

TO	1. SENIOR ENGINEER, CONTROLLER APPLICATIONS 2. CRAIG LEITH, DELIVERY	ACTION	DATE
FROM	JOHN GIBNEY	DATE	5/03/20
SITE	MIDLAND HIGHWAY / ARCHER STREET	SITE NO.	6094
REGION	NORTH EASTERN	MUNICIPALITY	GREATER SHEPPARTON

GENERAL

Works Program Job?	Yes	Project Number	44EWPR39
Classification	STANDARD	Works Order Number	4A006616

EXISTING CONTROLLER DETAILS

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

Target Date for Draft Opsheet	09/03/20
Target Date for completion of Program	16/03/20

Prepare Interlocking

PERSONALITY CHECKSUMS

	Hex	Octal
Total	DF	337
Times	5B	133
Pers	84	204

Dispatched 24/04/20

Update Graphics, Site Notes No Site ID Revision updated to

Description of changes Addition of XSF flags to assist CFA station and side road ped protection; other changes as highlighted.

DELIVERY - 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

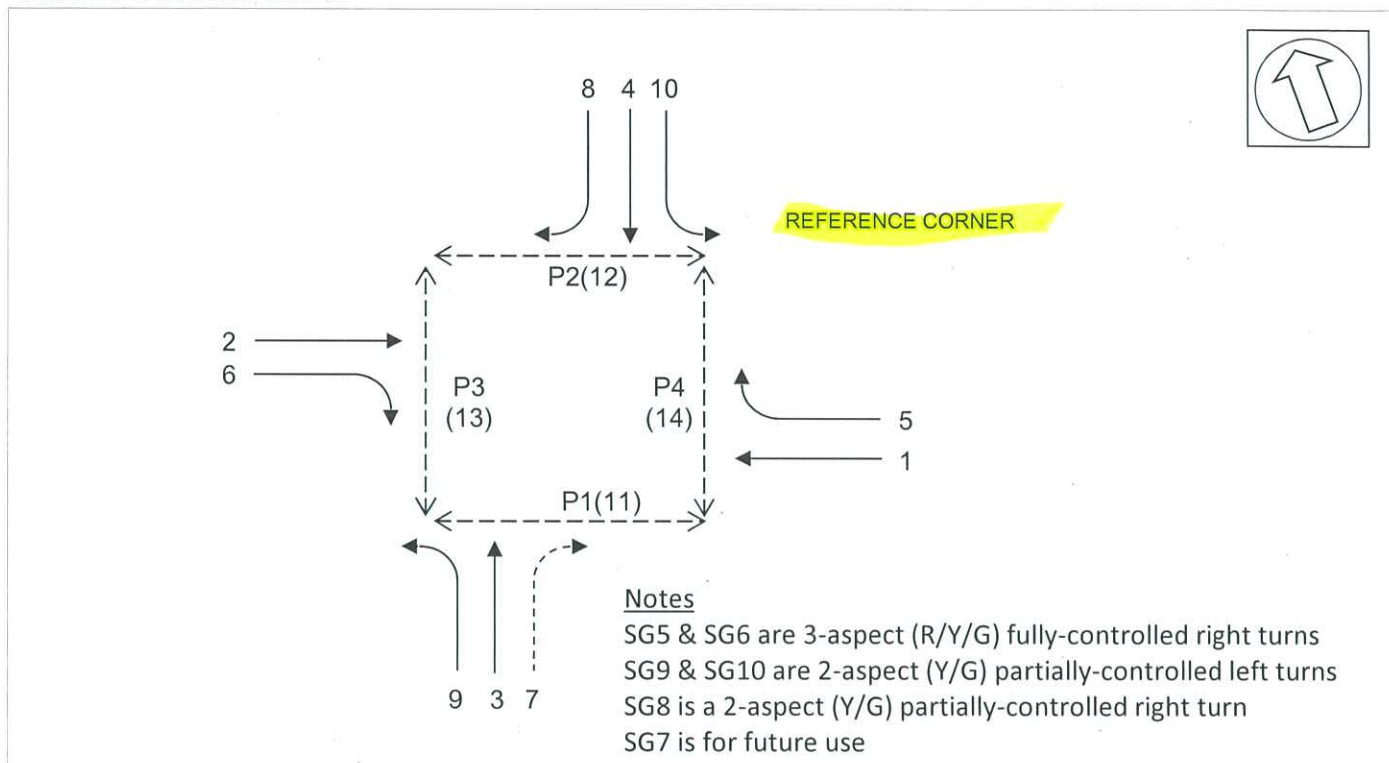
<input checked="" type="checkbox"/>	Checksum update only
<input type="checkbox"/>	Changes to trim or manual intervention features required
<input checked="" type="checkbox"/>	Please notify JOHN GIBNEY (x8712) on job completion.

DATE PROM INSTALLED

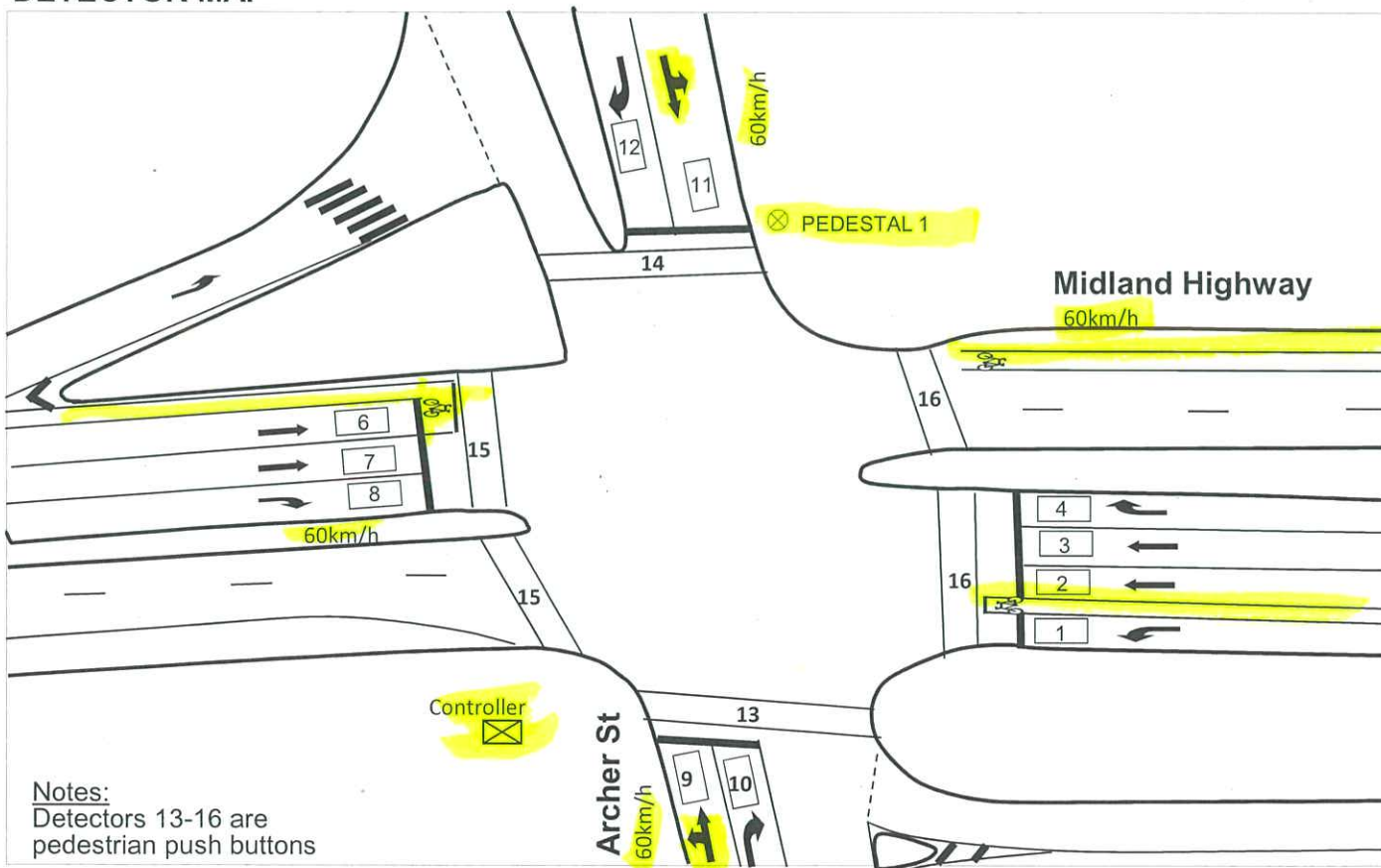
CONTROLLER OPERATION SPECIFICATION

SITE NAME	MIDLAND HIGHWAY / ARCHER STREET		SITE NO.	6094
MUNICIPALITY	GREATER SHEPPARTON	DESIGNED BY	JOHN GIBNEY	DATE
PLAN NO.	569286C	DESIGN CHECKED	<i>[Signature]</i>	DATE
CONTROLLER TYPE	ATSC 4	PROM CHECKED	<i>[Signature]</i>	DATE

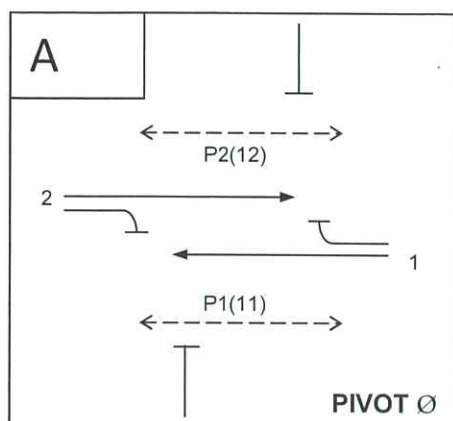
GROUP ALLOCATION



DETECTOR MAP



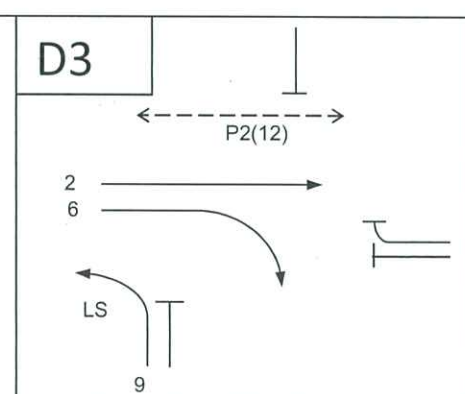
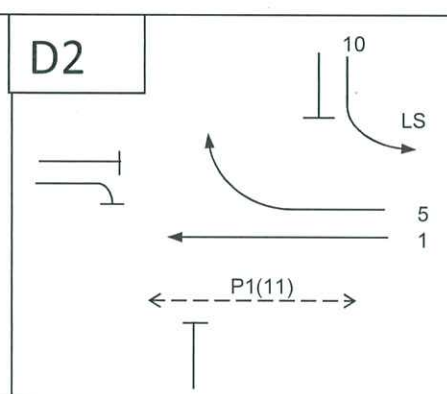
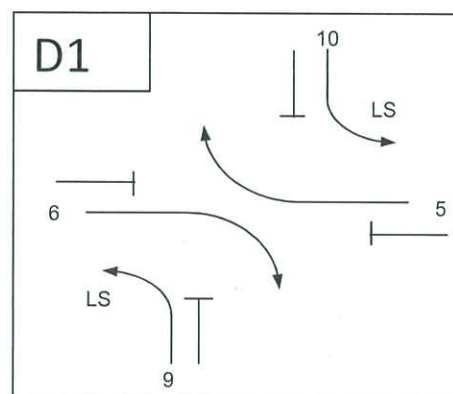
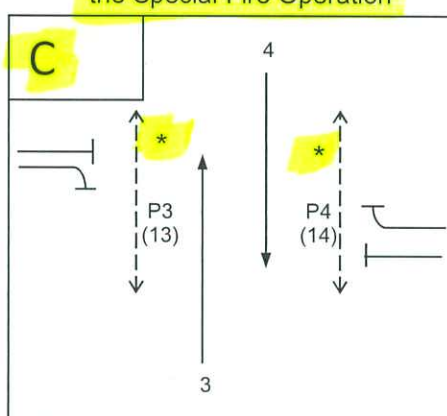
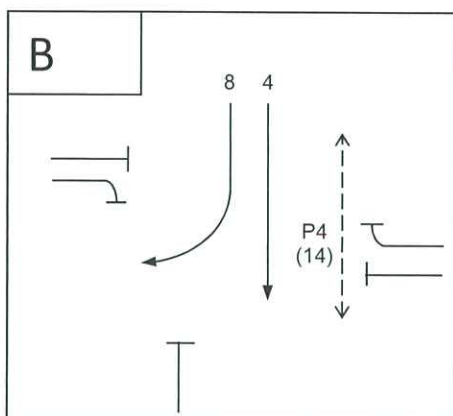
PHASING DIAGRAM



Refer General Notes

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

* If XSF7 is set P3 & P4 are both inhibited from operating in CØ during the Special Fire Operation



V.A. SEQUENCE ABCD

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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			A			
2	I	2	A	✓			A				0			A			
3	I	3	A	✓			A				0			A			
4	I	4	D	✓			D				0			D			
5	I	5	-				-		Reserved for Slip lane		1						
6	I	6	A	✓			A				0			A			
7	I	7	A	✓			A				0			A			
8	I	8	D	✓			D				0			D			
9	I	9	C	✓			C				0			C			
10	I	10	C	✓			C				0			C			
11	I	11	C	✓			B,C				0			C			
12	I	12	B,C	C	B		B				0			B			
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																	

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APPROACH DEFINITIONS

PHASE APPROACHES

Approach No	EXTENDING DETECTORS	APPROACH TIMER AND TIMESETTING DEFINITION*	SIGNAL GROUP	APPROACH EXPIRY (EXPAP)	Refer Special Notes
1	1	A11	1		
2	2,3	A22	1		
3	6,7	A33	2		
4	9	C11	3		
5	10	C22	3		
6	11	C33,B22	4	BØ → CØ	
7	12	B11	8		
8	4	D11	5		
9	8	D22	6		
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					

SITE NAME: MIDLAND HIGHWAY / ARCHER STREET

GENERAL NOTES

SUMMARY OF XSF FLAGS

(Communications Operation of XSF flags is required)

- XSF1** – For auto introduction of P1 & P2
- XSF2** – For late introduction of P2 in Masterlink only
- XSF3** – When set Inhibits calls for SG8 (BØ)
- XSF5** – Set special maximum time for SG5 & SG10 in DØ via Special Purpose Timesetting No.9.
- XSF6** – Set special maximum time for SG6 & SG9 in CØ via Special Purpose Timesetting No.10.
- XSF7** – Institute Special Fire Operation in response to a **MSS2** at 6266

SUMMARY OF XSF FLAGS

MSS1 – Set for the duration that the XSF7 flag is set via site 6266 (Special Fire Operation)

GENERAL OPERATION

- **REVn.** First scan after start-up demand CØ and D1Ø.
- Clear phase demands during associated phase green and yellow times.
- Clear demands for CØ via detectors 11 & 12 during BØ green & yellow.
- During CØ clear demands for BØ.
- Late start SG9 & SG10 in DØ if transitioning from CØ→DØ.
- Cancel DØ late start if transitioning from AØ or BØ→DØ.
- Substitute DØ yellow for BØ yellow when going from BØ→CØ.
- Use AØ yellow for DØ yellow when transitioning from D2Ø or D3Ø to phase other than AØ.
- Detector 12 places non-locking calls for BØ when its presence timer expires.

SIGNAL GROUP OPERATION

SIGNAL GROUP 5

- SG5 is controlled by Special Movement Timer 1 within DØ. DØ all-red timesetting is substituted for Special Movement Timer 1.
- XSF5 is used to set the maximum extension green time for SG5 & SG10 in DØ. This time is stored in Special Purpose Timesetting No.9 When set SG5 & SG10 are forced off after this maximum extension green time.

SIGNAL GROUP 6

- SG6 is controlled by Special Movement Timer No. 2 within DØ. DØ All Red timesetting is substituted for Special Movement time No. 2
- XSF6 is used to set the maximum extension green time for SG6 & SG9 in DØ. This time is stored in Special Purpose Timesetting No.10 When set SG5 & SG10 are forced off after this maximum extension green time.

SIGNAL GROUP 9

- SG9 is controlled by Special Movement Timer No. 3 within DØ. DØ All Red timesetting is substituted for Special Movement time No. 3

SIGNAL GROUP 10

- SG10 is controlled by Special Movement Timer No. 4 within DØ. DØ All Red timesetting is substituted for Special Movement time No. 4

PEDESTRIAN GROUP OPERATION

Pedestrian 1

- P1 calls AØ
- P1 can introduce at any time in D2 & at the start of AØ & can overlap from D2Ø→AØ
- P1 auto introduces at the start of SG1 green if XSF1 is set.

Pedestrian 2

- P2 calls AØ
- P2 can introduce at any time in D3 & at the start of AØ & can overlap from D3Ø→AØ
- P2 auto introduces at the start of SG2 green if XSF1 is set.
- P2 can introduce at any time in AØ provided XSF2 is set (Masterlink only).

Pedestrian 3

- P3 calls CØ
- P3 can introduce at the start of CØ

Pedestrian 4

- P4 calls CØ
- P4 can introduce at any time in BØ & at the start of CØ & can overlap from BØ→CØ.

SPECIAL OPERATION FOR FIRE STATION

GENERAL OPERATION

A fire station is located near Rowe Street in Archer Street (Site 6266). A left turn Emergency will set a **MSS2** flag at site **6266**, indicating a northbound approaching fire vehicle in Archer Street, SCATS is then used to invoke the special Fire Operation at this site via **XSF7**.

When XSF7 is set, carry out the following changes in operation:

- The intersection controller is forced to run in isolated mode,
- The **MSS1** will be set when XSF7 is set and remain until the start of CØ yellow
- Substitute *Special Purpose Timesetting No.12* for the phase pedestrian walk time
- The controller will clear all phase demands except CØ and proceed to CØ as soon as possible but not violating the phase minimum green and pedestrian walk times. (*Do not allow the introduction of P3 /or P4 in CØ*).
- If P3 /or P4 are operating in BØ or CØ then terminate P3 /or P4 in BØ or CØ after its minimum walk time and allow it to go into clearance as soon as possible.
- If the controller is running AØ or DØ and P1 /or P2 are in walk, terminate P1 /or P2 walk after its substituted minimum walk time and allow it to go into clearance as soon as possible.
- If transitioning D2Ø→CØ it must be ensured that SG1 is allocated adequate green time to satisfy its minimum green time requirement in DØ. This 'Required time' is specified in DØ ECO time setting. SG1 is guaranteed this 'Required time' by using the DØ ECO time period at the point SG1 is introduced in DØ to extending SG1 so it operates for at least it's required time period.
- If transitioning D3Ø→CØ it must be ensured that SG2 is allocated adequate green time to satisfy its minimum green time requirements in DØ. This 'Required time' is specified in DØ ECO time setting. SG2 is guaranteed this 'Required time' by using the DØ ECO time period at the point SG2 is introduced in DØ to extending SG2 so it operates for at least it's required time period.
- The controller will remain in CØ with 'Special Fire Operation' until **XSF7** is terminated
- The phase to operate after CØ will be the next demanded phase in the phase sequence.

When **XSF7 is cleared**, allow the intersection to operate normally.

SITE NAME **MIDLAND HIGHWAY / ARCHER STREET**SITE NO. **6094****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	38.0	60	60	60	4.0	2.5	6.5
B	8 → P3	36.0	60	60	45	4.0	3.0	7.0
C	4 → P1	46.0	60	60	60	4.0	3.0	7.0
D	5 → P2	43.0	60	45	45	3.0	3.5	6.5
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			
D1	D3	5 → P2	43.0	45	3.5	SM1
D1	D2	6 → P1	40.0	45	3.5	SM2
		→				
		→				
		→				
		→				

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

PEDESTRIAN TIMES

ELECTRICIAN TIMES									
PED	PHASE(S)	WALK			CLEARANCE				MINIMUM SOLID DON'T WALK
		DISTANCE (m)	TIME		DISTANCE (m)	TIME			
			GRAPH	ADOPTED		GRAPH	CL1	CL2	
1	A	17.0	8	8	17.0	11	8.5	2.5	4.0
2	A	15.0	8	8	15.0	10	8.0	2.0	4.5
3	C	16.0	15	15	13.0	9	9.0	0.0	7.0
4	B C	19.0	18	15	16.0	11	11.0	0.0	7.0

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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			
MINIMUM GREEN	3	10	6	8	6			
INCREMENT	4							
MAXIMUM INITIAL GREEN*	5							
MAXIMUM EXTENSION GREEN	6	25	10	20	12			
EARLY CUT OFF	7				6.0			
YELLOW	8	4.0	4.0	4.0	3.0			
ALL RED	9	2.5	3.0	3.0	3.5			
SPECIAL ALL RED	10							
GAP 1	11	3.5	2.5	2.5	2.5			
GAP 2	12	3.5	2.5	2.5	2.5			
GAP 3	13	3.5		2.5				
GAP 4	14							
HEADWAY 1	15	1.2	1.2	1.2	1.2			
HEADWAY 2	16	0.6	1.2	1.2	1.2			
HEADWAY 3	17	0.6		1.2				
HEADWAY 4	18							
WASTE 1	19	10	7	7	7			
WASTE 2	20	10	7	7	7			
WASTE 3	21	10		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	8.0	8.0	15.0	15.0				
CLEARANCE 1	3	8.5	8.0	9.0	11.0				
CLEARANCE 2	4	2.5	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	3.5	SG5 ALL RED (SUBSTITUTE DØ ALL RED)
2	3.5	SG6 ALL RED (SUBSTITUTE DØ ALL RED)
3	3.5	SG9 ALL RED (SUBSTITUTE DØ ALL RED)
4	3.5	SG10 ALL RED (SUBSTITUTE DØ 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	6	SG5 & SG10 MAXIMUM EXTENSION GREEN IN DØ (XSF5)
10	6	SG6 & SG9 MAXIMUM EXTENSION GREEN IN DØ (XSF6)
11		
12	4	Substitued Ped walk time during Special Emergency Operation when XSF7 set
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		

SITE NAME MIDLAND HIGHWAY / ARCHER STREET

SITE NO. 6094

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	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)	

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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)	R+
C	Yes (to D)	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

BØ

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	

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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	,	4	,	4
		(phases)		(split plans)		(walks)
INT	=	6094				
VC	=	5				
CS	=					
COM	=	NET				
PK	=	!				
S#	=					
LM	=					
RMN	=	0				
DCL	=	0				
AT	=	7				
BT	=	7				
CT	=	7				
DT	=	7				
ET	=					
FT	=					
GT	=					
W1	=	0A	W1 T	=	15	
W2	=	0A	W2 T	=	15	
W3	=	15	W3 T	=	16	
W4	=	15	W4 T	=	18	
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	= 10C	B	=	B	=
C	= 30D	C	=	C	=
D	= 15TGA	D	=	D	=

TYPICAL VARIATION PARAMETERS

VP1	=	5	VP22	=		VP43	=	
VP2	=	6063	VP23	=		VP44	=	
VP3	=	2	VP24	=		VP45	=	
VP4	=	30	VP25	=		VP46	=	
VP5	=	25	VP26	=		VP47	=	
VP6	=	7	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										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										
	2			X	X	X			X		X			X	X										
	3	X	X			X	X		X			X	X												
	4	X	X			X	X					X	X												
	5		X	X	X				X				X		X										
	6	X		X	X				X			X		X											
	7																								
	8	X	X	X		X	X			X			X	X											
	9	X							X			X		X											
	10		X										X		X										
P1	11			X	X		X			X															
P2	12			X	X	X			X		X														
P3	13	X	X				X		X	X															
P4	14	X	X			X					X														
	15																								
	16																								
	17																								
	18																								
	19																								
	20																								
	21																								
	22																								
	23																								
	24																								

CHECKED: Sarath Premachandra DATE: 27/05/11

Conflict Table remains unchanged with this reprogram -jjg, 20/02/20

DESIGNED BY: JOHN GIBNEY

DATE 5/03/20

INT=6094

24/04/2020

```

PAGE
*** MAPPING TABLES
*** Input translation map
IMAP EQU *
SECT1 EQU *
      FDB INT1+1          ( DC1 )
      FDB INT2+2          ( DC2 L )
      FDB INT3+3          ( DC2 R )
      FDB INT4+4          ( DC8 )
      FDB NOMAP
      FDB INT6+6          ( DC3 L )
      FDB INT7+7          ( DC3 R )
      FDB INT8+8          ( DC9 )
      FDB INT9+9          ( DC4 )
      FDB INT10+10         ( DC5 )
      FDB INT11+11         ( DC6 )
      FDB INT12+12         ( DC7 )
      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
```