

# PROGRAM FOR NEW CONTROLLER

		ACTION	DATE
TO	1. SENIOR ENGINEER, CONTROLLER APPLICATIONS		
	2. SCOTT GINN, PROGRAM DELIVERY		
FROM	DARREN VAUGHAN	DATE	28/05/20
SITE	PRINCES HWY WEST/LAVEROCK GROVE	SITE NO.	6828
REGION	SOUTH WESTERN	MUNICIPALITY	WARRNAMBOOL

## GENERAL

Works Program Job?	Yes	Project Number	XXXX
Classification	SIMPLE	Works Order Number	4A005570
Description	<input type="checkbox"/> New intersection signals <input type="checkbox"/> New pedestrian operated signals <input checked="" type="checkbox"/> Controller swap. Reason for swap	CABINET DAMAGE	

## CONTROLLER DETAILS

Type	QTC	Software Version & Release	V5 R20	Lanterns	LED
Number of Signal Groups	Vehicle	8	Pedestrians	4	Total
					12
Number of special outputs / Pedestrian Wait State Outputs					
Controller capacity	12				
Number of detectors	Vehicle	11	Pedestrians	4	Total
	Tram		Other		15

## CONTROLLER APPLICATIONS

Target Date for Draft Opsheet	28/05/2020
Target Date for completion of Program	7/06/2020
Prepare Interlocking	

## PERSONALITY CHECKSUMS

	Hex	Octal
Total	57	127
Times	C7	307
Pers	90	220
Dispatched	10/06/20	

## PROGRAM DELIVERY - SIGNAL INSTALLATION

If switch-on of a metro site is to occur without a Telstra line, seek approval of the T/L Signal Services

SCATS connection	Connection to existing controller must be transferred to the new controller
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## PRIOR NOTICE

A job must be entered into RAI Action database before this switch on will be allowed.

<input checked="" type="checkbox"/>	SCATS data changes - notify	DARREN VAUGHAN	Ext	1210
	OR		Ext	
before 3:00pm on the day before switch on.				

**SCATS Data Changes - No Data changes, No Checksum required**

## TRAFFIC MANAGEMENT CENTRE

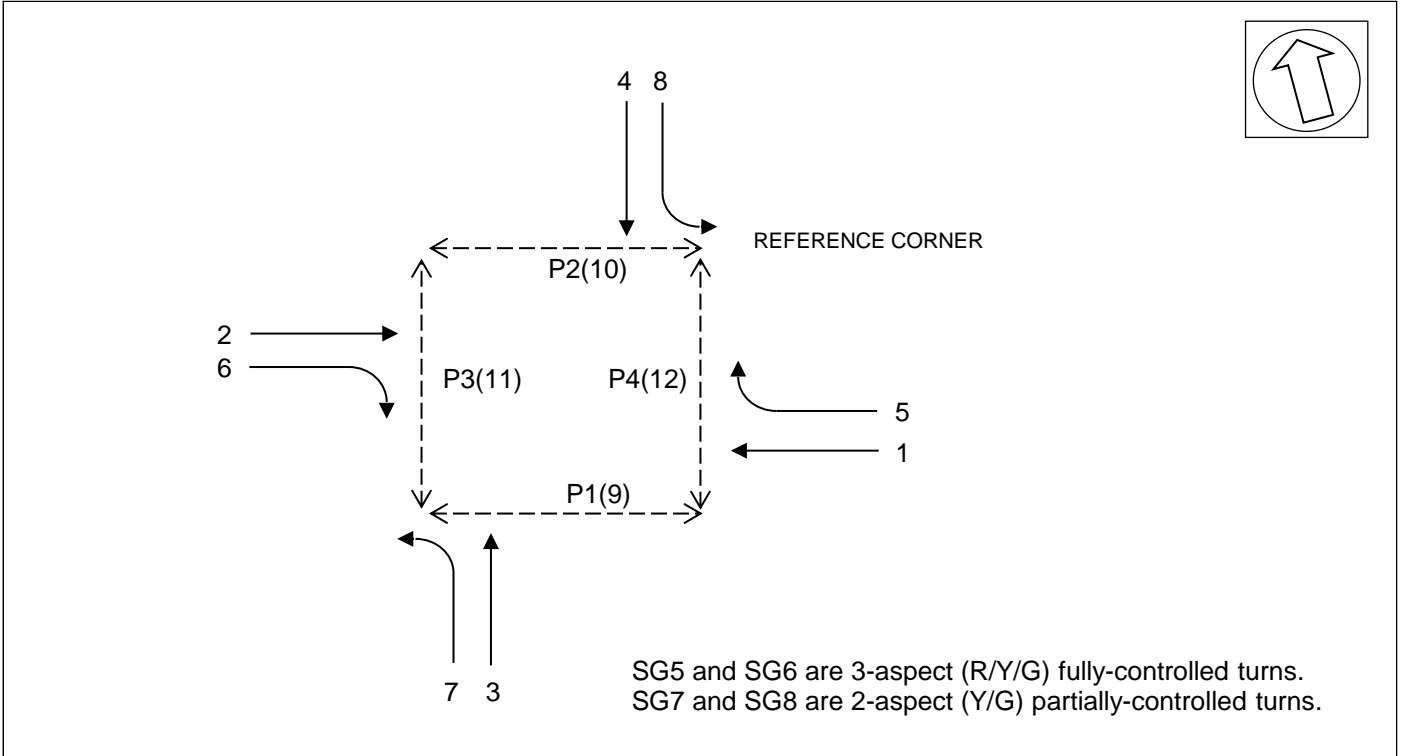
<input checked="" type="checkbox"/>	Please notify DARREN VAUGHAN (x1210) on job completion.
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## DATE OF NEW CONTROLLER SWITCH ON

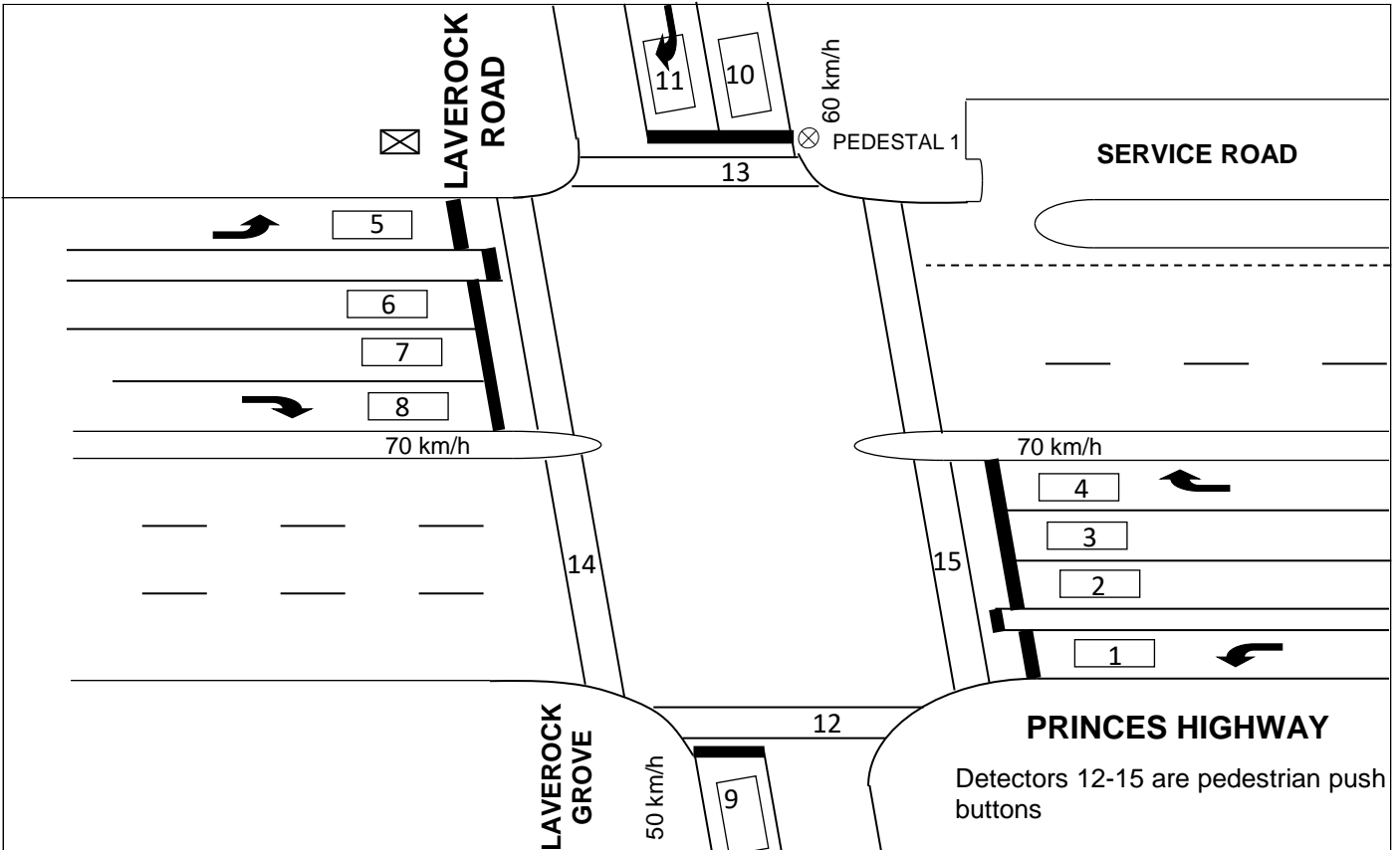
# CONTROLLER OPERATION SPECIFICATION

SITE NAME	<b>PRINCES HWY WEST/LAVEROCK GROVE</b>			SITE NO.	<b>6828</b>
MUNICIPALITY	WARRNAMBOOL	DESIGNED BY	DARREN VAUGHAN	DATE	28/05/20
PLAN NO.	408077	DESIGN CHECKED	<i>[Signature]</i>	DATE	10/06/20
CONTROLLER TYPE	QTC	PROM CHECKED	<i>[Signature]</i>	DATE	10/06/20

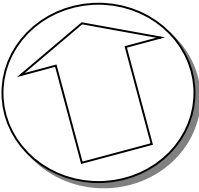
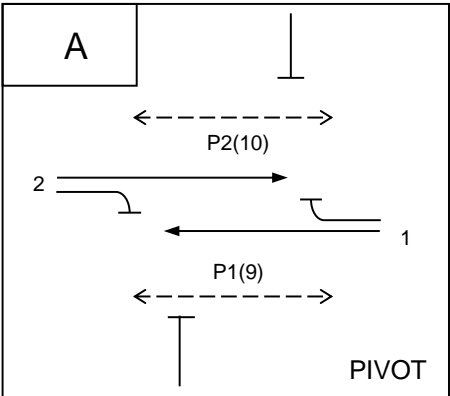
## GROUP ALLOCATION



## DETECTOR MAP

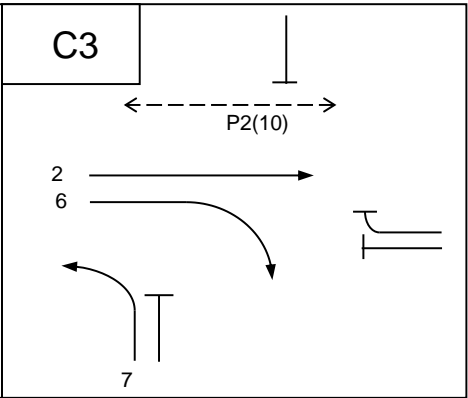
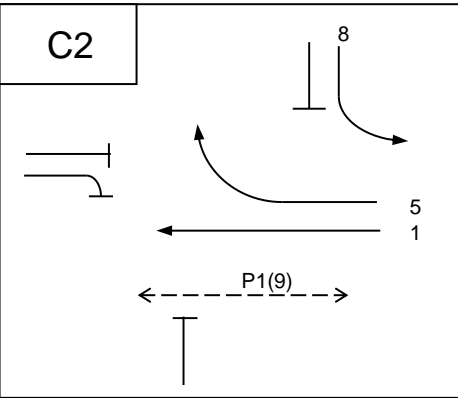
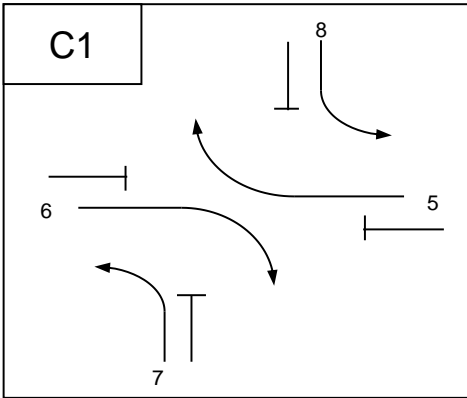
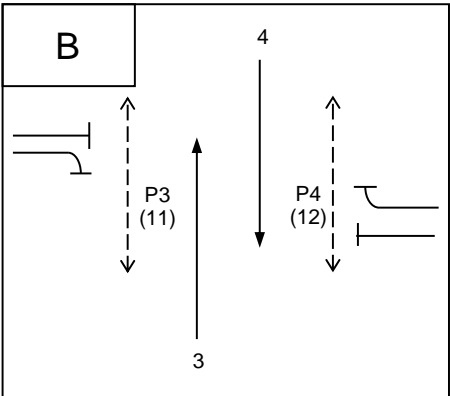


# PHASING DIAGRAM



Refer General Notes

PHASE	PROHIBITED PHASE CHANGES TO	REVERSION ON MAXIMUM	MAXIMUM V.I.G ON REVERSION



V.A. SEQUENCE ABC

DESIGNED BY: DARREN VAUGHAN

DATE 28/05/20

## DETECTOR FUNCTIONS

DETECTOR No.	Internal / External	Input Number	CALL PHASE	LOCKING CALL	NON-LOCKING CALL	SET VIG ON PHASE	EXTEND PHASE	SPECIAL FUNCTION			DETECTOR ALARMS						
								Detector Type	Description	Refer Special Notes	DA Category	Disable	DA on S/C only	Fault Simulation			
														Call & Extend	Call Only	Ignore Alarm	Refer Special Notes
1	I	1	A	✓			A				0			✓			
2	I	2	A	✓			A				0			✓			
3	I	3	A	✓			A				0			✓			
4	I	4	C	✓			C			✓	0			✓			
5	I	5	A	✓			A				0			✓			
6	I	6	A	✓			A				0			✓			
7	I	7	A	✓			A				0			✓			
8	I	8	C	✓			C			✓	0			✓			
9	I	9	B	✓			B				0			✓			
10	I	10	B	✓			B				0			✓			
11	I	11	B	✓			B				0			✓			
12	E	1	A		✓			P1		✓	6		✓				
13	E	2	A		✓			P2		✓	6		✓				
14	E	3	B		✓			P3		✓	6		✓				
15	E	4	B		✓			P4		✓	6		✓				
16																	
17																	
18																	
19																	
20																	
21																	
22																	
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24																	
25																	
26																	
27																	
28																	
29																	
30																	
31																	
32																	

**APPROACH DEFINITIONS****PHASE APPROACHES**

Approach No	EXTENDING DETECTORS	APPROACH TIMER AND TIMESETTING DEFINITION*	SIGNAL GROUP	APPROACH EXPIRY (EXPAP)	Refer Special Notes
1	1, 2, 3	A11	1		
2	5, 6, 7	A22	2		
3	9	B11	3		
4	10	B22	4		
5	11	B33	4		
6	4	C11	5		
7	8	C22	6		
8					
9					
10					
11					
12					
13					
14					
15					
16					

\* There are 8 approach timers and 4 approach timesettings available per phase:

- Where there are 4 or fewer approaches per phase, allocate one timesetting to each timer.

For example: A11, A22, A33, B11, C11.

- Where there are more than 4 approaches per phase, two or more timers must have the same timesetting.

For example: A11, A21, A32, A43, A54, B11.

**SPECIAL APPROACHES**

Approach No	EXTENDING DETECTORS	APPROACH TIMESETTING	SIGNAL GROUP	DESCRIPTION	Refer Special Notes
1					
2					
3					
4					

## GENERAL NOTES

### SUMMARY OF XSF FLAGS

(Communications Operation of XSF flags is required)

- XSF5 - Selects Special Maximum for SG5 and SG8 in CØ (Special Purpose Timesetting no. 9) (All modes).
- XSF6 - Selects Special Maximum for SG6 and SG7 in CØ (Special Purpose Timesetting no. 10) (All modes).
- XSF7 - Inhibit the introduction of SG7 in CØ (All modes).
- XSF8 - Inhibit the introduction of SG8 in CØ (All modes).

### SIGNAL GROUP OPERATION

#### **Signal Group 5**

1. SG5 is controlled by Special Movement Timesetting no. 1 in CØ.  
CØ All Red timesetting is substituted for Special Movement Timesetting no. 1.
2. XSF5 is used to set the maximum extension green time for SG5 in CØ.  
This time is stored in Special Purpose Timesetting no. 9.  
SG5 is forced off after this maximum extension green time.

#### **Signal Group 6**

1. SG6 is controlled by Special Movement Timesetting no. 2 in CØ.  
CØ All Red timesetting is substituted for Special Movement Timesetting no. 2.
2. XSF6 is used to set the maximum extension green time for SG6 in CØ.  
This time is stored in Special Purpose Timesetting no. 10.  
SG6 is forced off after this maximum extension green time.

#### **Signal Group 7**

1. SG7 is controlled by Special Movement Timesetting no. 3 in CØ.  
CØ All Red timesetting is substituted for Special Movement Timesetting no. 3.
2. XSF6 is used to set the maximum extension green time for SG7 in CØ.  
This time is stored in Special Purpose Timesetting no. 10.  
SG7 is forced off after this maximum extension green time.
3. Late start SG7 in CØ when going BØ → C1Ø or BØ → C3Ø.

#### **Signal Group 8**

1. SG8 is controlled by Special Movement Timesetting no. 4 in CØ.  
CØ All Red timesetting is substituted for Special Movement Timesetting no. 4.
2. XSF5 is used to set the maximum extension green time for SG8 in CØ.  
This time is stored in Special Purpose Timesetting no. 9.  
SG8 is forced off after this maximum extension green time.
3. Late start SG8 in CØ when going BØ → C1Ø or BØ → C2Ø.

### PEDESTRIAN GROUP OPERATION

#### **Pedestrian 1**

- P1 calls AØ.
- P1 is hidden in CØ.
- P1 can introduce at anytime in C2Ø and at the start of AØ and can overlap C2Ø → AØ.

**Pedestrian 2**

P2 calls AØ.

P2 is hidden in CØ.

P2 can introduce at anytime in C3Ø and at the start of AØ and can overlap C3Ø → AØ.

**Pedestrian 3**

P3 calls BØ.

P3 can introduce at the start of BØ.

**Pedestrian 4**

P4 calls BØ.

P4 can introduce at the start of BØ.

**DETECTOR OPERATION****General**

Clear vehicle demands during associated phase green and yellow.

**Detector 4**

Clear demands for CØ from detector 4 during SG5 green and yellow.

**Detector 8**

Clear demands for CØ from detector 8 during SG6 green and yellow.

**DESIGN OF INTERGREEN AND PEDESTRIAN TIMES****INTERGREEN TIMES**

PHASE	CLEARANCE DETAILS		LEGAL SPEED	DESIGN SPEED		INTERGREEN		
	GROUP TRANSITION	DISTANCE		YELLOW	RED	YELLOW	RED	TOTAL
A	2 → P4	36.5	70	70	70	4.5	2.0	6.5
B	4 → P1	44.0	50/60	60	50	4.0	3.5	7.5
C	5 → P2	43.0	70	45	45	3.0	3.5	6.5
D	→							
E	→							
F	→							
G	→							

**PHASE SPECIAL ALL REDS AND SPECIAL MOVEMENT ALL REDS**

FROM PHASE	TO PHASE	CLEARANCE DETAILS		DESIGN SPEED	ALL RED	PHASE or S.M. No*
		GROUP TRANSITION	DISTANCE			
		→				
		→				
		→				
		→				
		→				
		→				

\* Specify where the timesetting is stored (the phase special all red or the special movement time setting number)

**PEDESTRIAN TIMES**

ELECTRICAL TIMES									
PED	PHASE(S)	WALK			CLEARANCE				MINIMUM SOLID DON'T WALK
		DISTANCE (m)	TIME		DISTANCE (m)	TIME			
			GRAPH	ADOPTED		GRAPH	CL1	CL2	
P1	A C2	17.0	16	15	14.0	9	9.0		6.5
P2	A C3	22.0	8	8	22.0	15	15.0		6.5
P3	B	26.0	24	16	21.0	14	14.0		7.5
P4	B	21.0	20	15	17.0	11	11.0		7.5



## CONTROLLER TIMESETTINGS - 1

### PHASE TIMESETTINGS

Front Panel Command: Phase No.Timesetting No (e.g. 3.2 accesses C phase late start)

DESCRIPTION	Timesetting No	PHASE						
		A (1)	B (2)	C (3)	D (4)	E (5)	F (6)	G (7)
RED / YELLOW	1	-	-	-	-	-	-	-
LATE START	2			2				
MINIMUM GREEN	3	14	10	5				
INCREMENT	4							
MAXIMUM INITIAL GREEN*	5							
MAXIMUM EXTENSION GREEN	6	30	15	15				
EARLY CUT OFF	7							
YELLOW	8	4.5	4.0	3.0				
ALL RED	9	2.0	3.5	3.5				
SPECIAL ALL RED	10							
GAP 1	11	3.0	2.5	2.5				
GAP 2	12	3.0	2.5	2.5				
GAP 3	13		2.5					
GAP 4	14							
HEADWAY 1	15	0.6	1.2	1.2				
HEADWAY 2	16	0.6	1.2	1.2				
HEADWAY 3	17		1.2					
HEADWAY 4	18							
WASTE 1	19	7	7	7				
WASTE 2	20	7	7	7				
WASTE 3	21		7					
WASTE 4	22							

\* Maximum Initial Green = Minimum Green + V.I.G.

### PEDESTRIAN TIMESETTINGS

Front Panel Command: Pedestrian No.Timesetting No (e.g. 18.2 accesses P2 walk)

DESCRIPTION	Timesetting No	PEDESTRIAN							
		P1 (17)	P2 (18)	P3 (19)	P4 (20)	P5 (21)	P6 (22)	P7 (23)	P8 (24)
DELAY	1	-	-	-	-	-	-	-	-
WALK*	2	15.0	8.0	16.0	15.0				
CLEARANCE 1	3	9.0	15.0	14.0	11.0				
CLEARANCE 2	4								

\* Minimum walk time - used in Isolated and Flexilink operation

For walk times in Masterlink operation, refer to slot data.

## CONTROLLER TIMESETTINGS - 2

### SPECIAL MOVEMENT TIMESETTINGS Front Panel Command: B.Timesetting No (e.g. B.5 accesses Special Movement Timesetting No 5)

Timesetting No	Timesetting (Range: 0-5)	FUNCTION
1	3.5	SG5 ALL RED (SUBSTITUTE CØ ALL RED)
2	3.5	SG6 ALL RED (SUBSTITUTE CØ ALL RED)
3	3.5	SG7 ALL RED (SUBSTITUTE CØ ALL RED)
4	3.5	SG8 ALL RED (SUBSTITUTE CØ ALL RED)
5		
6		
7		
8		

### SPECIAL PURPOSE TIMESETTINGS Front Panel Command: B.Timesetting No (e.g. B.19 accesses Special Movement Timesetting No 19)

Timesetting No	Timesetting (Range: 0-200)	FUNCTION
9	4	SG5 & SG8 MAXIMUM EXTENSION GREEN IN CØ (XSF5)
10	4	SG6 & SG7 MAXIMUM EXTENSION GREEN IN CØ (XSF6)
11		
12		
13		
14		
15		
16		
17		
18	0	LIMIT GREEN WATCHDOG TIMER
19	0	SPECIAL FACILITY CONTROLS ALARM TIMER
20	10	ALL RED START UP INTERVAL
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		

## CONTROLLER TIMESETTINGS - 3

### PRESENCE TIMESETTINGS

Front Panel Command: D.Detector No (e.g. D.7 accesses presence time for detector 7)

DETECTOR No	TIMESETTING (Range: 0-10)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	

NOTE: Set presence time to zero if the detector is not a presence detector

### DAILY EVENT TIMESETTINGS

FUNCTION	TIMESETTING
Daily start time (Hours)	
Daily start time (Minutes)	
Daily finish time (Hours)	
Daily finish time (Minutes)	

## FLEXILINK OPERATION

### PHASE SEQUENCES

No	PHASE SEQUENCE
1 (No Y+)	ABC
2 (Y+)	

#### NOTES:

1. All phases must be specified in the phase sequence
2. Only specify phase sequence 2 if it is different from phase sequence 1.

### LOOK AHEADS & RELEASES

PHASE SEQUENCE 1		
PHASE	LOOK AHEAD*	RELEASE
A	No	R-
B	Yes (to C, A)	R+
C	Yes (to A)	Auto
D		
E		
F		
G		

PHASE SEQUENCE 2		
PHASE	LOOK AHEAD*	RELEASE
A		
B		
C		
D		
E		
F		
G		

\* Specify the phases to which look ahead is permitted, e.g. Yes (to E, F, G, A)

### INHIBIT PHASES

The following phases can be inhibited in flexilink by setting the call pulse one step before the call pulse of the next phase in sequence \_\_\_\_\_

### PULSE STEP LENGTH

☐ One Second
 ☒ Two Second

## MASTERLINK & FLEXILINK SPECIAL FLAGS

FLAG	FUNCTION
Y- Flexi	The site will operate in flexilink mode if the signal is continuously sent (C) or is used as an offset (e.g. 25)
Y- Master	
Y+ Flexi	
Z- Flexi	
Z- Master	
Z+ Flexi	
Z+ Master	
R- Flexi	AØ RELEASE PULSE
R+ Flexi	BØ RELEASE PULSE
Q- Flexi	
Q+ Flexi	

## SCATS INTERSECTION DATA

The data shown on this page is typical data that can be used for testing controller operations.  
This data is not necessarily applicable when the site is switched on in the field.

### TYPICAL SLOT DATA

SLOT <i>n</i>	=	3	,	1	,	4
		(phases)		(split plans)		(walks)
INT	=	6828				
VC	=	5				
CS	=					
COM	=	NET				
PK	=	!				
S#	=					
LM	=					
RMN	=	0				
DCL	=	0				
AT	=	7				
BT	=	8				
CT	=	7				
DT	=					
ET	=					
FT	=					
GT	=					
W1	=	0		W1 T	=	16
W2	=	0		W2 T	=	22
W3	=	16		W3 T	=	22
W4	=	15		W4 T	=	19
W5	=			W5 T	=	
W6	=			W6 T	=	
W7	=			W7 T	=	
W8	=			W8 T	=	
PP1	=	0,0A				
PP2	=	0,0A				
PP3	=	0,0A				
PP4	=	0,0A				

### TYPICAL SPLIT PLAN DATA

PHASE SEQUENCE 1		PHASE SEQUENCE 2		PHASE SEQUENCE 3	
A	= 0PDB	A	=	A	=
B	= 30C	B	=	B	=
C	= 25TGA	C	=	C	=

### TYPICAL VARIATION PARAMETERS

VP1	=		VP22	=		VP43	=	
VP2	=		VP23	=		VP44	=	
VP3	=		VP24	=		VP45	=	
VP4	=		VP25	=		VP46	=	
VP5	=		VP26	=		VP47	=	
VP6	=		VP27	=		VP48	=	
VP7	=		VP28	=		VP49	=	
VP8	=		VP29	=		VP50	=	
VP9	=		VP30	=		VP51	=	
VP10	=		VP31	=		VP52	=	
VP11	=		VP32	=		VP53	=	
VP12	=		VP33	=		VP54	=	
VP13	=		VP34	=		VP55	=	
VP14	=		VP35	=		VP56	=	
VP15	=		VP36	=		VP57	=	
VP16	=		VP37	=		VP58	=	
VP17	=		VP38	=		VP59	=	
VP18	=		VP39	=		VP60	=	
VP19	=		VP40	=		VP61	=	
VP20	=		VP41	=		VP62	=	
VP21	=		VP42	=				

## GROUP CONFLICT TABLE

PED NO	PED NO							m	m	P1	P2	P3	P4													
	GROUP NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
	1			X	X		X	X				X	X													
	2			X	X	X			X			X	X													
	3	X	X			X	X			X	X															
	4	X	X			X	X			X	X															
	5		X	X	X						X		X													
	6	X		X	X					X		X														
m	7	X								X		X														
m	8		X								X		X													
P1	9			X	X		X	X																		
P2	10			X	X	X			X																	
P3	11	X	X				X	X																		
P4	12	X	X			X			X																	
	13																									
	14																									
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CHECKED: Gerald Tamaray    DATE: 17/10/17