OPERATIONS SHEET

Location: West Coast Highway / Pandan Crescent Int. No: 16534

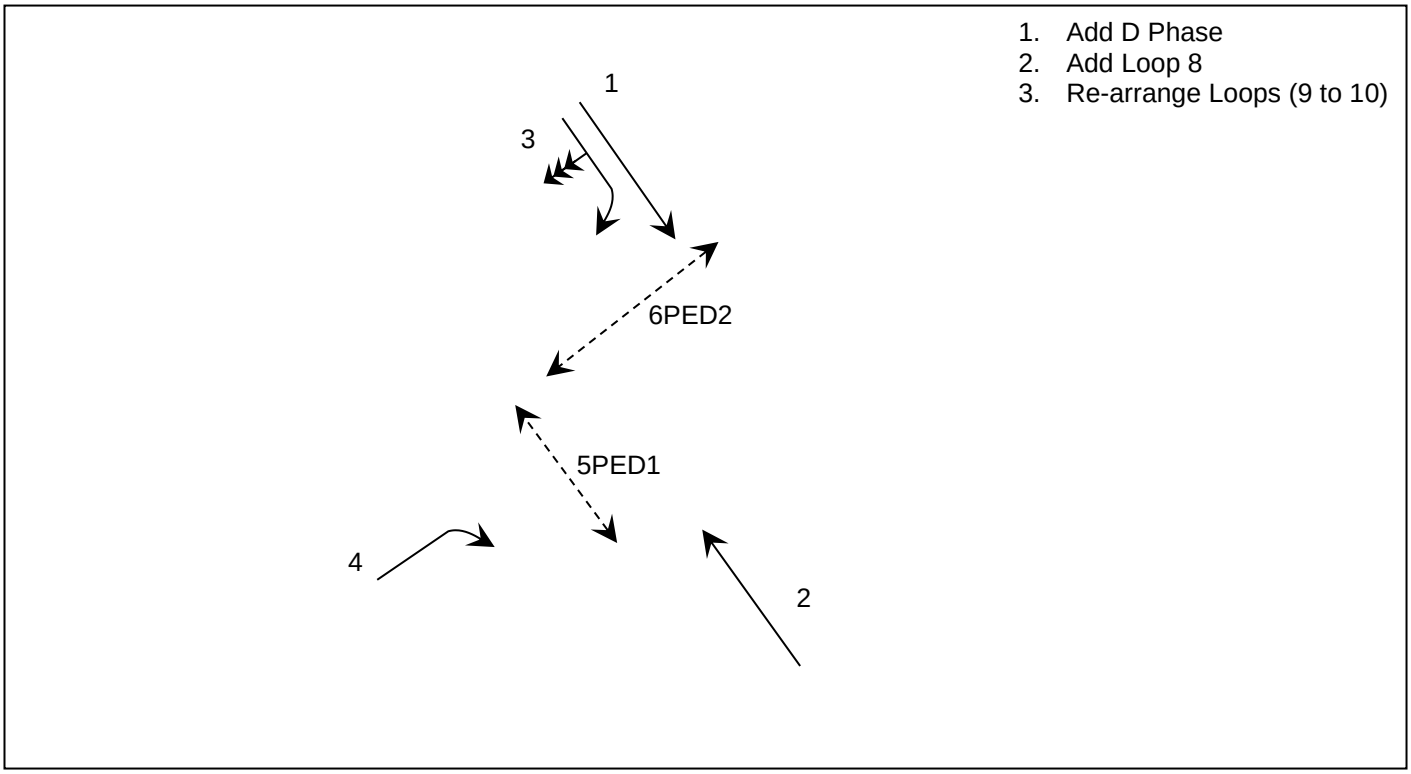
Prepared by: Tiffany Aw / Lang Jie Date: 05 / 05 / 2023 Signal ID: 2557

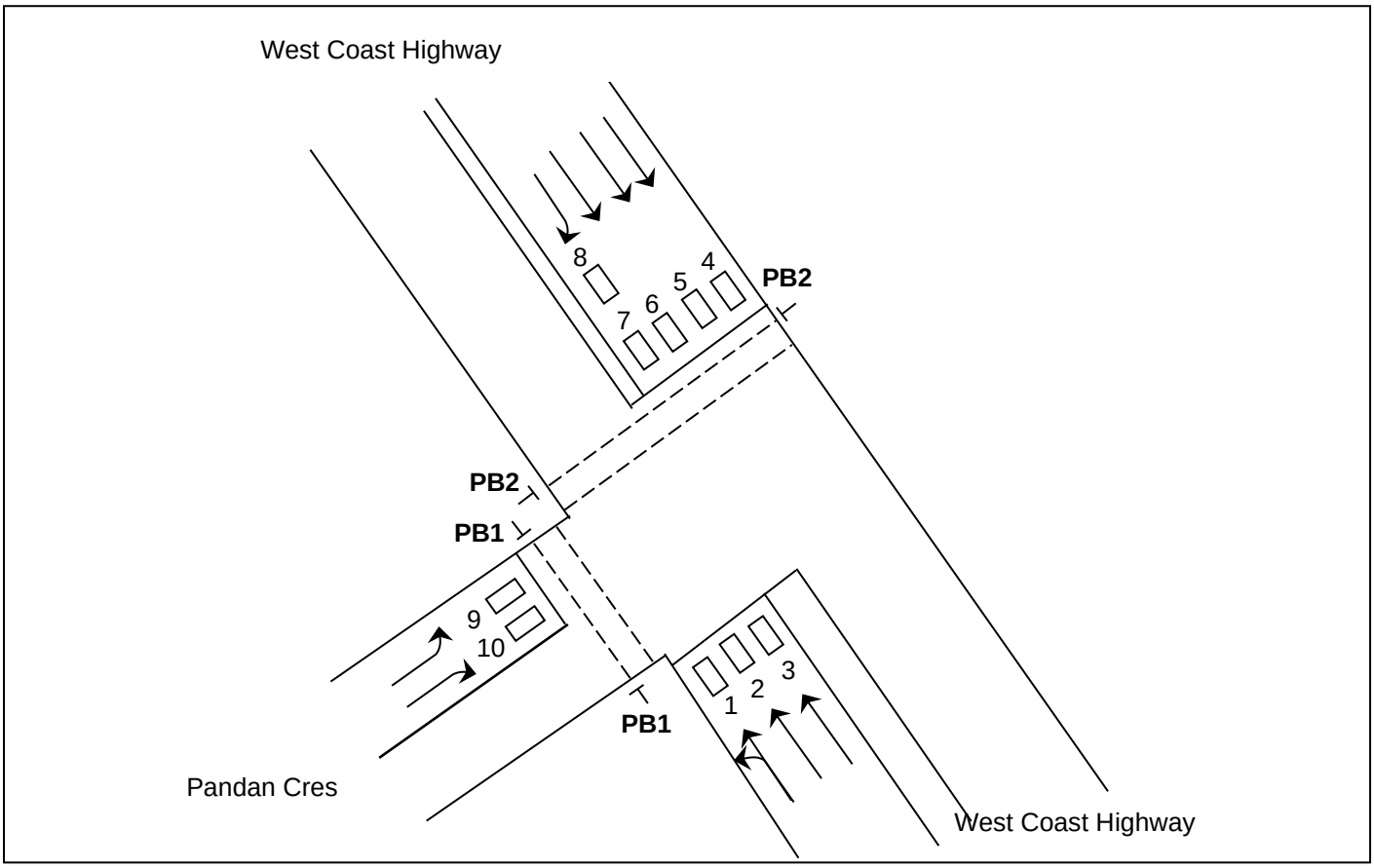
Checked by: Clayton Lim

Approved by: Simon Ho

GOMS 20230421-0246

1. Add D Phase
2. Add Loop 8
3. Re-arrange Loops (9 to 10)





REMARKS

Location: _____ Int. No: 16534

☑ If phase change switch is equal or more than TSM15, controller is to send out MSS15 flag

☐ If phase _____ is not introduced, SG _____ will flash for 3 seconds (TSM 14) in All-Red.

☐ If phase _____ is not introduced, SG _____ will flash for 3 seconds (TSM 14) in All-Red.

☑ B, C, D phase(s) is/are demand dependent.

☑ A phase(s) is/are placed on permanent demand in all Modes.

☑ PED 1 is introduced when Push Button PB1 is activated.

☑ PED 2 is introduced when Push Button PB2 is activated.

☐ PED _____ is introduced when Push Button _____ is activated.

☐ PED _____ is introduced when Push Button _____ is activated.

☐ During _____ phase, disable detector loop(s) _____ call for _____ phase.

☐ Detector loop(s) _____ is/are presence-timed lock call for _____ phase.

☐ During _____ phase, after the lock call timer has expired (more than TSM _____), detector loop(s) _____ will cancel demand for _____ phase.

☐ During _____ phase, after the lock call timer has expired (more than TSM _____), detector loop(s) _____ will cancel demand for _____ phase.

☐ Left Turn Green Arrow SG _____

1. It is introduced in _____ phase.
2. SG _____ terminates with SG/Phase _____ with green arrow flashing for 3 seconds.

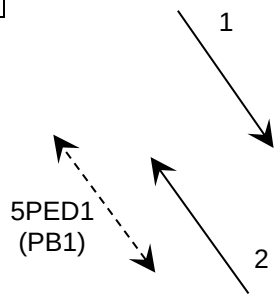
☐ Left Turn Green Arrow SG _____

1. It is introduced in _____ phase.
2. SG _____ terminates with SG/Phase _____ with green arrow flashing for 3 seconds.

PHASING DIAGRAM

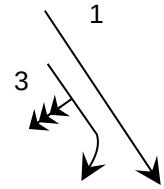
Location: _____ Int. No: 16534

A



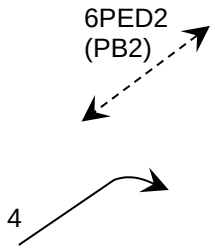
PHASE	PROHIBITED PHASE CHANGES TO	REVERSION ON MAXIMUM	MAXIMUM V. I. G. ON MAXIMUN
A			
B			
C			
D			
E			
F			
G			

B



1. If PED1 is introduced,
   A Phase Min Green = TSM21 = 30 Sec

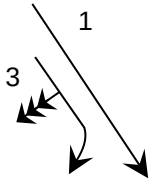
C



2. SG4 Late Start = 0.3 Sec

3. If PED2 is introduced:
   1) SG4 Late Start = TSM1 = 3 Sec
   2) C Phase Min Green = TSM22 = 32 Sec

D



V. A. Sequence: _____

DETECTOR FUNCTION

Location:_____ Int. No: 16534

DETECTOR NO	CALL PHASE	LOCKING	NON LOCKING	SET VIG ON PHASE	EXTEND PHASE	SPECIAL	DETECTOR ALARMS FAULT SIMULATION			PLAN REFERENCE
							CALL & EXTEND	CALL ONLY	DISABLE	
1	A	✓			A		✓			
2	A	✓			A		✓			
3	A	✓			A		✓			
4	A	✓			AB		✓			
5	A	✓			AB		✓			
6	A	✓			AB		✓			
7	B, D	B	D		B, D		✓			
8	B, D	B	D		B, D		✓			
9	C	✓			C		✓			
10	C	✓			C		✓			
11										
12										
13										
14										
15						PHASE CHANGE SWITCH			✓	
16						POLICE CONTROL SWITCH			✓	
PB1	*A*	✓				PED1		✓		
PB2	*C*	✓				PED2		✓		
PB3										
PB4										
PB5										
PB6										

APPROACH TIMING

Location:_____ Int. No: 16534

APPROACH	EXTENDING DETECTORS	SIGNAL GROUP	COMMENTS
A1	1	2	
A2	2	2	
A3	3	2	
A4	4, 5, 6	2	
B1	4, 5, 6	3	
B2	7	3	
B3	8	3	
B4			
C1	9	4	
C2	10	4	
C3			
C4			
D1	7	3	
D2	8	3	
D3			
D4			
E1			
E2			
E3			
E4			
F1			
F2			
F3			
F4			
G1			
G2			
G3			
G4			

NOTE: MAXIMUM NUMBER OF APPROACHES IS 16

INTERGREEN, PEDESTRIAN TIMES AND SPECIAL FUNCTIONS

Location:_____ Int. No: 16534

PHASE	CLEARANCE MOVEMENT	CLEARANCE DISTANCE	INTERGREEN		
			AMBER	RED	TOTAL
A			3	2	5
B			3	3	6
C			3	3	6
D			3	5	8
E					
F					
G					

PED NO.	PHASE	WALK		CLEARANCE TIME	
		DISTANCE (m)	GREEN TIME	1	2
1	A	21	6	21	
2	C	26	6	26	
3					
4					
5					
6					
7					

Pedestrian Walking Speed: ***1.0*** m/s

SPECIAL FACILITIES

SIGNAL GROUP	HOUR	MINUTE	SECOND	FUNCTION		

PRE-EMPTION

SIGNAL GROUP	PHASE	FUNCTION	REMARKS

CONTROLLER TIMESETTING

Location:_____ Int. No: 16534

SPECIAL MOVEMENT (S. M.) TIME
('B' ENTER)

	S. M. INTERVAL	1	2	3	4	5	6	7	8
MINIMUM GREEN	1								
AMBER	2								
RED	3								
GAP	4								
HEADWAY	5								
WASTE	6								
MAXIMUM	7								
SIGNAL GROUP									
DETECTORS									

PRESENCE (RANGE 0 –5)
('D' ENTER)

DET. NO	PRESENCE TIME	DET. NO	PRESENCE TIME
1	Sec	13	Sec
2	Sec	14	Sec
3	Sec	15	Sec
4	Sec	16	Sec
5	Sec	17	Sec
6	Sec	18	Sec
7	Sec	19	Sec
8	Sec	20	Sec
9	Sec	21	Sec
10	Sec	22	Sec
11	Sec	23	Sec
12	Sec	24	Sec

ALTERNATE TIME SETTING (RANGE 0-200)
('B' ENTER)

ALT. NO	TIME	ALT. NO	TIME
1 SG4 LS	3 Sec	17	
2		18	
3		19	
4		20	*5 Sec
5		21 A Min G	30 Sec
6		22 C Min G	32 Sec
7		23	
8		24	
9		25	
10		26	
11		27	
12		28	
13		29	
14		30	
15	50 Sec	31	
16		32	

***Note:** During start-up of controller, there will be a 5 seconds All Red (TSM20)

CONTROLLER TIMESETTING

Location: _____ Int. No: 16534

	PHASE	A	B	C	D	E	F	G	H	
	INTERVAL	1	2	3	4	5	6	7	8	Range
RED/YELLOW	1									0 – 5
LATE START	2			0.3						0 – 20
MINIMUM GREEN	3	20	7	7	7					5 – 20
INCREMENT	4									0 – 5
MAX. V. I. G.	5									0 – 40
MAX. EXT. GREEN	6	40	25	35	15					0 – 150
EARLY CUT-OFF	7									0 – 20
AMBER	8	3	3	3	3					3 – 7
ALL RED	9	6	6	6	6					0 – 15
SPECIAL ALL RED	10	2	3	3	5					0 – 15
GAP 1	11	3	3	3	3					0 –10
GAP 2	12	3	3	3	3					0 –10
GAP 3	13	3	3							0 –10
GAP 4	14	0								0 –10
HEADWAY 1	15	1.2	0.4	1.2	1.2					0 – 5
HEADWAY 2	16	1.2	1.2	1.2	1.2					0 – 5
HEADWAY 3	17	1.2	1.2							0 – 5
HEADWAY 4	18	0.4								0 – 5
WASTE 1	19	7	7	7	7					0 – 50
WASTE 2	20	7	7	7	7					0 – 50
WASTE 3	21	7	7							0 – 50
WASTE 4	22	7								0 – 50
MAXIMUM 1	23									0 – 150
MAXIMUM 2	24									0 – 150
MAXIMUM 3	25									0 – 150
MAXIMUM 4	26									0 – 150

Maximum V. A. Cycle Time: _____

☑ Use Special All Red if going from A phase to B phase

☑ Use Special All Red if going from B phase to C phase

☑ Use Special All Red if going from C phase to A, D phase

☑ Use Special All Red if going from D phase to A phase

	PEDESTRIAN NO.	1	2	3	4	5	6	7	8	
	INTERVAL	17	18	19	20	21	22	23	24	Range
DELAY	1									0 – 20
WALK	2	6	6							0 – 40
CLEARANCE 1	3	21	26							0 – 40
CLEARANCE 2	4									0 – 10
PAC		7	7							

CO-ORDINATION DATA

Location:_____ Int. No: 16534

MASTERLINK & FLEXILINK SPECIAL FLAGS

SIGNAL	FUNCTION
Y− FLEXI	CONTINUOUS
Y− MASTER	AUTO CALL PUSH BUTTON PED ***1, 2***
Y+ FLEXI	AUTO CALL PUSH BUTTON PED ***1, 2***
Z− FLEXI	AUTO CALL PED ***1***
Z− MASTER	AUTO CALL PED ***1***
Z+ FLEXI	
Z+ MASTER	
R− FLEXI	***B*** PHASE RELEASE PULSE
R+ FLEXI	***C*** PHASE RELEASE PULSE
Q− FLEXI	***D*** PHASE RELEASE PULSE
Q+ FLEXI	***A*** PHASE RELEASE PULSE
Z1 MASTER	
Z MASTER	
Z MASTER	
Z MASTER	

LOOK AHEADS AND RELEASES

Phase Sequence 1			Phase Sequence 2		
PHASE	**LOOK AHEAD**	**RELEASE**	**PHASE**	**LOOK AHEAD**	**RELEASE**
A	NO	Q^+	A		
B	*NO*	R^-	B		
C	*YES to A*	R^+	C		
D	*YES to A*	Q^-	D		
E			E		
F			F		
G			G		

The following phases can be inhibited in Flexilink by omitting the call pulses in the plan data _____

NO	PHASE SEQUENCE
1 (No)	***ABCD***
2 ( )	

GLIDE INTERSECTION DATA

Location:_____ Int. No: 16534

Note: The data shown on this page should be entered when the intersection is first placed on line. This data is not necessarily used for Master Link operation.

SLOT *138 = 4, 4, 2*	E.g. x, y, z. x = No of Phases y = No of Split Plans z = No of PEDs
INT = *16534*	
VC =	
CS =	
COM =	
PK =	
S# =	
LM = MF	
RMN =	
DCL =	
VOLS = *1 – 10*	
VP# =	
AT = 5	
BT = *6*	
CT = *6*	
DT = *8*	
ET =	
FT =	
GT =	

Date:	Date:
PP1 = 0*, 0 ^A*	PP1 =
PP2 = 0*, 0 ^A*	PP2 =
PP3 = 0*, 0 ^A*	PP3 =
PP4 = 0*, 0 ^A*	PP4 =

Note: Always LM = F initially

Variation Parameter (VP)

VP1 =	VP8 =	VP15 =	VP22 =	VP29 =
VP2 =	VP9 =	VP16 =	VP23 =	VP30 =
VP3 =	VP10 =	VP17 =	VP24 =	VP31 =
VP4 =	VP11 =	VP18 =	VP25 =	VP32 =
VP5 =	VP12 =	VP19 =	VP26 =	VP33 =
VP6 =	VP13 =	VP20 =	VP27 =	VP34 =
VP7 =	VP14 =	VP21 =	VP28 =	VP35 =

W1 = 6			W4 =		
W1T = 26	P–		W4T =	P–	P+
W2 = 6			W5 =		
W2T = 32	P–	P+	W5T =	P–	P+
W3 =			W6 =		
W3T =	P–	P+	W6T =	P–	P+

SPLIT PLANS

	SF / FEATURES	1	2	3	4
A	0 PD FG B	< 0 >	< 0 >	< 0 >	< 0 >
B	C	22	22	18	22
C	TG D	26	30	34	30
D	A	12	12	12	12
E					
F					
G					

SF / FEATURES	5	6	7	8

PLAN DATA

Location:_____ Int. No: 16534

PLAN

('E' ENTER)

		1	2	3	4	5	6	7	8	9	10
0	**CL**	144	130		144	104	114	130			
1	**A**	0	0		0	0	0	0			
2	**B**	51	49		51	45	48	49			
3	**C**	79	69		79	67	72	69			
4	**D**	122	110		122	103	113	110			
5	**E**										
6	**F**										
7	**G**										
8	**R−**	C	C		C	C	C	C			
9	**R+**	C	C		C	C	C	C			
10	**Y−**	C	C		C	C	C	C			
11	**Y+**										
12	**Z−**										
13	**Z+**										
14	**Q−**	C	C		C	C	C	C			
15	**Q+**	41	40		41	38	40	40			
16	**XSF (9-16)***										
17	**XSF (1-8)***										

* A digit hexadecimal number which signifies which XSF bits are used; e.g. AO signifies bits 14 & 16 are set.

NOTE: C = Continuous (255) N = Not Used (254)

PLAN SCHEDULE

('F' ENTER)

CODE	HOUR	MINUTE	PLAN
8	0	0	5
8	*6*	*30*	1
8	*9*	0	7
8	*12*	0	2
8	*17*	0	4
8	*21*	0	6
8	23	0	5
7	0	0	5
7	*7*	0	7
7	9	0	7

CODE	HOUR	MINUTE	PLAN
7	12	0	6
7	15	0	2
7	*21*	0	6
7	23	0	5
1	0	0	5
1	7	0	7
1	9	0	7
1	14	0	2
1	*21*	0	6
1	23	0	5

Pedestrian and Vehicle Signal Groups Interlock Table

Location:_____ Int. No: 16534

	Phase A	Phase B	Phase C	Phase D	Phase E	Phase F	Phase G
SG 1	SGAR	SGAR	RED	SGAR			
SG 2	GAR	RED	RED	RED			
SG 3	RED	SGAR	RED	SGAR			
SG 4	RED	RED	SGAR	RED			
SG 5	WALK	DON'T	DON'T	DON'T			
SG 6	DON'T	DON'T	WALK	WALK			
SG 7							
SG 8							
SG 9							
SG 10							
SG 11							
SG 12							
SG 13							
SG 14							
SG 15							
SG 16							

Legend:

GAR	Green, Amber, Red
GEAR	Green, Amber, Red (With ECO)
RED	Red
SGRN	Special Green
SOFF	Special Off
WALK	PED Walk, Clearance 1 and Clearance 2
SWALK	Special PED Walk, Clearance 1 and Clearance 2
DON'T	PED Red

Appendix A

Signal Groups Conflict Matrix

Location: _____ Int. No: 16534

('C16' ENTER)

SG	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1				X		X										
2			X	X		X										
3		X		X	X	X										
4	X	X	X		X											
5			X	X												
6	X	X	X													
7																
8																
9																
10																
11																
12																
13																
14																
15																
16																