

ARCADY 8

Version: 8.0.0.296 [27 Feb 2012]

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Filename: Hambledon Rd_Milton Rd_Elettra Ave_AM_2020_mitigation.arc8

Path: J:\26365_BAE_Waterlooville\Technical\Transport\Junction Assessments\Arcady With Validation\Mitigation\2020 Base

Report generation date: 14/06/2012 11:52:50

» (Default Analysis Set) - Scenario 1, AM

Summary of junction performance

	AM			
	Queue (Veh)	Delay (s)	RFC	LOS
A1 - Scenario 1				
Milton Road	4.08	20.57	0.81	C
Hambledon Road (S)	1.76	4.47	0.64	A
Elettra Ave	0.25	3.19	0.20	A
Hambledon Road (N)	1.35	5.08	0.58	A

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

'D1 - Scenario 1, AM " model duration: 08:00 - 09:00

Run using ARCADY 8.0.0.296 at 14/06/2012 11:52:49

File summary

File Description

Title	Hambledon Rd / Milton Rd / Elettra Ave
Location	BAE Waterlooville
Site Number	
Date	31/05/2012
Version	
Status	(new file)
Identifier	
Client	BAE
Jobnumber	26365
Enumerator	PBA\lekeen
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75			N/A	0.85	36.00	20.00

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

(Default Analysis Set) - Scenario 1, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Hambledon Road (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Elettra Ave - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Hambledon Road (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
Scenario 1, AM	Scenario 1	AM		FLAT	08:00	09:00	60	15				✓		

Junction Network

Junctions

Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
(untitled)	Roundabout	1,2,3,4				7.96	A

Junction Network Options

Driving Side	Lighting	Road Surface
Left	Normal/unknown	(Mini-roundabouts only)

Arms

Arms

Name	Name	Description
Milton Road	Milton Road	
Hambledon Road (S)	Hambledon Road (S)	
Elettra Ave	Elettra Ave	
Hambledon Road (N)	Hambledon Road (N)	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
Milton Road	0.00	99999.00		0.00

Hambledon Road (S)	0.00	99999.00		0.00
Elettra Ave	0.00	99999.00		0.00
Hambledon Road (N)	0.00	99999.00		0.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
Milton Road	3.40	4.20	24.90	21.00	54.00	22.50	
Hambledon Road (S)	7.20	8.20	55.80	54.60	54.00	25.00	
Elettra Ave	3.30	7.50	77.00	21.00	54.00	23.00	
Hambledon Road (N)	3.60	7.70	127.60	6.00	54.00	22.00	

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

Pedestrian Crossings

Name	Crossing Type
Milton Road	None
Hambledon Road (S)	None
Elettra Ave	None
Hambledon Road (N)	None

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
Milton Road		(calculated)	(calculated)	0.521	1285.444
Hambledon Road (S)		(calculated)	(calculated)	0.766	2587.472
Elettra Ave		(calculated)	(calculated)	0.677	2138.840
Hambledon Road (N)		(calculated)	(calculated)	0.625	2025.835

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

Arm Capacity Adjustments

Name	Type	Reason	Direct Capacity Adjustment (PCU/hr)	Percentage Capacity Adjustment (%)
Milton Road	Percentage	To validate against queue surveys		135.00
Hambledon Road (S)	None			
Elettra Ave	None			
Hambledon Road (N)	None			

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
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Milton Road	FLAT	✓	731.00	100.000
Hambledon Road (S)	FLAT	✓	1420.00	100.000
Elettra Ave	FLAT	✓	285.00	100.000
Hambledon Road (N)	FLAT	✓	961.00	100.000

Turning Proportions

Turning Counts or Proportions (Veh/hr) - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	0.000	495.000	138.000	98.000
	2	225.000	27.000	601.000	567.000
	3	47.000	164.000	0.000	74.000
	4	40.000	805.000	116.000	0.000

Turning Proportions (Veh) - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	0.00	0.68	0.19	0.13
	2	0.16	0.02	0.42	0.40
	3	0.16	0.58	0.00	0.26
	4	0.04	0.84	0.12	0.00

Vehicle Mix

Average PCU Per Vehicle - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	1.000	1.034	1.000	1.010
	2	1.093	1.000	1.012	1.049
	3	1.021	1.067	1.000	1.027
	4	1.025	1.025	1.046	1.000

Heavy Vehicle Percentages - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	0.000	3.400	0.000	1.000
	2	9.300	0.000	1.200	4.900
	3	2.100	6.700	0.000	2.700
	4	2.500	2.500	4.600	0.000

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
Milton Road	0.81	20.57	4.08	C	731.00	731.00	226.60	18.60	3.78	227.15	18.64
Hambledon											

Milton Road (S)	0.64	4.47	1.76	A	1420.00	1420.00	103.62	4.38	1.73	103.66	4.38
Elettra Ave	0.20	3.19	0.25	A	285.00	285.00	15.00	3.16	0.25	15.00	3.16
Hambledon Road (N)	0.58	5.08	1.35	A	961.00	961.00	79.83	4.98	1.33	79.86	4.99

Main Results for each time segment

Main results: (08:00-08:15)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Milton Road	731.00	182.75	716.16	310.52	1106.17	0.00	909.10	400.89	0.804	0.00	3.71	17.518	C
Hambledon Road (S)	1420.00	355.00	1413.08	1475.77	346.56	0.00	2229.52	2283.99	0.637	0.00	1.73	4.373	A
Elettra Ave	285.00	71.25	284.00	848.62	911.02	0.00	1418.70	1102.63	0.201	0.00	0.25	3.169	A
Hambledon Road (N)	961.00	240.25	955.66	733.98	461.03	0.00	1671.08	1179.48	0.575	0.00	1.34	4.996	A

Main results: (08:15-08:30)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Milton Road	731.00	182.75	730.03	311.98	1111.95	0.00	905.00	400.89	0.808	3.71	3.95	20.319	C
Hambledon Road (S)	1420.00	355.00	1419.93	1490.31	351.68	0.00	2225.72	2283.99	0.638	1.73	1.75	4.467	A
Elettra Ave	285.00	71.25	284.99	854.78	916.83	0.00	1414.79	1102.63	0.201	0.25	0.25	3.185	A
Hambledon Road (N)	961.00	240.25	960.96	738.84	462.98	0.00	1669.80	1179.48	0.576	1.34	1.35	5.078	A

Main results: (08:30-08:45)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Milton Road	731.00	182.75	730.68	311.99	1111.98	0.00	904.98	400.89	0.808	3.95	4.04	20.504	C
Hambledon Road (S)	1420.00	355.00	1419.98	1490.77	351.89	0.00	2225.56	2283.99	0.638	1.75	1.75	4.468	A
Elettra Ave	285.00	71.25	285.00	854.93	916.94	0.00	1414.71	1102.63	0.201	0.25	0.25	3.185	A
Hambledon Road (N)	961.00	240.25	960.99	738.95	462.99	0.00	1669.80	1179.48	0.576	1.35	1.35	5.078	A

Main results: (08:45-09:00)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Milton Road	731.00	182.75	730.84	312.00	1111.99	0.00	904.97	400.89	0.808	4.04	4.08	20.567	C
Hambledon Road (S)	1420.00	355.00	1419.99	1490.89	351.94	0.00	2225.52	2283.99	0.638	1.75	1.76	4.468	A
Elettra Ave	285.00	71.25	285.00	854.96	916.97	0.00	1414.69	1102.63	0.201	0.25	0.25	3.185	A
Hambledon Road (N)	961.00	240.25	961.00	738.97	463.00	0.00	1669.80	1179.48	0.576	1.35	1.35	5.078	A

Queueing Delay Results for each time segment

Queueing Delay results: (08:00-08:15)

Name	Queueing Total Delay	Queueing Rate Of Delay (Veh-)	Average Delay Per Arriving	Unsignalised Level Of	Signalised Level Of
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Name	(Veh-min)	min/min)	Vehicle (s)	Service	Service
Milton Road	47.82	3.19	17.518	C	B
Hambledon Road (S)	24.88	1.66	4.373	A	A
Elettra Ave	3.68	0.25	3.169	A	A
Hambledon Road (N)	19.21	1.28	4.996	A	A

Queueing Delay results: (08:15-08:30)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Milton Road	57.90	3.86	20.319	C	C
Hambledon Road (S)	26.13	1.74	4.467	A	A
Elettra Ave	3.77	0.25	3.185	A	A
Hambledon Road (N)	20.14	1.34	5.078	A	A

Queueing Delay results: (08:30-08:45)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Milton Road	60.01	4.00	20.504	C	C
Hambledon Road (S)	26.28	1.75	4.468	A	A
Elettra Ave	3.78	0.25	3.185	A	A
Hambledon Road (N)	20.22	1.35	5.078	A	A

Queueing Delay results: (08:45-09:00)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Milton Road	60.88	4.06	20.567	C	C
Hambledon Road (S)	26.33	1.76	4.468	A	A
Elettra Ave	3.78	0.25	3.185	A	A
Hambledon Road (N)	20.26	1.35	5.078	A	A

ARCADY 8

Version: 8.0.0.296 [27 Feb 2012]

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Filename: Hambledon Rd_Milton Rd_Elettra Ave_PM_2020_mitigation.arc8

Path: J:\26365_BAE_Waterlooville\Technical\Transport\Junction Assessments\Arcady With Validation\Mitigation\2020 Base

Report generation date: 14/06/2012 11:58:58

» (Default Analysis Set) - Scenario 1, PM

Summary of junction performance

	PM			
	Queue (Veh)	Delay (s)	RFC	LOS
A1 - Scenario 1				
Milton Road	3.07	23.38	0.76	C
Hambledon Road (S)	1.81	4.24	0.65	A
Elettra Ave	23.81	103.49	0.99	F
Hambledon Road (N)	5.93	30.88	0.86	D

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

'D2 - Scenario 1, PM " model duration: 16:45 - 17:45

Run using ARCADY 8.0.0.296 at 14/06/2012 11:58:57

File summary

File Description

Title	Hambledon Rd / Milton Rd / Elettra Ave
Location	BAE Waterlooville
Site Number	
Date	31/05/2012
Version	
Status	(new file)
Identifier	
Client	BAE
Jobnumber	26365
Enumerator	PBA\lekeen
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75			N/A	0.85	36.00	20.00

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

(Default Analysis Set) - Scenario 1, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Hambledon Road (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Elettra Ave - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Hambledon Road (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
Scenario 1, PM	Scenario 1	PM		FLAT	16:45	17:45	60	15				✓		

Junction Network

Junctions

Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
(untitled)	Roundabout	1,2,3,4				35.53	E

Junction Network Options

Driving Side	Lighting	Road Surface
Left	Normal/unknown	(Mini-roundabouts only)

Arms

Arms

Name	Name	Description
Milton Road	Milton Road	
Hambledon Road (S)	Hambledon Road (S)	
Elettra Ave	Elettra Ave	
Hambledon Road (N)	Hambledon Road (N)	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
Milton Road	0.00	99999.00		0.00

Hambledon Road (S)	0.00	99999.00	0.00
Elettra Ave	0.00	99999.00	0.00
Hambledon Road (N)	0.00	99999.00	0.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
Milton Road	3.40	4.20	24.90	21.00	54.00	22.50	
Hambledon Road (S)	7.20	8.20	55.80	54.60	54.00	25.00	
Elettra Ave	3.30	7.50	77.00	21.00	54.00	23.00	
Hambledon Road (N)	3.60	7.70	127.60	6.00	54.00	22.00	

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

Pedestrian Crossings

Name	Crossing Type
Milton Road	None
Hambledon Road (S)	None
Elettra Ave	None
Hambledon Road (N)	None

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
Milton Road		(calculated)	(calculated)	0.521	1285.444
Hambledon Road (S)		(calculated)	(calculated)	0.766	2587.472
Elettra Ave		(calculated)	(calculated)	0.677	2138.840
Hambledon Road (N)		(calculated)	(calculated)	0.625	2025.835

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

Arm Capacity Adjustments

Name	Type	Reason	Direct Capacity Adjustment (PCU/hr)	Percentage Capacity Adjustment (%)
Milton Road	None			
Hambledon Road (S)	None			
Elettra Ave	Percentage			80.00
Hambledon Road (N)	Percentage			70.00

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
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Milton Road	FLAT	✓	486.00	100.000
Hambledon Road (S)	FLAT	✓	1543.00	100.000
Elettra Ave	FLAT	✓	859.00	100.000
Hambledon Road (N)	FLAT	✓	723.00	100.000

Turning Proportions

Turning Counts or Proportions (Veh/hr) - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	0.000	343.000	59.000	84.000
	2	570.000	39.000	115.000	819.000
	3	179.000	507.000	0.000	173.000
	4	72.000	605.000	46.000	0.000

Turning Proportions (Veh) - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	0.00	0.71	0.12	0.17
	2	0.37	0.03	0.07	0.53
	3	0.21	0.59	0.00	0.20
	4	0.10	0.84	0.06	0.00

Vehicle Mix

Average PCU Per Vehicle - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	1.000	1.038	1.017	1.012
	2	1.023	1.026	1.026	1.018
	3	1.017	1.005	1.000	1.001
	4	1.000	1.013	1.022	1.000

Heavy Vehicle Percentages - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	0.000	3.800	1.700	1.200
	2	2.300	2.600	2.600	1.800
	3	1.700	0.500	0.000	0.100
	4	0.000	1.300	2.200	0.000

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
Milton Road	0.76	23.38	3.07	C	486.00	486.00	166.11	20.51	2.77	166.55	20.56
Hambledon											

Milton Road (S)	0.65	4.24	1.81	A	1542.99	1542.99	107.02	4.16	1.78	107.07	4.16
Elettra Ave	0.99	103.49	23.81	F	859.00	859.00	979.51	68.42	16.33	999.07	69.78
Hambledon Road (N)	0.86	30.88	5.93	D	723.00	723.00	309.69	25.70	5.16	310.95	25.80

Main Results for each time segment

Main results: (16:45-17:00)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Milton Road	486.00	121.50	475.63	806.09	1150.23	0.00	659.07	695.97	0.737	0.00	2.59	18.706	C
Hambledon Road (S)	1542.99	385.75	1535.84	1441.13	184.73	0.00	2394.33	2338.48	0.644	0.00	1.79	4.160	A
Elettra Ave	859.00	214.75	809.26	216.99	1503.58	0.00	874.33	445.65	0.982	0.00	12.44	41.200	E
Hambledon Road (N)	723.00	180.75	703.86	1060.39	1252.45	0.00	851.00	837.42	0.850	0.00	4.78	22.219	C

Main results: (17:00-17:15)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Milton Road	486.00	121.50	484.74	816.52	1182.66	0.00	642.52	695.97	0.756	2.59	2.91	22.512	C
Hambledon Road (S)	1542.99	385.75	1542.93	1478.95	188.45	0.00	2391.49	2338.48	0.645	1.79	1.81	4.242	A
Elettra Ave	859.00	214.75	838.96	219.67	1511.72	0.00	869.87	445.65	0.988	12.44	17.45	74.863	F
Hambledon Road (N)	723.00	180.75	720.22	1071.71	1278.97	0.00	839.42	837.42	0.861	4.78	5.48	28.982	D

Main results: (17:15-17:30)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Milton Road	486.00	121.50	485.58	817.92	1187.57	0.00	640.01	695.97	0.759	2.91	3.01	23.129	C
Hambledon Road (S)	1542.99	385.75	1542.97	1484.35	188.80	0.00	2391.22	2338.48	0.645	1.81	1.81	4.243	A
Elettra Ave	859.00	214.75	844.81	219.87	1511.91	0.00	869.77	445.65	0.988	17.45	21.00	91.210	F
Hambledon Road (N)	723.00	180.75	721.84	1073.05	1283.65	0.00	837.38	837.42	0.863	5.48	5.77	30.278	D

Main results: (17:30-17:45)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Milton Road	486.00	121.50	485.78	818.59	1189.77	0.00	638.90	695.97	0.761	3.01	3.07	23.378	C
Hambledon Road (S)	1542.99	385.75	1542.98	1486.66	188.90	0.00	2391.15	2338.48	0.645	1.81	1.81	4.244	A
Elettra Ave	859.00	214.75	847.75	219.93	1511.95	0.00	869.74	445.65	0.988	21.00	23.81	103.487	F
Hambledon Road (N)	723.00	180.75	722.34	1073.69	1286.02	0.00	836.35	837.42	0.864	5.77	5.93	30.878	D

Queueing Delay Results for each time segment

Queueing Delay results: (16:45-17:00)

Name	Queueing Total Delay	Queueing Rate Of Delay (Veh-)	Average Delay Per Arriving	Unsignalised Level Of	Signalised Level Of
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Name	(Veh-min)	min/min)	Vehicle (s)	Service	Service
Milton Road	33.96	2.26	18.706	C	B
Hambledon Road (S)	25.74	1.72	4.160	A	A
Elettra Ave	126.32	8.42	41.200	E	D
Hambledon Road (N)	58.99	3.93	22.219	C	C

Queueing Delay results: (17:00-17:15)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Milton Road	41.98	2.80	22.512	C	C
Hambledon Road (S)	26.99	1.80	4.242	A	A
Elettra Ave	226.92	15.13	74.863	F	E
Hambledon Road (N)	78.14	5.21	28.982	D	C

Queueing Delay results: (17:15-17:30)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Milton Road	44.54	2.97	23.129	C	C
Hambledon Road (S)	27.12	1.81	4.243	A	A
Elettra Ave	289.54	19.30	91.210	F	F
Hambledon Road (N)	84.66	5.64	30.278	D	C

Queueing Delay results: (17:30-17:45)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Milton Road	45.64	3.04	23.378	C	C
Hambledon Road (S)	27.17	1.81	4.244	A	A
Elettra Ave	336.74	22.45	103.487	F	F
Hambledon Road (N)	87.90	5.86	30.878	D	C

ARCADY 8

Version: 8.0.0.296 [27 Feb 2012]

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Filename: Site Access Junction_2020_mitigation.arc8

Path: J:\26365_BAE_Waterlooville\Technical\Transport\Junction Assessments\Arcady With Validation\Mitigation\2020 Base

Report generation date: 14/06/2012 11:50:54

« (Default Analysis Set) - Scenario 1, AM

- » Junction Network
- » Arms
- » Traffic Flows
- » Entry Flows
- » Turning Proportions
- » Vehicle Mix
- » Results

Summary of junction performance

	AM			
	Queue (Veh)	Delay (s)	RFC	LOS
A1 - Scenario 1				
Elettra Avenue (E)	1.05	4.42	0.51	A
BAE Access	0.02	1.85	0.02	A
Elettra Avenue (W)	0.03	2.31	0.03	A
Waterberry Drive	0.13	2.35	0.12	A

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

'D1 - Scenario 1, AM " model duration: 08:00 - 09:00

'D2 - Scenario 1, PM" model duration: 16:45 - 17:45

Run using ARCADY 8.0.0.296 at 14/06/2012 11:50:53

File summary

File Description

Title	Site Access Junction
Location	BAE Waterlooville
Site Number	
Date	31/05/2012
Version	
Status	(new file)
Identifier	
Client	BAE
Jobnumber	26365
Enumerator	PBA\ekleen
Description	

Analysis Options

Vehicle Length	Do Queue	Calculate Residual	Residual Capacity Criteria	RFC	Average Delay Threshold	Queue Threshold
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Length (m)	Variations	Capacity	Type	Threshold	Average Delay (s)	Queue (PCU)
5.75			N/A	0.85	36.00	20.00

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

(Default Analysis Set) - Scenario 1, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
Scenario 1, AM	Scenario 1	AM		FLAT	08:00	09:00	60	15				✓		

Junction Network

Junctions

Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
(untitled)	Roundabout	1,2,3,4				3.85	A

Junction Network Options

Driving Side	Lighting	Road Surface
Left	Normal/unknown	(Mini-roundabouts only)

Arms

Arms

Name	Name	Description
Elettra Avenue (E)	Elettra Avenue (E)	
BAE Access	BAE Access	
Elettra Avenue (W)	Elettra Avenue (W)	
Waterberry Drive	Waterberry Drive	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
Elettra Avenue (E)	0.00	99999.00		0.00
BAE Access	0.00	99999.00		0.00
Elettra Avenue (W)	0.00	99999.00		0.00
Waterberry Drive	0.00	99999.00		0.00

Eletra Avenue (W)	0.00	99999.00	0.00
Waterberry Drive	0.00	99999.00	0.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
Eletra Avenue (E)	3.00	7.40	16.30	25.69	44.00	19.50	
BAE Access	6.20	9.10	11.08	19.46	44.00	24.00	
Eletra Avenue (W)	3.60	7.30	27.90	28.48	44.00	15.50	
Waterberry Drive	3.76	7.50	13.36	55.40	44.00	11.50	

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

Pedestrian Crossings

Name	Crossing Type
Eletra Avenue (E)	None
BAE Access	None
Eletra Avenue (W)	None
Waterberry Drive	None

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
Eletra Avenue (E)		(calculated)	(calculated)	0.645	1701.086
BAE Access		(calculated)	(calculated)	0.775	2402.663
Eletra Avenue (W)		(calculated)	(calculated)	0.709	1999.711
Waterberry Drive		(calculated)	(calculated)	0.699	1902.815

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
Eletra Avenue (E)	FLAT	✓	856.00	100.000
BAE Access	FLAT	✓	42.00	100.000
Eletra Avenue (W)	FLAT	✓	52.00	100.000
Waterberry Drive	FLAT	✓	206.00	100.000

Turning Proportions

Turning Counts or Proportions (Veh/hr) - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	0.000	331.000	115.000	410.000
	2	42.000	0.000	0.000	0.000
	3	48.000	0.000	0.000	4.000
	4	196.000	1.000	9.000	0.000

Turning Proportions (Veh) - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	0.00	0.39	0.13	0.48
	2	1.00	0.00	0.00	0.00
	3	0.92	0.00	0.00	0.08
	4	0.95	0.00	0.04	0.00

Vehicle Mix

Average PCU Per Vehicle - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	1.000	1.017	1.017	1.012
	2	1.000	1.000	1.000	1.000
	3	1.042	1.000	1.000	1.000
	4	1.061	1.000	1.000	1.000

Heavy Vehicle Percentages - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	0.000	1.700	1.700	1.200
	2	0.000	0.000	0.000	0.000
	3	4.200	0.000	0.000	0.000
	4	6.100	0.000	0.000	0.000

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
Elettra Avenue (E)	0.51	4.42	1.05	A	856.00	856.00	62.17	4.36	1.04	62.19	4.36
BAE Access	0.02	1.85	0.02	A	42.00	42.00	1.29	1.85	0.02	1.29	1.85
Elettra Avenue (W)	0.03	2.31	0.03	A	52.00	52.00	1.99	2.30	0.03	1.99	2.30
Waterberry Drive	0.12	2.35	0.13	A	206.00	206.00	8.03	2.34	0.13	8.03	2.34

Main Results for each time segment

Main results: (08:00-08:15)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Elettra Avenue (E)	856.00	214.00	851.83	285.28	9.97	0.00	1670.25	1659.17	0.513	0.00	1.04	4.377	A
BAE Access	42.00	10.50	41.91	330.39	531.43	0.00	1985.65	1584.86	0.021	0.00	0.02	1.851	A
Elettra Avenue (W)	52.00	13.00	51.87	123.42	449.92	0.00	1614.58	294.08	0.032	0.00	0.03	2.303	A
Waterberry Drive	206.00	51.50	205.46	412.00	89.79	0.00	1737.77	564.13	0.119	0.00	0.13	2.349	A

Main results: (08:15-08:30)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Elettra Avenue (E)	856.00	214.00	855.98	286.00	10.00	0.00	1670.23	1659.17	0.513	1.04	1.05	4.420	A
BAE Access	42.00	10.50	42.00	331.99	533.99	0.00	1983.64	1584.86	0.021	0.02	0.02	1.853	A
Elettra Avenue (W)	52.00	13.00	52.00	124.00	451.99	0.00	1613.15	294.08	0.032	0.03	0.03	2.305	A
Waterberry Drive	206.00	51.50	206.00	413.99	90.00	0.00	1737.62	564.13	0.119	0.13	0.13	2.350	A

Main results: (08:30-08:45)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Elettra Avenue (E)	856.00	214.00	855.99	286.00	10.00	0.00	1670.23	1659.17	0.513	1.05	1.05	4.420	A
BAE Access	42.00	10.50	42.00	332.00	534.00	0.00	1983.63	1584.86	0.021	0.02	0.02	1.853	A
Elettra Avenue (W)	52.00	13.00	52.00	124.00	452.00	0.00	1613.15	294.08	0.032	0.03	0.03	2.305	A
Waterberry Drive	206.00	51.50	206.00	414.00	90.00	0.00	1737.62	564.13	0.119	0.13	0.13	2.350	A

Main results: (08:45-09:00)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Elettra Avenue (E)	856.00	214.00	855.99	286.00	10.00	0.00	1670.23	1659.17	0.513	1.05	1.05	4.420	A
BAE Access	42.00	10.50	42.00	332.00	534.00	0.00	1983.63	1584.86	0.021	0.02	0.02	1.853	A
Elettra Avenue (W)	52.00	13.00	52.00	124.00	452.00	0.00	1613.15	294.08	0.032	0.03	0.03	2.305	A
Waterberry Drive	206.00	51.50	206.00	414.00	90.00	0.00	1737.62	564.13	0.119	0.13	0.13	2.350	A

Queueing Delay Results for each time segment

Queueing Delay results: (08:00-08:15)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Elettra Avenue (E)	15.08	1.01	4.377	A	A
BAE Access	0.32	0.02	1.851	A	A

Elettra Avenue (W)	0.49	0.03	2.303	A	A
Waterberry Drive	1.98	0.13	2.349	A	A

Queueing Delay results: (08:15-08:30)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Elettra Avenue (E)	15.66	1.04	4.420	A	A
BAE Access	0.32	0.02	1.853	A	A
Elettra Avenue (W)	0.50	0.03	2.305	A	A
Waterberry Drive	2.01	0.13	2.350	A	A

Queueing Delay results: (08:30-08:45)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Elettra Avenue (E)	15.71	1.05	4.420	A	A
BAE Access	0.32	0.02	1.853	A	A
Elettra Avenue (W)	0.50	0.03	2.305	A	A
Waterberry Drive	2.02	0.13	2.350	A	A

Queueing Delay results: (08:45-09:00)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Elettra Avenue (E)	15.72	1.05	4.420	A	A
BAE Access	0.32	0.02	1.853	A	A
Elettra Avenue (W)	0.50	0.03	2.305	A	A
Waterberry Drive	2.02	0.13	2.350	A	A

ARCADY 8

Version: 8.0.0.296 [27 Feb 2012]

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Filename: Site Access Junction_2020_mitigation.arc8

Path: J:\26365_BAE_Waterlooville\Technical\Transport\Junction Assessments\Arcady With Validation\Mitigation\2020 Base

Report generation date: 14/06/2012 12:27:16

« (Default Analysis Set) - Scenario 1, PM

- » Junction Network
- » Arms
- » Traffic Flows
- » Entry Flows
- » Turning Proportions
- » Vehicle Mix
- » Results

Summary of junction performance

	PM			
	Queue (Veh)	Delay (s)	RFC	LOS
A1 - Scenario 1				
Elettra Avenue (E)	0.16	2.52	0.14	A
BAE Access	0.13	1.83	0.11	A
Elettra Avenue (W)	0.10	2.34	0.09	A
Waterberry Drive	0.42	3.19	0.30	A

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

"D1 - Scenario 1, AM" model duration: 08:00 - 09:00

"D2 - Scenario 1, PM" model duration: 16:45 - 17:45

Run using ARCADY 8.0.0.296 at 14/06/2012 12:27:15

File summary

File Description

Title	Site Access Junction
Location	BAE Waterlooville
Site Number	
Date	31/05/2012
Version	
Status	(new file)
Identifier	
Client	BAE
Jobnumber	26365
Enumerator	PBA\ekleen
Description	

Analysis Options

Vehicle Length	Do Queue	Calculate Residual	Residual Capacity Criteria	RFC	Average Delay Threshold	Queue Threshold
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Link Length (m)	Capacity Variations	Capacity Capacity	Capacity Type	Capacity Threshold	Capacity (s)	Capacity (PCU)
5.75			N/A	0.85	36.00	20.00

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

(Default Analysis Set) - Scenario 1, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
Scenario 1, PM	Scenario 1	PM		FLAT	16:45	17:45	60	15				✓		

Junction Network

Junctions

Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
(untitled)	Roundabout	1,2,3,4				2.62	A

Junction Network Options

Driving Side	Lighting	Road Surface
Left	Normal/unknown	(Mini-roundabouts only)

Arms

Arms

Name	Name	Description
Elettra Avenue (E)	Elettra Avenue (E)	
BAE Access	BAE Access	
Elettra Avenue (W)	Elettra Avenue (W)	
Waterberry Drive	Waterberry Drive	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
Elettra Avenue (E)	0.00	99999.00		0.00
BAE Access	0.00	99999.00		0.00
Elettra Avenue (W)	0.00	99999.00		0.00
Waterberry Drive	0.00	99999.00		0.00

Eletra Avenue (W)	0.00	99999.00	0.00
Waterberry Drive	0.00	99999.00	0.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
Eletra Avenue (E)	3.00	7.40	16.30	25.69	44.00	19.50	
BAE Access	6.20	9.10	11.08	19.46	44.00	24.00	
Eletra Avenue (W)	3.60	7.30	27.90	28.48	44.00	15.50	
Waterberry Drive	3.76	7.50	13.36	55.40	44.00	11.50	

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

Pedestrian Crossings

Name	Crossing Type
Eletra Avenue (E)	None
BAE Access	None
Eletra Avenue (W)	None
Waterberry Drive	None

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
Eletra Avenue (E)		(calculated)	(calculated)	0.645	1701.086
BAE Access		(calculated)	(calculated)	0.775	2402.663
Eletra Avenue (W)		(calculated)	(calculated)	0.709	1999.711
Waterberry Drive		(calculated)	(calculated)	0.699	1902.815

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
Eletra Avenue (E)	FLAT	✓	223.00	100.000
BAE Access	FLAT	✓	255.00	100.000
Eletra Avenue (W)	FLAT	✓	154.00	100.000
Waterberry Drive	FLAT	✓	474.00	100.000

Turning Proportions

Turning Counts or Proportions (Veh/hr) - (untitled) (for whole period)

		To			
From		1	2	3	4
	1	0.000	32.000	29.000	162.000
	2	252.000	0.000	3.000	0.000
	3	151.000	0.000	0.000	3.000
	4	452.000	0.000	22.000	0.000

Turning Proportions (Veh) - (untitled) (for whole period)

		To			
From		1	2	3	4
	1	0.00	0.14	0.13	0.73
	2	0.99	0.00	0.01	0.00
	3	0.98	0.00	0.00	0.02
	4	0.95	0.00	0.05	0.00

Vehicle Mix

Average PCU Per Vehicle - (untitled) (for whole period)

		To			
From		1	2	3	4
	1	1.000	1.000	1.069	1.019
	2	1.004	1.000	1.000	1.000
	3	1.007	1.000	1.000	1.000
	4	1.011	1.000	1.000	1.000

Heavy Vehicle Percentages - (untitled) (for whole period)

		To			
From		1	2	3	4
	1	0.000	0.000	6.900	1.900
	2	0.400	0.000	0.000	0.000
	3	0.700	0.000	0.000	0.000
	4	1.100	0.000	0.000	0.000

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
Elettra Avenue (E)	0.14	2.52	0.16	A	223.00	223.00	9.33	2.51	0.16	9.33	2.51
BAE Access	0.11	1.83	0.13	A	255.00	255.00	7.73	1.82	0.13	7.73	1.82
Elettra Avenue (W)	0.09	2.34	0.10	A	154.00	154.00	5.98	2.33	0.10	5.98	2.33
Waterberry Drive	0.30	3.19	0.42	A	474.00	474.00	24.98	3.16	0.42	24.99	3.16

Main Results for each time segment

Main results: (16:45-17:00)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Elettra Avenue (E)	223.00	55.75	222.38	852.50	21.92	0.00	1649.37	1638.36	0.135	0.00	0.16	2.521	A
BAE Access	255.00	63.75	254.48	31.91	212.39	0.00	2225.40	1251.15	0.115	0.00	0.13	1.826	A
Elettra Avenue (W)	154.00	38.50	153.60	53.84	413.04	0.00	1692.31	257.56	0.091	0.00	0.10	2.339	A
Waterberry Drive	474.00	118.50	472.33	164.54	402.10	0.00	1603.40	848.11	0.296	0.00	0.42	3.179	A

Main results: (17:00-17:15)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Elettra Avenue (E)	223.00	55.75	223.00	854.99	22.00	0.00	1649.32	1638.36	0.135	0.16	0.16	2.523	A
BAE Access	255.00	63.75	255.00	32.00	213.00	0.00	2224.92	1251.15	0.115	0.13	0.13	1.826	A
Elettra Avenue (W)	154.00	38.50	154.00	54.00	414.00	0.00	1691.62	257.56	0.091	0.10	0.10	2.340	A
Waterberry Drive	474.00	118.50	473.99	165.00	403.00	0.00	1602.77	848.11	0.296	0.42	0.42	3.188	A

Main results: (17:15-17:30)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Elettra Avenue (E)	223.00	55.75	223.00	855.00	22.00	0.00	1649.32	1638.36	0.135	0.16	0.16	2.523	A
BAE Access	255.00	63.75	255.00	32.00	213.00	0.00	2224.92	1251.15	0.115	0.13	0.13	1.826	A
Elettra Avenue (W)	154.00	38.50	154.00	54.00	414.00	0.00	1691.62	257.56	0.091	0.10	0.10	2.340	A
Waterberry Drive	474.00	118.50	474.00	165.00	403.00	0.00	1602.77	848.11	0.296	0.42	0.42	3.188	A

Main results: (17:30-17:45)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Elettra Avenue (E)	223.00	55.75	223.00	855.00	22.00	0.00	1649.32	1638.36	0.135	0.16	0.16	2.523	A
BAE Access	255.00	63.75	255.00	32.00	213.00	0.00	2224.92	1251.15	0.115	0.13	0.13	1.826	A
Elettra Avenue (W)	154.00	38.50	154.00	54.00	414.00	0.00	1691.62	257.56	0.091	0.10	0.10	2.340	A
Waterberry Drive	474.00	118.50	474.00	165.00	403.00	0.00	1602.77	848.11	0.296	0.42	0.42	3.188	A

Queueing Delay Results for each time segment

Queueing Delay results: (16:45-17:00)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Elettra Avenue (E)	2.30	0.15	2.521	A	A
BAE Access	1.91	0.13	1.826	A	A

Elettra Avenue (W)	1.48	0.10	2.339	A	A
Waterberry Drive	6.13	0.41	3.179	A	A

Queueing Delay results: (17:00-17:15)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Elettra Avenue (E)	2.34	0.16	2.523	A	A
BAE Access	1.94	0.13	1.826	A	A
Elettra Avenue (W)	1.50	0.10	2.340	A	A
Waterberry Drive	6.28	0.42	3.188	A	A

Queueing Delay results: (17:15-17:30)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Elettra Avenue (E)	2.34	0.16	2.523	A	A
BAE Access	1.94	0.13	1.826	A	A
Elettra Avenue (W)	1.50	0.10	2.340	A	A
Waterberry Drive	6.29	0.42	3.188	A	A

Queueing Delay results: (17:30-17:45)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Elettra Avenue (E)	2.34	0.16	2.523	A	A
BAE Access	1.94	0.13	1.826	A	A
Elettra Avenue (W)	1.50	0.10	2.340	A	A
Waterberry Drive	6.29	0.42	3.188	A	A

ARCADY 8

Version: 8.0.0.296 [27 Feb 2012]

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Filename: Hambledon Rd_Milton Rd_Elettra Ave_AM_2020 + Dev Scen1_mitigation.arc8

Path: J:\26365_BAE_Waterlooville\Technical\Transport\Junction Assessments\Arcady With Validation\Mitigation\2020 Base + Dev

Report generation date: 14/06/2012 11:18:24

» (Default Analysis Set) - Scenario 1, AM

Summary of junction performance

	AM			
	Queue (Veh)	Delay (s)	RFC	LOS
A1 - Scenario 1				
Milton Road	4.13	21.33	0.81	C
Hambledon Road (S)	1.44	3.94	0.59	A
Elettra Ave	0.31	3.34	0.23	A
Hambledon Road (N)	1.38	5.23	0.58	A

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

"D1 - Scenario 1, AM " model duration: 08:00 - 09:00

Run using ARCADY 8.0.0.296 at 14/06/2012 11:18:23

File summary

File Description

Title	Hambledon Rd / Milton Rd / Elettra Ave
Location	BAE Waterlooville
Site Number	
Date	31/05/2012
Version	
Status	(new file)
Identifier	
Client	BAE
Jobnumber	26365
Enumerator	PBA\lekeen
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75			N/A	0.85	36.00	20.00

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

(Default Analysis Set) - Scenario 1, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Hambledon Road (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Elettra Ave - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Hambledon Road (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
Scenario 1, AM	Scenario 1	AM		FLAT	08:00	09:00	60	15				✓		

Junction Network

Junctions

Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
(untitled)	Roundabout	1,2,3,4				7.96	A

Junction Network Options

Driving Side	Lighting	Road Surface
Left	Normal/unknown	(Mini-roundabouts only)

Arms

Arms

Name	Name	Description
Milton Road	Milton Road	
Hambledon Road (S)	Hambledon Road (S)	
Elettra Ave	Elettra Ave	
Hambledon Road (N)	Hambledon Road (N)	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
Milton Road	0.00	99999.00		0.00

Hambledon Road (S)	0.00	99999.00	0.00
Elettra Ave	0.00	99999.00	0.00
Hambledon Road (N)	0.00	99999.00	0.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
Milton Road	3.40	4.20	24.90	21.00	54.00	22.50	
Hambledon Road (S)	7.20	8.20	55.80	54.60	54.00	25.00	
Elettra Ave	3.30	7.50	77.00	21.00	54.00	23.00	
Hambledon Road (N)	3.60	7.70	127.60	6.00	54.00	22.00	

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

Pedestrian Crossings

Name	Crossing Type
Milton Road	None
Hambledon Road (S)	None
Elettra Ave	None
Hambledon Road (N)	None

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
Milton Road		(calculated)	(calculated)	0.521	1285.444
Hambledon Road (S)		(calculated)	(calculated)	0.766	2587.472
Elettra Ave		(calculated)	(calculated)	0.677	2138.840
Hambledon Road (N)		(calculated)	(calculated)	0.625	2025.835

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

Arm Capacity Adjustments

Name	Type	Reason	Direct Capacity Adjustment (PCU/hr)	Percentage Capacity Adjustment (%)
Milton Road	Percentage	To validate against queue surveys		135.00
Hambledon Road (S)	None			
Elettra Ave	None			
Hambledon Road (N)	None			

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
------	--------------	--------------------	------------------------------	-------------------------

Milton Road	FLAT	✓	714.00	100.000
Hambledon Road (S)	FLAT	✓	1319.00	100.000
Elettra Ave	FLAT	✓	330.00	100.000
Hambledon Road (N)	FLAT	✓	954.00	100.000

Turning Proportions

Turning Counts or Proportions (Veh/hr) - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	0.000	495.000	121.000	98.000
	2	225.000	27.000	500.000	567.000
	3	53.000	200.000	0.000	77.000
	4	40.000	805.000	109.000	0.000

Turning Proportions (Veh) - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	0.00	0.69	0.17	0.14
	2	0.17	0.02	0.38	0.43
	3	0.16	0.61	0.00	0.23
	4	0.04	0.84	0.11	0.00

Vehicle Mix

Average PCU Per Vehicle - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	1.000	1.034	1.015	1.010
	2	1.093	1.000	1.019	1.049
	3	1.062	1.063	1.000	1.026
	4	1.025	1.025	1.044	1.000

Heavy Vehicle Percentages - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	0.000	3.400	1.500	1.000
	2	9.300	0.000	1.900	4.900
	3	6.200	6.300	0.000	2.600
	4	2.500	2.500	4.400	0.000

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
Milton Road	0.81	21.33	4.13	C	714.00	714.00	228.79	19.23	3.81	229.37	19.27
Hambledon											

Milton Road (S)	0.59	3.94	1.44	A	1319.00	1319.00	85.22	3.88	1.42	85.25	3.88
Elettra Ave	0.23	3.34	0.31	A	330.00	330.00	18.20	3.31	0.30	18.20	3.31
Hambledon Road (N)	0.58	5.23	1.38	A	954.00	954.00	81.53	5.13	1.36	81.57	5.13

Main Results for each time segment

Main results: (08:00-08:15)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Milton Road	714.00	178.50	699.03	316.60	1134.92	0.00	885.91	411.12	0.806	0.00	3.74	18.050	C
Hambledon Road (S)	1319.00	329.75	1313.31	1511.17	322.79	0.00	2235.91	2281.67	0.590	0.00	1.42	3.878	A
Elettra Ave	330.00	82.50	328.78	724.69	911.41	0.00	1411.46	1027.78	0.234	0.00	0.30	3.322	A
Hambledon Road (N)	954.00	238.50	948.54	737.22	502.98	0.00	1643.75	1175.07	0.580	0.00	1.36	5.139	A

Main results: (08:15-08:30)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Milton Road	714.00	178.50	712.97	317.99	1140.96	0.00	881.65	411.12	0.810	3.74	4.00	21.055	C
Hambledon Road (S)	1319.00	329.75	1318.95	1526.25	327.68	0.00	2232.26	2281.67	0.591	1.42	1.44	3.941	A
Elettra Ave	330.00	82.50	329.99	729.80	916.83	0.00	1407.83	1027.78	0.234	0.30	0.31	3.339	A
Hambledon Road (N)	954.00	238.50	953.96	741.84	504.99	0.00	1642.44	1175.07	0.581	1.36	1.38	5.228	A

Main results: (08:30-08:45)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Milton Road	714.00	178.50	713.65	318.00	1140.99	0.00	881.62	411.12	0.810	4.00	4.08	21.264	C
Hambledon Road (S)	1319.00	329.75	1318.99	1526.75	327.89	0.00	2232.10	2281.67	0.591	1.44	1.44	3.942	A
Elettra Ave	330.00	82.50	330.00	729.93	916.94	0.00	1407.76	1027.78	0.234	0.31	0.31	3.339	A
Hambledon Road (N)	954.00	238.50	953.99	741.95	505.00	0.00	1642.43	1175.07	0.581	1.38	1.38	5.228	A

Main results: (08:45-09:00)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Milton Road	714.00	178.50	713.82	318.00	1141.00	0.00	881.62	411.12	0.810	4.08	4.13	21.333	C
Hambledon Road (S)	1319.00	329.75	1318.99	1526.88	327.95	0.00	2232.06	2281.67	0.591	1.44	1.44	3.942	A
Elettra Ave	330.00	82.50	330.00	729.97	916.97	0.00	1407.74	1027.78	0.234	0.31	0.31	3.339	A
Hambledon Road (N)	954.00	238.50	953.99	741.98	505.00	0.00	1642.43	1175.07	0.581	1.38	1.38	5.228	A

Queueing Delay Results for each time segment

Queueing Delay results: (08:00-08:15)

Name	Queueing Total Delay	Queueing Rate Of Delay (Veh-)	Average Delay Per Arriving	Unsignalised Level Of	Signalised Level Of
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Name	(Veh-min)	min/min)	Vehicle (s)	Service	Service
Milton Road	48.03	3.20	18.050	C	B
Hambledon Road (S)	20.60	1.37	3.878	A	A
Elettra Ave	4.46	0.30	3.322	A	A
Hambledon Road (N)	19.60	1.31	5.139	A	A

Queueing Delay results: (08:15-08:30)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Milton Road	58.46	3.90	21.055	C	C
Hambledon Road (S)	21.47	1.43	3.941	A	A
Elettra Ave	4.57	0.30	3.339	A	A
Hambledon Road (N)	20.57	1.37	5.228	A	A

Queueing Delay results: (08:30-08:45)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Milton Road	60.69	4.05	21.264	C	C
Hambledon Road (S)	21.56	1.44	3.942	A	A
Elettra Ave	4.58	0.31	3.339	A	A
Hambledon Road (N)	20.66	1.38	5.228	A	A

Queueing Delay results: (08:45-09:00)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Milton Road	61.61	4.11	21.333	C	C
Hambledon Road (S)	21.60	1.44	3.942	A	A
Elettra Ave	4.59	0.31	3.339	A	A
Hambledon Road (N)	20.70	1.38	5.228	A	A

ARCADY 8

Version: 8.0.0.296 [27 Feb 2012]

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Filename: Hambledon Rd_Milton Rd_Elettra Ave_PM_2020 + Dev Scen1_mitigation.arc8

Path: J:\26365_BAE_Waterlooville\Technical\Transport\Junction Assessments\Arcady With Validation\Mitigation\2020 Base + Dev

Report generation date: 14/06/2012 11:29:19

» (Default Analysis Set) - Scenario 1, PM

Summary of junction performance

	PM			
	Queue (Veh)	Delay (s)	RFC	LOS
A1 - Scenario 1				
Milton Road	3.02	22.43	0.76	C
Hambledon Road (S)	2.07	4.66	0.68	A
Elettra Ave	10.28	48.82	0.92	E
Hambledon Road (N)	5.36	27.53	0.85	D

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

"D2 - Scenario 1, PM " model duration: 16:45 - 17:45

Run using ARCADY 8.0.0.296 at 14/06/2012 11:29:19

File summary

File Description

Title	Hambledon Rd / Milton Rd / Elettra Ave
Location	BAE Waterlooville
Site Number	
Date	31/05/2012
Version	
Status	(new file)
Identifier	
Client	BAE
Jobnumber	26365
Enumerator	PBA\lekeen
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75			N/A	0.85	36.00	20.00

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

(Default Analysis Set) - Scenario 1, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Hambledon Road (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Elettra Ave - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Hambledon Road (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
Scenario 1, PM	Scenario 1	PM		FLAT	16:45	17:45	60	15				✓		

Junction Network

Junctions

Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
(untitled)	Roundabout	1,2,3,4				21.34	C

Junction Network Options

Driving Side	Lighting	Road Surface
Left	Normal/unknown	(Mini-roundabouts only)

Arms

Arms

Name	Name	Description
Milton Road	Milton Road	
Hambledon Road (S)	Hambledon Road (S)	
Elettra Ave	Elettra Ave	
Hambledon Road (N)	Hambledon Road (N)	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
Milton Road	0.00	99999.00		0.00

Hambledon Road (S)	0.00	99999.00	0.00
Elettra Ave	0.00	99999.00	0.00
Hambledon Road (N)	0.00	99999.00	0.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
Milton Road	3.40	4.20	24.90	21.00	54.00	22.50	
Hambledon Road (S)	7.20	8.20	55.80	54.60	54.00	25.00	
Elettra Ave	3.30	7.50	77.00	21.00	54.00	23.00	
Hambledon Road (N)	3.60	7.70	127.60	6.00	54.00	22.00	

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

Pedestrian Crossings

Name	Crossing Type
Milton Road	None
Hambledon Road (S)	None
Elettra Ave	None
Hambledon Road (N)	None

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
Milton Road		(calculated)	(calculated)	0.521	1285.444
Hambledon Road (S)		(calculated)	(calculated)	0.766	2587.472
Elettra Ave		(calculated)	(calculated)	0.677	2138.840
Hambledon Road (N)		(calculated)	(calculated)	0.625	2025.835

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

Arm Capacity Adjustments

Name	Type	Reason	Direct Capacity Adjustment (PCU/hr)	Percentage Capacity Adjustment (%)
Milton Road	None			
Hambledon Road (S)	None			
Elettra Ave	Percentage			80.00
Hambledon Road (N)	Percentage			70.00

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
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Milton Road	FLAT	✓	497.00	100.000
Hambledon Road (S)	FLAT	✓	1606.00	100.000
Elettra Ave	FLAT	✓	802.00	100.000
Hambledon Road (N)	FLAT	✓	727.00	100.000

Turning Proportions

Turning Counts or Proportions (Veh/hr) - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	0.000	343.000	70.000	84.000
	2	570.000	39.000	178.000	819.000
	3	171.000	461.000	0.000	170.000
	4	72.000	605.000	50.000	0.000

Turning Proportions (Veh) - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	0.00	0.69	0.14	0.17
	2	0.35	0.02	0.11	0.51
	3	0.21	0.57	0.00	0.21
	4	0.10	0.83	0.07	0.00

Vehicle Mix

Average PCU Per Vehicle - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	1.000	1.038	1.022	1.012
	2	1.023	1.026	1.026	1.018
	3	1.023	1.006	1.000	1.000
	4	1.000	1.013	1.030	1.000

Heavy Vehicle Percentages - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	0.000	3.800	2.200	1.200
	2	2.300	2.600	2.600	1.800
	3	2.300	0.600	0.000	0.000
	4	0.000	1.300	3.000	0.000

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
Milton Road	0.76	22.43	3.02	C	497.00	497.00	165.16	19.94	2.75	165.57	19.99
Hambledon											

Milton Road (S)	0.68	4.66	2.07	A	1605.99	1605.99	121.91	4.55	2.03	121.96	4.56
Elettra Ave	0.92	48.82	10.28	E	802.00	802.00	507.16	37.94	8.45	510.81	38.22
Hambledon Road (N)	0.85	27.53	5.36	D	727.00	727.00	285.64	23.57	4.76	286.65	23.66

Main Results for each time segment

Main results: (16:45-17:00)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Milton Road	497.00	124.25	486.57	801.84	1121.13	0.00	673.14	684.09	0.738	0.00	2.61	18.399	C
Hambledon Road (S)	1605.99	401.50	1597.84	1408.16	199.53	0.00	2381.98	2328.45	0.674	0.00	2.04	4.546	A
Elettra Ave	802.00	200.50	771.62	294.39	1503.00	0.00	873.22	498.89	0.918	0.00	7.60	29.761	D
Hambledon Road (N)	727.00	181.75	709.01	1060.64	1213.97	0.00	866.61	837.97	0.839	0.00	4.50	20.938	C

Main results: (17:00-17:15)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Milton Road	497.00	124.25	495.88	811.45	1149.54	0.00	658.63	684.09	0.755	2.61	2.89	21.852	C
Hambledon Road (S)	1605.99	401.50	1605.91	1441.92	203.50	0.00	2378.94	2328.45	0.675	2.04	2.06	4.655	A
Elettra Ave	802.00	200.50	795.92	297.68	1511.73	0.00	868.43	498.89	0.924	7.60	9.12	43.798	E
Hambledon Road (N)	727.00	181.75	724.82	1071.47	1236.18	0.00	856.90	837.97	0.848	4.50	5.04	26.428	D

Main results: (17:15-17:30)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Milton Road	497.00	124.25	496.65	812.29	1152.57	0.00	657.08	684.09	0.756	2.89	2.98	22.290	C
Hambledon Road (S)	1605.99	401.50	1605.97	1445.40	203.84	0.00	2378.69	2328.45	0.675	2.06	2.07	4.658	A
Elettra Ave	802.00	200.50	799.08	297.89	1511.91	0.00	868.33	498.89	0.924	9.12	9.85	47.141	E
Hambledon Road (N)	727.00	181.75	726.18	1072.30	1238.69	0.00	855.80	837.97	0.850	5.04	5.25	27.226	D

Main results: (17:30-17:45)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Milton Road	497.00	124.25	496.83	812.58	1153.61	0.00	656.56	684.09	0.757	2.98	3.02	22.434	C
Hambledon Road (S)	1605.99	401.50	1605.98	1446.52	203.92	0.00	2378.62	2328.45	0.675	2.07	2.07	4.658	A
Elettra Ave	802.00	200.50	800.25	297.95	1511.96	0.00	868.31	498.89	0.924	9.85	10.28	48.820	E
Hambledon Road (N)	727.00	181.75	726.57	1072.60	1239.61	0.00	855.39	837.97	0.850	5.25	5.36	27.534	D

Queueing Delay Results for each time segment

Queueing Delay results: (16:45-17:00)

Name	Queueing Total Delay	Queueing Rate Of Delay (Veh-)	Average Delay Per Arriving	Unsignalised Level Of	Signalised Level Of
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Name	(Veh-min)	min/min)	Vehicle (s)	Service	Service
Milton Road	34.19	2.28	18.399	C	B
Hambledon Road (S)	29.16	1.94	4.546	A	A
Elettra Ave	86.14	5.74	29.761	D	C
Hambledon Road (N)	56.12	3.74	20.938	C	C

Queueing Delay results: (17:00-17:15)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Milton Road	41.87	2.79	21.852	C	C
Hambledon Road (S)	30.77	2.05	4.655	A	A
Elettra Ave	127.04	8.47	43.798	E	D
Hambledon Road (N)	72.49	4.83	26.428	D	C

Queueing Delay results: (17:15-17:30)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Milton Road	44.10	2.94	22.290	C	C
Hambledon Road (S)	30.95	2.06	4.658	A	A
Elettra Ave	142.75	9.52	47.141	E	D
Hambledon Road (N)	77.40	5.16	27.226	D	C

Queueing Delay results: (17:30-17:45)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Milton Road	45.00	3.00	22.434	C	C
Hambledon Road (S)	31.02	2.07	4.658	A	A
Elettra Ave	151.22	10.08	48.820	E	D
Hambledon Road (N)	79.62	5.31	27.534	D	C