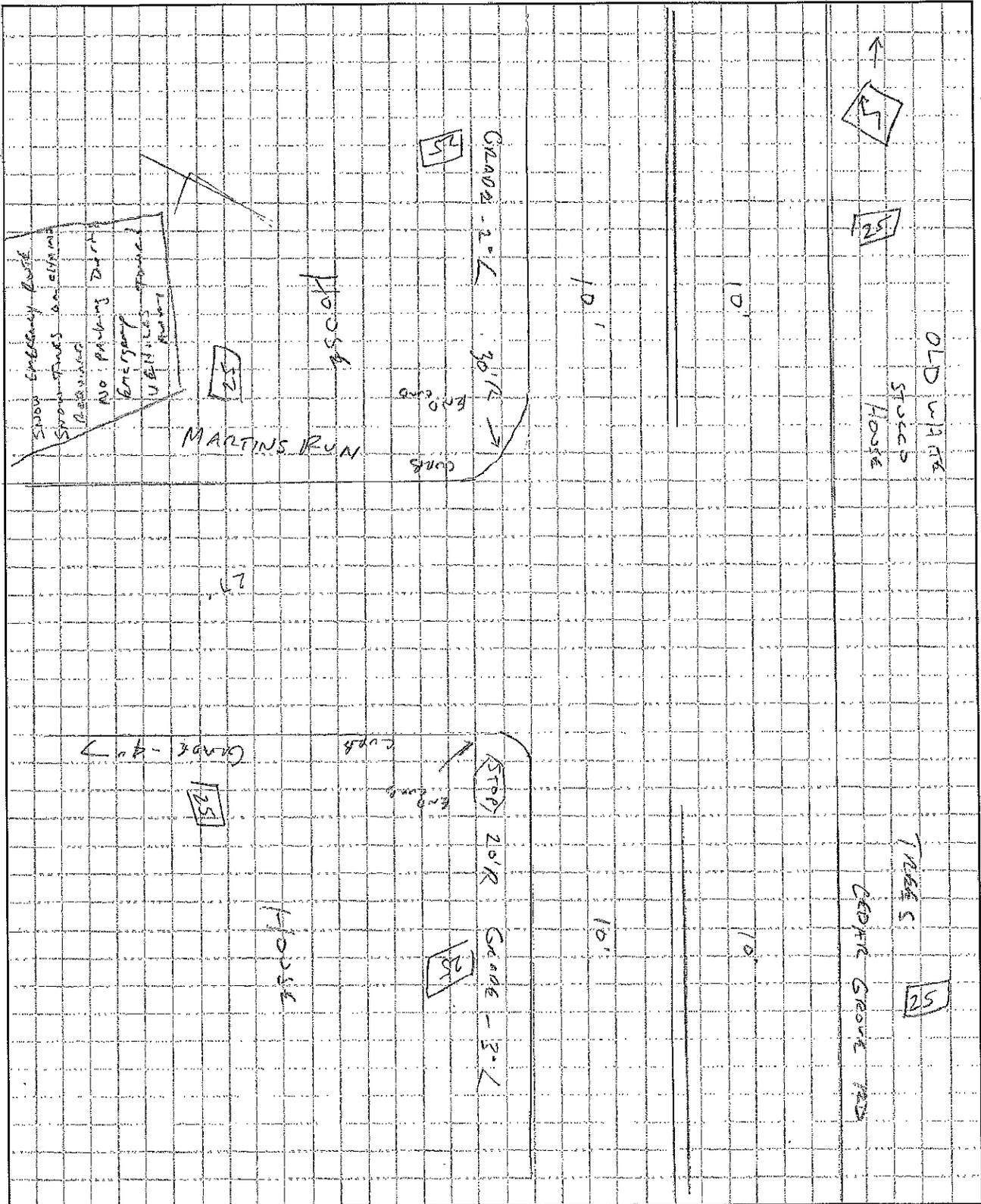


## **APPENDIX A**

### **Intersection Sketches and Traffic Signal Plans**

RESPONSIVE  
TRANSPORTATION  
SOLUTIONS

Job \_\_\_\_\_ McM Project No. \_\_\_\_\_ Sheet \_\_\_\_\_ of \_\_\_\_\_  
 Description CEPAR GROVE RD Designed By JEFF CRANE Date 10-22-15  
MARTINS RUN Checked By \_\_\_\_\_ Date \_\_\_\_\_







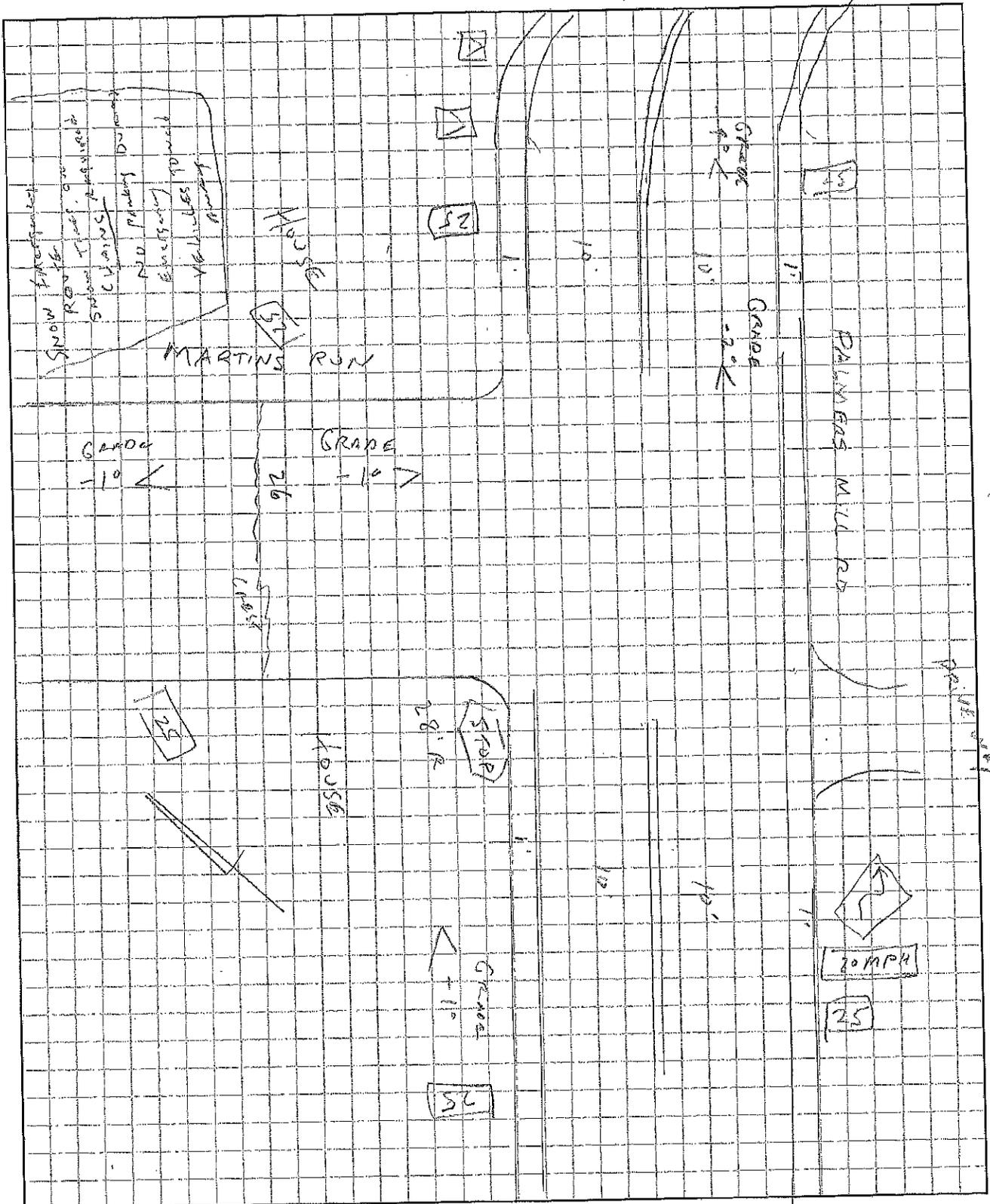




# MCMMAHON

TRANSPORTATION ENGINEERS & PLANNERS

Job \_\_\_\_\_ McMahan Project No. \_\_\_\_\_ Sheet \_\_\_\_\_ of \_\_\_\_\_  
 Description PALMERS MILL RD Designed By JEFF CRANE Date 10-22-15  
& MARTINS RUN Checked By \_\_\_\_\_ Date \_\_\_\_\_



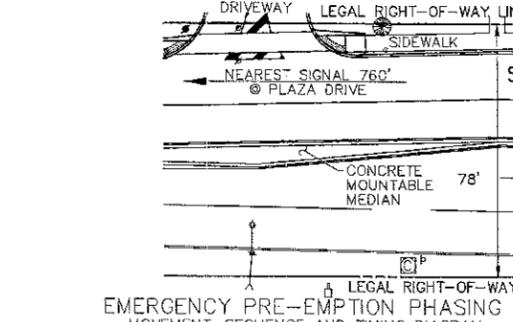
MOVEMENT, SEQUENCE AND TIMING DIAGRAM

PHASE	1+5	2+5	1+6	2+6	4+8
1	R	R	R	R	R
2	R	R	R	R	R
3	R	R	R	R	R
4.5	R	R	R	R	R
6,7	R	R	R	R	R
8,9	R	R	R	R	R
10,11	H	H	H	H	H
12,13	H	H	H	H	H
14,15	H	H	H	H	H
FIXED					
MINIMUM	3	3	3	15	3
PASSAGE	3	3	3	1	3
MAXIMUM 1	7	7	7	24	10
MAXIMUM 2	7	7	7	20	10
PEDESTRIAN*		5	5	7	21
MEMORY	NL	NL	NL	MX	NL

PROGRAM 1	3	4	2	3	4	2	16	4	2	47	4	2	28	4	3	(110 SEC)
PROGRAM 2	4	4	2	4	4	2	17	4	2	46	4	2	28	4	3	(110 SEC)
PROGRAM 3	3	4	2	3	4	2	15	4	2	58	4	2	28	4	3	(120 SEC)
PROGRAM 4	4	4	2	4	4	2	6	4	2	27	4	2	28	4	3	(80 SEC)
PROGRAM 5	4	4	2	4	4	2	18	4	2	55	4	2	28	4	3	(120 SEC)

\*UPON PEDESTRIAN ACTUATION, OTHERWISE HAND SYMBOL AT ALL TIMES PEDESTRIAN COUNTDOWN TIMER TO COUNT DOWN DURING FLASHING HAND INTERVAL

- OPERATION NOTES
- 1. IF FOLLOWED BY 1+6
  - 2. IF FOLLOWED BY 2+5
  - 3. IF FOLLOWED BY 2+6
  - 4. IF FOLLOWED BY 2+6
  - 5. TIMING WILL BE AS SHOWN IN PHASE 2+6. IT MAY TIME OUT IN THIS PHASE OR BE COMPLETED IN PHASE 2+6



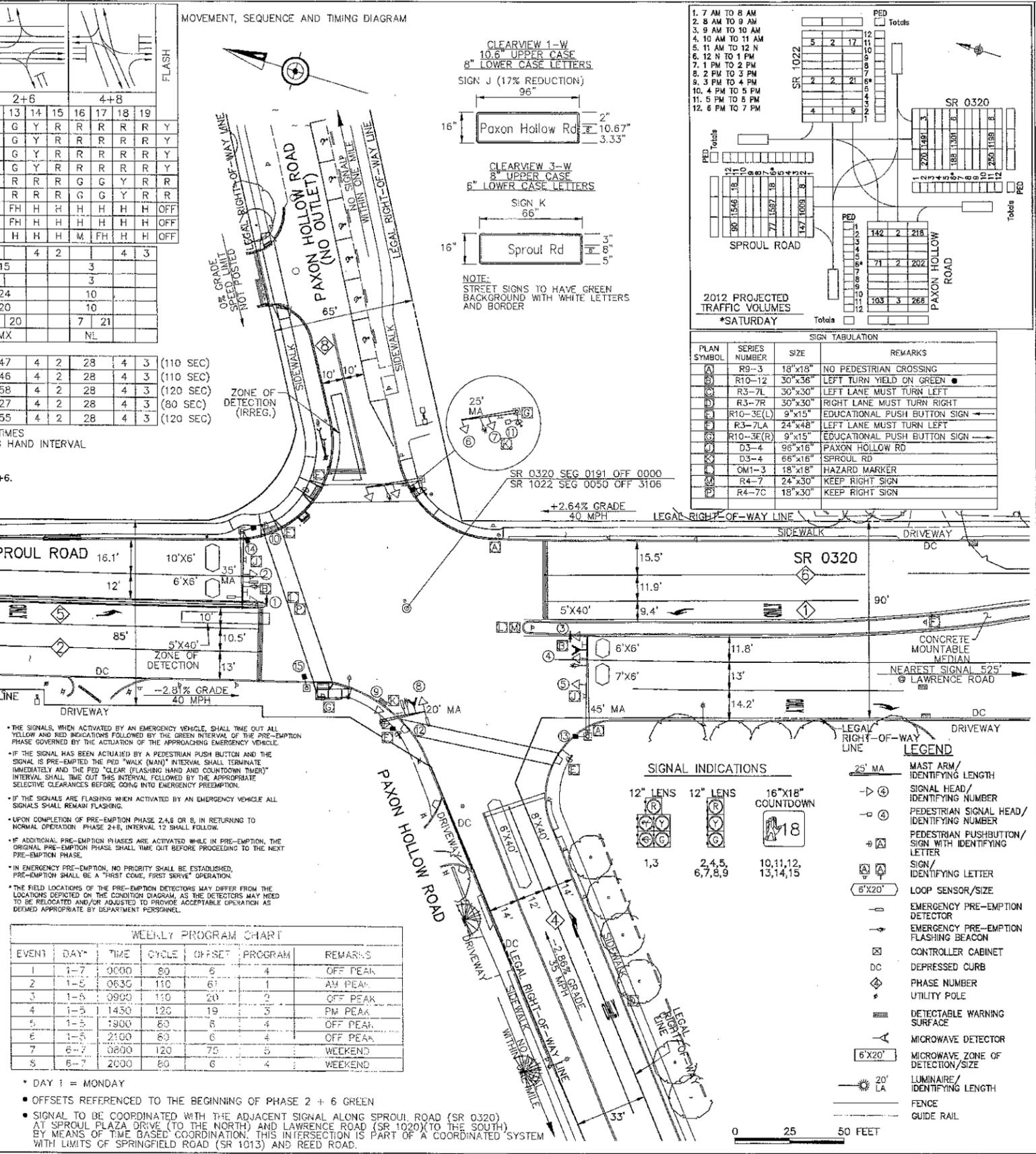
PHASE	2	6	4	8
1	R	R	R	R
2	R	R	R	R
3	R	R	R	R
4.5	R	R	R	R
6,7	R	R	R	R
8,9	R	R	R	R
10,11	H	H	H	H
12,13	H	H	H	H
14,15	H	H	H	H
FIXED TIME	* 4 2	* 4 2	* 4 3	* 4 3

FOR DURATION OF PRE-EMPTION

NOTE: IF PRE-EMPTION EQUIPMENT HAS ENCODING CAPABILITIES FOR VEHICLE IDENTIFICATION, IT IS RECOMMENDED TO HAVE THE ZERO "00" FEATURE ON TO GIVE UNCODED EMITTERS THE ABILITY TO ACTIVATE THE EMERGENCY PRE-EMPTION.

EMERGENCY PRE-EMPTION NOTES:

- CONTROLLER TO BE EQUIPPED WITH EMERGENCY PRE-EMPTION FOR THE EASTBOUND & WESTBOUND APPROACHES OF SPROUL ROAD (SR 0320), AND THE NORTHBOUND & SOUTHBOUND APPROACHES OF PAXON HOLLOW ROAD (SR 1022), WITH A FLASHING FAULT SAFE DEVICE FOR EACH DIRECTION OF OPERATION.
- THIS FAULT SAFE DEVICE SHALL CONSIST OF A FLASHING WHITE FLOOD LIGHT, AND SHALL BEGIN FLASHING WHEN THE PRE-EMPTION PHASE DISPLAYS PRE-EMPTION GREEN FOR THE EMERGENCY VEHICLE APPROACH.
- THE SIGNALS, WHEN ACTIVATED BY EMERGENCY VEHICLE, SHALL TERMINATE ALL GREEN INDICATIONS IMMEDIATELY, FOLLOWED BY THE COMPLETE YELLOW AND RED CLEARANCE INTERVALS, ACCORDINGLY, THEN THE GREEN INTERVAL FOR THE PRE-EMPTION PHASE SHALL FOLLOW. ONLY THOSE PHASES NOT POSING A YELLOW TRAP CONDITION MAY REMAIN GREEN (1-5, 2+5 OR 6) WHEN GOVERNED BY APPROACHING EMERGENCY VEHICLE.



WEEKLY PROGRAM CHART

EVENT	DAY*	TIME	CYCLE	OFFSET	PROGRAM	REMARKS
1	1-7	0000	80	6	4	OFF PEAK
2	1-5	0630	110	6	1	AM PEAK
3	1-5	0900	130	20	2	PM PEAK
4	1-5	1450	120	19	3	PM PEAK
5	1-5	1900	80	6	4	OFF PEAK
6	1-5	2100	80	6	4	OFF PEAK
7	6-7	0800	120	75	5	WEEKEND
8	6-7	2000	80	6	4	WEEKEND

- \* DAY 1 = MONDAY
- OFFSETS REFERENCED TO THE BEGINNING OF PHASE 2 + 6 GREEN
- SIGNAL TO BE COORDINATED WITH THE ADJACENT SIGNAL ALONG SPROUL ROAD (SR 0320) AT SPROUL PLAZA DRIVE (TO THE NORTH) AND LAWRENCE ROAD (SR 1020) (TO THE SOUTH) BY MEANS OF TIME BASED COORDINATION, THIS INTERSECTION IS PART OF A COORDINATED SYSTEM WITH LIMITS OF SPRINGFIELD ROAD (SR 1013) AND REED ROAD.

2012 PROJECTED TRAFFIC VOLUMES \*SATURDAY

PLAN SYMBOL	SERIES NUMBER	SIZE	REMARKS
A	R9-3	18"x18"	NO PEDESTRIAN CROSSING
B	R10-12	30"x36"	LEFT TURN YIELD ON GREEN
C	R3-7L	30"x30"	LEFT LANE MUST TURN LEFT
D	R3-7R	30"x30"	RIGHT LANE MUST TURN RIGHT
E	R10-3E(L)	9"x15"	EDUCATIONAL PUSH BUTTON SIGN
F	R3-7LA	24"x48"	LEFT LANE MUST TURN LEFT
G	R10-3E(R)	9"x15"	EDUCATIONAL PUSH BUTTON SIGN
H	D3-4	96"x16"	PAXON HOLLOW RD
I	D3-4	66"x16"	SPROUL RD
J	OM1-3	18"x18"	HAZARD MARKER
K	R4-7	24"x30"	KEEP RIGHT SIGN
L	R4-7C	18"x30"	KEEP RIGHT SIGN

GENERAL NOTES

NO MODIFICATIONS OF THIS INSTALLATION ARE PERMITTED UNLESS PRIOR APPROVAL IS GRANTED IN WRITING BY A REPRESENTATIVE OF THE DEPARTMENT OF TRANSPORTATION.

ALL MAINTENANCE WORK INCLUDING TRIMMING OF TREES, NECESSARY FOR PROPER VISIBILITY OF THE SIGNALS IS THE RESPONSIBILITY OF THE PERMITEE.

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH PUBLICATION NO. 212.

POST MOUNTED SIGNALS SHALL BE INSTALLED WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF CURB OR THE EDGE OF THE SHOULDER. SUPPORT POLES FOR OVERHEAD SIGNALS SHALL ALSO HAVE A MINIMUM CLEARANCE HORIZONTALLY OF 2 FEET.

SIGNALS ERECTED OVER THE ROADWAY SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 16 FT. ABOVE THE ROADWAY. POST MOUNTED SIGNALS SHALL BE A MINIMUM OF 8 FT. ABOVE THE SIDEWALK OR PAVEMENT.

ALL OVERHEAD SIGNALS MUST BE RIGIDLY MOUNTED, TOP AND BOTTOM, AND EQUIPPED WITH BACKPLATES.

THE MINIMUM HORIZONTAL DISTANCE BETWEEN SIGNALS MEASURED AT RIGHT ANGLES TO THE APPROACH SHALL BE 8 FEET.

EXACT LOCATION OF DETECTORS SHALL BE DETERMINED PRIOR TO INSTALLATION BY A REPRESENTATIVE OF PENNDOT.

CURBING TO BE INSTALLED BY MUNICIPALITY AND WHERE NOTED, SHALL BE PLAIN CEMENT CONCRETE CURB OR GRANITE CURB, INSTALLED IN ACCORDANCE WITH DEPARTMENT SPECIFICATIONS FORM 408.

PRIOR TO INSTALLATION THE CONTRACTOR SHALL CONSULT WITH THE LOCAL OFFICIALS AND UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITEE COMPLIES WITH THE PROVISIONS OF THE LATEST AMENDMENT TO ACT 287, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES, DATED DECEMBER 20, 1974.

WHEN LIQUID FUELS MONEY IS USED, SIGNAL INSTALLATION MUST CONFORM TO FORM 408 AND A COPY OF THE PROPOSED SPECIFICATIONS MUST BE SUBMITTED TO THE DISTRICT TRAFFIC UNIT FOR REVIEW PRIOR TO BIDDING.

PERMITEE SHALL OBTAIN A HIGHWAY OCCUPANCY PERMIT FOR ANY CHANGES IN INTERSECTION GEOMETRY REGARDING EXCAVATION.

CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE, MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-8800 SERIES.

LEGEND

- MAST ARM/IDENTIFYING LENGTH
- SIGNAL HEAD/IDENTIFYING NUMBER
- PEDESTRIAN SIGNAL HEAD/IDENTIFYING NUMBER
- PEDESTRIAN PUSHBUTTON/SIGN WITH IDENTIFYING LETTER
- SIGN/IDENTIFYING LETTER
- LOOP SENSOR/SIZE
- EMERGENCY PRE-EMPTION DETECTOR
- EMERGENCY PRE-EMPTION FLASHING BEACON
- CONTROLLER CABINET
- DEPRESSED CURB
- PHASE NUMBER
- UTILITY POLE
- DETECTABLE WARNING SURFACE
- MICROWAVE DETECTOR
- MICROWAVE ZONE OF DETECTION/SIZE
- LUMINAIRE/IDENTIFYING LENGTH
- FENCE
- GUIDE RAIL

REVIEWED: ANTHONY HAMADAY 1/4/2013

MUNICIPAL OFFICIAL

RECOMMENDED: EA 10/23/92

DOUGLAS MAY 10/23/92

DISTRICT TRAFFIC ENGINEER

NO	REVISION	DES/REVW	DATE	REVW	DATE	RECOM	DATE
1	CLOSED LOOP SYSTEM	PAI	10/16/00	EA	12/16/95	DWM	02/16/95
2	ADDED EMERGENCY PREEMPTION	PAI	10/16/00	RP	12/14/00	LRB	12/22/00
3	ADDED STREET NAME SIGNS	PAI	06/26/01	MK	08/03/01	LRB	08/07/01
4	REFINED TIMINGS	PAI	02/28/03	MK	04/18/03	LRB	04/18/03
5	REMOVED SIGN F NO TURN ON RED	MAP	06/22/10			ABP	09/22/10
6	ADD SB LEFT TURN LANE, COUNTDOWN H/MS, PHASE 5	TPD	1/31/13	PL	1/31/13	LRB	2/2/13
7	AS-BUILT	TPD					
8	MODIFY TIMING (TWT)	LBK	11/25/14				

SHEET 2 OF 2 PERMIT # 63-0418 FILE # 0418