

		ACTION	DATE
TO	1. SENIOR ENGINEER, CONTROLLER APPLICATIONS		
	2. JIM TULLBERG, IMPROVEMENT PROJECTS		
FROM	ELIZABETH LEE	DATE	14/08/19
SITE	BALACLAVA ROAD / NEW DOOKIE ROAD / VERNEY ROAD / HAWDON STREET	SITE NO.	6066
REGION	NORTH EASTERN	MUNICIPALITY	GREATER SHEPPARTON

## GENERAL

Works Program Job?	Yes	Project Number	44DFPGSF
Classification	STANDARD	Works Order Number	4A006547
Description	<input checked="" type="checkbox"/> New intersection signals <input type="checkbox"/> New pedestrian operated signals <input type="checkbox"/> Controller swap. Reason for swap		

## CONTROLLER DETAILS

Type	Eclipse	Software Version & Release	V5 R20	Lanterns	LED
Number of Signal Groups	Vehicle	6	Pedestrians	4	Total 10
Number of special outputs / Pedestrian Wait State Outputs					
Controller capacity	12				
Number of detectors	Vehicle	11	Pedestrians	4	Total 15
	Tram		Other		

## CONTROLLER APPLICATIONS

Target Date for Draft Opsheet	ASAP
Target Date for completion of Program	ASAP
Prepare Interlocking	

## PERSONALITY CHECKSUMS

	Hex	Octal
Total	9	11
Times	E2	342
Pers	EB	353
Dispatched	12/09/19	

## IMPROVEMENT PROJECTS - 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 Controller must be connected to SCATS at switch-on

## 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	CHRIS EER	Ext	8711
	OR	ELIZABETH LEE	Ext	8062
before 3:00pm on the day before switch on.				

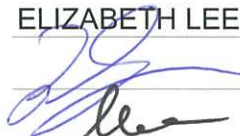

SCATS Data Changes -

## TRAFFIC MANAGEMENT CENTRE

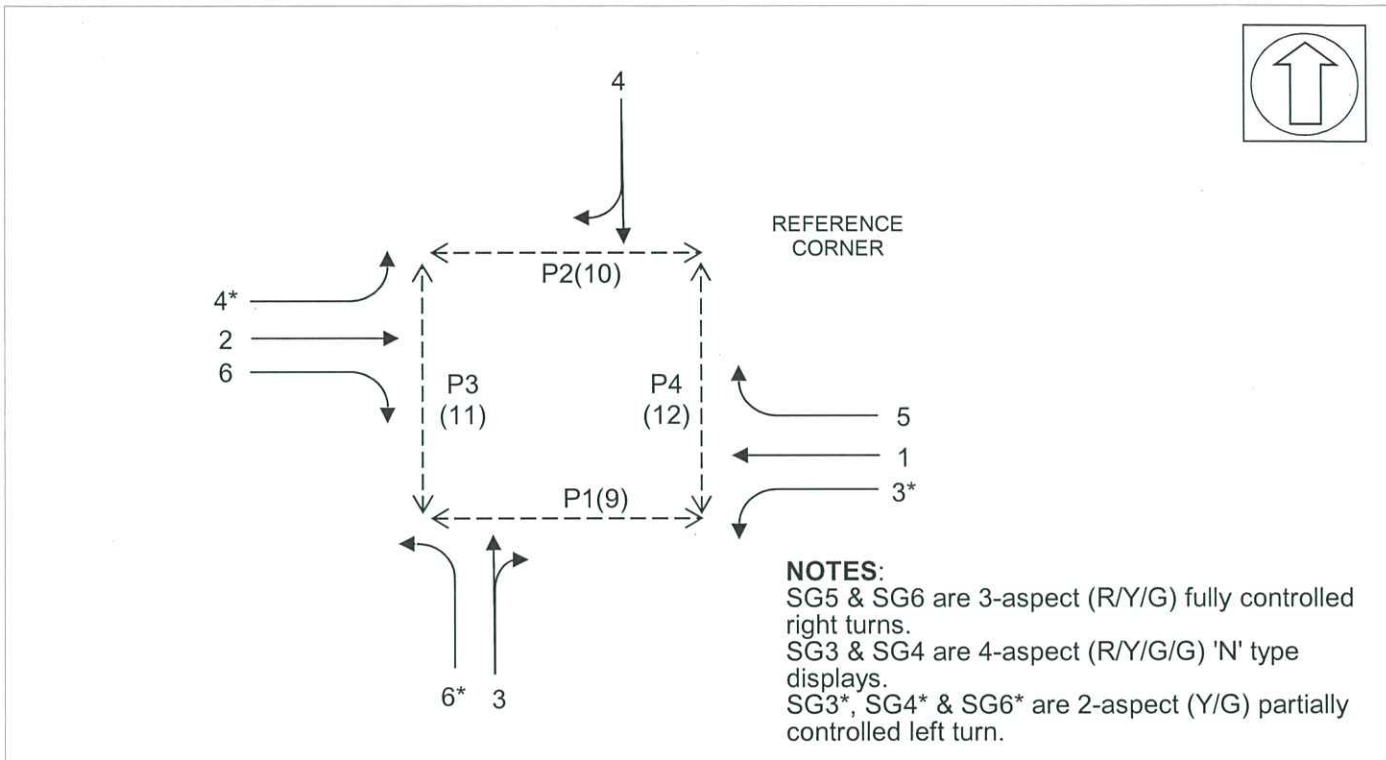
<input checked="" type="checkbox"/>	Please notify CHRIS EER (x8711) on job completion.
-------------------------------------	--

## DATE OF NEW CONTROLLER SWITCH ON

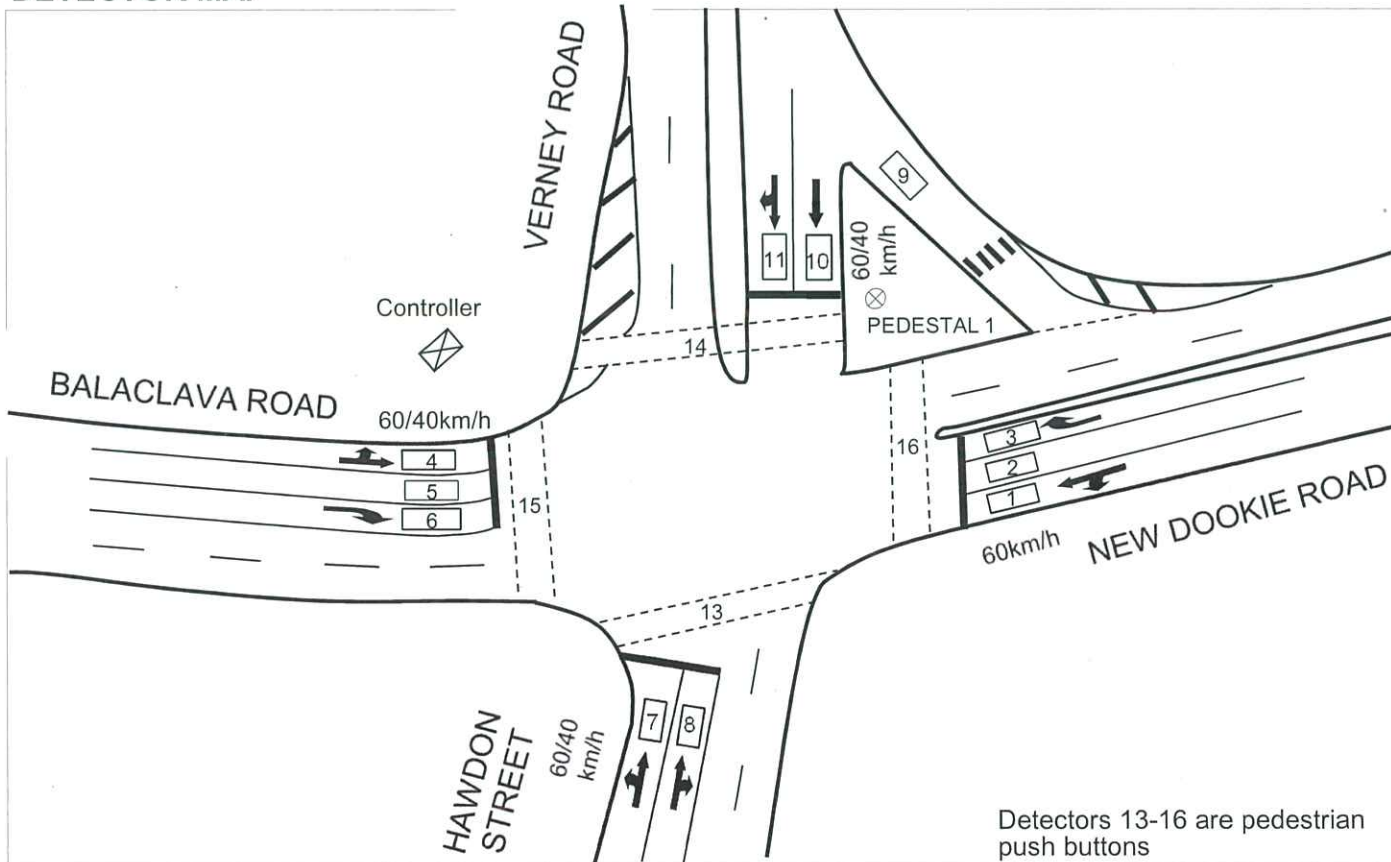
## CONTROLLER OPERATION SPECIFICATION

SITE NAME	BALACLAVA ROAD / NEW DOOKIE ROAD / VERNEY ROAD / HAWDON STREET			SITE NO.	6066
MUNICIPALITY	GREATER SHEPPARTON	DESIGNED BY	ELIZABETH LEE	DATE	14/08/19
PLAN NO.	786552	DESIGN CHECKED		DATE	30/8/19
CONTROLLER TYPE	Eclipse	PROM CHECKED		DATE	12/9/19

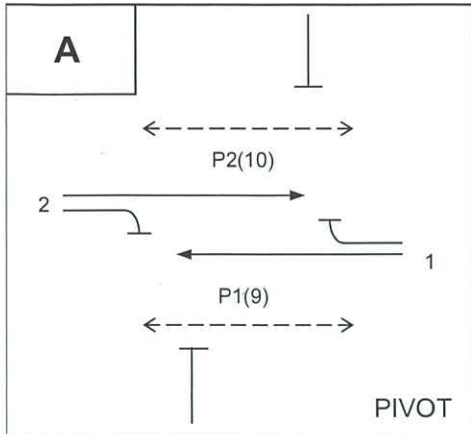
## GROUP ALLOCATION



## DETECTOR MAP

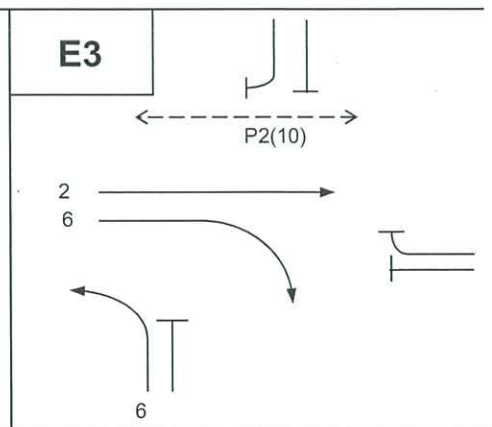
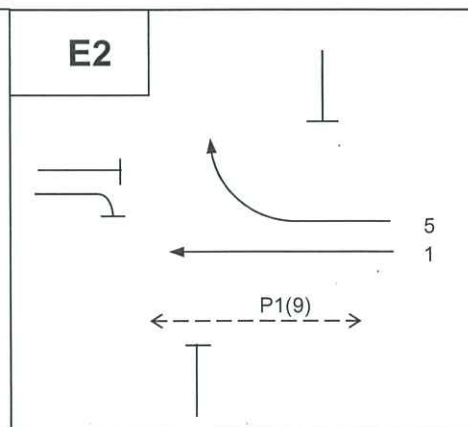
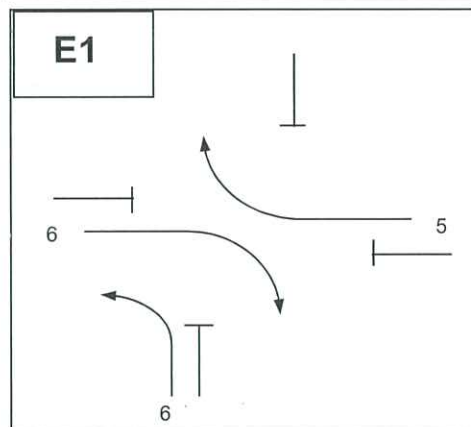
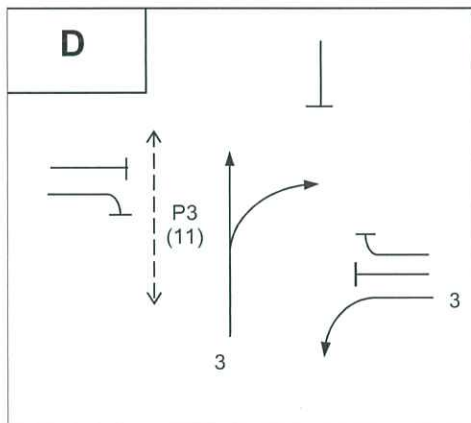
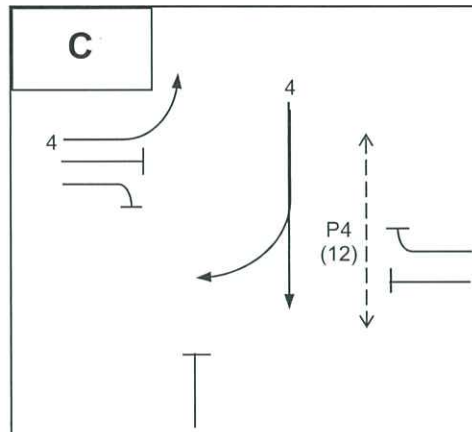
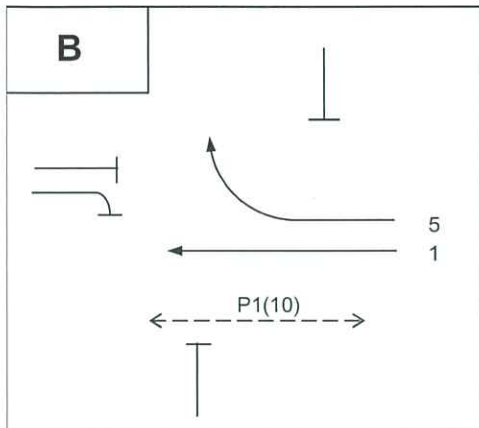


# PHASING DIAGRAM



Refer General Notes

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



V.A. SEQUENCE ACDE

DESIGNED BY: ELIZABETH LEE

DATE 14/08/19

Document ID: 16673830\_6066\_01\_EL

# 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,B				0			✓			
2	I	2	A	✓			A,B				0			✓			
3	I	3	B,E	✓			B,E			✓	0			✓			
4	I	4	A	✓			A				0			✓			
5	I	5	A	✓			A				0			✓			
6	I	6	E	✓			E				0			✓			
7	I	7	D	✓			D				0			✓			
8	I	8	D	✓			D				0			✓			
9	I	9	-				C		Counting Detector		0						✓
10	I	10	C	✓			C				0			✓			
11	I	11	C	✓			C				0			✓			
12									Not used		1						
13	E	1	A		✓			P1		✓	6		✓				
14	E	2	A		✓			P2		✓	6		✓				
15	E	3	D		✓			P3		✓	6		✓				
16	E	4	C		✓			P4		✓	6		✓				
17																	
18																	
19																	
20																	
21																	
22																	
23																	
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	A11, B22	1	AØ↔BØ	
2	4,5	A22	2		
3	3	B11,E11	5		
4	10,11	C11	4		
5	9	C22	4		
6	7,8	D11	3		
7	6	E22	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)

- XSF1** - Allows for late introduction of P1 in AØ (*Masterlink only*).
- XSF2** - Allows for late introduction of P2 in AØ (*Masterlink only*).
- XSF3** - Allows for auto introduction of P1 & P2.
- XSF4** - Allows for auto introduction of P4 at the start of CØ.
- XSF5** - Set special maximum for SG5 in EØ via Special Purpose Timesetting No. 9
- XSF6** - Set special maximum for SG6 in EØ via Special Purpose Timesetting No. 10
- XSF7** - Allows for auto introduction of P3 at the start of DØ.
- XSF9** - Allows detector 9 to extend CØ.

### GENERAL OPERATION

- REVn – first scan after start up demands CØ, DØ & EØ.
- Clear phase demands during associated phase green and yellow times
- If transitioning from BØ → EØ, E3Ø operates
- Use EØ yellow for BØ yellow if transition from BØ → AØ
- If in E2Ø or E3Ø and not going to AØ, then substitute AØ yellow for EØ yellow.
- Use CØ Special All Red if transition from CØ → AØ.

### SIGNAL GROUP OPERATION

#### Signal Group 5

- SG5 uses EØ all red timesetting for its all red time in EØ.
- XSF5 is used to set the maximum time for SG5 in EØ. The maximum time is accessible in Special Purpose Timesetting No.9. When XSF5 is set, SG5 may run for a green period equal to the EØ minimum green plus the time stored in Special Purpose Timesetting No. 9.

#### Signal Group 6

- SG6 uses EØ Special all red timesetting for its all red time in EØ.
- XSF6 is used to set the maximum time for SG6 in EØ. The maximum time is accessible in Special Purpose Timesetting No.10. When XSF6 is set, SG6 may run for a green period equal to the EØ minimum green plus the time stored in Special Purpose Timesetting No. 10.

### PEDESTRIAN GROUP OPERATION

#### Pedestrian 1

- P1 calls AØ.
- P1 can introduce at any time in E2Ø and at the start of AØ and can overlap E2Ø → AØ.
- P1 can introduce at any time in AØ when XSF1 is set (*Masterlink only*).
- P1 can auto introduce at the start of SG1 when XSF3 is set (*all modes*).

#### Pedestrian 2

- P2 calls AØ.
- P2 can introduce at any time in E3Ø and at the start of AØ and can overlap E3Ø → AØ.
- P2 can introduce at any time in AØ when XSF2 is set (*Masterlink only*).
- P2 can auto introduce at the start of SG2 when XSF3 is set (*all modes*).

#### Pedestrian 3

- P3 calls DØ.
- P3 can introduce at the start of DØ.
- P3 can auto introduce at the start of SG3 when XSF7 is set (*all modes*)

**Pedestrian 4**

- P4 calls CØ.
- P4 can introduce at the start of CØ.
- P4 can auto introduce at the start of SG4 when XSF4 is set (*all modes*)

**DETECTOR OPERATION****Detector 9**

- Detector 9 extends CØ when XSF9 is set.
- Do not extend CØ via detector 9 if it is alarm with XSF9 set

## 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	1 → P3	39.5	60	60	60	4.0	2.5	6.5
B	5 → 4	32.0	60	60	45	4.0	2.5	6.5
C	4 → P3	40.0	60	60	45	4.0	3.5	7.5
D	3 → P2	39.0	60	60	45	4.0	3.0	7.0
E	5 → P2	34.0	60	45	45	3.0	3.0	6.0
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			
A	B	2 → 5	27.0	60	1.5	Use AØ All Red
B	A	5 → P2	34.0	60	2.0	Use BØ All Red
C	A	4 → P1	38.0	60	2.5	CØ Special All Red
D	C	3 → P4	39.0	45	3.0	Use DØ All Red
E1	E2	6 → P1	29.0	45	2.5	SM2
E1	E3	5 → P2	34.0	45	3.0	SM1

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

## PEDESTRIAN TIMES

PEDESTRIAN TIMES									
PED	PHASE(S)	WALK			CLEARANCE				MINIMUM SOLID DON'T WALK
		DISTANCE (m)	TIME		DISTANCE (m)	TIME			
			GRAPH	ADOPTED		GRAPH	CL1	CL2	
1	A	19.0	8	20	19.0	13	11.0	2.0	4.5
2	A	24.0	8	22	24.0	16	13.0	2.0	4.5
3	D	20.0	8	20	20.0	13	13.0		7.0
4	C	19.5	8	18	19.5	13	13.0		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							
MINIMUM GREEN	3	10	6	8	6	6		
INCREMENT	4							
MAXIMUM INITIAL GREEN*	5							
MAXIMUM EXTENSION GREEN	6	20	10	10	5	8		
EARLY CUT OFF	7							
YELLOW	8	4.0	4.0	4.0	4.0	3.0		
ALL RED	9	2.5	2.5	3.5	3.0	3.0		
SPECIAL ALL RED	10			2.5		2.5		
GAP 1	11	2.5	2.5	2.5	2.5	2.5		
GAP 2	12	2.5	2.5	2.5		2.5		
GAP 3	13							
GAP 4	14							
HEADWAY 1	15	0.6	1.2	0.6	0.6	1.2		
HEADWAY 2	16	0.6	0.6	1.2		1.2		
HEADWAY 3	17							
HEADWAY 4	18							
WASTE 1	19	7	7	7	7	7		
WASTE 2	20	7	7	7		7		
WASTE 3	21							
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	20.0	22.0	20.0	18.0				
CLEARANCE 1	3	11.0	13.0	13.0	13.0				
CLEARANCE 2	4	2.0	2.0						

\* 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	3.0	SG5 ALL RED (SUBSTITUTE EØ ALL RED)
2	2.5	SG6 ALL RED (SUBSTITUTE EØ ALL SPECIAL RED)
3		
4		
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	3	SG5 MAXIMUM EXTENSION GREEN IN EØ (XSF5)
10	3	SG6 MAXIMUM EXTENSION GREEN IN EØ (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+)	ABCDE
2 (Y+)	ABDCE

## 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 &amp; RELEASES

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

PHASE SEQUENCE 2		
PHASE	LOOK AHEAD*	RELEASE
A	No	R-
B	No	Auto
C	Yes (to E,A)	Q-
D	Yes (to C,E,A)	R+
E	Yes (to A)	Auto
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

BØ

## PULSE STEP LENGTH

☐ One Second ☒ Two Second

## MASTERLINK &amp; 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	DØ RELEASE PULSE
Q- Flexi	CØ RELEASE PULSE
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

PHYSICAL SLOT DATA

SLOT $n$	=	5	,	4	,	4
		(phases)	(split plans)		(walks)	
INT	=	6066				
VC	=	5				
CS	=					
COM	=	NET				
PK	=	!				
S#	=					
LM	=					
RMN	=	0				
DCL	=	0				
AT	=	7				
BT	=	7				
CT	=	8				
DT	=	7				
ET	=	6				
FT	=					
GT	=					
W1	=	0AB*	W1 T	=	18	
W2	=	0A*	W2 T	=	20	
W3	=	15	W3 T	=	20	
W4	=	15	W4 T	=	21	
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	= 0PDFGB	A	=	A	=
B	= 1C	B	=	B	=
C	= 10D	C	=	C	=
D	= 20E	D	=	D	=
E	= 15TGA	E	=	E	=

## 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		P1 P2 P3 P4																							
PED NO	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												
	2			X	X	X						X	X												
	3	X	X		X	X	X			X	X		X												
	4	X	X	X		X	X			X	X	X													
	5		X	X	X						X		X												
	6	X		X	X					X		X													
	7																								
	8																								
P1	9			X	X		X																		
P2	10			X	X	X																			
P3	11	X	X		X		X																		
P4	12	X	X	X		X																			
	13																								
	14																								
	15																								
	16																								
	17																								
	18																								
	19																								
	20																								
	21																								
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	23																								
	24																								

CHECKED: Jamie Zhu DATE: 30/08/19

I = 6066 (12/09/2019)

```

PAGE
*** MAPPING TABLES
*** Input translation map
IMAP EQU *
SECT1 EQU *
      FDB INT1+1      ( APP A 1 )
      FDB INT2+2      ( APP A 2 )
      FDB INT3+3      ( APP BE 3 )
      FDB INT4+4      ( APP A 4 )
      FDB INT5+5      ( APP A 5 )
      FDB INT6+6      ( APP BE 6 )
      FDB INT7+7      ( APP D 7 )
      FDB INT8+8      ( APP D 8 )
      FDB INT9+9      ( COUNT )
      FDB INT10+10    ( APP C 10 )
      FDB INT11+11    ( APP C 11 )
      FDB NOMAP
      FDB EXT1+P1     ( P1 P.B. )
      FDB EXT2+P2     ( P2 P.B. )
      FDB EXT3+P3     ( P3 P.B. )
      FDB EXT4+P4     ( P4 P.B. )
      FDB END

SECT2 EQU *
      FDB END
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