

TO	1. SENIOR ENGINEER, CONTROLLER APPLICATIONS 2. STEVE BELZ, PROGRAM DELIVERY	ACTION	DATE
FROM	NATHAN CORCORAN	DATE	30/06/20
SITE	MYRTLE STREET / HARGREAVES STREET	SITE NO.	6289
REGION	NORTHERN	MUNICIPALITY	GREATER BENDIGO

GENERAL

Works Program Job?	No	Project Number	45721AJ1
Classification	MINOR	Works Order Number	4A006929

EXISTING CONTROLLER DETAILS

Type	PSC 2002	Software Version & Release	V5 R82	Lanterns	QH
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CONTROLLER APPLICATIONS

Target Date for Draft Opsheet	30/06/2020
Target Date for completion of Program	14/07/2020

Prepare Interlocking	
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PERSONALITY CHECKSUMS

	Hex	Octal
Total	E8	350
Times	5F	137
Pers	B7	267

Dispatched 24/07/20

Update Graphics, Site Notes	No	<input checked="" type="checkbox"/> Site ID Revision updated to	C
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Description of changes	LED Upgrade, timesetting changes, changes to P1 & P2
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PROGRAM DELIVERY - SIGNAL INSTALLATION

<input checked="" 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 checked="" type="checkbox"/> SCATS data changes - notify	NATHAN CORCORAN	Ext	1210
	OR	DARREN VAUGHAN	Ext 1210

before 3:00pm on the day before switch on.

SCATS Data Changes - Slot data

TRAFFIC MANAGEMENT CENTRE

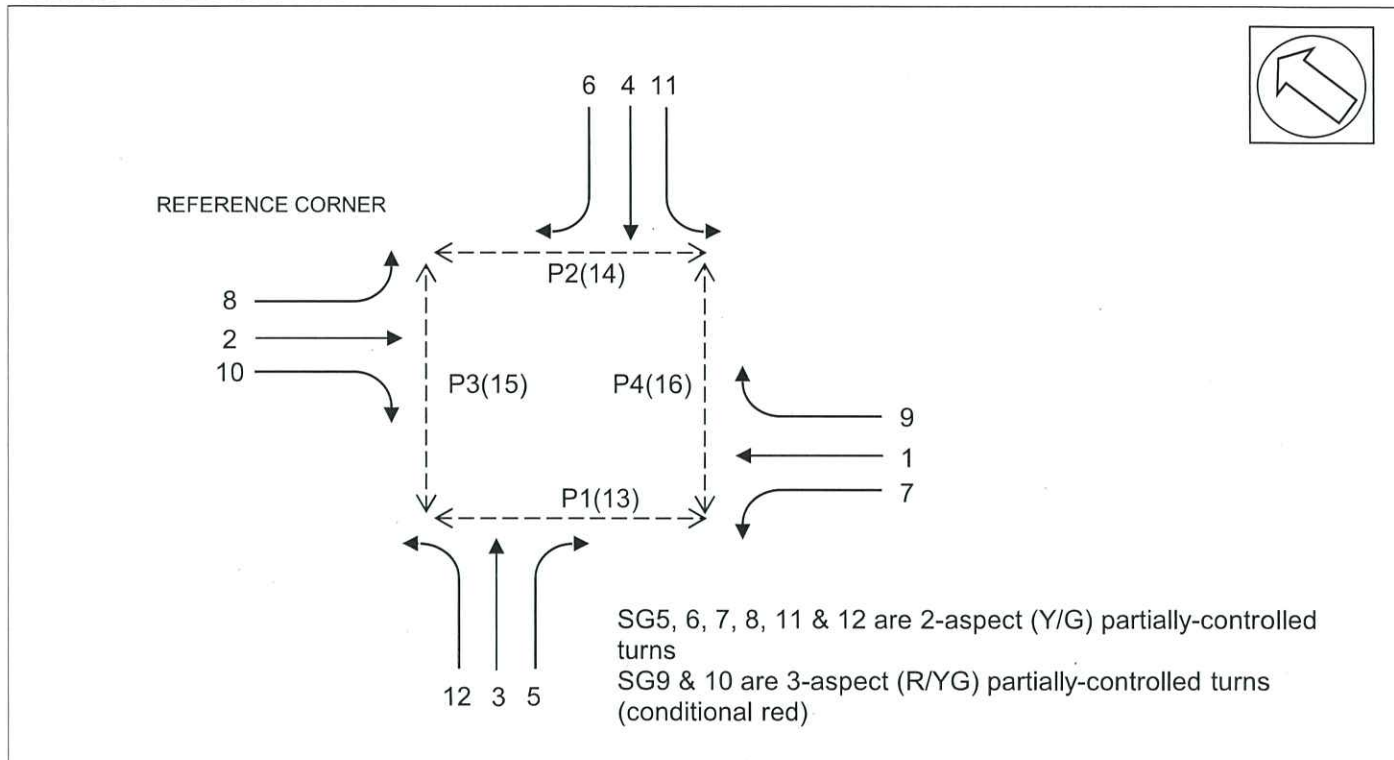
<input type="checkbox"/> Checksum update only
<input type="checkbox"/> Changes to trim or manual intervention features required
<input checked="" type="checkbox"/> Please notify NATHAN CORCORAN (x1210) on job completion.

DATE PROM INSTALLED

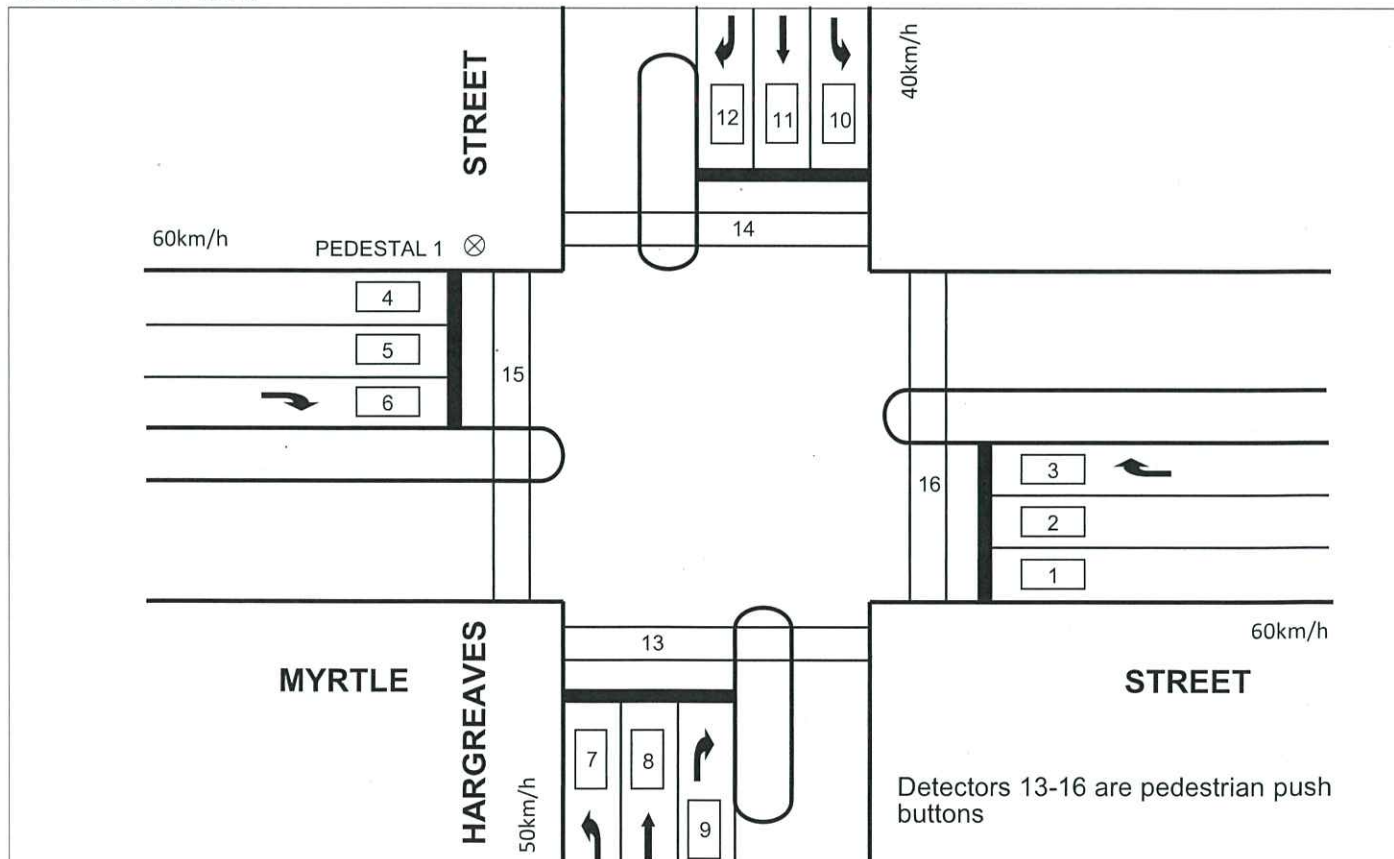
CONTROLLER OPERATION SPECIFICATION

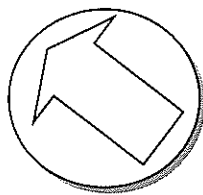
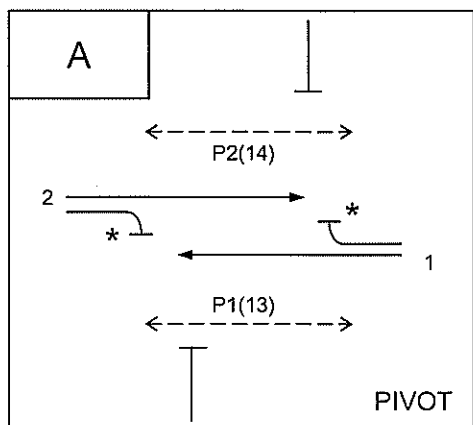
SITE NAME	MYRTLE STREET / HARGREAVES STREET			SITE NO.	6289
MUNICIPALITY	GREATER BENDIGO	DESIGNED BY	NATHAN CORCORAN	DATE	30/06/20
PLAN NO.	781511	DESIGN CHECKED		DATE	15/7/20
CONTROLLER TYPE	PSC 2002	PROM CHECKED		DATE	24/7/20

GROUP ALLOCATION



DETECTOR MAP

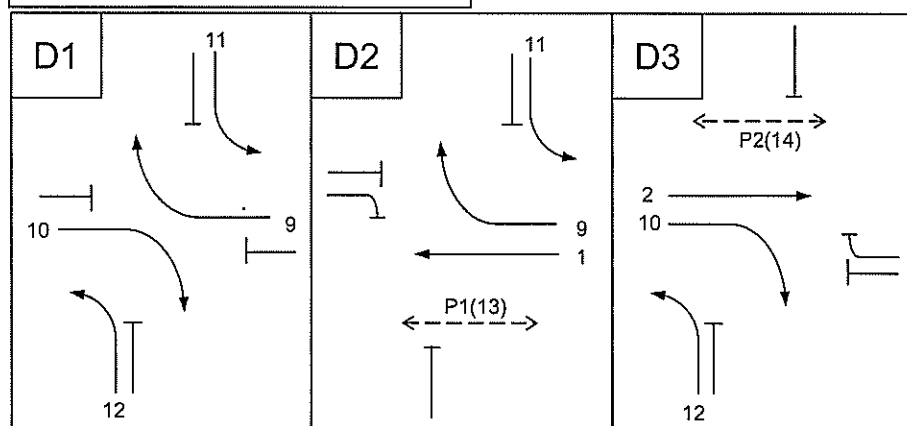
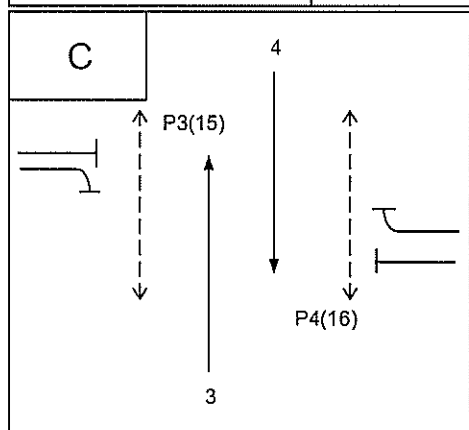
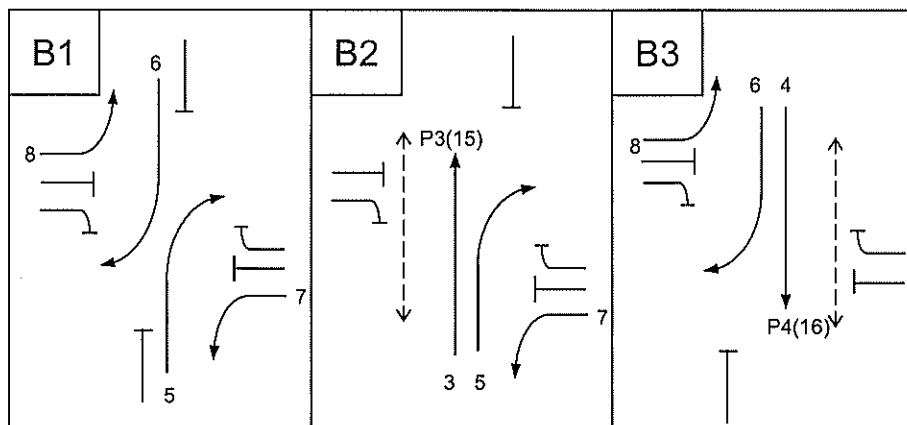


PHASING DIAGRAM

Refer General Notes

PHASE	PROHIBITED PHASE CHANGES TO	REVERSION ON MAXIMUM	MAXIMUM V.I.G ON REVERSION
A	D		
C	B		

* Red arrow drops in A phase (refer General Notes)

V.A. SEQUENCE ABCD

DESIGNED BY: NATHAN CORCORAN

DATE 30/06/20

SITE NAME

MYRTLE STREET / HARGREAVES STREET

SITE NO.

6289

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	AD	A	D		AD			✓	0			✓			
4	I	4	A	✓			A				0			✓			
5	I	5	A	✓			A				0			✓			
6	I	6	AD	A	D		AD			✓	0			✓			
7	I	7	C	✓			CD				0			✓			
8	I	8	C	✓			C				0			✓			
9	I	9	BC	C	B		BC			✓	0			✓			
10	I	10	C	✓			CD				0			✓			
11	I	11	C	✓			C				0			✓			
12	I	12	BC	C	B		BC			✓	0			✓			
13	E	1	A		✓			P1		✓	6		✓				
14	E	2	A		✓			P2		✓	6		✓				
15	E	3	C		✓			P3		✓	6		✓				
16	E	4	C		✓			P4		✓	6		✓				
17																	
18																	
19																	
20																	
21																	
22																	
23																	
24																	
25																	
26																	
27																	
28																	
29																	
30																	
31																	
32																	

DESIGNED BY: NATHAN CORCORAN

DATE 30/06/20

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	3	A33, D11	1, 9		
4	6	A44, D22	2, 10		
5	7	C11, D33	3, 12	CØ→D1Ø or D3Ø	
6	8	C22	3		
7	9	B11, C33	3, 5		
8	10	C44, D44	4, 11	CØ→D1Ø or D2Ø	
9	11	C52	4		
10	12	B22, C63	4, 6		
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 - Select Special Maximum for SG5 and SG7 in BØ (Special Purpose Timesetting No. 9)
- XSF6 - Select Special Maximum for SG6 and SG8 in BØ (Special Purpose Timesetting No. 10)
- XSF9 - Select Special Maximum for SG9 and SG11 in DØ (Special Purpose Timesetting No. 11)
- XSF10 - Select Special Maximum for SG10 and SG12 in DØ (Special Purpose Timesetting No. 12)

GENERAL OPERATION

1. If in AØ clear demands for DØ.
2. If in CØ clear demands for BØ.

SIGNAL GROUP OPERATION

Signal Group 5

1. SG5 is controlled by Special Movement Timesetting No. 1 in BØ.
BØ 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 BØ.
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 BØ.
BØ 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 BØ.
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 BØ.
BØ All Red timesetting is substituted for Special Movement Timesetting No.3.
2. XSF5 is used to set the maximum extension green time for SG7 in BØ.
This time is stored in Special Purpose Timesetting No. 9.
SG7 is forced off after this maximum extension green time.
3. Late start SG7 in B1Ø and B2Ø

Signal Group 8

1. SG8 is controlled by Special Movement Timesetting No.4 in BØ.
BØ All Red timesetting is substituted for Special Movement Timesetting No.4.
2. XSF6 is used to set the maximum extension green time for SG8 in BØ.
This time is stored in Special Purpose Timesetting No.10.
SG8 is forced off after this maximum extension green time.
3. Late start SG8 in B1Ø and B3Ø.

Signal Group 9

1. SG9 is controlled by Special Movement Timesetting No. 5 in DØ.
DØ All Red timesetting is substituted for Special Movement Timesetting No. 5.
2. XSF9 is used to set the maximum extension green time for SG9 in DØ.
This time is stored in Special Purpose Timesetting No. 11.
SG9 is forced off after this maximum extension green time.
3. SG9 operates green-yellow-red in DØ.

4. SG9 goes red with SG1 in AØ, and remains red through BØ, CØ and D3Ø.
5. SG9 closes down at the end of D1Ø or D2Ø green, remains red through AØ late start, then goes 'blank' at the start of AØ minimum green.

When P2 is demanded.

1. If going CØ → AØ, or D3Ø → A, with a demand for P2, hold SG9 red for the duration of Timer 1 (Special Purpose Timesetting No. 13). Timer 1 starts timing at the start of P2 walk. When Timer 1 expires SG9 red is switched off.
2. If going D1Ø → AØ or D2Ø → AØ, with a demand for P2, SG9 goes red at the start of D1Ø or D2Ø all red period, and is held red for the duration of Timer 1 (Special Purpose Timesetting No. 13). Timer 1 starts timing at the start of P2 Walk. When Timer 1 expires SG9 red is switched off.
3. AØ ECO is used to guarantee SG9 minimum blank period. Timer 3 (Special Purpose Timesetting No.15) starts timing at the start of SG9 blank period. When Timer 3 expires and Timer 4 is expired, expire AØ ECO.

Signal Group 10

1. SG10 is controlled by Special Movement Timesetting No.6 in DØ.
DØ All Red timesetting is substituted for Special Movement Timesetting No.6.
2. XSF10 is used to set the maximum extension green time for SG10 in DØ.
This time is stored in Special Purpose Timesetting No.12.
SG10 is forced off after this maximum extension green time.
3. SG10 operates green-yellow-red in DØ.
4. SG10 goes red with SG2 in AØ, and remains red through BØ, CØ and D2Ø.
5. SG10 closes down at the end of D1Ø or D3Ø green, remains red through AØ late start, then goes 'blank' at the start of AØ minimum green.

When P1 is demanded.

6. If going CØ → AØ or D2Ø → AØ, with a demand for P1, hold SG10 red for the duration of Timer 2 (Special Purpose Timesetting No.14) Timer 2 starts timing at the start of P1 walk. When Timer 2 expires SG10 red is switched off.
7. If going D1Ø → AØ or D3Ø → AØ, with a demand for P1, SG10 goes red at the start of D1Ø or D3Ø all red period, and is held red for the duration of Timer 2 (Special Purpose Timesetting No.14). Timer 2 starts timing at the start of P1 Walk. When Timer 2 expires SG10 red is switched off.
8. AØ ECO is used to guarantee SG10 minimum blank period. Timer 4 (Special Purpose Timesetting No.15) starts timing at the start of SG10 blank period. When Timer 4 expires and Timer 3 is expired, expire AØ ECO.

Signal Group 11

1. SG11 is controlled by Special Movement Timesetting No. 7 in DØ.
DØ All Red timesetting is substituted for Special Movement Timesetting No. 7.
2. XSF9 is used to set the maximum extension green time for SG11 in DØ.
This time is stored in Special Purpose Timesetting No. 11.
SG9 is forced off after this maximum extension green time.
3. Late start SG11 in D1Ø and D2Ø.

Signal Group 12

1. SG12 is controlled by Special Movement Timesetting No. 8 in DØ.
DØ All Red timesetting is substituted for Special Movement Timesetting No. 8.
2. XSF10 is used to set the maximum extension green time for SG12 in DØ.
This time is stored in Special Purpose Timesetting No. 12.
SG12 is forced off after this maximum extension green time.
3. Late start SG12 in D1Ø and D3Ø.

SITE NAME: MYRTLE STREET / HARGREAVES STREET**PEDESTRIAN GROUP OPERATION****Pedestrian 1**

P1 calls AØ.

P1 is hidden in DØ.

P1 can introduce at anytime in D2Ø, and at the start of AØ, and can overlap D2Ø → AØ.

P1 calls CØ if the controller is resting in AØ.

In Master and Flexi, P1 auto introduces with SG1 in D2Ø and AØ while Z- is set.

Pedestrian 2

P2 calls AØ.

P2 is hidden in DØ.

P2 can introduce at anytime in D3Ø, and at the start of AØ, and can overlap D3Ø → AØ.

P2 calls CØ if the controller is resting in AØ.

In Master and Flexi, P2 auto introduces with SG2 in D3Ø and AØ while Z+ is set.

Pedestrian 3

P3 calls CØ.

P3 can introduce at anytime in B2Ø, and at the start of CØ, and can overlap B2Ø → CØ.

Pedestrian 4

P4 calls CØ.

P4 can introduce at anytime in B3Ø, and at the start of CØ, and can overlap B3Ø → CØ.

DETECTOR OPERATION**Detector 3**

Detector 3 places a non-locking call for DØ when its presence time expires.

Detector 6

Detector 6 places a non-locking call for DØ when its presence time expires.

Detector 7

Clear demands for CØ from detector 7 during SG3 & SG12 green and yellow.

Detector 9

Detector 9 places a non-locking call for BØ when its presence time expires.

Detector 10

Clear demands for CØ from detector 10 during SG4 & SG11 green and yellow.

Detector 12

Detector 12 places a non-locking call for BØ when its presence time expires.

SITE NAME **MYRTLE STREET / HARGREAVES STREET**SITE NO. **6289****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	34.0	60	60	60	4.0	2.0	6.0
B	5 → P4	28.0	50/40	40	40	3.0	2.5	5.5
C	3 → P2	32.0	50/40	50	40	3.5	3.0	6.5
D	9 → P2	30.0	60	45	45	3.0	2.5	5.5
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

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 D	18.0	8	8	18.0	12	12.0		6.0
2	A D	18.0	8	8	18.0	12	12.0		6.0
3	C B	20.0	8	8	20.0	13	13.0		6.5
4	C B	19.0	8	8	19.0	13	13.0		6.5

DESIGNED BY: NATHAN CORCORAN

DATE

30/06/20

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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	2		2			
MINIMUM GREEN	3	10	5	8	5			
INCREMENT	4							
MAXIMUM INITIAL GREEN*	5							
MAXIMUM EXTENSION GREEN	6	30	5	15	10			
EARLY CUT OFF	7	4.0						
YELLOW	8	4.0	3.0	3.5	3.0			
ALL RED	9	2.0	2.5	3.0	2.5			
SPECIAL ALL RED	10							
GAP 1	11	2.5	2.5	2.5	2.5			
GAP 2	12	2.5	2.5	2.5	2.5			
GAP 3	13	2.5		2.5	2.5			
GAP 4	14	2.5		2.5	2.5			
HEADWAY 1	15	0.6	1.2	1.2	1.2			
HEADWAY 2	16	0.6	1.2	1.2	1.2			
HEADWAY 3	17	1.2		1.2	1.2			
HEADWAY 4	18	1.2		1.2	1.2			
WASTE 1	19	7	7	7	7			
WASTE 2	20	7	7	7	7			
WASTE 3	21	7		7	7			
WASTE 4	22	7		7	7			

* 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	8.0	8.0	8.0				
CLEARANCE 1	3	12.0	12.0	13.0	13.0				
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	2.5	SG5 ALL RED (SUBSTITUTE BØ ALL RED)
2	2.5	SG6 ALL RED (SUBSTITUTE BØ ALL RED)
3	2.5	SG7 ALL RED (SUBSTITUTE BØ ALL RED)
4	2.5	SG8 ALL RED (SUBSTITUTE BØ ALL RED)
5	2.5	SG9 ALL RED (SUBSTITUTE DØ ALL RED)
6	2.5	SG10 ALL RED (SUBSTITUTE DØ ALL RED)
7	2.5	SG11 ALL RED (SUBSTITUTE DØ ALL RED)
8	2.5	SG12 ALL RED (SUBSTITUTE DØ ALL RED)

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	6	SG5 & 7 MAXIMUM EXTENSION GREEN IN BØ (XSF5)
10	6	SG6 & 8 MAXIMUM EXTENSION GREEN IN BØ (XSF6)
11	6	SG9 & 11 MAXIMUM EXTENSION GREEN IN DØ (XSF9)
12	6	SG10 & 12 MAXIMUM EXTENSION GREEN IN DØ (XSF10)
13	8	Timer 1: Duration for holding SG9 red in AØ with P2 demand
14	8	Timer 2: Duration for holding SG10 red in AØ with P1 demand
15	4	Timers 3 & 4: Minimum Blank period for SG9 & SG10
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	3.0
4	
5	
6	3.0
7	
8	
9	3.0
10	
11	
12	3.0
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+)	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)	Auto
C	Yes (to D, A)	R+
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 **B, D**

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	Auto introduction of P1 with SG1 in D2Ø and AØ.
Z- Master	Auto introduction of P1 with SG1 in D2Ø and AØ.
Z+ Flexi	Auto introduction of P2 with SG2 in D3Ø and AØ.
Z+ Master	Auto introduction of P2 with SG2 in D3Ø and AØ.
R- Flexi	AØ RELEASE PULSE
R+ Flexi	CØ 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>	=	4	,	1	,	4
		(phases)		(split plans)		(walks)
INT	=	6289				
VC	=	5				
CS	=					
COM	=	NET				
PK	=	!				
S#	=					
LM	=					
RMN	=	0				
DCL	=	0				
AT	=	6				
BT	=	6				
CT	=	7				
DT	=	6				
ET	=					
FT	=					
GT	=					
W1	=	0	W1 T	=	18	
W2	=	0	W2 T	=	18	
W3	=	8C	W3 T	=	20	
W4	=	8C	W4 T	=	20	
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	= 15C	B	=	B	=
C	= 25TGD	C	=	C	=
D	= 15A	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	=				

GROUP CONFLICT TABLE

PED NO	PED NO					m	m	m	m	m	m	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			X	X										
	2			X	X	X	X			X		X				X	X										
	3	X	X				X		X	X	X			X	X												
	4	X	X			X		X		X	X			X	X												
m	5	X	X		X					X	X	X		X			X										
m	6	X	X	X						X	X		X		X	X											
m	7				X						X			X			X										
m	8			X						X						X	X										
m	9		X	X	X	X	X		X							X		X									
m	10	X		X	X	X	X	X						X		X											
m	11		X			X										X		X									
m	12	X					X							X		X											
P1	13			X	X	X		X			X		X														
P2	14			X	X		X		X	X		X															
P3	15	X	X				X		X		X		X														
P4	16	X	X			X		X		X		X															
	17																										
	18																										
	19																										
	20																										
	21																										
	22																										
	23																										
	24																										

CHECKED: Paul Barugahare DATE: 3/07/20

DESIGNED BY: NATHAN CORCORAN

DATE 30/06/20