SIGNAL TIMING SHEET

DATE ISSUED	MARCH 16, 2009	INTERSECTION	ROUTE 13 AT 16 AVENUE
CONTROLLER TYPE	LMD 8000	LOCATION	LANGLEY
CABINET TYPE	"S" RACK	SHEET NUMBER & REVISION	TE_89058-1C
SEQUENCE	NEMA DUAL RING	SITE CODE	

PHASE NUMBER	1	2	3	4	5	6	7	8
PHASE SETTING	OFF	ON	OFF	ON	ON	ON	ON	ON
DESCRIPTION		ROUTE 13 NB		16 AVENUE EB	ROUTE 13 NB LT	ROUTE 13 SB	16 AVENUE EB LT	16 AVENUE WB
FUNCTION		A1		B1	A1->	A2	B1->	B2
OVERLAP								
MINIMUM GREEN		10		7	6	10	6	7
PASSAGE		3.0		3.0	3.0	3.0	3.0	3.0
YELLOW		4.5		4.0	3.7	4.5	3.5	4.0
RED		1.1		0.9	1.0	1.1	0.6	0.9
MAX I/MAX II		32		22	7	21	7	13
MAXPLAN (1,2,3,4)								
MAXPLAN (5,6,7,8)								
WALK		7		7	-----	7	-----	7
PEDESTRIAN CLEAR		9		9	-----	9	-----	9
WALK		STEADY		STEADY	STEADY	STEADY	STEADY	STEADY
RECALL		EXT		OFF	OFF	EXT	OFF	OFF
MEMORY		OFF		OFF	OFF	OFF	OFF	OFF
COORDINATION ON PHASE								
FIRST GREEN DISPLAY				XXXX				XXXX
INTERSECTION FLASH		YELLOW		RED		YELLOW		RED
AWF TIME [s]		5.7				5.7		
AWF TIME [s] [CH1/CH2]		5.7 0.0				0.0 5.7		

DELAY DETECTION TIMING	L3,L10 = 3 SEC. (LT CLIP)	PROGRAMMING COMMENTS	
	L6,L7 = 10 SEC. (LT)	1.	**PROGRAM RED REVERT TO AVOID LEFT TURN TRAP.**
	L2,L9 = 3 SEC. (RT CLIP)	2.	
		3.	
		4.	
PRE-EMPTION TYPE	NONE	OPERATIONAL COMMENTS	
DELAY TIME		1.	
PRE-EMPTION TIME		2.	
VOLUME LOGGING & MOES	ON	3.	
SCM	OFF	4.	

PED PERMISSIVE	1	CYCLE (1 TO 8)							
		1	2	3	4	5	6	7	8
		0	0	0	0	0	0		
OFFSET (1 TO 4)		0 0	0	0	0	0	0		

TIME CLOCK SETTINGS

TIME OF DAY	DAY OF WEEK	MAXPLAN (1 TO 8)	CYCLE (1 TO 8)	OFFSET (1 TO 4)	SERVICEPLAN (1 TO 8)	ADDITIONAL TIME CLOCK INFORMATION

Date Implemented: March 25, 2009 @ 1525hrs

Henry Lew, P.Eng — ENGINEER OF RECORD

March 16, 2009 — DATE

RECEIVED & DISTRIBUTED BY MOT

DATE

CALCULATION SHEET

DATE ISSUED	MARCH 16, 2009	INTERSECTION	ROUTE 13 AT 16 AVENUE
CONTROLLER TYPE	LMD 8000	LOCATION	LANGLEY
CABINET TYPE	"S" RACK	SHEET NUMBER & REVISION	TE_89058-1C
SEQUENCE	NEMA DUAL RING	SITE CODE	

PHASE NUMBER	1	2	3	4	5	6	7	8
PHASE SETTING	OFF	ON	OFF	ON	ON	ON	ON	ON
DESCRIPTION		ROUTE 13 NB		16 AVENUE EB	NB LT #REF!	ROUTE 13 SB	16 AVENUE EB LT	16 AVENUE WB
FUNCTION		A1		B1	A1->	A2	B1->	B2
OVERLAP								
POSTED SPEED [km/h]		80		60	55	80	45	60
APPROACH GRADE [+/- %]								
CLEARANCE DISTANCE [m]		21.9		19.7	18.4	24.1	15.3	19.7
CONFLICT DISTANCE [m]								
WALKING SPEED [m/s]		1.2		1.2		1.2		1.2
WALKING DISTANCE [m]		13.1		14.4		13.1		14.0
APPROACH SPEED [km/h]		80		60	#N/A	80	#N/A	60
CLEARANCE SPEED [km/h]		80		60	#N/A	80	#N/A	60
CONFLICT SPEED [km/h]					45		35	
CLEARANCE INTERVAL [s]		5.6		4.9	#N/A	5.7	#N/A	4.9
YELLOW [s]		4.5		4.0	#N/A	4.5	#N/A	4.0
RED [s]		1.1		0.9	#N/A	1.2	#N/A	0.9
PED WALK [s]		7		7		7		7
PED CLEAR [s]		6		8		6		7
AWF DISTANCE [m]		104				104		
AWF TIME [s]		5.7				5.7		
AWF TIME [s] [CH1/CH2]		5.7				5.7		

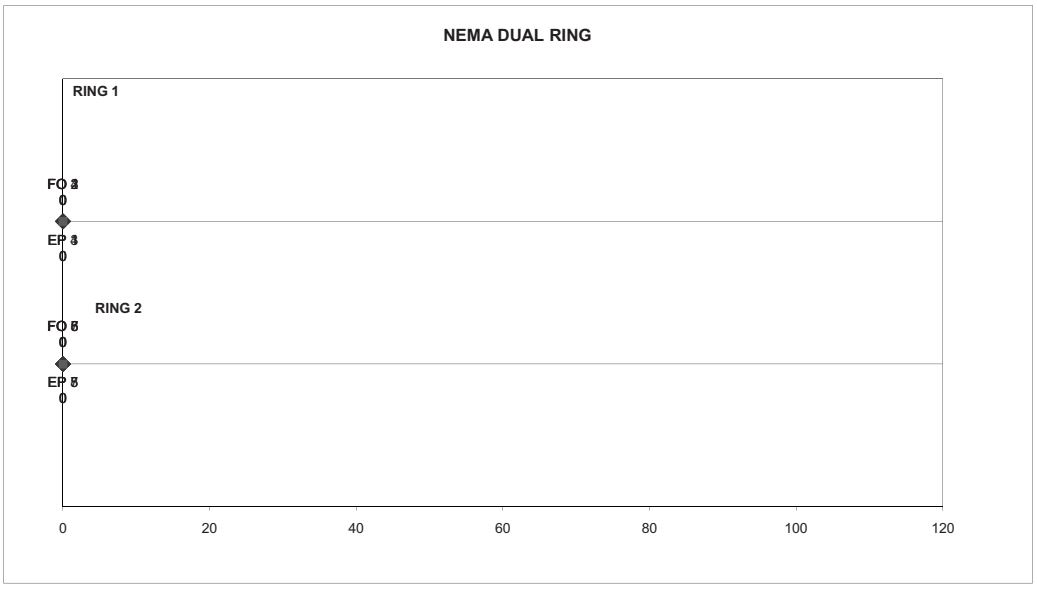
COORDINATION SHEET 1

DATE ISSUED	MARCH 16, 2009	INTERSECTION	ROUTE 13 AT 16 AVENUE
MAXPLAN (1 TO 8)		LOCATION	LANGLEY
DAY OF WEEK		CYCLE LENGTH [s]	
TIME OF DAY		OFFSET TIME [s]	

PHASE NUMBER	1	2	3	4	5	6	7	8
PHASE SETTING	OFF	ON	OFF	ON	ON	ON	ON	ON
DESCRIPTION		ROUTE 13 NB		16 AVENUE EB	NB LT #REF!	ROUTE 13 SB	16 AVENUE EB LT	16 AVENUE WB
FUNCTION		A1		B1	A1->	A2	B1->	B2
OVERLAP								
MINIMUM GREEN		10.0		7.0	6.0	10.0	6.0	7.0
PASSAGE		3.0		3.0	3.0	3.0	3.0	3.0
CLEARANCE INTERVAL [s]		5.7		4.9	#N/A	5.7	4.9	4.9
YELLOW [s]		4.5		4.0	#N/A	4.5	4.0	4.0
RED [s]		1.2		0.9	#N/A	1.2	0.9	0.9
PED WALK [s]		7.0		7.0		7.0		7.0
PED CLEAR [s]		6.0		8.0		6.0		7.0
AWF TIME [s]		5.7				5.7		
COORDINATED PHASES								
TOTAL SPLIT								
TOTAL SPLIT GREEN								

PHASE NUMBER	1	2	3	4	5	6	7	8
FORCE OFF (FO)								
START OF PERMISSIVE (SP)			0				0	
END OF PERMISSIVE (EP)								
END OF PED PERMISSIVE (EPP)								
MAX GREEN								

Note: Force Off and Permissive number corresponds to Phase number.



COORDINATION SHEET 2

DATE ISSUED	MARCH 16, 2009	INTERSECTION	ROUTE 13 AT 16 AVENUE
MAXPLAN (1 TO 8)		LOCATION	LANGLEY
DAY OF WEEK		CYCLE LENGTH [s]	
TIME OF DAY		OFFSET TIME [s]	

PHASE NUMBER	1	2	3	4	5	6	7	8
PHASE SETTING	OFF	ON	OFF	ON	ON	ON	ON	ON
DESCRIPTION		ROUTE 13 NB		16 AVENUE EB	NB LT #REF!	ROUTE 13 SB	16 AVENUE EB LT	16 AVENUE WB
FUNCTION		A1		B1	A1->	A2	B1->	B2
OVERLAP								
MINIMUM GREEN		10.0		7.0	6.0	10.0	6.0	7.0
PASSAGE		3.0		3.0	3.0	3.0	3.0	3.0
CLEARANCE INTERVAL [s]		5.7		4.9	#N/A	5.7	4.9	4.9
YELLOW [s]		4.5		4.0	#N/A	4.5	4.0	4.0
RED [s]		1.2		0.9	#N/A	1.2	0.9	0.9
PED WALK [s]		7.0		7.0		7.0		7.0
PED CLEAR [s]		6.0		8.0		6.0		7.0
AWF TIME [s]		5.7				5.7		
COORDINATED PHASES								
TOTAL SPLIT								
TOTAL SPLIT GREEN								

PHASE NUMBER	1	2	3	4	5	6	7	8
FORCE OFF (FO)								
START OF PERMISSIVE (SP)			0				0	
END OF PERMISSIVE (EP)								
END OF PED PERMISSIVE (EPP)								
MAXPLAN GREEN								

Note: Force Off and Permissive number corresponds to Phase number.

COORDINATION SHEET 3

DATE ISSUED	MARCH 16, 2009	INTERSECTION	ROUTE 13 AT 16 AVENUE
MAXPLAN (1 TO 8)		LOCATION	LANGLEY
DAY OF WEEK		CYCLE LENGTH [s]	
TIME OF DAY		OFFSET TIME [s]	

PHASE NUMBER	1	2	3	4	5	6	7	8
PHASE SETTING	OFF	ON	OFF	ON	ON	ON	ON	ON
DESCRIPTION		ROUTE 13 NB		16 AVENUE EB	NB LT #REF!	ROUTE 13 SB	16 AVENUE EB LT	16 AVENUE WB
FUNCTION		A1		B1	A1->	A2	B1->	B2
OVERLAP								
MINIMUM GREEN		10.0		7.0	6.0	10.0	6.0	7.0
PASSAGE		3.0		3.0	3.0	3.0	3.0	3.0
CLEARANCE INTERVAL [s]		5.7		4.9	#N/A	5.7	4.9	4.9
YELLOW [s]		4.5		4.0	#N/A	4.5	4.0	4.0
RED [s]		1.2		0.9	#N/A	1.2	0.9	0.9
PED WALK [s]		7.0		7.0		7.0		7.0
PED CLEAR [s]		6.0		8.0		6.0		7.0
AWF TIME [s]		5.7				5.7		
COORDINATED PHASES								
TOTAL SPLIT								
TOTAL SPLIT GREEN								

PHASE NUMBER	1	2	3	4	5	6	7	8
FORCE OFF (FO)								
START OF PERMISSIVE (SP)			0				0	
END OF PERMISSIVE (EP)								
END OF PED PERMISSIVE (EPP)								
MAXPLAN GREEN								

Note: Force Off and Permissive number corresponds to Phase number.

COORDINATION SHEET 4

DATE ISSUED	MARCH 16, 2009	INTERSECTION	ROUTE 13 AT 16 AVENUE
MAXPLAN (1 TO 8)		LOCATION	LANGLEY
DAY OF WEEK		CYCLE LENGTH [s]	
TIME OF DAY		OFFSET TIME [s]	

PHASE NUMBER	1	2	3	4	5	6	7	8
PHASE SETTING	OFF	ON	OFF	ON	ON	ON	ON	ON
DESCRIPTION		ROUTE 13 NB		16 AVENUE EB	NB LT #REF!	ROUTE 13 SB	16 AVENUE EB LT	16 AVENUE WB
FUNCTION		A1		B1	A1->	A2	B1->	B2
OVERLAP								
MINIMUM GREEN		10.0		7.0	6.0	10.0	6.0	7.0
PASSAGE		3.0		3.0	3.0	3.0	3.0	3.0
CLEARANCE INTERVAL [s]		5.7		4.9	#N/A	5.7	4.9	4.9
YELLOW [s]		4.5		4.0	#N/A	4.5	4.0	4.0
RED [s]		1.2		0.9	#N/A	1.2	0.9	0.9
PED WALK [s]		7.0		7.0		7.0		7.0
PED CLEAR [s]		6.0		8.0		6.0		7.0
AWF TIME [s]		5.7				5.7		
COORDINATED PHASES								
TOTAL SPLIT								
TOTAL SPLIT GREEN								

PHASE NUMBER	1	2	3	4	5	6	7	8
FORCE OFF (FO)								
START OF PERMISSIVE (SP)			0				0	
END OF PERMISSIVE (EP)								
END OF PED PERMISSIVE (EPP)								
MAXPLAN GREEN								

Note: Force Off and Permissive number corresponds to Phase number.

COORDINATION SHEET 5

DATE ISSUED	MARCH 16, 2009	INTERSECTION	ROUTE 13 AT 16 AVENUE
MAXPLAN (1 TO 8)		LOCATION	LANGLEY
DAY OF WEEK		CYCLE LENGTH [s]	
TIME OF DAY		OFFSET TIME [s]	

PHASE NUMBER	1	2	3	4	5	6	7	8
PHASE SETTING	OFF	ON	OFF	ON	ON	ON	ON	ON
DESCRIPTION		ROUTE 13 NB		16 AVENUE EB	NB LT #REF!	ROUTE 13 SB	16 AVENUE EB LT	16 AVENUE WB
FUNCTION		A1		B1	A1->	A2	B1->	B2
OVERLAP								
MINIMUM GREEN		10.0		7.0	6.0	10.0	6.0	7.0
PASSAGE		3.0		3.0	3.0	3.0	3.0	3.0
CLEARANCE INTERVAL [s]		5.7		4.9	#N/A	5.7	4.9	4.9
YELLOW [s]		4.5		4.0	#N/A	4.5	4.0	4.0
RED [s]		1.2		0.9	#N/A	1.2	0.9	0.9
PED WALK [s]		7.0		7.0		7.0		7.0
PED CLEAR [s]		6.0		8.0		6.0		7.0
AWF TIME [s]		5.7				5.7		
COORDINATED PHASES								
TOTAL SPLIT								
TOTAL SPLIT GREEN								

PHASE NUMBER	1	2	3	4	5	6	7	8
FORCE OFF (FO)								
START OF PERMISSIVE (SP)			0				0	
END OF PERMISSIVE (EP)								
END OF PED PERMISSIVE (EPP)								
MAXPLAN GREEN								

Note: Force Off and Permissive number corresponds to Phase number.

COORDINATION SHEET 6

DATE ISSUED	MARCH 16, 2009	INTERSECTION	ROUTE 13 AT 16 AVENUE
MAXPLAN (1 TO 8)		LOCATION	LANGLEY
DAY OF WEEK		CYCLE LENGTH [s]	
TIME OF DAY		OFFSET TIME [s]	

PHASE NUMBER	1	2	3	4	5	6	7	8
PHASE SETTING	OFF	ON	OFF	ON	ON	ON	ON	ON
DESCRIPTION		ROUTE 13 NB		16 AVENUE EB	NB LT #REF!	ROUTE 13 SB	16 AVENUE EB LT	16 AVENUE WB
FUNCTION		A1		B1	A1->	A2	B1->	B2
OVERLAP								
MINIMUM GREEN		10.0		7.0	6.0	10.0	6.0	7.0
PASSAGE		3.0		3.0	3.0	3.0	3.0	3.0
CLEARANCE INTERVAL [s]		5.7		4.9	#N/A	5.7	4.9	4.9
YELLOW [s]		4.5		4.0	#N/A	4.5	4.0	4.0
RED [s]		1.2		0.9	#N/A	1.2	0.9	0.9
PED WALK [s]		7.0		7.0		7.0		7.0
PED CLEAR [s]		6.0		8.0		6.0		7.0
AWF TIME [s]		5.7				5.7		
COORDINATED PHASES								
TOTAL SPLIT								
TOTAL SPLIT GREEN								

PHASE NUMBER	1	2	3	4	5	6	7	8
FORCE OFF (FO)								
START OF PERMISSIVE (SP)			0				0	
END OF PERMISSIVE (EP)								
END OF PED PERMISSIVE (EPP)								
MAXPLAN GREEN								

Note: Force Off and Permissive number corresponds to Phase number.

LOOK-UP TABLES

POSTED SPEED ADJUSTMENT TABLE

Posted Speed	Approach Speed	Clearance Speed
50	40	40
60	45	45
70	55	55
80	55	55

THROUGH MOVEMENT YELLOW-RED SPLIT TABLE

Clearance Interval	Yellow	Red
4.0	3.5	0.5
4.1	3.6	0.5
4.2	3.7	0.5
4.3	3.8	0.5
4.4	3.9	0.5
4.5	4.0	0.5
4.6	4.0	0.6
4.7	4.0	0.7
4.8	4.0	0.8
4.9	4.0	0.9
5.0	4.0	1.0
5.1	4.1	1.0
5.2	4.2	1.0
5.3	4.3	1.0
5.4	4.4	1.0
5.5	4.5	1.0
5.6	4.5	1.1
5.7	4.5	1.2
5.8	4.5	1.3
5.9	4.5	1.4
6.0	4.5	1.5
6.1	4.6	1.5
6.2	4.7	1.5
6.3	4.8	1.5
6.4	4.9	1.5
6.5	5.0	1.5

TURNING MOVEMENT YELLOW-RED SPLIT TABLE

Clearance Interval	Yellow	Red
3.5	3.0	0.5
3.6	3.1	0.5
3.7	3.2	0.5
3.8	3.3	0.5
3.9	3.4	0.5
4.0	3.5	0.5
4.1	3.5	0.6
4.2	3.5	0.7
4.3	3.5	0.8
4.4	3.5	0.9
4.5	3.5	1.0
4.6	3.6	1.0
4.7	3.7	1.0
4.8	3.8	1.0
4.9	3.9	1.0
5.0	4.0	1.0
5.1	4.1	1.0
5.2	4.2	1.0
5.3	4.3	1.0
5.4	4.4	1.0
5.5	4.5	1.0
5.6	4.5	1.1
5.7	4.5	1.2
5.8	4.5	1.3
5.9	4.5	1.4
6.0	4.5	1.5
6.1	4.6	1.5
6.2	4.7	1.5
6.3	4.8	1.5
6.4	4.9	1.5
6.5	5.0	1.5

AWF FRICTION FACTORS

Posted Speed	Friction Factor
40.0	0.38
50.0	0.36
60.0	0.34
70.0	0.32
80.0	0.31
90.0	0.30
100.0	0.30