

Appendix L Junction Modelling: Foundry Square (on CD only)

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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Crowthorne House	Fax: +44 (0) 1344 770864
Nine Mile Ride	Email: softwarebureau@trl.co.uk
Wokingham, Berks.	Web: www.trlsoftware.co.uk
RG40 3GA,UK	

THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"o:\022961 Hayle Harbour - OPA\F08 - Civils (name)\Transportation\Assessments\ARCADY\
20071107 rs Foundry Square AUGUST AM ARCADY.vai"
(drive-on-the-left) at 15:43:49 on Wednesday, 7 November 2007

.FILE PROPERTIES

RUN TITLE: Foundry Square - Hayle
LOCATION: Hayle
DATE: 18/07/2007
CLIENT:
ENUMERATOR: rspaldin [BTH-CS5PQ1J]
JOB NUMBER: 022961
STATUS: Draft 1
DESCRIPTION: Test for ES on 18th July. Uses new geometry provided by Cornwall
in dwg number C0914/C/R1200

.INPUT DATA

ARM A - Penpol Terrace
ARM B - Foundry Hill
ARM C - Carnsew Road

.MINI-ROUNDABOUT GEOMETRIC DATA

LIGHTING CONDITIONS : NORMAL

ROAD SURFACE CONDITION: NORMAL

I	ARM	I	V (m)	I	E (m)	I	Lm(M)	I	Vm(M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT	I	
I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	(PCU/MIN)	I
I	ARM A	I	4.80	I	6.00	I	12.00	I	4.00	I	12.50	I	10.00	I	0.00	I	0.623	I	16.556	I	
I	ARM B	I	3.50	I	6.00	I	12.00	I	3.50	I	15.00	I	10.00	I	0.00	I	0.608	I	17.167	I	
I	ARM C	I	3.50	I	6.00	I	12.00	I	2.80	I	15.00	I	15.00	I	0.00	I	0.628	I	17.162	I	

V = approach half-width
E = entry width

Lm = effective flare length
Vm = minimum approach half-width

A = distance between arms
K = entry corner kerb line
G = gradient over 50m

.TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

I	ARM	I	FLOW SCALE(%)	I
I	A	I	100	I
I	B	I	100	I
I	C	I	100	I

.TIME PERIOD BEGINS 07.45 AND ENDS 09.15
.LENGTH OF TIME PERIOD - 90 MINUTES.
.LENGTH OF TIME SEGMENT - 15 MINUTES.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

DEMAND SET TITLE: 2017 AM August with development (ROBUST trips)

I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	I	TOP OF PEAK IS REACHED	I	MINUTES FROM START WHEN FLOW STOPS FALLING	I	RATE OF FLOW (VEH/MIN) BEFORE PEAK	I	AT TOP OF PEAK	I	AFTER PEAK	I
I	ARM A	I	15.00	I	45.00	I	75.00	I	9.45	I	14.17	I	9.45	I
I	ARM B	I	15.00	I	45.00	I	75.00	I	5.50	I	8.25	I	5.50	I
I	ARM C	I	15.00	I	45.00	I	75.00	I	6.59	I	9.88	I	6.59	I

DEMAND SET TITLE: 2017 AM August with development (ROBUST trips)

I	TURNING PROPORTIONS	I
---	---------------------	---

I	ARM A	13.82	13.43	1.029		17.8	27.1	339.4		1.91	I
I	ARM B	8.04	10.24	0.785		3.1	3.4	49.3		0.44	I
I	ARM C	9.63	12.32	0.782		3.2	3.4	49.8		0.37	I
I											I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.45-09.00									I
I	ARM A	11.28	13.70	0.824		27.1	5.8	206.3	1.19	I
I	ARM B	6.57	10.45	0.629		3.4	1.8	28.7	0.27	I
I	ARM C	7.87	12.87	0.611		3.4	1.6	26.3	0.21	I
I										I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	09.00-09.15									I
I	ARM A	9.45	13.93	0.678		5.8	2.2	37.6	0.25	I
I	ARM B	5.50	11.67	0.471		1.8	0.9	14.4	0.17	I
I	ARM C	6.59	13.33	0.494		1.6	1.0	15.6	0.15	I
I										I

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	2.0	**
08.15	4.1	****
08.30	17.8	*****
08.45	27.1	*****
09.00	5.8	*****
09.15	2.2	**

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.9	*
08.15	1.4	*
08.30	3.1	***
08.45	3.4	***
09.00	1.8	**
09.15	0.9	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	1.0 *
08.15	1.5 **
08.30	3.2 ***
08.45	3.4 ***
09.00	1.6 **
09.15	1.0 *

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *
(VEH)	(VEH/H)	(MIN)	(MIN/VEH)
A	1036.6	843.2	0.81
B	603.3	165.5	0.27
C	722.6	169.5	0.23
ALL	2362.6	1178.2	0.50

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.

* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.

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END OF JOB

===== end of file =====

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ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

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ARM C - Carnsew Road

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LIGHTING CONDITIONS : NORMAL

ROAD SURFACE CONDITION: NORMAL

I	ARM	I	V (m)	I	E (m)	I	Lm(M)	I	Vm(M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT	I	
I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	(PCU/MIN)	I
I	ARM A	I	4.80	I	6.00	I	12.00	I	4.00	I	12.50	I	10.00	I	0.00	I	0.623	I	16.556	I	
I	ARM B	I	3.50	I	6.00	I	12.00	I	3.50	I	15.00	I	10.00	I	0.00	I	0.608	I	17.167	I	
I	ARM C	I	3.50	I	6.00	I	12.00	I	2.80	I	15.00	I	15.00	I	0.00	I	0.628	I	17.162	I	

V = approach half-width
E = entry width

Lm = effective flare length
Vm = minimum approach half-width

A = distance between arms
K = entry corner kerb line
G = gradient over 50m

.TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

I	ARM	I	FLOW SCALE(%)	I
I	A	I	100	I
I	B	I	100	I
I	C	I	100	I

.TIME PERIOD BEGINS 07.45 AND ENDS 09.15
.LENGTH OF TIME PERIOD - 90 MINUTES.
.LENGTH OF TIME SEGMENT - 15 MINUTES.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

DEMAND SET TITLE: 2017 AM August with development (lower trips)

I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	I	TOP OF PEAK IS REACHED	I	FLOW STOPS IF FALLING	I	RATE OF FLOW (VEH/MIN) BEFORE PEAK	I	AT TOP OF PEAK	I	AFTER PEAK
I	ARM A	I	15.00	I	45.00	I	75.00	I	8.11	I	12.17	I	8.11
I	ARM B	I	15.00	I	45.00	I	75.00	I	4.71	I	7.07	I	4.71
I	ARM C	I	15.00	I	45.00	I	75.00	I	5.57	I	8.36	I	5.57

DEMAND SET TITLE: 2017 AM August with development (lower trips)

I	TURNING PROPORTIONS	I
---	---------------------	---

I	ARM A	11.86	13.65	0.869		5.4	5.9	85.4		0.53	I
I	ARM B	6.89	10.82	0.637		1.7	1.7	25.3		0.25	I
I	ARM C	8.15	12.77	0.638		1.7	1.7	25.8		0.22	I
I											I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.45-09.00									I
I	ARM A	9.69	13.90	0.697		5.9	2.4	41.0	0.26	I
I	ARM B	5.63	11.59	0.485		1.7	1.0	15.2	0.17	I
I	ARM C	6.66	13.27	0.502		1.7	1.0	16.2	0.15	I
I										I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	09.00-09.15									I
I	ARM A	8.11	14.09	0.576		2.4	1.4	22.1	0.17	I
I	ARM B	4.71	12.30	0.383		1.0	0.6	9.8	0.13	I
I	ARM C	5.57	13.66	0.408		1.0	0.7	10.9	0.12	I
I										I

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.3	*
08.15	2.2	**
08.30	5.4	*****
08.45	5.9	*****
09.00	2.4	**
09.15	1.4	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.6	*
08.15	0.9	*
08.30	1.7	**
08.45	1.7	**
09.00	1.0	*
09.15	0.6	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.7 *
08.15	1.0 *
08.30	1.7 **
08.45	1.7 **
09.00	1.0 *
09.15	0.7 *

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *
(VEH)	(VEH/H)	(MIN)	(MIN/VEH)
A	889.9	265.5	0.30
B	516.9	95.1	0.18
C	611.6	100.5	0.16
ALL	2018.4	461.1	0.23

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.

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END OF JOB

===== end of file =====

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Run with file:-
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20071107 rs Foundry Square June PM ARCADY.vai"
(drive-on-the-left) at 15:47:01 on Wednesday, 7 November 2007

.FILE PROPERTIES

RUN TITLE: Foundry Square - Hayle
LOCATION: Hayle
DATE: 18/07/2007
CLIENT:
ENUMERATOR: rspaldin [BTH-CS5PQ1J]
JOB NUMBER: 022961
STATUS: Draft 1
DESCRIPTION: Test for ES on 18th July. Uses new geometry provided by Cornwall
in dwg number C0914/C/R1200

.INPUT DATA

ARM A - Penpol Terrace
ARM B - Foundry Hill
ARM C - Carnsew Road

.MINI-ROUNDABOUT GEOMETRIC DATA

LIGHTING CONDITIONS : NORMAL

ROAD SURFACE CONDITION: NORMAL

I	ARM	I	V (m)	I	E (m)	I	Lm(M)	I	Vm(M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT	I
I		I		I		I		I		I		I		I		I		I	(PCU/MIN)	I
I	ARM A	I	4.80	I	6.00	I	12.00	I	4.00	I	12.50	I	10.00	I	0.00	I	0.623	I	16.556	I
I	ARM B	I	3.50	I	6.00	I	12.00	I	3.50	I	15.00	I	10.00	I	0.00	I	0.608	I	17.167	I
I	ARM C	I	3.50	I	6.00	I	12.00	I	2.80	I	15.00	I	15.00	I	0.00	I	0.628	I	17.162	I

V = approach half-width
E = entry width

Lm = effective flare length
Vm = minimum approach half-width

A = distance between arms
K = entry corner kerb line
G = gradient over 50m

.TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

I	ARM	I	FLOW SCALE(%)	I
I	A	I	100	I
I	B	I	100	I
I	C	I	100	I

.TIME PERIOD BEGINS 07.45 AND ENDS 09.15
.LENGTH OF TIME PERIOD - 90 MINUTES.
.LENGTH OF TIME SEGMENT - 15 MINUTES.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

DEMAND SET TITLE: 2011 June PM with development (ROBUST trips)

I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	I	TOP OF PEAK IS REACHED	I	FLOW STOPS IF FALLING	I	RATE OF FLOW (VEH/MIN) BEFORE PEAK	I	AT TOP OF PEAK	I	AFTER PEAK
I	ARM A	I	15.00	I	45.00	I	75.00	I	11.25	I	16.88	I	11.25
I	ARM B	I	15.00	I	45.00	I	75.00	I	6.38	I	9.56	I	6.38
I	ARM C	I	15.00	I	45.00	I	75.00	I	10.64	I	15.96	I	10.64

DEMAND SET TITLE: 2011 June PM with development (ROBUST trips)

I	TURNING PROPORTIONS	I
---	---------------------	---

I	ARM A	16.45	13.37	1.231		62.2	108.6	1280.8		6.56	I
I	ARM B	9.32	10.71	0.871		5.2	5.8	83.3		0.66	I
I	ARM C	15.56	11.91	1.306		69.0	123.8	1445.8		8.12	I
I											I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.45-09.00									I
I	ARM A	13.43	13.29	1.011		108.6	111.3	1649.2	8.41	I
I	ARM B	7.61	10.75	0.708		5.8	2.6	44.4	0.36	I
I	ARM C	12.70	12.49	1.017		123.8	127.3	1882.8	10.03	I
I										I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	09.00-09.15									I
I	ARM A	11.25	13.22	0.851		111.3	83.5	1461.0	7.45	I
I	ARM B	6.38	10.80	0.590		2.6	1.5	24.0	0.23	I
I	ARM C	10.64	13.04	0.816		127.3	92.8	1650.5	8.53	I
I										I

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	4.2	****
08.15	15.0	*****
08.30	62.2	*****
08.45	108.6	*****
09.00	111.3	*****
09.15	83.5	*****

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.2	*
08.15	2.2	**
08.30	5.2	*****
08.45	5.8	*****
09.00	2.6	***
09.15	1.5	*

.QUEUE AT ARM C


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-----
TIME SEGMENT NO. OF
ENDING      VEHICLES
           IN QUEUE

08.00        3.8 ****
08.15       14.8 *****
08.30       69.0 *****
08.45      123.8 *****
09.00      127.3 *****
09.15       92.8 *****

```

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	ARM	I	TOTAL DEMAND	I	* QUEUEING *	I	* INCLUSIVE QUEUEING *	I						
I		I		I	* DELAY *	I	* DELAY *	I						
I		I	(VEH)	I	(MIN)	I	(MIN)	I						
I		I	(VEH/H)	I	(MIN/VEH)	I	(MIN/VEH)	I						
I	A	I	1234.1	I	822.7	I	5182.6	I	4.20	I	5446.2	I	4.41	I
I	B	I	699.3	I	466.2	I	262.8	I	0.38	I	262.9	I	0.38	I
I	C	I	1166.9	I	777.9	I	5810.8	I	4.98	I	6140.9	I	5.26	I
I	ALL	I	3100.3	I	2066.9	I	11256.2	I	3.63	I	11850.0	I	3.82	I

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END OF JOB

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I		I		I		I		I		I		I		I		I		I	(PCU/MIN)	I
I	ARM A	I	4.80	I	6.00	I	12.00	I	4.00	I	12.50	I	10.00	I	0.00	I	0.623	I	16.556	I
I	ARM B	I	3.50	I	6.00	I	12.00	I	3.50	I	15.00	I	10.00	I	0.00	I	0.608	I	17.167	I
I	ARM C	I	3.50	I	6.00	I	12.00	I	2.80	I	15.00	I	15.00	I	0.00	I	0.628	I	17.162	I

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I	A	I	100	I
I	B	I	100	I
I	C	I	100	I

.TIME PERIOD BEGINS 07.45 AND ENDS 09.15
.LENGTH OF TIME PERIOD - 90 MINUTES.
.LENGTH OF TIME SEGMENT - 15 MINUTES.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

DEMAND SET TITLE: 2011 June PM with development (lower trips)

I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	I	TOP OF PEAK IS REACHED	I	FLOW STOPS IF FALLING	I	RATE OF FLOW (VEH/MIN) BEFORE PEAK	I	AT TOP OF PEAK	I	AFTER PEAK	I
I	ARM A	I	15.00	I	45.00	I	75.00	I	10.49	I	15.73	I	10.49	I
I	ARM B	I	15.00	I	45.00	I	75.00	I	6.22	I	9.34	I	6.22	I
I	ARM C	I	15.00	I	45.00	I	75.00	I	9.70	I	14.55	I	9.70	I

DEMAND SET TITLE: 2011 June PM with development (lower trips)

I	TURNING PROPORTIONS	I
---	---------------------	---

I	ARM A	15.34	13.29	1.154		41.3	72.4	853.3		4.47	I
I	ARM B	9.10	10.91	0.835		4.2	4.6	66.3		0.53	I
I	ARM C	14.19	11.95	1.187		41.9	75.7	882.2		5.06	I
I											I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.45-09.00									I
I	ARM A	12.52	13.22	0.947		72.4	64.7	1028.1	5.27	I
I	ARM B	7.43	10.99	0.677		4.6	2.2	36.6	0.31	I
I	ARM C	11.58	12.55	0.923		75.7	63.6	1044.8	5.60	I
I										I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	09.00-09.15									I
I	ARM A	10.49	13.15	0.798		64.7	27.7	693.0	3.64	I
I	ARM B	6.22	11.02	0.565		2.2	1.3	21.3	0.21	I
I	ARM C	9.70	13.08	0.742		63.6	16.0	597.1	3.18	I
I										I

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	3.1	***
08.15	8.6	*****
08.30	41.3	*****
08.45	72.4	*****
09.00	64.7	*****
09.15	27.7	*****

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.1	*
08.15	1.8	**
08.30	4.2	****
08.45	4.6	*****
09.00	2.2	**
09.15	1.3	*

.QUEUE AT ARM C

```

-----
TIME SEGMENT NO. OF
ENDING      VEHICLES
           IN QUEUE

08.00      2.6 ***
08.15      7.4 *****
08.30     41.9 *****
08.45     75.7 *****
09.00     63.6 *****
09.15     16.0 *****

```

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

```

-----
I  ARM  I  TOTAL DEMAND  I  * QUEUEING *  I  * INCLUSIVE QUEUEING *  I
I      I      I          I      * DELAY *      I      * DELAY *      I
I      I-----I-----I-----I-----I-----I-----I
I      I  (VEH)  (VEH/H)  I  (MIN)  (MIN/VEH)  I  (MIN)  (MIN/VEH)  I
-----
I  A  I  1150.4  I  767.0  I  3095.0  I  2.69  I  3124.2  I  2.72  I
I  B  I  682.9  I  455.2  I  218.6  I  0.32  I  218.6  I  0.32  I
I  C  I  1064.1  I  709.4  I  3021.9  I  2.84  I  3031.7  I  2.85  I
-----
I  ALL  I  2897.4  I  1931.6  I  6335.5  I  2.19  I  6374.6  I  2.20  I
-----

```

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
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END OF JOB

===== end of file =====

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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RG40 3GA,UK	

THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"o:\022961 Hayle Harbour - OPA\F08 - Civils (name)\Transportation\Assessments\ARCADY\
20071107 rs Foundry Square June AM ARCADY.vai"
(drive-on-the-left) at 15:35:22 on Wednesday, 7 November 2007

.FILE PROPERTIES

RUN TITLE: Foundry Square - Hayle
LOCATION: Hayle
DATE: 18/07/2007
CLIENT:
ENUMERATOR: rspaldin [BTH-CS5PQ1J]
JOB NUMBER: 022961
STATUS: Draft 1
DESCRIPTION: Test for ES on 18th July. Uses new geometry provided by Cornwall
in dwg number C0914/C/R1200

.INPUT DATA

ARM A - Penpol Terrace
ARM B - Foundry Hill
ARM C - Carnsew Road

.MINI-ROUNDABOUT GEOMETRIC DATA

LIGHTING CONDITIONS : NORMAL

ROAD SURFACE CONDITION: NORMAL

I	ARM	I	V (m)	I	E (m)	I	Lm(M)	I	Vm(M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT	I	
I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	(PCU/MIN)	I
I	ARM A	I	4.80	I	6.00	I	12.00	I	4.00	I	12.50	I	10.00	I	0.00	I	0.623	I	16.556	I	
I	ARM B	I	3.50	I	6.00	I	5.00	I	3.50	I	15.00	I	10.00	I	0.00	I	0.581	I	15.274	I	
I	ARM C	I	3.50	I	6.00	I	12.00	I	2.80	I	15.00	I	15.00	I	0.00	I	0.628	I	17.162	I	

V = approach half-width
E = entry width

Lm = effective flare length
Vm = minimum approach half-width

A = distance between arms
K = entry corner kerb line
G = gradient over 50m

.TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

I	ARM	I	FLOW SCALE(%)	I
I	A	I	100	I
I	B	I	100	I
I	C	I	100	I

.TIME PERIOD BEGINS 07.45 AND ENDS 09.15
.LENGTH OF TIME PERIOD - 90 MINUTES.
.LENGTH OF TIME SEGMENT - 15 MINUTES.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

DEMAND SET TITLE: 2011 AM June with development (ROBUST trips)

I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	I	TOP OF PEAK IS REACHED	I	FLOW STOPS IF FALLING	I	RATE OF FLOW (VEH/MIN) BEFORE PEAK	I	AT TOP OF PEAK	I	AFTER PEAK	I
I	ARM A	I	15.00	I	45.00	I	75.00	I	10.25	I	15.38	I	10.25	I
I	ARM B	I	15.00	I	45.00	I	75.00	I	4.05	I	6.08	I	4.05	I
I	ARM C	I	15.00	I	45.00	I	75.00	I	7.97	I	11.96	I	7.97	I

DEMAND SET TITLE: 2011 AM June with development (ROBUST trips)

I	TURNING PROPORTIONS	I
---	---------------------	---

I	ARM A	14.99	12.74	1.177		43.3	77.4	905.1		4.89	I
I	ARM B	5.92	9.10	0.651		1.8	1.8	26.8		0.31	I
I	ARM C	11.66	13.31	0.876		5.6	6.2	89.2		0.56	I
I											I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.45-09.00									I
I	ARM A	12.24	13.10	0.934		77.4	66.9	1082.1	5.57	I
I	ARM B	4.84	9.02	0.536		1.8	1.2	19.0	0.24	I
I	ARM C	9.52	13.71	0.694		6.2	2.4	41.0	0.27	I
I										I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	09.00-09.15									I
I	ARM A	10.25	13.45	0.762		66.9	21.9	666.1	3.43	I
I	ARM B	4.05	8.90	0.455		1.2	0.9	13.4	0.21	I
I	ARM C	7.97	14.02	0.569		2.4	1.4	21.4	0.17	I
I										I

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	2.9	***
08.15	8.2	*****
08.30	43.3	*****
08.45	77.4	*****
09.00	66.9	*****
09.15	21.9	*****

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.7	*
08.15	1.0	*
08.30	1.8	**
08.45	1.8	**
09.00	1.2	*
09.15	0.9	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	1.3 *
08.15	2.2 **
08.30	5.6 *****
08.45	6.2 *****
09.00	2.4 **
09.15	1.4 *

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *
(VEH)	(VEH/H)	(MIN)	(MIN/VEH)
A	1124.4	3179.6	2.83
B	444.3	107.5	0.24
C	874.8	269.5	0.31
ALL	2443.5	3556.6	1.46

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END OF JOB

===== end of file =====

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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Nine Mile Ride	Email: softwarebureau@trl.co.uk
Wokingham, Berks.	Web: www.trlsoftware.co.uk
RG40 3GA,UK	

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IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"o:\022961 Hayle Harbour - OPA\F08 - Civils (name)\Transportation\Assessments\ARCADY\
20071107 rs Foundry Square June AM ARCADY.vai"
(drive-on-the-left) at 15:34:32 on Wednesday, 7 November 2007

.FILE PROPERTIES

RUN TITLE: Foundry Square - Hayle
LOCATION: Hayle
DATE: 18/07/2007
CLIENT:
ENUMERATOR: rspaldin [BTH-CS5PQ1J]
JOB NUMBER: 022961
STATUS: Draft 1
DESCRIPTION: Test for ES on 18th July. Uses new geometry provided by Cornwall
in dwg number C0914/C/R1200

.INPUT DATA

ARM A - Penpol Terrace
ARM B - Foundry Hill
ARM C - Carnsew Road

.MINI-ROUNDABOUT GEOMETRIC DATA

LIGHTING CONDITIONS : NORMAL

ROAD SURFACE CONDITION: NORMAL

I	ARM	I	V (m)	I	E (m)	I	Lm(M)	I	Vm(M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT	I	
I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	(PCU/MIN)	I
I	ARM A	I	4.80	I	6.00	I	12.00	I	4.00	I	12.50	I	10.00	I	0.00	I	0.623	I	16.556	I	
I	ARM B	I	3.50	I	6.00	I	5.00	I	3.50	I	15.00	I	10.00	I	0.00	I	0.581	I	15.274	I	
I	ARM C	I	3.50	I	6.00	I	12.00	I	2.80	I	15.00	I	15.00	I	0.00	I	0.628	I	17.162	I	

V = approach half-width
E = entry width

Lm = effective flare length
Vm = minimum approach half-width

A = distance between arms
K = entry corner kerb line
G = gradient over 50m

.TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

I	ARM	I	FLOW SCALE(%)	I
I	A	I	100	I
I	B	I	100	I
I	C	I	100	I

.TIME PERIOD BEGINS 07.45 AND ENDS 09.15
.LENGTH OF TIME PERIOD - 90 MINUTES.
.LENGTH OF TIME SEGMENT - 15 MINUTES.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

DEMAND SET TITLE: 2011 AM June with development (lower trips)

I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	I	TOP OF PEAK IS REACHED	I	FLOW STOPS IF FALLING	I	RATE OF FLOW (VEH/MIN) BEFORE PEAK	I	AT TOP OF PEAK	I	AFTER PEAK	I
I	ARM A	I	15.00	I	45.00	I	75.00	I	9.80	I	14.70	I	9.80	I
I	ARM B	I	15.00	I	45.00	I	75.00	I	3.94	I	5.91	I	3.94	I
I	ARM C	I	15.00	I	45.00	I	75.00	I	7.55	I	11.33	I	7.55	I

DEMAND SET TITLE: 2011 AM June with development (lower trips)

I	TURNING PROPORTIONS	I
---	---------------------	---

I	ARM A	14.33	12.75	1.124		32.5	56.8	670.1		3.70	I
I	ARM B	5.76	9.18	0.627		1.6	1.6	24.2		0.29	I
I	ARM C	11.04	13.35	0.827		4.2	4.4	64.8		0.42	I
I											I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.45-09.00									I
I	ARM A	11.70	13.14	0.891		56.8	38.6	715.7	3.73	I
I	ARM B	4.70	9.11	0.516		1.6	1.1	17.4	0.23	I
I	ARM C	9.02	13.75	0.656		4.4	2.0	32.6	0.23	I
I										I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	09.00-09.15									I
I	ARM A	9.80	13.47	0.728		38.6	3.1	237.6	1.32	I
I	ARM B	3.94	9.39	0.420		1.1	0.7	11.6	0.19	I
I	ARM C	7.55	14.06	0.537		2.0	1.2	18.7	0.16	I
I										I

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	2.5	**
08.15	6.1	*****
08.30	32.5	*****
08.45	56.8	*****
09.00	38.6	*****
09.15	3.1	***

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.6	*
08.15	0.9	*
08.30	1.6	**
08.45	1.6	**
09.00	1.1	*
09.15	0.7	*

.QUEUE AT ARM C

```

-----
TIME SEGMENT NO. OF
ENDING        VEHICLES
              IN QUEUE

08.00         1.1 *
08.15         1.8 **
08.30         4.2 ****
08.45         4.4 ****
09.00         2.0 **
09.15         1.2 *

```

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

```

-----
I  ARM  I  TOTAL DEMAND  I  * QUEUEING *  I  * INCLUSIVE QUEUEING *  I
I      I      I          I      * DELAY *      I      * DELAY *      I
I      I-----I-----I-----I-----I-----I-----I
I      I  (VEH)  (VEH/H)  I  (MIN)  (MIN/VEH)  I  (MIN)  (MIN/VEH)  I
-----
I  A   I 1075.0 I 716.7 I 2030.0 I 1.89 I 2030.4 I 1.89 I
I  B   I 431.9 I 288.0 I 97.2 I 0.22 I 97.2 I 0.22 I
I  C   I 828.2 I 552.1 I 211.8 I 0.26 I 211.9 I 0.26 I
-----
I  ALL I 2335.2 I 1556.8 I 2339.0 I 1.00 I 2339.4 I 1.00 I
-----

```

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 * INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
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END OF JOB

===== end of file =====

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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RG40 3GA,UK	

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Run with file:-
"o:\022961 Hayle Harbour - OPA\F08 - Civils (name)\Transportation\Assessments\ARCADY\
20071107 rs Foundry Square June PM ARCADY.vai"
(drive-on-the-left) at 10:09:16 on Friday, 9 November 2007

.FILE PROPERTIES

RUN TITLE: Foundry Square - Hayle
LOCATION: Hayle
DATE: 18/07/2007
CLIENT:
ENUMERATOR: rspaldin [BTH-CS5PQ1J]
JOB NUMBER: 022961
STATUS: Draft 1
DESCRIPTION: Test for ES on 18th July. Uses new geometry provided by Cornwall
in dwg number C0914/C/R1200

.INPUT DATA

ARM A - Penpol Terrace
ARM B - Foundry Hill
ARM C - Carnsew Road

.MINI-ROUNDABOUT GEOMETRIC DATA

LIGHTING CONDITIONS : NORMAL

ROAD SURFACE CONDITION: NORMAL

I	ARM	I	V (m)	I	E (m)	I	Lm(M)	I	Vm(M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT	I	
I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	(PCU/MIN)	I
I	ARM A	I	4.80	I	6.00	I	12.00	I	4.00	I	12.50	I	10.00	I	0.00	I	0.623	I	16.556	I	
I	ARM B	I	3.50	I	6.00	I	12.00	I	3.50	I	15.00	I	10.00	I	0.00	I	0.608	I	17.167	I	
I	ARM C	I	3.50	I	6.00	I	12.00	I	2.80	I	15.00	I	15.00	I	0.00	I	0.628	I	17.162	I	

V = approach half-width
E = entry width

Lm = effective flare length
Vm = minimum approach half-width

A = distance between arms
K = entry corner kerb line
G = gradient over 50m

.TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

I	ARM	I	FLOW SCALE(%)	I
I	A	I	100	I
I	B	I	100	I
I	C	I	100	I

.TIME PERIOD BEGINS 07.45 AND ENDS 09.15
.LENGTH OF TIME PERIOD - 90 MINUTES.
.LENGTH OF TIME SEGMENT - 15 MINUTES.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

DEMAND SET TITLE: 2017 June PM with development (ROBUST trips)

I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	I	TOP OF PEAK IS REACHED	I	FLOW STOPS FALLING	I	RATE OF FLOW (VEH/MIN) BEFORE PEAK	I	AT TOP OF PEAK	I	AFTER PEAK	I
I	ARM A	I	15.00	I	45.00	I	75.00	I	11.90	I	17.85	I	11.90	I
I	ARM B	I	15.00	I	45.00	I	75.00	I	6.84	I	10.26	I	6.84	I
I	ARM C	I	15.00	I	45.00	I	75.00	I	11.14	I	16.71	I	11.14	I

DEMAND SET TITLE: 2017 June PM with development (ROBUST trips)

I	TURNING PROPORTIONS	I
---	---------------------	---

I	ARM A	17.40	13.37	1.302		85.3	145.8	1733.1		8.80	I
I	ARM B	10.00	10.77	0.929		7.6	9.1	127.2		0.98	I
I	ARM C	16.29	11.66	1.397		91.9	161.4	1899.7		10.80	I
I											I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.45-09.00									I
I	ARM A	14.21	13.29	1.069		145.8	159.6	2290.9	11.64	I
I	ARM B	8.16	10.80	0.756		9.1	3.4	64.5	0.50	I
I	ARM C	13.30	12.20	1.090		161.4	177.9	2544.6	13.70	I
I										I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	09.00-09.15									I
I	ARM A	11.90	13.21	0.901		159.6	141.2	2256.3	11.46	I
I	ARM B	6.84	10.85	0.630		3.4	1.8	28.8	0.26	I
I	ARM C	11.14	12.84	0.868		177.9	153.5	2485.8	12.99	I
I										I

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	5.8	*****
08.15	24.3	*****
08.30	85.3	*****
08.45	145.8	*****
09.00	159.6	*****
09.15	141.2	*****

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.4	*
08.15	2.7	***
08.30	7.6	*****
08.45	9.1	*****
09.00	3.4	***
09.15	1.8	**

.QUEUE AT ARM C

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-----
TIME SEGMENT NO. OF
ENDING        VEHICLES
              IN QUEUE

08.00         5.1 *****
08.15        23.6 *****
08.30        91.9 *****
08.45       161.4 *****
09.00       177.9 *****
09.15       153.5 *****

```

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	ARM	I	TOTAL DEMAND	I	* QUEUEING *	I	* INCLUSIVE QUEUEING *	I						
I		I		I	* DELAY *	I	* DELAY *	I						
I		I	(VEH)	I	(MIN)	I	(MIN)	I						
I		I	(VEH/H)	I	(MIN/VEH)	I	(MIN/VEH)	I						
I	A	I	1305.4	I	870.3	I	7407.7	I	5.67	I	8162.1	I	6.25	I
I	B	I	750.1	I	500.0	I	366.5	I	0.49	I	366.7	I	0.49	I
I	C	I	1221.7	I	814.5	I	8085.5	I	6.62	I	9003.4	I	7.37	I
I	ALL	I	3277.2	I	2184.8	I	15859.7	I	4.84	I	17532.3	I	5.35	I

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
 * INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING 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.

END OF JOB

===== end of file =====

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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Wokingham, Berks.	Web: www.trlsoftware.co.uk
RG40 3GA,UK	

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IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"o:\022961 Hayle Harbour - OPA\F08 - Civils (name)\Transportation\Assessments\ARCADY\
20071107 rs Foundry Square June PM ARCADY.vai"
(drive-on-the-left) at 10:06:17 on Friday, 9 November 2007

.FILE PROPERTIES

RUN TITLE: Foundry Square - Hayle
LOCATION: Hayle
DATE: 18/07/2007
CLIENT:
ENUMERATOR: rspaldin [BTH-CS5PQ1J]
JOB NUMBER: 022961
STATUS: Draft 1
DESCRIPTION: Test for ES on 18th July. Uses new geometry provided by Cornwall
in dwg number C0914/C/R1200

.INPUT DATA

ARM A - Penpol Terrace
ARM B - Foundry Hill
ARM C - Carnsew Road

.MINI-ROUNDABOUT GEOMETRIC DATA

LIGHTING CONDITIONS : NORMAL

ROAD SURFACE CONDITION: NORMAL

I	ARM	I	V (m)	I	E (m)	I	Lm(M)	I	Vm(M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT	I	
I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	(PCU/MIN)	I
I	ARM A	I	4.80	I	6.00	I	12.00	I	4.00	I	12.50	I	10.00	I	0.00	I	0.623	I	16.556	I	
I	ARM B	I	3.50	I	6.00	I	12.00	I	3.50	I	15.00	I	10.00	I	0.00	I	0.608	I	17.167	I	
I	ARM C	I	3.50	I	6.00	I	12.00	I	2.80	I	15.00	I	15.00	I	0.00	I	0.628	I	17.162	I	

V = approach half-width
E = entry width

Lm = effective flare length
Vm = minimum approach half-width

A = distance between arms
K = entry corner kerb line
G = gradient over 50m

.TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

I	ARM	I	FLOW SCALE(%)	I
I	A	I	100	I
I	B	I	100	I
I	C	I	100	I

.TIME PERIOD BEGINS 07.45 AND ENDS 09.15
.LENGTH OF TIME PERIOD - 90 MINUTES.
.LENGTH OF TIME SEGMENT - 15 MINUTES.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

DEMAND SET TITLE: 2017 June PM with development (lower trips)

I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	I	TOP OF PEAK IS REACHED	I	FLOW STOPS IF FALLING	I	RATE OF FLOW (VEH/MIN) BEFORE PEAK	I	AT TOP OF PEAK	I	AFTER PEAK
I	ARM A	I	15.00	I	45.00	I	75.00	I	11.14	I	16.71	I	11.14
I	ARM B	I	15.00	I	45.00	I	75.00	I	6.69	I	10.03	I	6.69
I	ARM C	I	15.00	I	45.00	I	75.00	I	10.20	I	15.30	I	10.20

DEMAND SET TITLE: 2017 June PM with development (lower trips)

I	TURNING PROPORTIONS	I
---	---------------------	---

I	ARM A	16.29	13.29	1.225		60.2	105.2	1240.5		6.39	I
I	ARM B	9.78	10.96	0.893		6.0	6.8	97.1		0.75	I
I	ARM C	14.92	11.69	1.276		59.9	108.4	1262.7		7.26	I
I											I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.45-09.00									I
I	ARM A	13.30	13.22	1.006		105.2	107.1	1592.6	8.16	I
I	ARM B	7.99	11.00	0.726		6.8	2.9	50.2	0.39	I
I	ARM C	12.18	12.28	0.992		108.4	108.4	1626.6	8.79	I
I										I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	09.00-09.15									I
I	ARM A	11.14	13.13	0.848		107.1	79.0	1396.2	7.17	I
I	ARM B	6.69	11.05	0.605		2.9	1.6	25.6	0.24	I
I	ARM C	10.20	12.88	0.792		108.4	70.0	1338.7	7.02	I
I										I

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	4.0	****
08.15	14.3	*****
08.30	60.2	*****
08.45	105.2	*****
09.00	107.1	*****
09.15	79.0	*****

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.3	*
08.15	2.3	**
08.30	6.0	*****
08.45	6.8	*****
09.00	2.9	**
09.15	1.6	**

.QUEUE AT ARM C

```

-----
TIME SEGMENT NO. OF
ENDING        VEHICLES
              IN QUEUE

08.00         3.4 ***
08.15        11.9 *****
08.30        59.9 *****
08.45       108.4 *****
09.00       108.4 *****
09.15        70.0 *****

```

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	ARM	I	TOTAL DEMAND	I	* QUEUEING *	I	* INCLUSIVE QUEUEING *	I						
I		I		I	* DELAY *	I	* DELAY *	I						
I		I	(VEH)	I	(MIN)	I	(MIN)	I						
I		I	(VEH/H)	I	(MIN/VEH)	I	(MIN/VEH)	I						
I	A	I	1221.7	I	814.5	I	4992.4	I	4.09	I	5230.2	I	4.28	I
I	B	I	733.6	I	489.1	I	295.6	I	0.40	I	295.7	I	0.40	I
I	C	I	1118.9	I	745.9	I	4940.1	I	4.42	I	5130.6	I	4.59	I
I	ALL	I	3074.3	I	2049.5	I	10228.0	I	3.33	I	10656.5	I	3.47	I

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END OF JOB

===== end of file =====

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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Wokingham, Berks.	Web: www.trlsoftware.co.uk
RG40 3GA,UK	

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Run with file:-
"o:\022961 Hayle Harbour - OPA\F08 - Civils (name)\Transportation\Assessments\ARCADY\
20071107 rs Foundry Square AUGUST PM ARCADY.vai"
(drive-on-the-left) at 15:52:57 on wednesday, 7 November 2007

.FILE PROPERTIES

RUN TITLE: Foundry Square - Hayle
LOCATION: Hayle
DATE: 18/07/2007
CLIENT:
ENUMERATOR: rspaldin [BTH-CS5PQ1J]
JOB NUMBER: 022961
STATUS: Draft 1
DESCRIPTION: Test for ES on 18th July. Uses new geometry provided by Cornwall
in dwg number C0914/C/R1200

.INPUT DATA

ARM A - Penpol Terrace
ARM B - Foundry Hill
ARM C - Carnsew Road

.MINI-ROUNDABOUT GEOMETRIC DATA

LIGHTING CONDITIONS : NORMAL

ROAD SURFACE CONDITION: NORMAL

I	ARM	I	V (m)	I	E (m)	I	Lm(M)	I	Vm(M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT	I
I		I		I		I		I		I		I		I		I		I	(PCU/MIN)	I
I	ARM A	I	4.80	I	6.00	I	12.00	I	4.00	I	12.50	I	10.00	I	0.00	I	0.623	I	16.556	I
I	ARM B	I	3.50	I	6.00	I	12.00	I	3.50	I	15.00	I	10.00	I	0.00	I	0.608	I	17.167	I
I	ARM C	I	3.50	I	6.00	I	12.00	I	2.80	I	15.00	I	15.00	I	0.00	I	0.628	I	17.162	I

V = approach half-width
E = entry width

Lm = effective flare length
Vm = minimum approach half-width

A = distance between arms
K = entry corner kerb line
G = gradient over 50m

.TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

I	ARM	I	FLOW SCALE(%)	I
I	A	I	100	I
I	B	I	100	I
I	C	I	100	I

.TIME PERIOD BEGINS 07.45 AND ENDS 09.15
.LENGTH OF TIME PERIOD - 90 MINUTES.
.LENGTH OF TIME SEGMENT - 15 MINUTES.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

DEMAND SET TITLE: 2011 August PM with development (ROBUST trips)

I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	I	TOP OF PEAK IS REACHED	I	FLOW STOPS IF FALLING	I	RATE OF FLOW (VEH/MIN) BEFORE PEAK	I	AT TOP OF PEAK	I	AFTER PEAK
I	ARM A	I	15.00	I	45.00	I	75.00	I	11.52	I	17.29	I	11.52
I	ARM B	I	15.00	I	45.00	I	75.00	I	7.44	I	11.16	I	7.44
I	ARM C	I	15.00	I	45.00	I	75.00	I	12.65	I	18.97	I	12.65

DEMAND SET TITLE: 2011 August PM with development (ROBUST trips)

I	TURNING PROPORTIONS	I
---	---------------------	---

I	ARM A	16.85	13.74	1.227		63.3	110.2	1301.0		6.47	I
I	ARM B	10.88	10.14	1.073		20.2	32.8	398.4		2.89	I
I	ARM C	18.50	10.84	1.707		186.1	301.1	3654.1		22.59	I
I											I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.45-09.00									I
I	ARM A	13.76	13.73	1.003		110.2	111.5	1662.8	8.20	I
I	ARM B	8.88	10.16	0.874		32.8	18.0	381.1	2.66	I
I	ARM C	15.11	10.92	1.383		301.1	363.9	4987.2	29.65	I
I										I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	09.00-09.15									I
I	ARM A	11.52	13.64	0.845		111.5	81.5	1448.0	7.16	I
I	ARM B	7.44	10.22	0.728		18.0	3.0	97.5	0.77	I
I	ARM C	12.65	11.60	1.091		363.9	379.7	5576.7	32.16	I
I										I

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	4.6	*****
08.15	15.5	*****
08.30	63.3	*****
08.45	110.2	*****
09.00	111.5	*****
09.15	81.5	*****

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.9	**
08.15	4.7	*****
08.30	20.2	*****
08.45	32.8	*****
09.00	18.0	*****
09.15	3.0	**

.QUEUE AT ARM C

```

-----
TIME SEGMENT NO. OF
ENDING        VEHICLES
              IN QUEUE

08.00         17.6 *****
08.15         72.5 *****
08.30        186.1 *****
08.45        301.1 *****
09.00        363.9 *****
09.15        379.7 *****

```

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

```

-----
I  ARM  I  TOTAL DEMAND  I  * QUEUEING *  I  * INCLUSIVE QUEUEING *  I
I      I      I          I      * DELAY *      I      * DELAY *      I
I      I-----I-----I-----I-----I-----I-----I
I      I (VEH) (VEH/H) I (MIN) (MIN/VEH) I (MIN) (MIN/VEH) I
-----
I  A   I 1264.3 I 842.8 I 5225.8 I 4.13 I 5469.5 I 4.33 I
I  B   I 815.9 I 543.9 I 1157.9 I 1.42 I 1158.3 I 1.42 I
I  C   I 1387.7 I 925.1 I 16995.7 I 12.25 I 23211.3 I 16.73 I
-----
I  ALL I 3467.8 I 2311.9 I 23379.4 I 6.74 I 29839.1 I 8.60 I
-----

```

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 * INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING 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.

END OF JOB

===== end of file =====

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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Run with file:-
"o:\022961 Hayle Harbour - OPA\F08 - Civils (name)\Transportation\Assessments\ARCADY\
20071107 rs Foundry Square AUGUST PM ARCADY.vai"
(drive-on-the-left) at 15:52:07 on wednesday, 7 November 2007

.FILE PROPERTIES

RUN TITLE: Foundry Square - Hayle
LOCATION: Hayle
DATE: 18/07/2007
CLIENT:
ENUMERATOR: rspaldin [BTH-CS5PQ1J]
JOB NUMBER: 022961
STATUS: Draft 1
DESCRIPTION: Test for ES on 18th July. Uses new geometry provided by Cornwall
in dwg number C0914/C/R1200

.INPUT DATA

ARM A - Penpol Terrace
ARM B - Foundry Hill
ARM C - Carnsew Road

.MINI-ROUNDABOUT GEOMETRIC DATA

LIGHTING CONDITIONS : NORMAL

ROAD SURFACE CONDITION: NORMAL

I	ARM	I	V (m)	I	E (m)	I	Lm(M)	I	Vm(M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT	I	
I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	(PCU/MIN)	I
I	ARM A	I	4.80	I	6.00	I	12.00	I	4.00	I	12.50	I	10.00	I	0.00	I	0.623	I	16.556	I	
I	ARM B	I	3.50	I	6.00	I	12.00	I	3.50	I	15.00	I	10.00	I	0.00	I	0.608	I	17.167	I	
I	ARM C	I	3.50	I	6.00	I	12.00	I	2.80	I	15.00	I	15.00	I	0.00	I	0.628	I	17.162	I	

V = approach half-width
E = entry width

Lm = effective flare length
Vm = minimum approach half-width

A = distance between arms
K = entry corner kerb line
G = gradient over 50m

.TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

I	ARM	I	FLOW SCALE(%)	I
I	A	I	100	I
I	B	I	100	I
I	C	I	100	I

.TIME PERIOD BEGINS 07.45 AND ENDS 09.15
.LENGTH OF TIME PERIOD - 90 MINUTES.
.LENGTH OF TIME SEGMENT - 15 MINUTES.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

DEMAND SET TITLE: 2011 August PM with development (lower trips)

I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	I	TOP OF PEAK IS REACHED	I	FLOW STOPS IF FALLING	I	RATE OF FLOW (VEH/MIN) BEFORE PEAK	I	AT TOP OF PEAK	I	AFTER PEAK	I
I	ARM A	I	15.00	I	45.00	I	75.00	I	10.76	I	16.14	I	10.76	I
I	ARM B	I	15.00	I	45.00	I	75.00	I	7.29	I	10.93	I	7.29	I
I	ARM C	I	15.00	I	45.00	I	75.00	I	11.71	I	17.57	I	11.71	I

DEMAND SET TITLE: 2011 August PM with development (lower trips)

I	TURNING PROPORTIONS	I
---	---------------------	---

I	ARM A	15.74	13.71	1.148		41.9	72.8	860.9		4.37	I
I	ARM B	10.66	10.29	1.035		15.5	23.9	297.3		2.20	I
I	ARM C	17.13	10.75	1.593		142.7	238.3	2857.4		17.63	I
I											I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.45-09.00									I
I	ARM A	12.85	13.69	0.939		72.8	63.0	1018.7	5.05	I
I	ARM B	8.70	10.36	0.840		23.9	7.2	219.2	1.64	I
I	ARM C	13.99	10.89	1.284		238.3	284.8	3923.4	23.32	I
I										I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	09.00-09.15									I
I	ARM A	10.76	13.56	0.794		63.0	24.2	654.1	3.34	I
I	ARM B	7.29	10.42	0.699		7.2	2.5	45.6	0.39	I
I	ARM C	11.71	11.95	0.980		284.8	281.8	4249.3	23.79	I
I										I

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	3.4	***
08.15	9.2	*****
08.30	41.9	*****
08.45	72.8	*****
09.00	63.0	*****
09.15	24.2	*****

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.7	**
08.15	3.7	****
08.30	15.5	*****
08.45	23.9	*****
09.00	7.2	*****
09.15	2.5	**

.QUEUE AT ARM C

```

-----
TIME SEGMENT NO. OF
ENDING        VEHICLES
              IN QUEUE

08.00         10.0 *****
08.15         48.6 *****
08.30        142.7 *****
08.45        238.3 *****
09.00        284.8 *****
09.15        281.8 *****

```

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	ARM	I	TOTAL DEMAND	I	* QUEUEING *	I	* INCLUSIVE QUEUEING *	I
I		I		I	* DELAY *	I	* DELAY *	I
I		I	(VEH)	I	(MIN)	I	(MIN)	I
I		I	(VEH/H)	I	(MIN/VEH)	I	(MIN/VEH)	I
I	A	I	1180.6	I	787.1	I	3073.2	I
		I		I		I	2.60	I
I	B	I	799.4	I	532.9	I	788.7	I
		I		I		I	0.99	I
I	C	I	1284.8	I	856.5	I	13011.7	I
		I		I		I	10.13	I
I	ALL	I	3264.9	I	2176.6	I	16873.6	I
		I		I		I	5.17	I
		I		I		I	20216.9	I
		I		I		I	6.19	I

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
 * INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING 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.

END OF JOB

===== end of file =====

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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Crowthorne House	Fax: +44 (0) 1344 770864
Nine Mile Ride	Email: softwarebureau@trl.co.uk
Wokingham, Berks.	Web: www.trlsoftware.co.uk
RG40 3GA,UK	

THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"o:\022961 Hayle Harbour - OPA\F08 - Civils (name)\Transportation\Assessments\ARCADY\
20071107 rs Foundry Square AUGUST AM ARCADY.vai"
(drive-on-the-left) at 15:41:03 on Wednesday, 7 November 2007

.FILE PROPERTIES

RUN TITLE: Foundry Square - Hayle
LOCATION: Hayle
DATE: 18/07/2007
CLIENT:
ENUMERATOR: rspaldin [BTH-CS5PQ1J]
JOB NUMBER: 022961
STATUS: Draft 1
DESCRIPTION: Test for ES on 18th July. Uses new geometry provided by Cornwall
in dwg number C0914/C/R1200

.INPUT DATA

ARM A - Penpol Terrace
ARM B - Foundry Hill
ARM C - Carnsew Road

.MINI-ROUNDABOUT GEOMETRIC DATA

LIGHTING CONDITIONS : NORMAL

ROAD SURFACE CONDITION: NORMAL

I	ARM	I	V (m)	I	E (m)	I	Lm(M)	I	Vm(M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT	I
I		I		I		I		I		I		I		I		I		I	(PCU/MIN)	I
I	ARM A	I	4.80	I	6.00	I	12.00	I	4.00	I	12.50	I	10.00	I	0.00	I	0.623	I	16.556	I
I	ARM B	I	3.50	I	6.00	I	12.00	I	3.50	I	15.00	I	10.00	I	0.00	I	0.608	I	17.167	I
I	ARM C	I	3.50	I	6.00	I	12.00	I	2.80	I	15.00	I	15.00	I	0.00	I	0.628	I	17.162	I

V = approach half-width
E = entry width

Lm = effective flare length
Vm = minimum approach half-width

A = distance between arms
K = entry corner kerb line
G = gradient over 50m

.TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

I	ARM	I	FLOW SCALE(%)	I
I	A	I	100	I
I	B	I	100	I
I	C	I	100	I

.TIME PERIOD BEGINS 07.45 AND ENDS 09.15
.LENGTH OF TIME PERIOD - 90 MINUTES.
.LENGTH OF TIME SEGMENT - 15 MINUTES.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

DEMAND SET TITLE: 2011 AM August with development (ROBUST trips)

I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	I	TOP OF PEAK IS REACHED	I	FLOW STOPS IF FALLING	I	RATE OF FLOW (VEH/MIN) BEFORE PEAK	I	AT TOP OF PEAK	I	AFTER PEAK
I	ARM A	I	15.00	I	45.00	I	75.00	I	8.56	I	12.84	I	8.56
I	ARM B	I	15.00	I	45.00	I	75.00	I	4.82	I	7.24	I	4.82
I	ARM C	I	15.00	I	45.00	I	75.00	I	6.00	I	9.00	I	6.00

DEMAND SET TITLE: 2011 AM August with development (ROBUST trips)

I	TURNING PROPORTIONS	I
---	---------------------	---

I	ARM A	12.52	13.63	0.919		7.6	8.8	124.0		0.75	I
I	ARM B	7.06	10.49	0.673		1.9	2.0	29.3		0.29	I
I	ARM C	8.77	12.73	0.689		2.1	2.2	32.1		0.25	I
I											I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.45-09.00									I
I	ARM A	10.22	13.88	0.737		8.8	3.0	55.0	0.34	I
I	ARM B	5.76	11.24	0.513		2.0	1.1	17.1	0.19	I
I	ARM C	7.16	13.23	0.542		2.2	1.2	19.2	0.17	I
I										I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	09.00-09.15									I
I	ARM A	8.56	14.07	0.608		3.0	1.6	25.6	0.19	I
I	ARM B	4.82	12.04	0.401		1.1	0.7	10.6	0.14	I
I	ARM C	6.00	13.62	0.440		1.2	0.8	12.5	0.13	I
I										I

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.5	**
08.15	2.6	***
08.30	7.6	*****
08.45	8.8	*****
09.00	3.0	***
09.15	1.6	**

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.7	*
08.15	1.0	*
08.30	1.9	**
08.45	2.0	**
09.00	1.1	*
09.15	0.7	*

.QUEUE AT ARM C


```

-----
TIME SEGMENT NO. OF
ENDING      VEHICLES
           IN QUEUE

08.00      0.8 *
08.15      1.1 *
08.30      2.1 **
08.45      2.2 **
09.00      1.2 *
09.15      0.8 *

```

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

```

-----
I  ARM  I  TOTAL DEMAND  I  * QUEUEING *  I  * INCLUSIVE QUEUEING *  I
I      I      I          I      * DELAY *      I      * DELAY *      I
I      I-----I-----I-----I-----I-----I-----I
I      I  (VEH)  (VEH/H)  I  (MIN)  (MIN/VEH)  I  (MIN)  (MIN/VEH)  I
-----
I  A  I  939.3  I  626.2  I  351.7  I  0.37  I  351.8  I  0.37  I
I  B  I  529.3  I  352.9  I  106.8  I  0.20  I  106.8  I  0.20  I
I  C  I  658.2  I  438.8  I  120.4  I  0.18  I  120.4  I  0.18  I
-----
I  ALL  I  2126.7  I  1417.8  I  578.9  I  0.27  I  579.0  I  0.27  I
-----

```

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END OF JOB

===== end of file =====

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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Nine Mile Ride	Email: softwarebureau@trl.co.uk
Wokingham, Berks.	Web: www.trlsoftware.co.uk
RG40 3GA,UK	

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IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"o:\022961 Hayle Harbour - OPA\F08 - Civils (name)\Transportation\Assessments\ARCADY\
20071107 rs Foundry Square AUGUST AM ARCADY.vai"
(drive-on-the-left) at 15:40:13 on Wednesday, 7 November 2007

.FILE PROPERTIES

RUN TITLE: Foundry Square - Hayle
LOCATION: Hayle
DATE: 18/07/2007
CLIENT:
ENUMERATOR: rspaldin [BTH-CS5PQ1J]
JOB NUMBER: 022961
STATUS: Draft 1
DESCRIPTION: Test for ES on 18th July. Uses new geometry provided by Cornwall
in dwg number C0914/C/R1200

.INPUT DATA

ARM A - Penpol Terrace
ARM B - Foundry Hill
ARM C - Carnsew Road

.MINI-ROUNDABOUT GEOMETRIC DATA

LIGHTING CONDITIONS : NORMAL

ROAD SURFACE CONDITION: NORMAL

I	ARM	I	V (m)	I	E (m)	I	Lm(M)	I	Vm(M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT	I	
I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	(PCU/MIN)	I
I	ARM A	I	4.80	I	6.00	I	12.00	I	4.00	I	12.50	I	10.00	I	0.00	I	0.623	I	16.556	I	
I	ARM B	I	3.50	I	6.00	I	12.00	I	3.50	I	15.00	I	10.00	I	0.00	I	0.608	I	17.167	I	
I	ARM C	I	3.50	I	6.00	I	12.00	I	2.80	I	15.00	I	15.00	I	0.00	I	0.628	I	17.162	I	

V = approach half-width
E = entry width

Lm = effective flare length
Vm = minimum approach half-width

A = distance between arms
K = entry corner kerb line
G = gradient over 50m

.TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

I	ARM	I	FLOW SCALE(%)	I
I	A	I	100	I
I	B	I	100	I
I	C	I	100	I

.TIME PERIOD BEGINS 07.45 AND ENDS 09.15
.LENGTH OF TIME PERIOD - 90 MINUTES.
.LENGTH OF TIME SEGMENT - 15 MINUTES.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

DEMAND SET TITLE: 2011 AM August with development (lower trips)

I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	I	TOP OF PEAK IS REACHED	I	FLOW STOPS IF FALLING	I	RATE OF FLOW (VEH/MIN) BEFORE PEAK	I	AT TOP OF PEAK	I	AFTER PEAK	I
I	ARM A	I	15.00	I	45.00	I	75.00	I	8.11	I	12.17	I	8.11	I
I	ARM B	I	15.00	I	45.00	I	75.00	I	4.71	I	7.07	I	4.71	I
I	ARM C	I	15.00	I	45.00	I	75.00	I	5.57	I	8.36	I	5.57	I

DEMAND SET TITLE: 2011 AM August with development (lower trips)

I	TURNING PROPORTIONS	I
---	---------------------	---

I	ARM A	11.86	13.65	0.869		5.4	5.9	85.4		0.53	I
I	ARM B	6.89	10.82	0.637		1.7	1.7	25.3		0.25	I
I	ARM C	8.15	12.77	0.638		1.7	1.7	25.8		0.22	I
I											I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.45-09.00									I
I	ARM A	9.69	13.90	0.697		5.9	2.4	41.0	0.26	I
I	ARM B	5.63	11.59	0.485		1.7	1.0	15.2	0.17	I
I	ARM C	6.66	13.27	0.502		1.7	1.0	16.2	0.15	I
I										I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	09.00-09.15									I
I	ARM A	8.11	14.09	0.576		2.4	1.4	22.1	0.17	I
I	ARM B	4.71	12.30	0.383		1.0	0.6	9.8	0.13	I
I	ARM C	5.57	13.66	0.408		1.0	0.7	10.9	0.12	I
I										I

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.3	*
08.15	2.2	**
08.30	5.4	*****
08.45	5.9	*****
09.00	2.4	**
09.15	1.4	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.6	*
08.15	0.9	*
08.30	1.7	**
08.45	1.7	**
09.00	1.0	*
09.15	0.6	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.7 *
08.15	1.0 *
08.30	1.7 **
08.45	1.7 **
09.00	1.0 *
09.15	0.7 *

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *
(VEH)	(VEH/H)	(MIN)	(MIN/VEH)
A	889.9	265.5	0.30
B	516.9	95.1	0.18
C	611.6	100.5	0.16
ALL	2018.4	461.1	0.23

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.

* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.

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END OF JOB

===== end of file =====

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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RG40 3GA,UK	

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IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"o:\022961 Hayle Harbour - OPA\F08 - Civils (name)\Transportation\Assessments\ARCADY\
20071107 rs Foundry Square June PM ARCADY.vai"
(drive-on-the-left) at 15:47:53 on Wednesday, 7 November 2007

.FILE PROPERTIES

RUN TITLE: Foundry Square - Hayle
LOCATION: Hayle
DATE: 18/07/2007
CLIENT:
ENUMERATOR: rspaldin [BTH-CS5PQ1J]
JOB NUMBER: 022961
STATUS: Draft 1
DESCRIPTION: Test for ES on 18th July. Uses new geometry provided by Cornwall
in dwg number C0914/C/R1200

.INPUT DATA

ARM A - Penpol Terrace
ARM B - Foundry Hill
ARM C - Carnsew Road

.MINI-ROUNDABOUT GEOMETRIC DATA

LIGHTING CONDITIONS : NORMAL

ROAD SURFACE CONDITION: NORMAL

I	ARM	I	V (m)	I	E (m)	I	Lm(M)	I	Vm(M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT	I	
I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	(PCU/MIN)	I
I	ARM A	I	4.80	I	6.00	I	12.00	I	4.00	I	12.50	I	10.00	I	0.00	I	0.623	I	16.556	I	
I	ARM B	I	3.50	I	6.00	I	12.00	I	3.50	I	15.00	I	10.00	I	0.00	I	0.608	I	17.167	I	
I	ARM C	I	3.50	I	6.00	I	12.00	I	2.80	I	15.00	I	15.00	I	0.00	I	0.628	I	17.162	I	

V = approach half-width
E = entry width

Lm = effective flare length
Vm = minimum approach half-width

A = distance between arms
K = entry corner kerb line
G = gradient over 50m

.TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

I	ARM	I	FLOW SCALE(%)	I
I	A	I	100	I
I	B	I	100	I
I	C	I	100	I

.TIME PERIOD BEGINS 07.45 AND ENDS 09.15
.LENGTH OF TIME PERIOD - 90 MINUTES.
.LENGTH OF TIME SEGMENT - 15 MINUTES.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

DEMAND SET TITLE: 2017 June PM without development

I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	I	TOP OF PEAK IS REACHED IF FALLING	I	RATE OF FLOW (VEH/MIN) BEFORE PEAK	I	AT TOP OF PEAK	I	AFTER PEAK
I	ARM A	I	15.00	I	45.00	I	8.29	I	12.43	I	8.29
I	ARM B	I	15.00	I	45.00	I	5.99	I	8.98	I	5.99
I	ARM C	I	15.00	I	45.00	I	6.41	I	9.62	I	6.41

DEMAND SET TITLE: 2017 June PM without development

I	TURNING PROPORTIONS	I
---	---------------------	---

I	ARM A	12.12	13.17	0.920		7.5	8.8	123.8		0.78	I
I	ARM B	8.76	12.17	0.720		2.4	2.5	36.5		0.29	I
I	ARM C	9.38	12.00	0.781		3.2	3.4	49.7		0.37	I
I											I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.45-09.00									I
I	ARM A	9.90	13.49	0.733		8.8	2.9	54.5	0.34	I
I	ARM B	7.15	12.66	0.565		2.5	1.3	21.2	0.19	I
I	ARM C	7.66	12.63	0.606		3.4	1.6	25.8	0.21	I
I										I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	09.00-09.15									I
I	ARM A	8.29	13.76	0.602		2.9	1.6	25.0	0.19	I
I	ARM B	5.99	13.21	0.453		1.3	0.8	13.2	0.14	I
I	ARM C	6.41	13.13	0.489		1.6	1.0	15.3	0.15	I
I										I

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	1.5 *
08.15	2.6 ***
08.30	7.5 *****
08.45	8.8 *****
09.00	2.9 ***
09.15	1.6 **

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.8 *
08.15	1.2 *
08.30	2.4 **
08.45	2.5 **
09.00	1.3 *
09.15	0.8 *

.QUEUE AT ARM C

```

-----
TIME SEGMENT NO. OF
ENDING        VEHICLES
              IN QUEUE

08.00         0.9 *
08.15         1.5 *
08.30         3.2 ***
08.45         3.4 ***
09.00         1.6 **
09.15         1.0 *

```

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

```

-----
I  ARM  I  TOTAL DEMAND  I  * QUEUEING *  I  * INCLUSIVE QUEUEING *  I
I      I      I          I      * DELAY *      I      * DELAY *      I
I      I-----I-----I-----I-----I-----I-----I
I      I  (VEH)  (VEH/H)  I  (MIN)  (MIN/VEH)  I  (MIN)  (MIN/VEH)  I
-----
I  A   I  909.1  I  606.1  I  348.1  I  0.38  I  348.2  I  0.38  I
I  B   I  656.8  I  437.9  I  132.6  I  0.20  I  132.6  I  0.20  I
I  C   I  703.4  I  469.0  I  167.6  I  0.24  I  167.6  I  0.24  I
-----
I  ALL  I  2269.4  I  1512.9  I  648.2  I  0.29  I  648.4  I  0.29  I
-----

```

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
 * INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING 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.

END OF JOB

===== end of file =====

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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RG40 3GA,UK	

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Run with file:-
"o:\022961 Hayle Harbour - OPA\F08 - Civils (name)\Transportation\Assessments\ARCADY\
20071107 rs Foundry Square June AM ARCADY.vai"
(drive-on-the-left) at 15:36:15 on Wednesday, 7 November 2007

.FILE PROPERTIES

RUN TITLE: Foundry Square - Hayle
LOCATION: Hayle
DATE: 18/07/2007
CLIENT:
ENUMERATOR: rspaldin [BTH-CS5PQ1J]
JOB NUMBER: 022961
STATUS: Draft 1
DESCRIPTION: Test for ES on 18th July. Uses new geometry provided by Cornwall
in dwg number C0914/C/R1200

.INPUT DATA

ARM A - Penpol Terrace
ARM B - Foundry Hill
ARM C - Carnsew Road

.MINI-ROUNDABOUT GEOMETRIC DATA

LIGHTING CONDITIONS : NORMAL

ROAD SURFACE CONDITION: NORMAL

I	ARM	I	V (m)	I	E (m)	I	Lm(M)	I	Vm(M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT	I	
I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	(PCU/MIN)	I
I	ARM A	I	4.80	I	6.00	I	12.00	I	4.00	I	12.50	I	10.00	I	0.00	I	0.623	I	16.556	I	
I	ARM B	I	3.50	I	6.00	I	5.00	I	3.50	I	15.00	I	10.00	I	0.00	I	0.581	I	15.274	I	
I	ARM C	I	3.50	I	6.00	I	12.00	I	2.80	I	15.00	I	15.00	I	0.00	I	0.628	I	17.162	I	

V = approach half-width
E = entry width

Lm = effective flare length
Vm = minimum approach half-width

A = distance between arms
K = entry corner kerb line
G = gradient over 50m

.TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

I	ARM	I	FLOW SCALE(%)	I
I	A	I	100	I
I	B	I	100	I
I	C	I	100	I

.TIME PERIOD BEGINS 07.45 AND ENDS 09.15
.LENGTH OF TIME PERIOD - 90 MINUTES.
.LENGTH OF TIME SEGMENT - 15 MINUTES.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

DEMAND SET TITLE: 2017 AM June without development

I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	I	TOP OF PEAK IS REACHED IF FALLING	I	RATE OF FLOW (VEH/MIN) BEFORE PEAK	I	AT TOP OF PEAK	I	AFTER PEAK
I	ARM A	I	15.00	I	45.00	I	7.90	I	11.85	I	7.90
I	ARM B	I	15.00	I	45.00	I	3.71	I	5.57	I	3.71
I	ARM C	I	15.00	I	45.00	I	6.20	I	9.30	I	6.20

DEMAND SET TITLE: 2017 AM June without development

I	TURNING PROPORTIONS	I
---	---------------------	---

I	ARM A	11.55	12.73	0.908		6.9	7.9	111.7		0.73	I
I	ARM B	5.43	10.19	0.533		1.1	1.1	16.7		0.21	I
I	ARM C	9.07	13.42	0.675		2.0	2.0	30.2		0.23	I
I											I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.45-09.00									I
I	ARM A	9.43	13.14	0.718		7.9	2.7	49.0	0.32	I
I	ARM B	4.43	10.74	0.413		1.1	0.7	11.2	0.16	I
I	ARM C	7.40	13.81	0.536		2.0	1.2	18.7	0.16	I
I										I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	09.00-09.15									I
I	ARM A	7.90	13.46	0.587		2.7	1.5	23.3	0.19	I
I	ARM B	3.71	11.32	0.328		0.7	0.5	7.7	0.13	I
I	ARM C	6.20	14.11	0.440		1.2	0.8	12.4	0.13	I
I										I

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	1.4 *
08.15	2.4 **
08.30	6.9 *****
08.45	7.9 *****
09.00	2.7 ***
09.15	1.5 *

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.5
08.15	0.7 *
08.30	1.1 *
08.45	1.1 *
09.00	0.7 *
09.15	0.5

.QUEUE AT ARM C

```

-----
TIME SEGMENT NO. OF
ENDING        VEHICLES
              IN QUEUE

08.00         0.8 *
08.15         1.1 *
08.30         2.0 **
08.45         2.0 **
09.00         1.2 *
09.15         0.8 *

```

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

```

-----
I  ARM  I  TOTAL DEMAND  I  * QUEUEING *  I  * INCLUSIVE QUEUEING *  I
I      I      I          I      * DELAY *      I      * DELAY *      I
I      I-----I-----I-----I-----I-----I-----I
I      I  (VEH)  (VEH/H)  I  (MIN)  (MIN/VEH)  I  (MIN)  (MIN/VEH)  I
-----
I  A   I  866.6  I  577.7  I  318.6  I  0.37  I  318.7  I  0.37  I
I  B   I  407.2  I  271.5  I  67.7   I  0.17  I  67.7   I  0.17  I
I  C   I  680.1  I  453.4  I  116.3  I  0.17  I  116.3  I  0.17  I
-----
I  ALL  I  1954.0  I  1302.7  I  502.6  I  0.26  I  502.7  I  0.26  I
-----

```

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
 * INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING 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.

END OF JOB

===== end of file =====

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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RG40 3GA,UK	

THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-

"o:\Q22961 Hayle Harbour - OPA\F08 - Civils (name)\Transportation\Assessments\ARCADY\
20071107 rs Foundry Square AUGUST PM ARCADY.vai"
(drive-on-the-left) at 16:26:39 on Wednesday, 7 November 2007

.FILE PROPERTIES

RUN TITLE: Foundry Square - Hayle
LOCATION: Hayle
DATE: 18/07/2007
CLIENT:
ENUMERATOR: rspaldin [BTH-CS5PQ1J]
JOB NUMBER: 022961
STATUS: Draft 1
DESCRIPTION: Test for ES on 18th July. Uses new geometry provided by Cornwall
in dwg number C0914/C/R1200

.INPUT DATA

ARM A - Penpol Terrace
ARM B - Foundry Hill
ARM C - Carnsew Road

.MINI-ROUNDABOUT GEOMETRIC DATA

LIGHTING CONDITIONS : NORMAL

ROAD SURFACE CONDITION: NORMAL

ARM	V (m)	E (m)	Lm(M)	Vm(M)	A (M)	K (M)	G (%)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	4.80	6.00	12.00	4.00	12.50	10.00	0.00	0.623	16.556
ARM B	3.50	6.00	12.00	3.50	15.00	10.00	0.00	0.608	17.167
ARM C	3.50	6.00	12.00	2.80	15.00	15.00	0.00	0.628	17.162

V = approach half-width
E = entry width

Lm = effective flare length
Vm = minimum approach half-width

A = distance between arms
K = entry corner kerb line
G = gradient over 50m

.TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

ARM	FLOW SCALE(%)
A	100
B	100
C	100

.TIME PERIOD BEGINS 07.45 AND ENDS 09.15
.LENGTH OF TIME PERIOD - 90 MINUTES.
.LENGTH OF TIME SEGMENT - 15 MINUTES.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

DEMAND SET TITLE: 2017 August PM without development

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS IF FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	9.18	13.76	9.18
ARM B	15.00	45.00	75.00	7.65	11.48	7.65
ARM C	15.00	45.00	75.00	9.23	13.84	9.23

DEMAND SET TITLE: 2017 August PM without development

		TURNING PROPORTIONS					
		TURNING COUNTS (VEH/HR)					
		(PERCENTAGE OF H.V.S)					

TIME	FROM/TO	ARM A	ARM B	ARM C			

07.45 - 09.15	ARM A	0.000	0.450	0.550			
		0.0	330.0	404.0			
		(10.0)	(10.0)	(10.0)			
	ARM B	0.791	0.000	0.209			
		484.0	0.0	128.0			
		(10.0)	(10.0)	(10.0)			
	ARM C	0.752	0.248	0.000			
		555.0	183.0	0.0			
		(10.0)	(10.0)	(10.0)			

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00								
ARM A	9.18	13.66	0.672		0.0	2.0	26.8	0.21
ARM B	7.65	12.58	0.608		0.0	1.5	20.8	0.20
ARM C	9.23	11.85	0.778		0.0	3.2	40.8	0.33

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15								
ARM A	10.96	13.44	0.815		2.0	3.9	51.8	0.36
ARM B	9.13	11.99	0.762		1.5	2.9	39.7	0.33
ARM C	11.02	11.12	0.991		3.2	12.1	128.4	0.99

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30								
ARM A	13.42	13.46	0.997		3.9	14.0	148.8	0.94

I	ARM B	11.19	11.34	0.986		2.9	11.8	124.8	0.94	I
I	ARM C	13.49	10.34	1.305		12.1	60.0	543.2	3.76	I
I										I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.30-08.45									I
I	ARM A	13.42	13.47	0.996		14.0	19.3	252.3	1.46	I
I	ARM B	11.19	11.23	0.996		11.8	16.9	217.5	1.54	I
I	ARM C	13.49	10.22	1.320		60.0	109.2	1269.3	8.33	I
I										I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.45-09.00									I
I	ARM A	10.96	13.41	0.817		19.3	5.2	136.5	0.82	I
I	ARM B	9.13	11.63	0.786		16.9	4.2	109.6	0.77	I
I	ARM C	11.02	10.66	1.034		109.2	114.9	1680.5	10.31	I
I										I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	09.00-09.15									I
I	ARM A	9.18	13.26	0.692		5.2	2.4	39.5	0.27	I
I	ARM B	7.65	12.47	0.613		4.2	1.6	27.3	0.22	I
I	ARM C	9.23	11.72	0.787		114.9	78.9	1453.5	8.37	I
I										I

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	2.0	**
08.15	3.9	****
08.30	14.0	*****
08.45	19.3	*****
09.00	5.2	*****
09.15	2.4	**

.QUEUE AT ARM B

TIME SEGMENT	NO. OF
--------------	--------

ENDING	VEHICLES IN QUEUE	
08.00	1.5	**
08.15	2.9	***
08.30	11.8	*****
08.45	16.9	*****
09.00	4.2	***
09.15	1.6	**

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	3.2	***
08.15	12.1	*****
08.30	60.0	*****
08.45	109.2	*****
09.00	114.9	*****
09.15	78.9	*****

. QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	ARM	I	TOTAL DEMAND	I	* QUEUEING *	I	* INCLUSIVE QUEUEING *	I						
I		I		I	* DELAY *	I	* DELAY *	I						
I		I	(VEH)	I	(MIN)	I	(MIN)	I						
I		I	(VEH/H)	I	(MIN/VEH)	I	(MIN/VEH)	I						
I	A	I	1006.5	I	671.0	I	655.5	I	0.65	I	655.7	I	0.65	I
I	B	I	839.2	I	559.5	I	539.6	I	0.64	I	539.7	I	0.64	I
I	C	I	1012.0	I	674.6	I	5115.7	I	5.06	I	5381.5	I	5.32	I
I	ALL	I	2857.6	I	1905.1	I	6310.9	I	2.21	I	6577.0	I	2.30	I

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END OF JOB

===== end of file =====

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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RG40 3GA,UK	

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Run with file:-
"o:\022961 Hayle Harbour - OPA\F08 - Civils (name)\Transportation\Assessments\ARCADY\
20071107 rs Foundry Square AUGUST AM ARCADY.vai"
(drive-on-the-left) at 15:41:59 on Wednesday, 7 November 2007

.FILE PROPERTIES

RUN TITLE: Foundry Square - Hayle
LOCATION: Hayle
DATE: 18/07/2007
CLIENT:
ENUMERATOR: rspaldin [BTH-CS5PQ1J]
JOB NUMBER: 022961
STATUS: Draft 1
DESCRIPTION: Test for ES on 18th July. Uses new geometry provided by Cornwall
in dwg number C0914/C/R1200

.INPUT DATA

ARM A - Penpol Terrace
ARM B - Foundry Hill
ARM C - Carnsew Road

.MINI-ROUNDABOUT GEOMETRIC DATA

LIGHTING CONDITIONS : NORMAL

ROAD SURFACE CONDITION: NORMAL

I	ARM	I	V (m)	I	E (m)	I	Lm(M)	I	Vm(M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT	I	
I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	(PCU/MIN)	I
I	ARM A	I	4.80	I	6.00	I	12.00	I	4.00	I	12.50	I	10.00	I	0.00	I	0.623	I	16.556	I	
I	ARM B	I	3.50	I	6.00	I	12.00	I	3.50	I	15.00	I	10.00	I	0.00	I	0.608	I	17.167	I	
I	ARM C	I	3.50	I	6.00	I	12.00	I	2.80	I	15.00	I	15.00	I	0.00	I	0.628	I	17.162	I	

V = approach half-width
E = entry width

Lm = effective flare length
Vm = minimum approach half-width

A = distance between arms
K = entry corner kerb line
G = gradient over 50m

.TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

I	ARM	I	FLOW SCALE(%)	I
I	A	I	100	I
I	B	I	100	I
I	C	I	100	I

.TIME PERIOD BEGINS 07.45 AND ENDS 09.15
.LENGTH OF TIME PERIOD - 90 MINUTES.
.LENGTH OF TIME SEGMENT - 15 MINUTES.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

DEMAND SET TITLE: 2017 AM August without development

I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	I	TOP OF PEAK IS REACHED	I	FLOW STOPS IF FALLING	I	RATE OF FLOW (VEH/MIN) BEFORE PEAK	I	AT TOP OF PEAK	I	AFTER PEAK
I	ARM A	I	15.00	I	45.00	I	75.00	I	6.49	I	9.73	I	6.49
I	ARM B	I	15.00	I	45.00	I	75.00	I	4.89	I	7.33	I	4.89
I	ARM C	I	15.00	I	45.00	I	75.00	I	4.32	I	6.49	I	4.32

DEMAND SET TITLE: 2017 AM August without development

I	TURNING PROPORTIONS	I
---	---------------------	---

I	ARM A	9.49	13.62	0.697		2.2	2.2	33.3		0.24	I
I	ARM B	7.15	12.31	0.581		1.3	1.4	20.3		0.19	I
I	ARM C	6.33	12.59	0.503		1.0	1.0	14.9		0.16	I
I											I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.45-09.00									I
I	ARM A	7.75	13.87	0.558		2.2	1.3	20.5	0.17	I
I	ARM B	5.84	12.89	0.453		1.4	0.8	13.2	0.14	I
I	ARM C	5.16	13.12	0.394		1.0	0.7	10.2	0.13	I
I										I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	09.00-09.15									I
I	ARM A	6.49	14.07	0.461		1.3	0.9	13.6	0.13	I
I	ARM B	4.89	13.34	0.366		0.8	0.6	9.1	0.12	I
I	ARM C	4.32	13.53	0.320		0.7	0.5	7.3	0.11	I
I										I

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.8	*
08.15	1.2	*
08.30	2.2	**
08.45	2.2	**
09.00	1.3	*
09.15	0.9	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.6	*
08.15	0.8	*
08.30	1.3	*
08.45	1.4	*
09.00	0.8	*
09.15	0.6	*

.QUEUE AT ARM C

```

-----
TIME SEGMENT NO. OF
ENDING        VEHICLES
              IN QUEUE

08.00         0.5
08.15         0.6 *
08.30         1.0 *
08.45         1.0 *
09.00         0.7 *
09.15         0.5

```

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

```

-----
I  ARM  I  TOTAL DEMAND  I  * QUEUEING *  I  * INCLUSIVE QUEUEING *  I
I      I      I          I      * DELAY *      I      * DELAY *      I
I      I-----I-----I-----I-----I-----I-----I
I      I  (VEH)  (VEH/H)  I  (MIN)  (MIN/VEH)  I  (MIN)  (MIN/VEH)  I
-----
I  A   I  711.7  I  474.4  I  127.5  I  0.18  I  127.5  I  0.18  I
I  B   I  536.1  I  357.4  I  81.5   I  0.15  I  81.5   I  0.15  I
I  C   I  474.4  I  316.3  I  62.7   I  0.13  I  62.7   I  0.13  I
-----
I  ALL  I  1722.2  I  1148.2  I  271.6  I  0.16  I  271.7  I  0.16  I
-----

```

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 * THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

===== end of file =====

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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TRL Limited	Tel: +44 (0) 1344 770018
Crowthorne House	Fax: +44 (0) 1344 770864
Nine Mile Ride	Email: softwarebureau@trl.co.uk
Wokingham, Berks.	Web: www.trlsoftware.co.uk
RG40 3GA,UK	

THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"o:\022961 Hayle Harbour - OPA\F08 - Civils (name)\Transportation\Assessments\ARCADY\
20071107 rs Foundry Square June PM ARCADY.vai"
(drive-on-the-left) at 15:45:16 on Wednesday, 7 November 2007

.FILE PROPERTIES

RUN TITLE: Foundry Square - Hayle
LOCATION: Hayle
DATE: 18/07/2007
CLIENT:
ENUMERATOR: rspaldin [BTH-CS5PQ1J]
JOB NUMBER: 022961
STATUS: Draft 1
DESCRIPTION: Test for ES on 18th July. Uses new geometry provided by Cornwall
in dwg number C0914/C/R1200

.INPUT DATA

ARM A - Penpol Terrace
ARM B - Foundry Hill
ARM C - Carnsew Road

.MINI-ROUNDABOUT GEOMETRIC DATA

LIGHTING CONDITIONS : NORMAL

ROAD SURFACE CONDITION: NORMAL

I	ARM	I	V (m)	I	E (m)	I	Lm(M)	I	Vm(M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT	I	
I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	(PCU/MIN)	I
I	ARM A	I	4.80	I	6.00	I	12.00	I	4.00	I	12.50	I	10.00	I	0.00	I	0.623	I	16.556	I	
I	ARM B	I	3.50	I	6.00	I	12.00	I	3.50	I	15.00	I	10.00	I	0.00	I	0.608	I	17.167	I	
I	ARM C	I	3.50	I	6.00	I	12.00	I	2.80	I	15.00	I	15.00	I	0.00	I	0.628	I	17.162	I	

V = approach half-width
E = entry width

Lm = effective flare length
Vm = minimum approach half-width

A = distance between arms
K = entry corner kerb line
G = gradient over 50m

.TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

I	ARM	I	FLOW SCALE(%)	I
I	A	I	100	I
I	B	I	100	I
I	C	I	100	I

.TIME PERIOD BEGINS 07.45 AND ENDS 09.15
.LENGTH OF TIME PERIOD - 90 MINUTES.
.LENGTH OF TIME SEGMENT - 15 MINUTES.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

DEMAND SET TITLE: 2011 June PM without development

I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	I	TOP OF PEAK IS REACHED	I	FLOW STOPS IF FALLING	I	RATE OF FLOW (VEH/MIN) BEFORE PEAK	I	AT TOP OF PEAK	I	AFTER PEAK	I
I	ARM A	I	15.00	I	45.00	I	75.00	I	7.64	I	11.46	I	7.64	I
I	ARM B	I	15.00	I	45.00	I	75.00	I	5.53	I	8.29	I	5.53	I
I	ARM C	I	15.00	I	45.00	I	75.00	I	5.91	I	8.87	I	5.91	I

DEMAND SET TITLE: 2011 June PM without development

I	TURNING PROPORTIONS	I
---	---------------------	---

I	ARM A	11.17	13.32	0.838		4.5	4.8	69.6		0.45	I
I	ARM B	8.08	12.41	0.651		1.8	1.8	27.1		0.23	I
I	ARM C	8.65	12.28	0.704		2.2	2.3	34.3		0.27	I
I											I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.45-09.00									I
I	ARM A	9.12	13.62	0.669		4.8	2.1	35.0	0.24	I
I	ARM B	6.60	12.94	0.510		1.8	1.1	16.7	0.16	I
I	ARM C	7.06	12.86	0.549		2.3	1.2	19.8	0.18	I
I										I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	09.00-09.15									I
I	ARM A	7.64	13.86	0.551		2.1	1.3	19.9	0.16	I
I	ARM B	5.53	13.40	0.412		1.1	0.7	11.1	0.13	I
I	ARM C	5.91	13.32	0.444		1.2	0.8	12.7	0.14	I
I										I

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.2	*
08.15	1.9	**
08.30	4.5	*****
08.45	4.8	*****
09.00	2.1	**
09.15	1.3	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.7	*
08.15	1.0	*
08.30	1.8	**
08.45	1.8	**
09.00	1.1	*
09.15	0.7	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.8 *
08.15	1.2 *
08.30	2.2 **
08.45	2.3 **
09.00	1.2 *
09.15	0.8 *

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *
(VEH)	(VEH/H)	(MIN)	(MIN/VEH)
A	837.8	225.9	0.27
B	606.1	104.1	0.17
C	648.6	125.7	0.19
ALL	2092.5	455.7	0.22

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.

* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING 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.

END OF JOB

===== end of file =====

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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RG40 3GA,UK	

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Run with file:-
"o:\022961 Hayle Harbour - OPA\F08 - Civils (name)\Transportation\Assessments\ARCADY\
20071107 rs Foundry Square June AM ARCADY.vai"
(drive-on-the-left) at 15:25:01 on Wednesday, 7 November 2007

.FILE PROPERTIES

RUN TITLE: Foundry Square - Hayle
LOCATION: Hayle
DATE: 18/07/2007
CLIENT:
ENUMERATOR: rspaldin [BTH-CS5PQ1J]
JOB NUMBER: 022961
STATUS: Draft 1
DESCRIPTION: Test for ES on 18th July. Uses new geometry provided by Cornwall
in dwg number C0914/C/R1200

.INPUT DATA

ARM A - Penpol Terrace
ARM B - Foundry Hill
ARM C - Carnsew Road

.MINI-ROUNDABOUT GEOMETRIC DATA

LIGHTING CONDITIONS : NORMAL

ROAD SURFACE CONDITION: NORMAL

I	ARM	I	V (m)	I	E (m)	I	Lm(M)	I	Vm(M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT	I	
I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	(PCU/MIN)	I
I	ARM A	I	4.80	I	6.00	I	12.00	I	4.00	I	12.50	I	10.00	I	0.00	I	0.623	I	16.556	I	
I	ARM B	I	3.50	I	6.00	I	5.00	I	3.50	I	15.00	I	10.00	I	0.00	I	0.581	I	15.274	I	
I	ARM C	I	3.50	I	6.00	I	12.00	I	2.80	I	15.00	I	15.00	I	0.00	I	0.628	I	17.162	I	

V = approach half-width
E = entry width

Lm = effective flare length
Vm = minimum approach half-width

A = distance between arms
K = entry corner kerb line
G = gradient over 50m

.TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

I	ARM	I	FLOW SCALE(%)	I
I	A	I	100	I
I	B	I	100	I
I	C	I	100	I

.TIME PERIOD BEGINS 07.45 AND ENDS 09.15
.LENGTH OF TIME PERIOD - 90 MINUTES.
.LENGTH OF TIME SEGMENT - 15 MINUTES.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

DEMAND SET TITLE: 2011 AM June without development

I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	I	TOP OF PEAK IS REACHED	I	FLOW STOPS IF FALLING	I	RATE OF FLOW (VEH/MIN) BEFORE PEAK	I	AT TOP OF PEAK	I	AFTER PEAK
I	ARM A	I	15.00	I	45.00	I	75.00	I	7.29	I	10.93	I	7.29
I	ARM B	I	15.00	I	45.00	I	75.00	I	3.44	I	5.16	I	3.44
I	ARM C	I	15.00	I	45.00	I	75.00	I	5.71	I	8.57	I	5.71

DEMAND SET TITLE: 2011 AM June without development

I	TURNING PROPORTIONS	I
---	---------------------	---

I	ARM A	10.66	12.92	0.825		4.1	4.4	63.9		0.43	I
I	ARM B	5.03	10.46	0.481		0.9	0.9	13.6		0.18	I
I	ARM C	8.35	13.58	0.615		1.5	1.6	23.4		0.19	I
I											I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.45-09.00									I
I	ARM A	8.70	13.30	0.654		4.4	2.0	32.4	0.23	I
I	ARM B	4.10	11.03	0.372		0.9	0.6	9.4	0.15	I
I	ARM C	6.82	13.95	0.489		1.6	1.0	15.3	0.14	I
I										I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	09.00-09.15									I
I	ARM A	7.29	13.59	0.536		2.0	1.2	18.7	0.16	I
I	ARM B	3.44	11.52	0.298		0.6	0.4	6.6	0.12	I
I	ARM C	5.71	14.22	0.402		1.0	0.7	10.5	0.12	I
I										I

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	1.1 *
08.15	1.8 **
08.30	4.1 ****
08.45	4.4 *****
09.00	2.0 **
09.15	1.2 *

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.4
08.15	0.6 *
08.30	0.9 *
08.45	0.9 *
09.00	0.6 *
09.15	0.4

.QUEUE AT ARM C

```

-----
TIME SEGMENT NO. OF
ENDING      VEHICLES
           IN QUEUE

08.00      0.7 *
08.15      0.9 *
08.30      1.5 **
08.45      1.6 **
09.00      1.0 *
09.15      0.7 *

```

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

```

-----
I  ARM  I  TOTAL DEMAND  I  * QUEUEING *  I  * INCLUSIVE QUEUEING *  I
I      I      I          I      * DELAY *      I      * DELAY *      I
I      I-----I-----I-----I-----I-----I-----I
I      I  (VEH)  (VEH/H)  I  (MIN)  (MIN/VEH)  I  (MIN)  (MIN/VEH)  I
-----
I  A   I  799.4  I  532.9  I  209.8  I  0.26  I  209.8  I  0.26  I
I  B   I  377.1  I  251.4  I  56.9   I  0.15  I  56.9   I  0.15  I
I  C   I  626.6  I  417.8  I  94.3   I  0.15  I  94.3   I  0.15  I
-----
I  ALL  I  1803.1  I  1202.1  I  361.0  I  0.20  I  361.1  I  0.20  I
-----

```

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 * INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
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END OF JOB

===== end of file =====

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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Run with file:-
"o:\022961 Hayle Harbour - OPA\F08 - Civils (name)\Transportation\Assessments\ARCADY\
20071107 rs Foundry Square AUGUST PM ARCADY.vai"
(drive-on-the-left) at 15:51:14 on wednesday, 7 November 2007

.FILE PROPERTIES

RUN TITLE: Foundry Square - Hayle
LOCATION: Hayle
DATE: 18/07/2007
CLIENT:
ENUMERATOR: rspaldin [BTH-CS5PQ1J]
JOB NUMBER: 022961
STATUS: Draft 1
DESCRIPTION: Test for ES on 18th July. Uses new geometry provided by Cornwall
in dwg number C0914/C/R1200

.INPUT DATA

ARM A - Penpol Terrace
ARM B - Foundry Hill
ARM C - Carnsew Road

.MINI-ROUNDABOUT GEOMETRIC DATA

LIGHTING CONDITIONS : NORMAL

ROAD SURFACE CONDITION: NORMAL

I	ARM	I	V (m)	I	E (m)	I	Lm(M)	I	Vm(M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT	I	
I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	(PCU/MIN)	I
I	ARM A	I	4.80	I	6.00	I	12.00	I	4.00	I	12.50	I	10.00	I	0.00	I	0.623	I	16.556	I	
I	ARM B	I	3.50	I	6.00	I	12.00	I	3.50	I	15.00	I	10.00	I	0.00	I	0.608	I	17.167	I	
I	ARM C	I	3.50	I	6.00	I	12.00	I	2.80	I	15.00	I	15.00	I	0.00	I	0.628	I	17.162	I	

V = approach half-width
E = entry width

Lm = effective flare length
Vm = minimum approach half-width

A = distance between arms
K = entry corner kerb line
G = gradient over 50m

.TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

I	ARM	I	FLOW SCALE(%)	I
I	A	I	100	I
I	B	I	100	I
I	C	I	100	I

.TIME PERIOD BEGINS 07.45 AND ENDS 09.15
.LENGTH OF TIME PERIOD - 90 MINUTES.
.LENGTH OF TIME SEGMENT - 15 MINUTES.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

DEMAND SET TITLE: 2011 August PM without development

I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	I	TOP OF PEAK IS REACHED	I	FLOW STOPS IF FALLING	I	RATE OF FLOW (VEH/MIN) BEFORE PEAK	I	AT TOP OF PEAK	I	AFTER PEAK	I
I	ARM A	I	15.00	I	45.00	I	75.00	I	7.91	I	11.87	I	7.91	I
I	ARM B	I	15.00	I	45.00	I	75.00	I	6.59	I	9.88	I	6.59	I
I	ARM C	I	15.00	I	45.00	I	75.00	I	7.93	I	11.89	I	7.93	I

DEMAND SET TITLE: 2011 August PM without development

I	TURNING PROPORTIONS	I
---	---------------------	---

I	ARM A	11.57	13.41	0.863		5.1	5.6	81.4		0.51	I
I	ARM B	9.63	11.74	0.821		3.9	4.2	61.3		0.46	I
I	ARM C	11.59	10.83	1.070		19.8	32.9	396.7		2.68	I
I											I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.45-09.00									I
I	ARM A	9.45	13.33	0.709		5.6	2.6	43.1	0.29	I
I	ARM B	7.87	12.37	0.636		4.2	1.8	30.0	0.24	I
I	ARM C	9.46	11.62	0.815		32.9	6.5	289.2	1.87	I
I										I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	09.00-09.15									I
I	ARM A	7.91	13.79	0.574		2.6	1.4	22.0	0.17	I
I	ARM B	6.59	12.93	0.510		1.8	1.1	16.7	0.16	I
I	ARM C	7.93	12.31	0.644		6.5	1.9	33.8	0.26	I
I										I

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.3	*
08.15	2.2	**
08.30	5.1	*****
08.45	5.6	*****
09.00	2.6	***
09.15	1.4	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.0	*
08.15	1.7	**
08.30	3.9	*****
08.45	4.2	*****
09.00	1.8	**
09.15	1.1	*

.QUEUE AT ARM C


```

-----
TIME SEGMENT NO. OF
ENDING        VEHICLES
              IN QUEUE

08.00         1.7 **
08.15         3.7 ****
08.30         19.8 *****
08.45         32.9 *****
09.00         6.5 *****
09.15         1.9 **

```

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

```

-----
I  ARM  I  TOTAL DEMAND  I  * QUEUEING *  I  * INCLUSIVE QUEUEING *  I
I      I      I          I      * DELAY *      I      * DELAY *      I
I      I-----I-----I-----I-----I-----I-----I
I      I  (VEH)  (VEH/H)  I  (MIN)  (MIN/VEH)  I  (MIN)  (MIN/VEH)  I
-----
I  A   I  868.0  I  578.7  I  259.9  I  0.30  I  260.0  I  0.30  I
I  B   I  722.6  I  481.8  I  196.0  I  0.27  I  196.1  I  0.27  I
I  C   I  869.3  I  579.6  I  980.8  I  1.13  I  981.0  I  1.13  I
-----
I  ALL  I  2460.0  I  1640.0  I  1436.8  I  0.58  I  1437.1  I  0.58  I
-----

```

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 * INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING 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.

END OF JOB

===== end of file =====

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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RG40 3GA,UK	

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IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"o:\022961 Hayle Harbour - OPA\F08 - Civils (name)\Transportation\Assessments\ARCADY\
20071107 rs Foundry Square AUGUST AM ARCADY.vai"
(drive-on-the-left) at 15:39:22 on Wednesday, 7 November 2007

.FILE PROPERTIES

RUN TITLE: Foundry Square - Hayle
LOCATION: Hayle
DATE: 18/07/2007
CLIENT:
ENUMERATOR: rspaldin [BTH-CS5PQ1J]
JOB NUMBER: 022961
STATUS: Draft 1
DESCRIPTION: Test for ES on 18th July. Uses new geometry provided by Cornwall
in dwg number C0914/C/R1200

.INPUT DATA

ARM A - Penpol Terrace
ARM B - Foundry Hill
ARM C - Carnsew Road

.MINI-ROUNDABOUT GEOMETRIC DATA

LIGHTING CONDITIONS : NORMAL

ROAD SURFACE CONDITION: NORMAL

I	ARM	I	V (m)	I	E (m)	I	Lm(M)	I	Vm(M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT	I	
I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	(PCU/MIN)	I
I	ARM A	I	4.80	I	6.00	I	12.00	I	4.00	I	12.50	I	10.00	I	0.00	I	0.623	I	16.556	I	
I	ARM B	I	3.50	I	6.00	I	12.00	I	3.50	I	15.00	I	10.00	I	0.00	I	0.608	I	17.167	I	
I	ARM C	I	3.50	I	6.00	I	12.00	I	2.80	I	15.00	I	15.00	I	0.00	I	0.628	I	17.162	I	

V = approach half-width
E = entry width

Lm = effective flare length
Vm = minimum approach half-width

A = distance between arms
K = entry corner kerb line
G = gradient over 50m

.TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

I	ARM	I	FLOW SCALE(%)	I
I	A	I	100	I
I	B	I	100	I
I	C	I	100	I

.TIME PERIOD BEGINS 07.45 AND ENDS 09.15
.LENGTH OF TIME PERIOD - 90 MINUTES.
.LENGTH OF TIME SEGMENT - 15 MINUTES.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

DEMAND SET TITLE: 2011 AM August without development

I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	I	TOP OF PEAK IS REACHED	I	FLOW STOPS FALLING	I	RATE OF FLOW (VEH/MIN) BEFORE PEAK	I	AT TOP OF PEAK	I	AFTER PEAK	I
I	ARM A	I	15.00	I	45.00	I	75.00	I	5.60	I	8.40	I	5.60	I
I	ARM B	I	15.00	I	45.00	I	75.00	I	4.21	I	6.32	I	4.21	I
I	ARM C	I	15.00	I	45.00	I	75.00	I	3.74	I	5.61	I	3.74	I

DEMAND SET TITLE: 2011 AM August without development

I	TURNING PROPORTIONS	I
---	---------------------	---

I	ARM A	8.19	13.82	0.593		1.4	1.4	21.4		0.18	I
I	ARM B	6.16	12.76	0.483		0.9	0.9	13.8		0.15	I
I	ARM C	5.47	13.00	0.421		0.7	0.7	10.8		0.13	I
I											I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.45-09.00									I
I	ARM A	6.69	14.04	0.476		1.4	0.9	14.5	0.14	I
I	ARM B	5.03	13.27	0.379		0.9	0.6	9.6	0.12	I
I	ARM C	4.46	13.47	0.331		0.7	0.5	7.7	0.11	I
I										I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	09.00-09.15									I
I	ARM A	5.60	14.21	0.394		0.9	0.7	10.2	0.12	I
I	ARM B	4.21	13.66	0.308		0.6	0.5	6.9	0.11	I
I	ARM C	3.74	13.82	0.271		0.5	0.4	5.7	0.10	I
I										I

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.6 *
08.15	0.9 *
08.30	1.4 *
08.45	1.4 *
09.00	0.9 *
09.15	0.7 *

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.4
08.15	0.6 *
08.30	0.9 *
08.45	0.9 *
09.00	0.6 *
09.15	0.5

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.4
08.15	0.5
08.30	0.7 *
08.45	0.7 *
09.00	0.5 *
09.15	0.4

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *
(VEH)	(VEH/H)	(MIN)	(MIN/VEH)
A	614.3	88.4	0.14
B	462.1	58.7	0.13
C	410.0	47.1	0.11
ALL	1486.4	194.1	0.13

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.

* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING 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.

END OF JOB

===== end of file =====

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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Wokingham, Berks.	Web: www.trlsoftware.co.uk
RG40 3GA,UK	

THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"o:\022961 Hayle Harbour - OPA\F08 - Civils (name)\Transportation\Assessments\ARCADY\
20071107 rs Foundry Square June AM ARCADY.vai"
(drive-on-the-left) at 15:37:59 on Wednesday, 7 November 2007

.FILE PROPERTIES

RUN TITLE: Foundry Square - Hayle
LOCATION: Hayle
DATE: 18/07/2007
CLIENT:
ENUMERATOR: rspaldin [BTH-CS5PQ1J]
JOB NUMBER: 022961
STATUS: Draft 1
DESCRIPTION: Test for ES on 18th July. Uses new geometry provided by Cornwall
in dwg number C0914/C/R1200

.INPUT DATA

ARM A - Penpol Terrace
ARM B - Foundry Hill
ARM C - Carnsew Road

.MINI-ROUNDABOUT GEOMETRIC DATA

LIGHTING CONDITIONS : NORMAL

ROAD SURFACE CONDITION: NORMAL

I	ARM	I	V (m)	I	E (m)	I	Lm(M)	I	Vm(M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT	I	
I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	(PCU/MIN)	I
I	ARM A	I	4.80	I	6.00	I	12.00	I	4.00	I	12.50	I	10.00	I	0.00	I	0.623	I	16.556	I	
I	ARM B	I	3.50	I	6.00	I	5.00	I	3.50	I	15.00	I	10.00	I	0.00	I	0.581	I	15.274	I	
I	ARM C	I	3.50	I	6.00	I	12.00	I	2.80	I	15.00	I	15.00	I	0.00	I	0.628	I	17.162	I	

V = approach half-width
E = entry width

Lm = effective flare length
Vm = minimum approach half-width

A = distance between arms
K = entry corner kerb line
G = gradient over 50m

.TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

I	ARM	I	FLOW SCALE(%)	I
I	A	I	100	I
I	B	I	100	I
I	C	I	100	I

.TIME PERIOD BEGINS 07.45 AND ENDS 09.15
.LENGTH OF TIME PERIOD - 90 MINUTES.
.LENGTH OF TIME SEGMENT - 15 MINUTES.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

DEMAND SET TITLE: 2017 AM June with development (ROBUST trips)

I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	I	TOP OF PEAK IS REACHED	I	MINUTES FROM START WHEN FLOW STOPS FALLING	I	RATE OF FLOW (VEH/MIN) BEFORE PEAK	I	AT TOP OF PEAK	I	AFTER PEAK
I	ARM A	I	15.00	I	45.00	I	75.00	I	10.86	I	16.29	I	10.86
I	ARM B	I	15.00	I	45.00	I	75.00	I	4.32	I	6.49	I	4.32
I	ARM C	I	15.00	I	45.00	I	75.00	I	8.46	I	12.69	I	8.46

DEMAND SET TITLE: 2017 AM June with development (ROBUST trips)

I	TURNING PROPORTIONS	I
---	---------------------	---

I	ARM A	15.89	12.56	1.264		63.5	113.5	1327.6		7.14	I
I	ARM B	6.33	9.20	0.687		2.1	2.1	31.5		0.35	I
I	ARM C	12.38	13.15	0.941		8.8	10.7	148.0		0.92	I
I											I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.45-09.00									I
I	ARM A	12.97	12.89	1.006		113.5	115.3	1715.5	8.91	I
I	ARM B	5.16	9.09	0.568		2.1	1.4	21.8	0.26	I
I	ARM C	10.11	13.58	0.744		10.7	3.1	62.2	0.38	I
I										I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	09.00-09.15									I
I	ARM A	10.86	13.31	0.816		115.3	80.3	1466.5	7.43	I
I	ARM B	4.32	8.96	0.483		1.4	1.0	15.1	0.22	I
I	ARM C	8.46	13.91	0.608		3.1	1.6	25.6	0.19	I
I										I

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	3.9	****
08.15	13.8	*****
08.30	63.5	*****
08.45	113.5	*****
09.00	115.3	*****
09.15	80.3	*****

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.8	*
08.15	1.2	*
08.30	2.1	**
08.45	2.1	**
09.00	1.4	*
09.15	1.0	*

.QUEUE AT ARM C

```

-----
TIME SEGMENT NO. OF
ENDING        VEHICLES
              IN QUEUE

08.00         1.5  *
08.15         2.7  ***
08.30         8.8  *****
08.45        10.7  *****
09.00         3.1  ***
09.15         1.6  **

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QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

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-----
I  ARM  I  TOTAL DEMAND  I  * QUEUEING *  I  * INCLUSIVE QUEUEING *  I
I      I      I          I      * DELAY *      I      * DELAY *      I
I      I-----I-----I-----I-----I-----I-----I
I      I  (VEH)  (VEH/H)  I  (MIN)  (MIN/VEH)  I  (MIN)  (MIN/VEH)  I
-----
I  A   I 1191.6 I 794.4 I 5287.0 I 4.44 I 5529.1 I 4.64 I
I  B   I 474.4 I 316.3 I 124.6 I 0.26 I 124.7 I 0.26 I
I  C   I 928.3 I 618.9 I 394.6 I 0.43 I 394.7 I 0.43 I
-----
I  ALL I 2594.3 I 1729.6 I 5806.2 I 2.24 I 6048.5 I 2.33 I
-----

```

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 * INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING 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.

END OF JOB

===== end of file =====

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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Wokingham, Berks.	Web: www.trlsoftware.co.uk
RG40 3GA,UK	

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IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"o:\022961 Hayle Harbour - OPA\F08 - Civils (name)\Transportation\Assessments\ARCADY\
20071107 rs Foundry Square June AM ARCADY.vai"
(drive-on-the-left) at 15:36:58 on Wednesday, 7 November 2007

.FILE PROPERTIES

RUN TITLE: Foundry Square - Hayle
LOCATION: Hayle
DATE: 18/07/2007
CLIENT:
ENUMERATOR: rspaldin [BTH-CS5PQ1J]
JOB NUMBER: 022961
STATUS: Draft 1
DESCRIPTION: Test for ES on 18th July. Uses new geometry provided by Cornwall
in dwg number C0914/C/R1200

.INPUT DATA

ARM A - Penpol Terrace
ARM B - Foundry Hill
ARM C - Carnsew Road

.MINI-ROUNDABOUT GEOMETRIC DATA

LIGHTING CONDITIONS : NORMAL

ROAD SURFACE CONDITION: NORMAL

I	ARM	I	V (m)	I	E (m)	I	Lm(M)	I	Vm(M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT	I	
I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	(PCU/MIN)	I
I	ARM A	I	4.80	I	6.00	I	12.00	I	4.00	I	12.50	I	10.00	I	0.00	I	0.623	I	16.556	I	
I	ARM B	I	3.50	I	6.00	I	5.00	I	3.50	I	15.00	I	10.00	I	0.00	I	0.581	I	15.274	I	
I	ARM C	I	3.50	I	6.00	I	12.00	I	2.80	I	15.00	I	15.00	I	0.00	I	0.628	I	17.162	I	

V = approach half-width
E = entry width

Lm = effective flare length
Vm = minimum approach half-width

A = distance between arms
K = entry corner kerb line
G = gradient over 50m

.TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

I	ARM	I	FLOW SCALE(%)	I
I	A	I	100	I
I	B	I	100	I
I	C	I	100	I

.TIME PERIOD BEGINS 07.45 AND ENDS 09.15
.LENGTH OF TIME PERIOD - 90 MINUTES.
.LENGTH OF TIME SEGMENT - 15 MINUTES.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

DEMAND SET TITLE: 2017 AM June with development (lower trips)

I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	I	TOP OF PEAK IS REACHED	I	FLOW STOPS IF FALLING	I	RATE OF FLOW (VEH/MIN) BEFORE PEAK	I	AT TOP OF PEAK	I	AFTER PEAK
I	ARM A	I	15.00	I	45.00	I	75.00	I	10.41	I	15.62	I	10.41
I	ARM B	I	15.00	I	45.00	I	75.00	I	4.21	I	6.32	I	4.21
I	ARM C	I	15.00	I	45.00	I	75.00	I	8.04	I	12.06	I	8.04

DEMAND SET TITLE: 2017 AM June with development (lower trips)

I	TURNING PROPORTIONS	I
---	---------------------	---

I	ARM A	15.23	12.57	1.212		50.4	90.4	1056.4		5.74	I
I	ARM B	6.16	9.28	0.664		1.9	1.9	28.4		0.32	I
I	ARM C	11.75	13.19	0.891		6.2	6.9	98.9		0.63	I
I											I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.45-09.00									I
I	ARM A	12.43	12.95	0.960		90.4	84.8	1314.3	6.80	I
I	ARM B	5.03	9.19	0.548		1.9	1.3	19.9	0.25	I
I	ARM C	9.60	13.62	0.705		6.9	2.5	44.2	0.29	I
I										I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	09.00-09.15									I
I	ARM A	10.41	13.33	0.781		84.8	43.4	961.1	4.91	I
I	ARM B	4.21	9.05	0.465		1.3	0.9	14.0	0.21	I
I	ARM C	8.04	13.95	0.576		2.5	1.4	22.2	0.17	I
I										I

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	3.2	***
08.15	9.9	*****
08.30	50.4	*****
08.45	90.4	*****
09.00	84.8	*****
09.15	43.4	*****

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.7	*
08.15	1.1	*
08.30	1.9	**
08.45	1.9	**
09.00	1.3	*
09.15	0.9	*

.QUEUE AT ARM C

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-----
TIME SEGMENT NO. OF
ENDING        VEHICLES
              IN QUEUE

08.00         1.3 *
08.15         2.3 **
08.30         6.2 *****
08.45         6.9 *****
09.00         2.5 ***
09.15         1.4 *

```

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

```

-----
I  ARM  I  TOTAL DEMAND  I  * QUEUEING *  I  * INCLUSIVE QUEUEING *  I
I      I      I          I      * DELAY *      I      * DELAY *      I
I      I-----I-----I-----I-----I-----I-----I
I      I  (VEH)  (VEH/H)  I  (MIN)  (MIN/VEH)  I  (MIN)  (MIN/VEH)  I
-----
I  A   I  1142.2  I  761.5  I  3940.9  I  3.45  I  4011.4  I  3.51  I
I  B   I  462.1   I  308.1  I  113.6   I  0.25  I  113.6   I  0.25  I
I  C   I  881.7   I  587.8  I  290.5   I  0.33  I  290.6   I  0.33  I
-----
I  ALL  I  2486.0  I  1657.3  I  4345.0  I  1.75  I  4415.6  I  1.78  I
-----

```

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 * THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

===== end of file =====

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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RG40 3GA,UK	

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IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"o:\022961 Hayle Harbour - OPA\F08 - Civils (name)\Transportation\Assessments\ARCADY\
20071107 rs Foundry Square AUGUST PM ARCADY.vai"
(drive-on-the-left) at 15:56:39 on wednesday, 7 November 2007

.FILE PROPERTIES

RUN TITLE: Foundry Square - Hayle
LOCATION: Hayle
DATE: 18/07/2007
CLIENT:
ENUMERATOR: rspaldin [BTH-CS5PQ1J]
JOB NUMBER: 022961
STATUS: Draft 1
DESCRIPTION: Test for ES on 18th July. Uses new geometry provided by Cornwall
in dwg number C0914/C/R1200

.INPUT DATA

ARM A - Penpol Terrace
ARM B - Foundry Hill
ARM C - Carnsew Road

.MINI-ROUNDABOUT GEOMETRIC DATA

LIGHTING CONDITIONS : NORMAL

I	ARM A	18.70	10.03	1.865		268.5	398.6	5002.7		33.38	I
I	ARM B	12.43	11.68	1.064		21.2	34.2	417.2		2.62	I
I	ARM C	20.40	10.08	2.023		279.8	434.6	5358.4		35.55	I
I											I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.45-09.00									I
I	ARM A	15.27	9.98	1.530		398.6	477.9	6573.0	45.47	I
I	ARM B	10.15	11.70	0.868		34.2	16.0	376.6	2.30	I
I	ARM C	16.66	10.18	1.637		434.6	531.8	7248.2	44.83	I
I										I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	09.00-09.15									I
I	ARM A	12.79	9.51	1.344		477.9	527.0	7536.4	52.95	I
I	ARM B	8.50	11.88	0.715		16.0	2.7	76.0	0.52	I
I	ARM C	13.95	11.12	1.254		531.8	574.2	8295.1	49.83	I
I										I

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	53.4	*****
08.15	137.7	*****
08.30	268.5	*****
08.45	398.6	*****
09.00	477.9	*****
09.15	527.0	*****

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	2.3	**
08.15	5.0	*****
08.30	21.2	*****
08.45	34.2	*****
09.00	16.0	*****
09.15	2.7	**

.QUEUE AT ARM C

 TIME SEGMENT NO. OF
 ENDING VEHICLES
 IN QUEUE

08.00	39.3	*****
08.15	126.6	*****
08.30	279.8	*****
08.45	434.6	*****
09.00	531.8	*****
09.15	574.2	*****

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	ARM	I	TOTAL DEMAND	I	* QUEUEING *	I	* INCLUSIVE QUEUEING *	I						
I	I	I	I	I	* DELAY *	I	* DELAY *	I						
I	I	I	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)						
I	A	I	1402.7	I	935.2	I	24005.8	I	17.11	I	38606.0	I	27.52	I
I	B	I	932.4	I	621.6	I	1170.4	I	1.26	I	1170.7	I	1.26	I
I	C	I	1530.3	I	1020.2	I	25510.1	I	16.67	I	40329.8	I	26.35	I
I	ALL	I	3865.4	I	2577.0	I	50686.4	I	13.11	I	80106.6	I	20.72	I

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 * THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

===== end of file =====

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"o:\022961 Hayle Harbour - OPA\F08 - Civils (name)\Transportation\Assessments\ARCADY\
20071107 rs Foundry Square AUGUST PM ARCADY.vai"
(drive-on-the-left) at 15:54:51 on wednesday, 7 November 2007

.FILE PROPERTIES

RUN TITLE: Foundry Square - Hayle
LOCATION: Hayle
DATE: 18/07/2007
CLIENT:
ENUMERATOR: rspaldin [BTH-CS5PQ1J]
JOB NUMBER: 022961
STATUS: Draft 1
DESCRIPTION: Test for ES on 18th July. Uses new geometry provided by Cornwall
in dwg number C0914/C/R1200

.INPUT DATA

ARM A - Penpol Terrace
ARM B - Foundry Hill
ARM C - Carnsew Road

.MINI-ROUNDABOUT GEOMETRIC DATA

LIGHTING CONDITIONS : NORMAL

ROAD SURFACE CONDITION: NORMAL

I	ARM	I	V (m)	I	E (m)	I	Lm(M)	I	Vm(M)	I	A (M)	I	K (M)	I	G (%)	I	SLOPE	I	INTERCEPT	I	
I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	(PCU/MIN)	I
I	ARM A	I	4.80	I	6.00	I	12.00	I	4.00	I	12.50	I	10.00	I	0.00	I	0.623	I	16.556	I	
I	ARM B	I	3.50	I	6.00	I	12.00	I	3.50	I	15.00	I	10.00	I	0.00	I	0.608	I	17.167	I	
I	ARM C	I	3.50	I	6.00	I	12.00	I	2.80	I	15.00	I	15.00	I	0.00	I	0.628	I	17.162	I	

V = approach half-width
E = entry width

Lm = effective flare length
Vm = minimum approach half-width

A = distance between arms
K = entry corner kerb line
G = gradient over 50m

.TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

I	ARM	I	FLOW SCALE(%)	I
I	A	I	100	I
I	B	I	100	I
I	C	I	100	I

.TIME PERIOD BEGINS 07.45 AND ENDS 09.15
.LENGTH OF TIME PERIOD - 90 MINUTES.
.LENGTH OF TIME SEGMENT - 15 MINUTES.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

DEMAND SET TITLE: 2017 August PM with development (lower trips)

I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	I	TOP OF PEAK IS REACHED	I	FLOW STOPS IF FALLING	I	RATE OF FLOW (VEH/MIN) BEFORE PEAK	I	AT TOP OF PEAK	I	AFTER PEAK
I	ARM A	I	15.00	I	45.00	I	75.00	I	12.02	I	18.04	I	12.02
I	ARM B	I	15.00	I	45.00	I	75.00	I	8.35	I	12.53	I	8.35
I	ARM C	I	15.00	I	45.00	I	75.00	I	13.01	I	19.52	I	13.01

DEMAND SET TITLE: 2017 August PM with development (lower trips)

I	TURNING PROPORTIONS	I
---	---------------------	---

I	ARM A	17.59	13.69	1.285		81.4	140.0	1660.1		8.23	I
I	ARM B	12.21	10.38	1.177		37.6	65.5	773.4		5.19	I
I	ARM C	19.03	10.61	1.793		220.8	347.1	4259.0		26.88	I
I											I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.45-09.00									I
I	ARM A	14.36	13.68	1.050		140.0	150.3	2177.2	10.73	I
I	ARM B	9.97	10.38	0.960		65.5	61.6	953.2	6.22	I
I	ARM C	15.54	10.67	1.456		347.1	420.1	5753.6	36.08	I
I										I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	09.00-09.15									I
I	ARM A	12.02	13.68	0.879		150.3	126.9	2079.2	10.21	I
I	ARM B	8.35	10.41	0.802		61.6	33.2	711.3	4.68	I
I	ARM C	13.01	10.66	1.220		420.1	455.3	6565.3	41.17	I
I										I

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	5.9	*****
08.15	22.4	*****
08.30	81.4	*****
08.45	140.0	*****
09.00	150.3	*****
09.15	126.9	*****

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	2.7	***
08.15	8.6	*****
08.30	37.6	*****
08.45	65.5	*****
09.00	61.6	*****
09.15	33.2	*****

.QUEUE AT ARM C

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TIME SEGMENT NO. OF
ENDING      VEHICLES
           IN QUEUE

08.00      26.5 *****
08.15      95.0 *****
08.30     220.8 *****
08.45     347.1 *****
09.00     420.1 *****
09.15     455.3 *****

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QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

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I  ARM  I  TOTAL DEMAND  I  * QUEUEING *  I  * INCLUSIVE QUEUEING *  I
I      I      I          I      * DELAY *      I      * DELAY *      I
I      I-----I-----I-----I-----I-----I-----I
I      I  (VEH)  (VEH/H)  I  (MIN)  (MIN/VEH)  I  (MIN)  (MIN/VEH)  I
-----
I  A   I 1319.1 I 879.4 I 6988.5 I 5.30 I 7577.0 I 5.74 I
I  B   I 916.0 I 610.6 I 2921.8 I 3.19 I 2974.7 I 3.25 I
I  C   I 1427.4 I 951.6 I 20083.3 I 14.07 I 29803.9 I 20.88 I
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I  ALL I 3662.5 I 2441.7 I 29993.5 I 8.19 I 40355.6 I 11.02 I
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END OF JOB

===== end of file =====