

PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE INSTALLATION OF LED SIGNAL HEADS, LED COUNTDOWN PEDESTRIAN SIGNAL HEADS, APS PUSHBUTTONS AND SIGNS TO MODIFY THE LEFT TURNS FOR MD 108 EASTBOUND AND WESTBOUND FROM EXCLUSIVE-PERMISSIVE PHASING TO EXCLUSIVE PHASING WITH FLASHING RED ARROW OPERATION AT THE INTERSECTION OF MD 108 (WATERLOO ROAD) AT LARK BROWN ROAD. MD 108 IS ASSUMED TO RUN IN AN EAST-WEST DIRECTION.

INTERSECTION OPERATION

THE INTERSECTION WILL OPERATE IN A NEMA SIX-PHASE FULL-TRAFFIC-ACTUATED MODE WITH A CONCURRENT PEDESTRIAN PHASE FOR THE NORTH LEG AND AN ALTERNATE PEDESTRIAN PHASE FOR THE EAST LEG OF THE INTERSECTION. THE MD 108 EASTBOUND AND WESTBOUND LEFT TURNS WILL OPERATE IN EXCLUSIVE PHASING WITH FLASHING RED ARROW OPERATION AT TIMES TO BE DETERMINED BY SHA. THE NORTH AND SOUTH APPROACHES OPERATE WITH SPLIT PHASING.

CONTROLLER REQUIREMENTS

THE EXISTING FULL-TRAFFIC-ACTUATED EIGHT-PHASE TRAFFIC SIGNAL CONTROLLER HOUSED IN A BASE MOUNTED CABINET WITH VIDEO DETECTION INTERFACE EQUIPMENT SHALL REMAIN. A 2 WIRE APS CENTRAL CONTROL UNIT SHALL BE FURNISHED BY THE CONTRACTOR AND INSTALLED BY SHA.

EQUIPMENT LIST "A, B & C"

A. EQUIPMENT TO BE SUPPLIED BY SHA.

ITEM NO.	DESCRIPTION	UNIT	QUANTITY
9570	SHEET ALUMINUM GROUND MOUNTED SIGN 1 - W11-2 FY 30"X30" 1 - M6-2 FY 21"X15"	SF	9
9571	SHEET ALUMINUM MAST ARM / POLE MOUNTED SIGN 2 - R10-12(2) 48"X36" 4 - R10-3(1) 9"X15"	SF	28

B. EQUIPMENT TO BE FURNISHED AND/OR INSTALLED BY THE CONTRACTOR.

ITEM NO.	DESCRIPTION	UNIT	QUANTITY
1001	MAINTENANCE OF TRAFFIC	EA	1
2001	CLASS 2 EXCAVATION	CY	7
5003	REMOVAL OF EXISTING PERMANENT PAVEMENT LINE MARKINGS	LF	480
5004	12 INCH WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINES	LF	465
5005	24 INCH WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINES	LF	80
6001	STANDARD TYPE A COMBINATION CURB AND GUTTER 12 INCH GUTTER PAN 8 INCH DEPTH	LF	270
6002	5 INCH CONCRETE SIDEWALK	SF	875
6003	DETECTABLE WARNING SURFACE FOR CURB RAMPS	SF	71
8001	12 INCH LED SIGNAL HEAD SECTION	EA	18
8002	2-WIRE CENTRAL CONTROL UNIT	EA	1
8005	ADJUST HANDHOLE TO GRADE WITH NEW FRAME AND COVER	EA	1
8008	AUDIBLE/TACTILE PEDESTRIAN PUSHBUTTON STATION AND SIGNS	EA	4
8009	BREAKAWAY PEDESTAL POLE (ANY SIZE)	EA	3
8015	LED 16 INCH COUNTDOWN PEDESTRIAN SIGNAL HEAD	EA	3
8023	REMOVE & DISPOSE OF EQUIPMENT (PER ASSIGNMENT)	EA	1
8033	DISCONNECT, PULL-BACK & REROUTE CABLES	LF	20
8038	UP TO 4 INCH SCHEDULE 80 RIGID PVC CONDUIT-TRENCHED	LF	50
8039	WOOD SIGN SUPPORTS UP TO 4' X 6'	LF	17
8040	INSTALL OVERHEAD OR GROUND MOUNTED SIGN (INCLUDING ALL HARDWARE)	SF	37
8042	NO. 6 AWG STRANDED BARE COPPER GROUND WIRE	LF	70
8051	CUT, CLEAN, GALVANIZE AND CAP TRAFFIC SIGNAL STRUCTURE	EA	1
8053	ELECTRICAL CABLE - 2 CONDUCTOR (NO. 14 AWG)	LF	445
8055	ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 AWG)	LF	455
8056	ELECTRICAL CABLE - 7 CONDUCTOR (NO. 14 AWG)	LF	600
8066	FURNISH AND INSTALL TURFGRASS SOD ESTABLISHMENT	SY	41

C. ALL MATERIALS TO BE REMOVED BY THE CONTRACTOR SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

GENERAL NOTES

- THE CONTRACTOR SHALL VERIFY ALL PROPOSED POLE LOCATIONS PRIOR TO INSTALLATION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR TERMINATING ALL SIGNAL CABLE TO THE APPROPRIATE TERMINALS AND PROPERLY LABELING EACH CABLE.
- ALL UNUSED CABLE SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR.
- UNDERGROUND UTILITIES SHOWN ON THESE PLANS ARE SCHEMATIC ONLY AND MAY NOT BE COMPLETE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING "MISS UTILITY" PRIOR TO CONSTRUCTION SO THAT ALL UTILITIES MAY BE LOCATED IN THE FIELD. IF THE CONTRACTOR PERCEIVES THAT A CONFLICT BETWEEN THE UTILITIES AND THE TRAFFIC SIGNAL WILL OCCUR, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IMMEDIATELY SO THAT THE CONFLICT MAY BE RESOLVED.
- ALL PEDESTAL FOUNDATION TOPS SHALL BE INSTALLED FLUSH WITH SIDEWALK GRADE.
- LOCATION OF ACCESSIBLE PEDESTRIAN SIGNAL PUSHBUTTONS MUST MEET LOCATION REQUIREMENTS OF MUTCD SECTION 4E.09 AND FIGURE 4E.2 AND THE NCHRP PUBLICATION, "ACCESSIBLE PEDESTRIAN SIGNALS: GUIDE TO BEST PRACTICE." IF NOT MET, THE CONTRACTOR IS TO STOP WORK ON PUSHBUTTON LOCATIONS UNTIL A DESIGN WAIVER IS OBTAINED, APPROVED BY THE DIRECTOR, OFFICE OF TRAFFIC AND SAFETY.
- PUSHBUTTONS ARE TO BE LOCATED SO THAT THEY CAN BE ACTIVATED BY A PERSON IN A WHEELCHAIR REACHING LESS THAN 18" FROM A 60" X 60" LEVEL LANDING AREA WITH A CROSS SLOPE OF LESS THAN OR EQUAL TO 2%.
- THE 10' SEPARATION BETWEEN PUSHBUTTONS IS TO BE MEASURED FROM FACE OF PUSHBUTTON TO FACE OF PUSHBUTTON. NOT CENTER OF POLE TO CENTER OF POLE.
- PUSHBUTTON ARROWS AND SIGNS ARE TO BE ORIENTED PARALLEL TO THE CROSSING FOR WHICH THEY ARE INTENDED.

SPECIAL NOTES

APS WILL FUNCTION AS FOLLOWS:

TO CROSS MD 108 (WATERLOO ROAD):

- WHEN PEDESTRIAN LOCATES AND PRESSES PUSHBUTTON FOR AN EXTENDED TIME, THE PUSHBUTTON UNIT MESSAGE WILL BE "WAIT TO CROSS WATERLOO AT LARK BROWN. WAIT."
- WHEN WALK PHASE BEGINS, THE MESSAGE WILL BE A RAPID TICK WHICH WILL LAST FOR THE DURATION OF THE WALK PHASE.

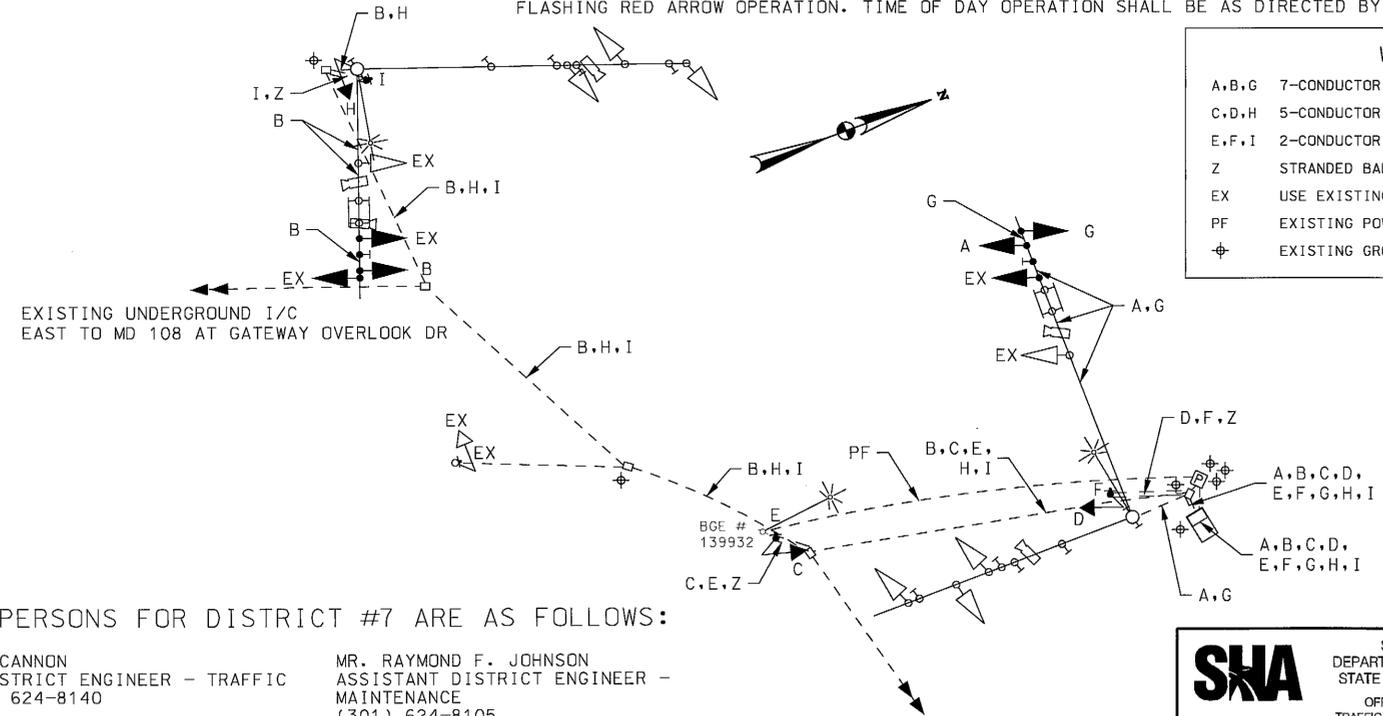
TO CROSS LARK BROWN ROAD:

- WHEN PEDESTRIAN LOCATES AND PRESSES PUSHBUTTON FOR AN EXTENDED TIME, THE PUSHBUTTON UNIT MESSAGE WILL BE "WAIT TO CROSS LARK BROWN AT WATERLOO. WAIT."
- WHEN WALK PHASE BEGINS, THE MESSAGE WILL BE A RAPID TICK WHICH WILL LAST FOR THE DURATION OF THE WALK PHASE.

PHASING CHART

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
PHASE 1 AND 5	←G-←G-	R	R	←G-←G-	R	R	R	R	R	R	R	R	R	R	DW	DW	DW	DW
1 AND 5 CHANGE TO 1 AND 6, 2 AND 5, OR 2 AND 6																		
PHASE 1 AND 6	←C-←C-	G	G	←R-←R-	R	R	R	R	R	R	R	R	R	R	DW	DW	DW	DW
1 AND 6 CHANGE	←Y-←Y-	G	G	←R-←R-	R	R	R	R	R	R	R	R	R	R	DW	DW	DW	DW
PHASE 2 AND 5	←R-←R-	R	R	←G-←G-	G	G	R	R	R	R	R	R	R	R	DW	DW	DW	DW
2 AND 5 CHANGE	←R-←R-	R	R	←Y-←Y-	G	G	R	R	R	R	R	R	R	R	DW	DW	DW	DW
PHASE 2 AND 6	←R-←R-	G	G	←R-←R-	G	G	R	R	R	R	R	R	R	R	DW	DW	WK	WK
PED CLEARANCE	←R-←R-	G	G	←R-←R-	G	G	R	R	R	R	R	R	R	R	DW	DW	FL/DW	FL/DW
2 AND 6 CHANGE	←R-←R-	Y	Y	←R-←R-	Y	Y	R	R	R	R	R	R	R	R	DW	DW	DW	DW
PHASE 2 AND 6 ALT	FL	FL	G	G	FL	FL	G	G	R	R	R	R	R	R	DW	DW	WK	WK
PED CLEARANCE	FL	FL	G	G	FL	FL	G	G	R	R	R	R	R	R	DW	DW	FL/DW	FL/DW
PHASE 2 AND 6 ALT CHANGE	←R-←R-	Y	Y	←R-←R-	Y	Y	R	R	R	R	R	R	R	R	DW	DW	DW	DW
PHASE 4	←R-←R-	R	R	←R-←R-	R	R	R	R	R	R	←G-←G-	←G-←G-	G	G	DW	DW	DW	DW
4 CHANGE	←R-←R-	R	R	←R-←R-	R	R	R	R	R	R	Y	Y	Y	Y	DW	DW	DW	DW
PHASE 3	←R-←R-	R	R	←R-←R-	R	R	←G-←G-	←G-←G-	G	R	R	R	R	R	DW	DW	DW	DW
3 CHANGE	←R-←R-	R	R	←R-←R-	R	R	Y	Y	Y	Y	R	R	R	R	DW	DW	DW	DW
PHASE 3 ALT	←R-←R-	R	R	←R-←R-	R	R	←G-←G-	←G-←G-	G	R	R	R	R	R	WK	WK	DW	DW
PED CLEARANCE	←R-←R-	R	R	←R-←R-	R	R	←G-←G-	←G-←G-	G	R	R	R	R	R	FL/DW	FL/DW	DW	DW
3 ALT CHANGE	←R-←R-	R	R	←R-←R-	R	R	Y	Y	Y	Y	R	R	R	R	DW	DW	DW	DW
FLASHING OPERATION	FL	FL	FL/Y	FL/Y	FL	FL	FL/Y	FL/Y	FL/R	FL/R	FL/R	FL/R	FL/R	FL/R	DARK	DARK	DARK	DARK

SPECIAL NOTE: PHASE 2 AND 6 ALT INCLUDE OPERATION OF MD 108 EASTBOUND AND WESTBOUND PERMISSIVE LEFT TURNS USING FLASHING RED ARROW OPERATION. TIME OF DAY OPERATION SHALL BE AS DIRECTED BY SHA.



WIRING KEY

- A,B,G 7-CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
- C,D,H 5-CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
- E,F,I 2-CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
- Z STRANDED BARE COPPER GROUND WIRE (NO. 6 AWG)
- EX USE EXISTING CABLES
- PF EXISTING POWER FEED
- ⊕ EXISTING GROUND ROD

TOD NO: XX650-19
SHA NO: HO221859
MD 108 @ Lark Brown Road

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DEPARTMENT OF TRANSPORTATION
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OFFICE OF TRAFFIC & SAFETY
TRAFFIC ENGINEERING DESIGN DIVISION
MD 108 (WATERLOO ROAD) AT
LARK BROWN ROAD
SAVAGE, MARYLAND

REVISIONS	GENERAL INFORMATION SHEET		
	SCALE	DATE	CONTRACT NO.
	NONE	APRIL 2012	XX6505185
	DESIGNED BY	COUNTY	
	WFW	HOWARD	
	DRAWN BY	LOGMILE	
	WFW	13010814.94	
	CHECKED BY	TMS NO.	
	BJG	L122	
	FAP NO.	TOD NO.	
TS NO. 2384E-61	DRAWING	SP-2 OF 2	SHEET NO. 2 OF 4

BY: WFW