessments (March 2007) identifies in Appendix B the indicative thresholds of development that warrant either a Transport Statement or Transport Assessment (TA). It states that the development of C3 Residential Dwellings of over 80 units requires a TA and Travel Plan to measure the impact of the proposal development upon the local network.

PB contacted Wayne Sayer at Dorset County Council on the 17th September 2013 to discuss the requirements for the assessment of the transport impact of this development. Wayne confirmed the details of the TA and the need to consult with Chris Hook on the Travel Plan.

The purpose of this note is to outline the proposal and identify the assumptions and issues that will be addressed in a detailed Transport Assessment and Travel Plan.

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2. DEVELOPMENT PROPOSALS

The development proposal is for up to 350 residential dwellings on a site to south of the A350/A354 Blandford St Mary Roundabout, south of Blandford Forum. The detail of exact site layout if yet to be confirmed but the location of the proposed development is shown within Figure 1.

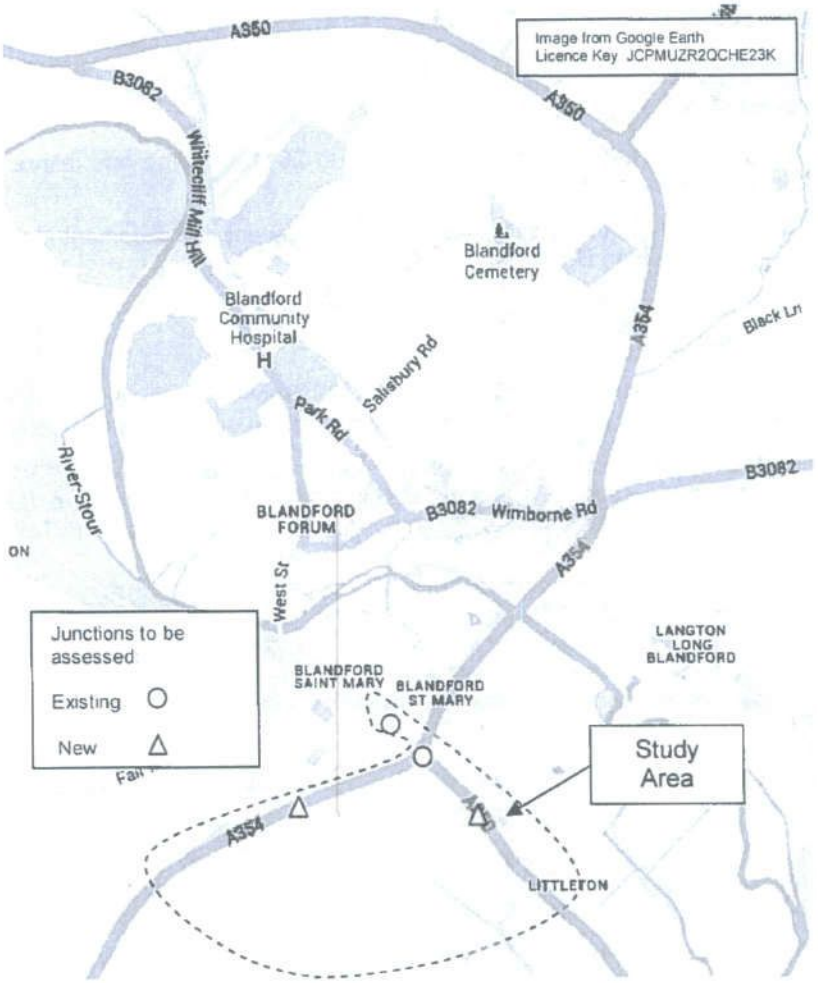

Figure 1 – Location Plan

3. STUDY AREA AND EXISTING NETWORK

The study area for this proposal will include the new access points from the proposed site location with the A350 and the A354, as well as the A350/A354 roundabout junction itself. In addition the Bournemouth Road, Stour Park and Birch Avenue Roundabout will be assessed to determine the impact of the proposed development at these locations.

An assessment of the existing area and access to facilitate all other modes of transport including pedestrian connectivity, cycle paths and public transport will also be undertaken to determine any deficiencies in these provisions currently available within the transport system.

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4. ACCIDENT DATA

Collision data will be obtained from Dorset County Council (Mike Potter m.potter@dorsetcc.gov.uk) for the local network around the site including the A354/A354 and Bournemouth Road, Stour Park and Birch Avenue Roundabout. Accident data will be obtained for a five year period and will cover the study area identified in Figure 1 above.

5. PLANNING POLICY

The following policy documents will be considered when the TA is prepared:

- Department for Transport Guidance on Transport Assessments (March 2007)
- National Planning Policy Framework (March 2012)
- North Dorset District Council Local Plan to 2011(including any relevant Supplementary Planning Guidance Notes)
- New Plan for North Dorset (Draft Core Strategy and Development Management Policies Development Plan Document)
- Local Transport Plan 3 (2011-2026)

6. COMMITTED DEVELOPMENTS

Following PB's consultation with DCC on the 17th September it was confirmed that that the following sites need to be considered within any committed development assessments.

- Tesco Extension at Blandford Forum (Planning application ref 2/2010/1222/PLNG) - The supporting TA (July 2010) and TA addendum (May 2011) have been obtained and identify that the following additional trips will be generated from the Tesco site as a result of the store extension.

	AM Peak		PM Peak	
	Arr	Dep	Arr	Dep
Tesco Extension additional trips	26	50	51	53

These trips will be included within any assessment work as committed development traffic from the extension to the Tesco store.

- Brewery Mixed Use Planning permission (Planning application ref 2/2006/1353) - Details regarding this site will be extracted from the agreed Transport Assessment once this has been obtained from North District Council.
- In consultation with Dorset District Council it was also suggested that there could be additional housing development within the local area (namely the Black Lane housing development) that has been built since the April 2013 traffic count and is now occupied and open to traffic. Again the agreed TA will be obtained from North District Council.

7. TRAFFIC FLOWS

A manual classified count was undertaken at the A350/A354 Blandford St Mary Roundabout on the 30th April 2013. The data from that survey will be used as a the basis for the assessment of that junction. Traffic flow data collected in April 2010 as part of the Tesco Extension TA will be used as a basis for the assessment of the Bournemouth Road, Stour Park and Birch Avenue roundabout.

Due to the multiple sources of data being used both data sets will be normalised to a common year, for example 2013. The normalisation will use growth factors from both local (ATC data/2013 traffic count) and national (using NTEM) sources. When developing a network of consistent junction counts the April 2013 data will be taken as the constraint and any other data will be factored to that level of traffic.

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Concern has been raised by DCC over an issue with queuing at the A354/A350 junction in both the AM and PM peaks (although previous ARCADY modelling work has not demonstrated this). A video survey of the junction was undertaken on the day of the survey in April 2013 and this will be utilised to augment the traffic analysis.

8. TRIP GENERATION

In order to predict the amount of traffic expected to be generated as a result of the proposed development, an initial assessment of trip rates was derived from the TRICS 2013(a) v6.11.2 database and used in the previous junction modelling work undertaken. DCC confirmed in our consultation with them that these rates were acceptable and will be used in the TA work undertaken.

The multi-modal trip rate was derived from the aggregate trip rate for sites of a similar nature within the 'Mixed Private / Non-Private Housing' category in the TRICS database, of which some of the sites had established Travel Plans. Full details on the sites selected from the TRICS database and assumptions made will be provided in the TA. Average trip rates from the proxy sites have been used. A summary of the peak hour person trip rates is illustrated below.

TRICS Person Trip Rates - Mixed Private / Non-Private Housing			
Time	Arrivals	Departures	Total
08:00 - 09:00	0.210	0.642	0.852
17:00 - 18:00	0.498	0.254	0.752

Modal split was then taken from the Travel to Work Census data "Portman ward (2011)" to calculate the modal split for residential developments, again this approach was accepted as suitable for the TA by DCC.

As the development proposal is for residential dwellings only, it has been assumed that there are no Heavy Goods Vehicle (HGV) movements associated with the site during peak hours. The resulting vehicle trips and are summarised below.

New Trips - Proposed Development			
AM Peak Hour		PM Peak Hour	
In	Out	In	Out
48	148	115	59

Trips from the proposed site for all other modes will also be detailed within the TA.

9. TRIP DISTRIBUTION/ASSIGNMENT

The distribution of development traffic will be done according to the proportion of traffic travelling through the study area. Traffic through the Blandford St Mary junction and the Bournemouth Road, Stour Park and Birch Avenue roundabout will be distributed proportionately according to those traffic surveys.

10. FORECAST YEARS

Growth factors will be generated using the latest versions of TEMpro (versions 6.2) and National Trip End Model (NTEM) dataset versions for the application year and ten years after opening. Where committed development is explicitly modelled the growth factors will be adjusted in TEMpro to take account of this. These growth factors will then be applied to the background traffic (but not to the residential development) and utilised within the modelling work undertaken.

11. ASSESSMENT WORK

PICADY junction modelling will be undertaken for both access points into the proposed site as set out in the earlier PB work undertaken. In addition ARCADY modelling will be undertaken for the

A354/A350 roundabout as well as the Bournemouth Road, Stour Park and Birch Avenue roundabout. Assessments will be undertaken for the following scenarios in both the AM and PM peak:

- 2013 base year
- 2014 (assumed application year) with committed development
- 2014 (assumed application year) with committed development and development
- 2025 (assumed 10 year post opening) with committed development
- 2025 (assumed 10 year post opening) with committed development and development

12. INTERPREATATION OF IMPACT

To determine if there is a need for the proposal to mitigate its impact at any of the junctions assessed the following scenarios will be considered:

- If in the assessment year (2014 or 2025) the highway network is operating under capacity[1] and the introduction of traffic from the development does not cause the highway network to go over capacity, then no remedial measures are required.

- If in the assessment year (2014 or 2025), the highway network is operating under capacity without the development and the introduction of traffic from the development causes the highway network to go over capacity, the remedial measures in the form of either highway infrastructure improvement or further soft measures through the travel plan will be considered to return the highway network to a position where it operates at no worse than capacity.

- If in the assessment year (2014 or 2025) the highway network without the development is operating over capacity and the introduction of the development worsens this situation, then remedial measures in the form of either highway infrastructure improvements or further soft measures through the travel plan will be considered to return the highway network to a level of service as would be expected should the development have not taken place.

13. TRAVEL PLAN

It is understood that a Residential Travel Plan (TP) is required to support the proposal. The TP will be written in accordance with DfT Making Residential Travel Plans work: Guidance for new developments (September 2005) as well as Dorset's Supplementary Planning Guidance "Development related Travel Plans in Dorset". Between these two documents it can be indentified that the following areas need to be considered within a Residential Travel Plan:

- Objectives
- Measures/actions
- Targets
- Monitoring
- Alternative measures
- Promotion/Dissemination

PB is currently consulting with Chris Hook of DCC to understand what exactly DCC would expect to see within a Residential Travel Plan, over and above what is set out above.

[1] Capacity for both PICADY and ARCADY assessments are assume to be 100% RFC

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14. PEDESTRIAN CONNECTIVITY

Following our consultation with DCC it was apparent that the council's main concern is with regards to pedestrian connectivity between the site and Blandford town centre. The site and the town centre are separated by the A354, a strategic corridor in Blandford. DCC suggested that an at grade crossing would not be acceptable due to the strategic nature of the A354.

It was suggested by DCC that a footbridge with stairs and/or ramp is likely to be necessary improvement to connect pedestrians from the site into Blandford town centre. Beyond the A354 pedestrian improvements have been improved/enhanced as a result of work undertaken by the Tesco Extension (as detailed within the referred ARUP TA).

The existing pedestrian connectivity will be considered within the TA and the need for improvements, if any, will be identified.

15. WAY FORWARD

On agreement of this scoping note a full TA and TP will be produced to support the residential proposal for Blandford Forum.

Morgan, Carolyne

From: Sayers, Wayne [w.sayers@dorsetcc.gov.uk]
Sent: 15 October 2013 17:06
To: Morgan, Carolyne
Cc: Savage, Steve K.
Subject: RE: Blandford St Mary's

Hi Carolyne,

I just tried to phone you to discuss your scoping note but understand that you're now out for the rest of the week. I've detailed my main comments below and will be around next Monday if you'd like to discuss any of them further.

As far as trip rates are concerned I am interested to know why you have used census data to provide a mode split rather than using the mode split data available within TRICS. The census data will be based only on journey to work information and will therefore miss out other journeys that occur within the peak hours, especially in the am peak where trips to school are significant. TRICS data on the other hand is based on surveys of actual sites and picks up all trips in that time period. I would prefer if the TRICS data for mode split is used unless there is a good reason why not.

I would advise that a suitable reduction to the trip rate is applied to acknowledge the impact of the TP before any junction modelling takes place. This follows that TA guidance and helps you by showing the likely reduced impact of the development. The only word of caution here is that some of your TRICS sites already have travel plans and that you would need to avoid double counting any reductions.

My final point relates to section 12 of your note - Interpretation of Impact. We would be unlikely to accept the approach that you outline as it is very prescriptive in its examination of the modelling results. It assumes that 100% RFC is to be considered to represent capacity, rather than 85, 90 or 95 nor does it acknowledge that, once a level of 90 to 95% is reached the operation of the junction becomes more erratic. It also does not take into account the individual characteristics of a specific junction. For example, here it may be the queues that cause us more of a concern that the actual RFC.

We would base our request for mitigation, if we think any is required, on an overall assessment of the junction capacity and its immediate surroundings and traffic characteristics.

As I said at the start, feel free to give me a call on Monday if you'd like to discuss any of the above.

Kind regards,

Wayne

Wayne Sayers MSc, MIHE, Associate Member RTPI
Transportation Development Management
Dorset County Council

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(01305) 224161 - w.sayers@dorsetcc.gov.uk - www.dorsetforyou.com/395972

From: Morgan, Carolyne [mailto:MorganC@pbworld.com]
Sent: Wed 09 October 2013 11:14
To: Sayers, Wayne

Cc: Savage, Steve K.; Hook, Christopher P.; Rob Akerman
Subject: RE: Blandford St Mary's

Wayne

Please find attached the TA scoping note for the proposed residential site at Blandford St Mary.

The note has been prepared in accordance with our earlier consultations (as detailed in the email history below).

I look forward to hearing from you and your colleagues with any comments prior to us commencing with the Transport Assessment and Travel Plan work.

Kind regards
Carolyne

From: Sayers, Wayne [mailto:w.sayers@dorsetcc.gov.uk]
Sent: 19 September 2013 14:06
To: Morgan, Carolyne
Cc: Akerman, Rob; Savage, Steve K.
Subject: RE: Blandford St Mary's

Hi Carolyne,

As far as junction modelling goes there will be no need to model the mini roundabout at the western end of Bournemouth Road or the next junction to the north on the Blandford By-pass. I am of the opinion that there are queues from the south at the A350/A354 roundabout in the am peak (there may be queues on the other arms but I've not approached from these directions on a regular basis). In the PM peak there were regularly queues approaching the roundabout from the west.

The Black Lane housing development and the Brewery proposals are the only committed developments we could think of that should be considered.

I'm happy for the existing traffic counts to be used.

Accident data can be obtained from Mike Potter on M.Potter@dorsetcc.gov.uk.

Kind regards,

Wayne

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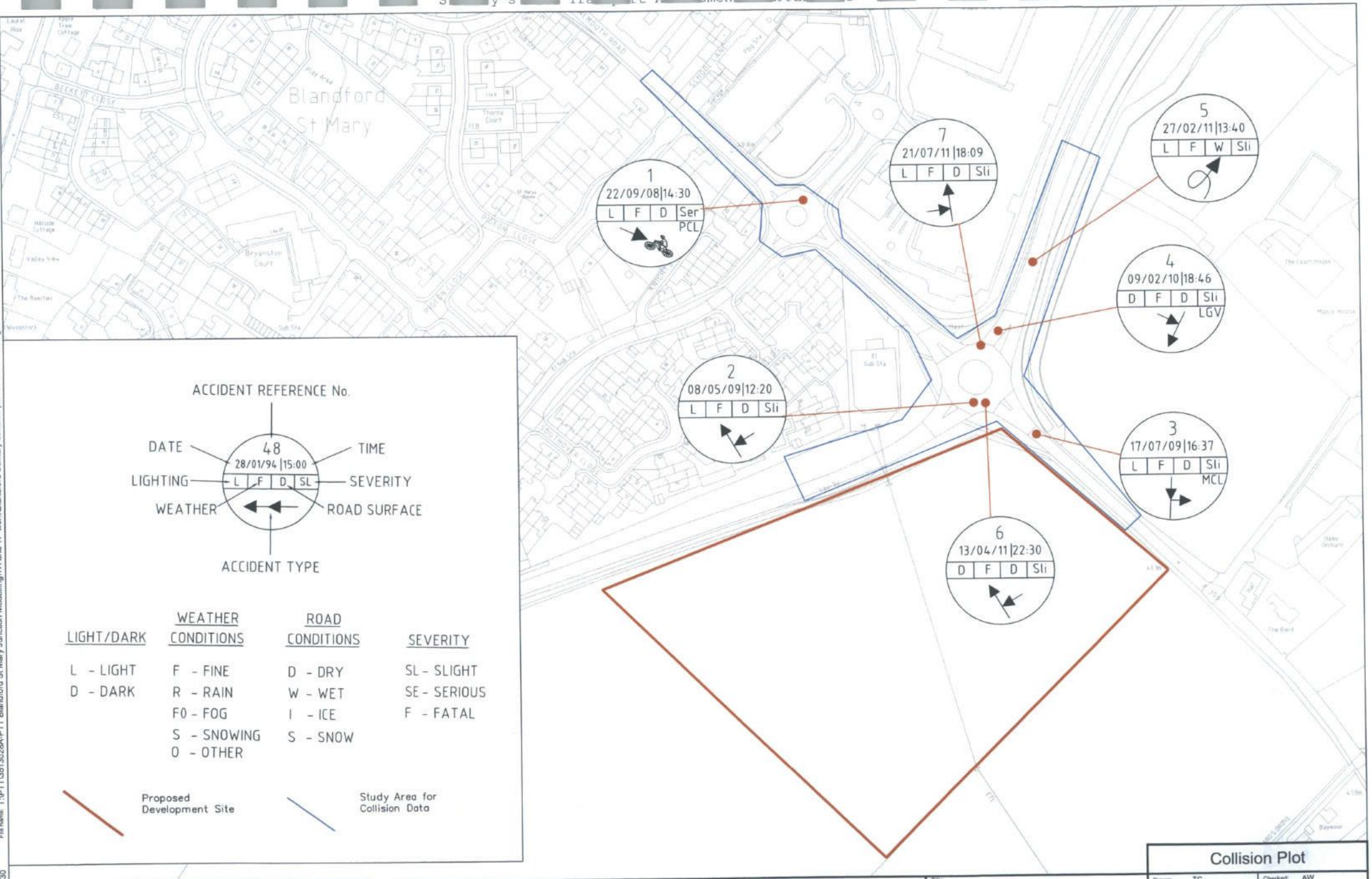
From: Morgan, Carolyne [mailto:MorganC@pbworld.com]
Sent: Wed 18 September 2013 09:38
To: Sayers, Wayne
Cc: Akerman, Rob
Subject: RE: Blandford St Mary's

Morning Wayne

Appendix 3 – Collision Plot



File Name: T:\PTT\3513028A-PTT Blandford St Mary Junction Modelling\TA and TP work\Blandford St.Mary collision plot 18-11-2013.dwg

Login: Curson, Thomas
Plot Date: 19/11/2013 12:55:30

Rev	Date	Description	By	Chk	App	Notes

PARSONS BRINCKERHOFF

Riverside Chambers
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Tel: 44-(0)1823-281190

Client: Akerman Infrastructure Solutions (AIS)

Project: Blandford St. Mary Transport Assessment

Title: Appendix 3
Blandford St. Mary
Collision Plot
September 2008 to August 2013

Collision Plot

Drawn: TC		Checked: AW	
Designed: TC		Approved: CM	
Date: 18/11/2013	Scale: 1:2000	A3	Sheet: 1 of 1
Project Number: 3513028A-PTT	Drawing Number: 1		Revision: 1