

		ACTION	DATE
TO	1. SENIOR ENGINEER, CONTROLLER APPLICATIONS 2. CRAIG LEITH, NORTH EASTERN REGIONAL SURFACE TRANSPORT		
FROM	BRENDAN SAMG	DATE	28/01/21
SITE	MELROSE DRIVE / VISY ACCESS / UNCLE BENS ACCESS	SITE NO.	6146
REGION	NORTH EASTERN	MUNICIPALITY	WODONGA

GENERAL

Works Program Job?	Yes	Project Number	44HSMAN
Classification	STANDARD	Works Order Number	4A007396

EXISTING CONTROLLER DETAILS

Type	ATSC 4	Software Version & Release	V5R20	Lanterns	LED
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CONTROLLER APPLICATIONS

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

Prepare Interlocking

PERSONALITY CHECKSUMS

	Hex	Octal
Total	4C	114
Times	F1	361
Pers	BD	275

Dispatched 31/03/21

Update Graphics, Site Notes No ☐ Site ID Revision updated to

Description of changes Updating existing operation so det 3 & det 6 do not alarm for low traffic usage.
Changes as per highlight.

NORTH EASTERN REGIONAL SURFACE TRANSPORT - SIGNAL INSTALLATION

<input type="checkbox"/> Changes to signal hardware	<input type="checkbox"/> Changes to interlocking
<input type="checkbox"/> Additional detectors	<input type="checkbox"/> Changes to existing detector numbering
<input type="checkbox"/> Upgrade controller software to	
<input type="checkbox"/> Other changes	
<input checked="" type="checkbox"/> Place new operation specification in controller	

PRIOR NOTICE

A job must be entered into RAI Action database before this PROM change will be allowed.

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

SCATS Data Changes -

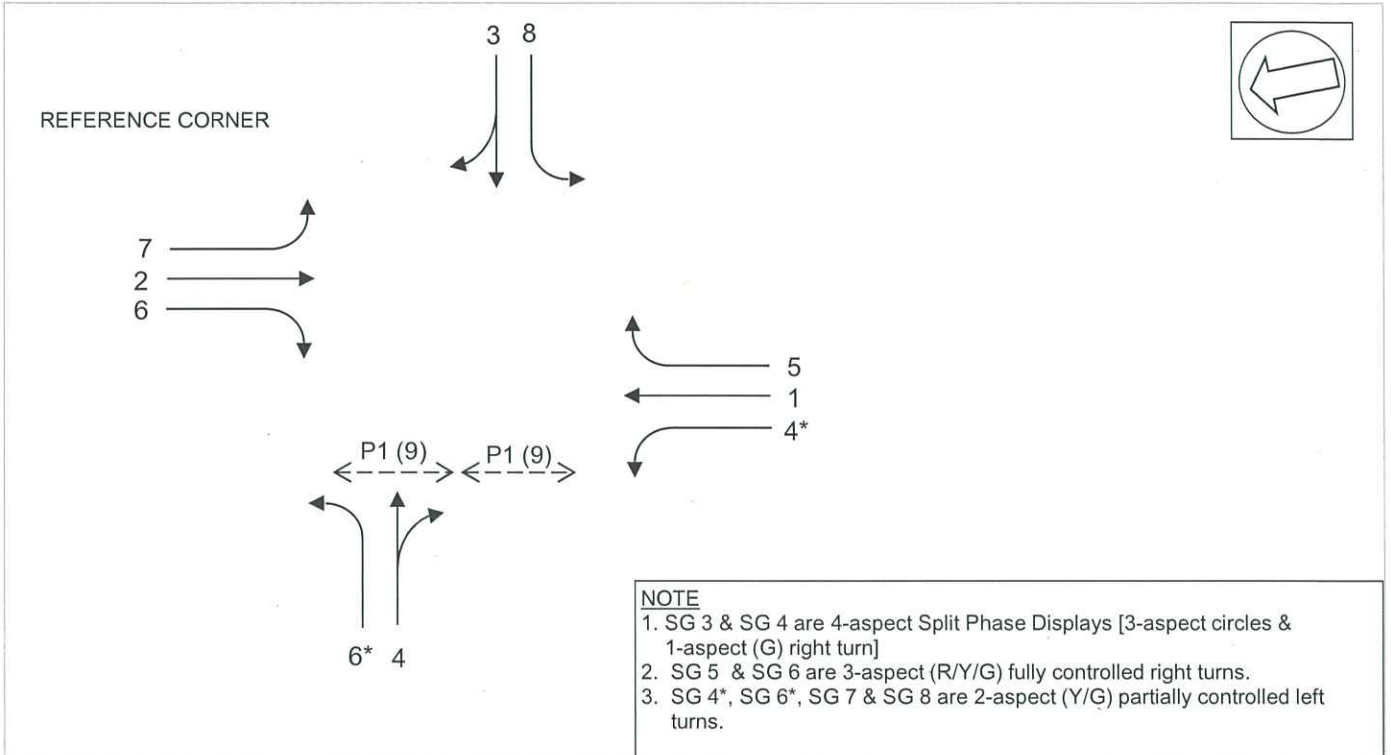
TRAFFIC MANAGEMENT CENTRE

<input checked="" type="checkbox"/> Checksum update only
<input type="checkbox"/> Changes to trim or manual intervention features required
<input checked="" type="checkbox"/> Please notify BRENDAN SAMG (x8999) on job completion.

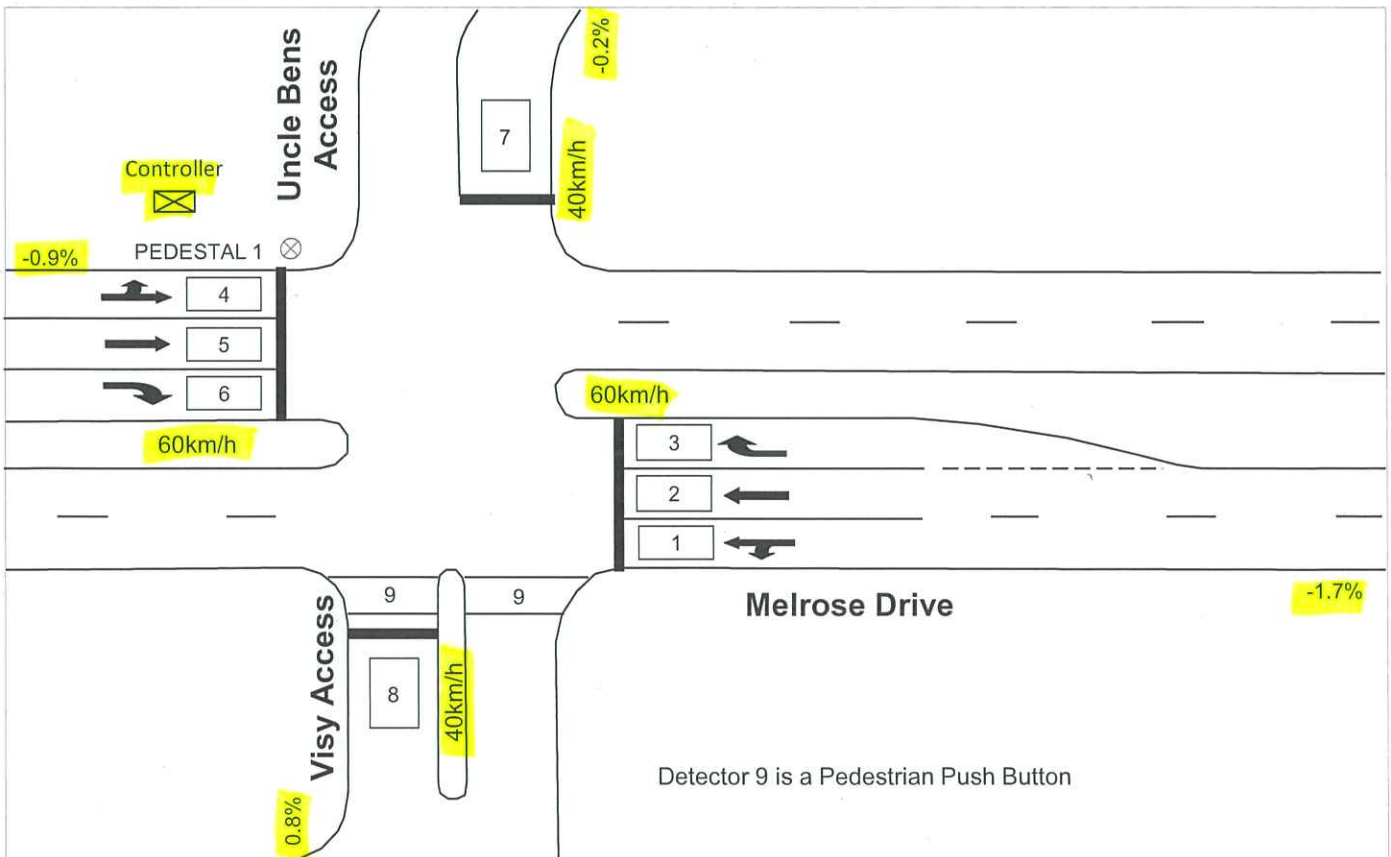
DATE PROM INSTALLED

SITE NAME	MELROSE DRIVE / VISY ACCESS / UNCLE BENS ACCESS			SITE NO.	6146
MUNICIPALITY	WODONGA	DESIGNED BY	BRENDAN SAMG	DATE	28/01/21
PLAN NO.	31-18288-C001 A2	DESIGN CHECKED	<i>Chris Ger</i>	DATE	25/2/2021
CONTROLLER TYPE	ATSC 4	PROM CHECKED	<i>Brendan</i>	DATE	26/03/2021

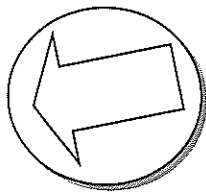
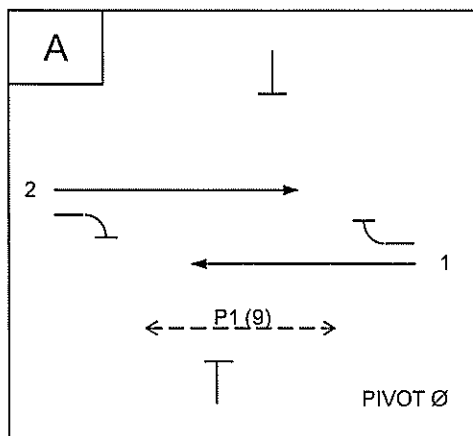
GROUP ALLOCATION



DETECTOR MAP

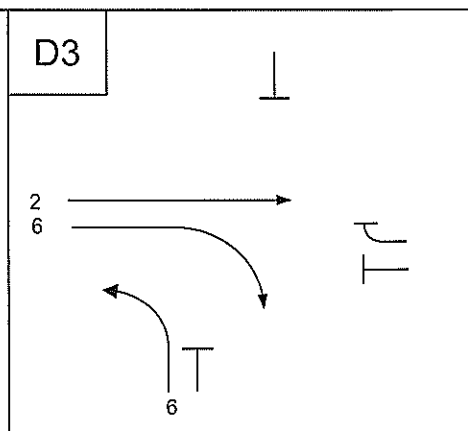
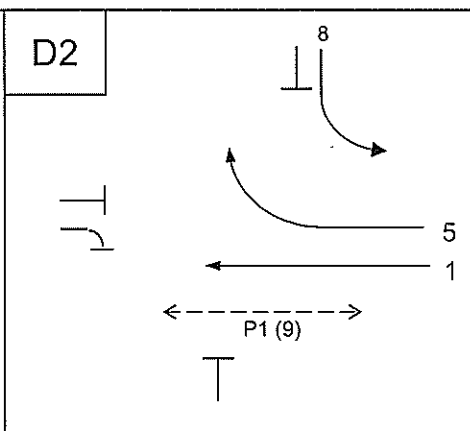
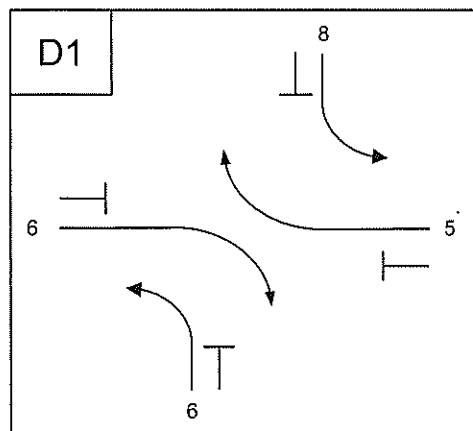
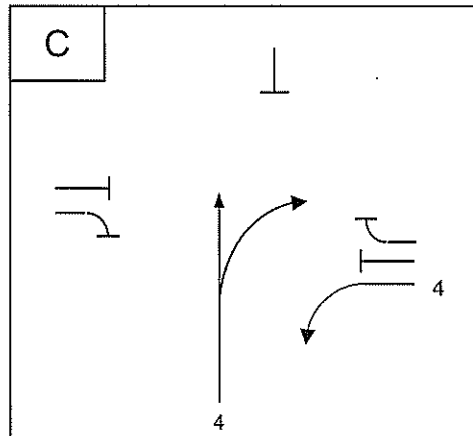
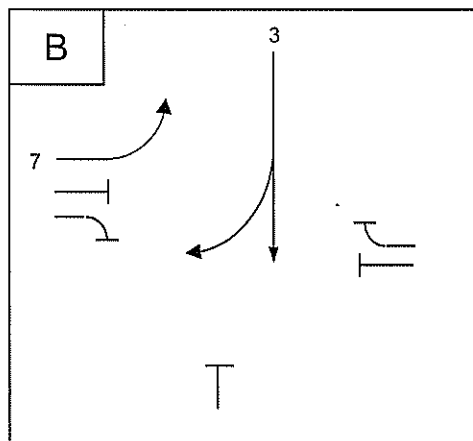


PHASING DIAGRAM



Refer General Notes

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



V.A. SEQUENCE ABCD

DESIGNED BY: BRENDAN SAMG

DATE 28/01/21

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	D	✓			D				4		✓	✓			
4	I	4	A	✓			A				0			✓			
5	I	5	A	✓			A				0			✓			
6	I	6	D	✓			D				4		✓	✓			
7	I	7	B	✓			B				4			✓			
8	I	8	C	✓			C				4			✓			
9	E	1	A		✓			P1		✓	6		✓				
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	
18																	
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28																	
29																	
30																	
31																	
32																	

DESIGNED BY: BRENDAN SAMG

DATE 28/01/21

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	1		
2	4, 5	A22	2		
3	7	B11	3		
4	8	C11	4		
5	3	D11	5		
6	6	D22	6		
7					
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** — For late introduction of P1 (*Masterlink only*).
- XSF2** — For auto introduction of P1 at the start of SG1.
- XSF3** — Inhibit P1 to introduce anytime in DØ & at the start of AØ.
- XSF5** — Selects special maximum SG5 & SG8 in DØ via Special Purpose Timesetting No. 9.
- XSF6** — Selects special maximum SG6 in DØ via Special Purpose Timesetting No. 10.

GENERAL OPERATION

- REVn – First scan after start-up demands BØ, CØ and D1Ø.
- Clear vehicle demands during associated phase green and yellow times.
- Use AØ yellow for DØ yellow when transitioning from D2Ø or D3Ø to phases other than AØ.

SIGNAL GROUP OPERATION

Signal Group 5

- SG5 is controlled by a Special Movement Timer No. 1 within DØ. DØ Special All Red Timesetting is substituted for Special Movement Timesetting No. 1.
- The XSF5 flag is used to set special maximum time for SG5 & SG8 in DØ. This time is accessible in Special Purpose Timesetting No. 9. When XSF5 is set, SG5 & SG8 will be forced off after a period equal to the DØ minimum green plus this special maximum.

Signal Group 6

- SG6 is controlled by a Special Movement Timer No. 2 within DØ. DØ All Red Timesetting is substituted for Special Movement Timesetting No. 2.
- The XSF6 flag is used to set special maximum time for SG6 in DØ. This time is accessible in Special Purpose Timesetting No. 10. When XSF6 is set, SG6 will be forced off after a period equal to the DØ minimum green plus this special maximum.

Signal Group 8

- SG8 is controlled by a Special Movement Timer No. 3 within DØ. DØ Special All Red Timesetting is substituted for Special Movement Timesetting No. 3.

PEDESTRIAN GROUP OPERATION

Pedestrian 1

- P1 calls AØ.
- If XSF3 is not set:
 - P1 can introduce anytime in D2Ø & at the start of AØ and can overlap from D2Ø → AØ.
 - P1 can introduce anytime in AØ when controller is resting in AØ.
 - P1 can introduce any time in AØ while XSF1 is set (*Masterlink only*).
- If XSF3 is set:
 - P1 can only introduce at the start of SG1 and can overlap from D2Ø → AØ.
 - P1 calls away to BØ when controller is resting in AØ.
- P1 auto introduces at the start of SG1 when XSF2 is set (*all modes*).

DESIGN OF INTERGREEN AND PEDESTRIAN TIMES

INTERGREEN TIMES

PHASE	CLEARANCE DETAILS			LEGAL SPEED	DESIGN SPEED		INTERGREEN		
	GROUP TRANSITION	DISTANCE	GRADE (%)*		YELLOW	RED	YELLOW	RED	TOTAL
A	2 → 3, 8	22.0	-1.7	60	60	60	4.0	1.5	5.5
B	3 → P1	31.0	-0.2	40	40	40	3.0	3.0	6.0
C	4 → 2, 8	30.0	0.8	40	40	40	3.0	3.0	6.0
D	6 → P1	27.0	-1.7	60	45	45	3.0	2.5	5.5
E	→								
F	→								
G	→								

*Positive grade indicates an uphill approach & negative grade indicates a downhill approach. Specify negative grade values with a "-" prefix

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			
D1	D3	5 → 2	20	45	2.0	SM1
D1	D2	6 → P1	27	45	2.5	SM2
		→				
		→				
		→				
		→				

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

PEDESTRIAN TIMES

PED		WALK			CLEARANCE				MINIMUM SOLID DON'T WALK
PED	PHASE(S)	DISTANCE (m)	TIME		DISTANCE (m)	TIME			
			GRAPH	ADOPTED		GRAPH	CL1	CL2	
P1	A	16.5	8	8	16.5	11	11.0	0.0	5.5

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	8	8	6			
INCREMENT	4	-	-	-	-			
MAXIMUM INITIAL GREEN*	5	-	-	-	-			
MAXIMUM EXTENSION GREEN	6	30	10	10	30			
EARLY CUT OFF	7							
YELLOW	8	4.0	3.0	3.0	3.0			
ALL RED	9	1.5	3.0	3.0	2.5			
SPECIAL ALL RED	10	-	-	-	2.0			
GAP 1	11	2.5	2.5	2.5	2.5			
GAP 2	12	2.5	-	-	4.0			
GAP 3	13	-	-	-	-			
GAP 4	14	-	-	-	-			
HEADWAY 1	15	0.6	1.2	1.2	1.2			
HEADWAY 2	16	0.6	-	-	1.2			
HEADWAY 3	17	-	-	-	-			
HEADWAY 4	18	-	-	-	-			
WASTE 1	19	7	7	7	7			
WASTE 2	20	7	-	-	14			
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	8.0							
CLEARANCE 1	3	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	2.0	SG5 ALL RED (SUBSTITUTE DØ SPECIAL ALL RED)
2	2.5	SG6 ALL RED (SUBSTITUTE DØ ALL RED)
3	2.0	SG8 ALL RED (SUBSTITUTE DØ SPECIAL ALL RED)
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	4	SGS 5 & 8 Special Maximum extension green in DØ when XSF5 is set
10	4	SG6 Special Maximum extension green in DØ when XSF6 is set
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		
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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	
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13	
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19	
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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+)	ABCD
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, D, A)	R+
C	Yes (To D, A)	Q-
D	Yes (To A)	Auto
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 None

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	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

SLOT <i>n</i> =		4	,	1	,	1
		(phases)		(split plans)		(walks)
INT	=	6146				
VC	=	5				
CS	=					
COM	=	NET				
PK	=	!				
S#	=					
LM	=					
RMN	=	0				
DCL	=	0				
AT	=	6				
BT	=	6				
CT	=	6				
DT	=	6				
ET	=					
FT	=					
GT	=					
W1	=	2A	W1 T	=	17	
W2	=		W2 T	=		
W3	=		W3 T	=		
W4	=		W4 T	=		
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	= 20C	B	=	B	=
C	= 20D	C	=	C	=
D	= 20TGA	D	=	D	=

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	=				

SITE NAME **MELROSE DRIVE / VISY ACCESS / UNCLE BENS ACCESS**

SITE NO.

6146

GROUP CONFLICT TABLE

PED NO	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																		
	2			X	X	X			X																
	3	X	X		X	X	X			X															
	4	X	X	X		X	X	X	X	X															
	5		X	X	X			X																	
	6	X		X	X					X															
	7				X	X																			
	8		X		X																				
P1	9			X	X		X																		
	10																								
	11																								
	12																								
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	23																								
	24																								

NOTE: NO CHANGE TO CONFLICT TABLE (28/01/21 - BS)

CHECKED: *Francis J. Woollard* DATE: 3/09/09

DESIGNED BY: BRENDAN SAMG

DATE 28/01/21

I = 6146 (31/03/2021)

```

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 D 3 )
      FDB  INT4+4          ( APP A 4 )
      FDB  INT5+5          ( APP A 5 )
      FDB  INT6+6          ( APP D 6 )
      FDB  INT7+7          ( APP B )
      FDB  INT8+8          ( APP C )
      FDB  EXT1+P1         ( P1 P.B. )
      FDB  END

SECT2 EQU  *
      FDB  END
```