PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE RECONSTRUCTION OF THE FULL-COLOR TRAFFIC SIGNAL AT THE INTERSECTION OF MD 2 (GOV. RITCHIE HIGHWAY) AT HAMMONDS LANE / WALTON AVENUE. THE INSTALLATION INCLUDES LED SIGNAL HEADS, IP-BASED VIDEO DETECTION CAMERAS, LED COUNTDOWN PEDESTRIAN SIGNAL HEADS, APS PUSHBUTTONS AND SIGNS. MD 2 IS ASSUMED TO RUN IN A NORTH-SOUTH DIRECTION.

INTERSECTION OPERATION

THE INTERSECTION WILL OPERATE IN A NEMA SIX-PHASE FULL-TRAFFIC-ACTUATED MODE WITH A CONCURRENT PEDESTRIAN PHASES FOR THE EAST AND WEST LEGS AND ALTERNATE PEDESTRIAN PHASES FOR THE NORTH AND SOUTH LEGS OF THE INTERSECTION. THE MD 2 EACTBOUND AND WESTBOUND LEFT TURNS WILL OPERATE IN EXCLUSIVE-PERMISSIVE PHASING. THE HAMMONDS LANE AND WALTON AVENUE APPROACHES WILL OPERATE IN SPLIT PHASING. A PRE-EMPTION PHASE IS INCLUDED FOR MD 2 SOUTHBOUND.

CONTROLLER REQUIREMENTS

THE EXISTING TRAFFIC SIGNAL CONTROLLER HOUSED IN A BASE MOUNTED CABINET SHALL BE REMOVED. A NEW FULL-TRAFFIC-ACTUATED EIGHT-PHASE TRAFFIC SIGNAL CONTROLLER HOUSED IN A BASE MOUNTED CABINET SHALL BE FURNISHED BY SHA AND INSTALLED BY THE CONTRACTOR. A 2-WIRE APS CENTRAL CONTROL UNIT SHALL BE FURNISHED BY THE CONTRACTOR AND INSTALLED BY SHA. IP-BASED VIDEO DETECTION INTERFACE EQUIPMENT AND 4 CHANNEL DETECTOR AMPLIFIER SHALL BE FURNISHED AND INSTALLED BY SHA. A 4 CHANNEL OPTICOM DISCRIMINATOR MODULE SHALL BE FURNISHED BY THE CONTRACTOR AND INSTALLED BY SHA.

SPECIAL NOTES

APS WILL FUNCTION AS FOLLOWS:

TO CROSS MD 2 (GOV. RITCHIE HWY):

A. WHEN PEDESTRIAN LOCATES AND PRESSES PUSHBUTTON FOR AN EXTENDED TIME, THE PUSHBUTTON UNIT MESSAGE WILL BE "WAIT TO CROSS RITCHIE AT HAMMONDS AND WALTON. WAIT."

B. WHEN WALK PHASE BEGINS, THE MESSAGE WILL BE A RAPID TICK WHICH WILL LAST FOR THE DURATION OF THE WALK PHASE.

TO CROSS HAMMONDS LN:

A. WHEN PEDESTRIAN LOCATES AND PRESSES PUSHBUTTON FOR AN THE PUSHBUTTON UNIT MESSAGE WILL BE "WAIT TO CROSS HAMMONDS AT RITCHIE. WAIT."

B. WHEN WALK PHASE BEGINS, THE MESSAGE WILL BE A RAPID TICK WHICH WILL LAST FOR THE DURATION OF THE WALK PHASE.

TO CROSS WALTON AVE:

A. WHEN PEDESTRIAN LOCATES AND PRESSES PUSHBUTTON FOR AN EXTENDED TIME, THE PUSHBUTTON UNIT MESSAGE WILL BE "WAIT TO CROSS WALTON AT RITCHIE. WAIT."

B. WHEN WALK PHASE BEGINS, THE MESSAGE WILL BE A RAPID TICK WHICH WILL LAST FOR THE DURATION OF THE WALK PHASE.

WIRING KEY

A,B,C,D, E,F,G,H	7-CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
I,J,K,L,M,N, O,P,Q,R,S,T, SS,TT,UU,VV	5-CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
U,V,W,X,Y, AA,BB,CC	2-CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
HH,II	2-CONDUCTOR ELECTRICAL CABLE TYPE T/C (NO. 12 AWG)
DD,EE,FF, GG,QQ,RR	IP-BASED VIDEO DETECTION CAMERA CABLE
KK	1-CONDUCTOR ELECTRICAL CABLES (NO. 8 AWG-THHN/THWN), 3 RUNS
JJ	12-PAIR UNDERGROUND COMMUNICATION CABLE, JELLY-FILLED (NO. 19 AWG)
LL	4-CONDUCTOR OPTICOM DETECTOR CABLE (NO. 20 AWG)
MM,NN,OO,PP	NON-INVASIVE MICROLOOP PROBE WITH 500 FT. LEAD-IN CABLE
Z	STRANDED BARE COPPER WIRE (NO. 6 AWG)
PF	UNDERGROUND POWER FEED (BY BGE)
	EXISTING GROUND ROD
	PROPOSED GROUND ROD

CONTACT PERSONS FOR DISTRICT #5 ARE AS FOLLOWS:

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ASSISTANT DISTRICT ENGINEER-CONSTRUCTION
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EQUIPMENT LIST "A, B & C"

A. EQUIPMENT TO BE SUPPLIED BY SHA.

ITEM NO.	DESCRIPTION	UNIT	QUANTITY
9000	CONTROLLER CABINET, SIZE S	EA	1
9000	IP-BASED VIDEO DETECTION INTERFACE EQUIPMENT	EA	1
9016	4 CHANNEL DETECTOR AMPLIFIER	EA	1
9041	CABINET MASTER WITH TELEMETRY AND CONTROLLER	EA	1
9570	SHEET ALUMINUM GROUND MOUNTED SIGNS 16 - S1-1 36"x36" FYG 8 - M6-2(1)R 30"x24" FYG 8 - M6-2(1)L 30"x24" FYG 1 - R7-4(9) 18"X24"	SF	227
9571	SHEET ALUMINUM MAST ARM/POLE MOUNTED SIGNS 3 - D-3(1) 90"x16" (DUAL FACE) 1 - R3-5L 30"x36" 1 - R3-5R 30"x36" 2 - M1-5(6) 36"x72" 2 - S4-4(2) 36"x15" FYG 1 - R10-11b 36"x36" 1 - R-3(1) 78"x16" (DUAL FACE) 1 - R3-6L 30"x36" 2 - M1-5(6) 24"x48" 2 - S1-1 36"x36" FYG 8 - R10-3(1) 9"x15"	SF	156

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

ITEM NO.	DESCRIPTION	UNIT	QUANTITY
1001	MAINTENANCE OF TRAFFIC	EA	3
2002	TEST PIT EXCAVATION	CY	10
5001	REMOVAL OF EXISTING PERMANENT PAVEMENT MARKINGS SYMBOLS OR LEGENDS	EA	3
5002	5" HEAT APPLIED WHITE OR YELLOW PERMANENT PAVEMENT MARKINGS	LF	5
5003	REMOVAL OF EXISTING PERMANENT PAVEMENT LINE MARKINGS	LF	1,750
5004	12 INCH WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINES	LF	1,670
5005	24 INCH WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINES	LF	140
5006	WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LEGENDS AND SYMBOLS	SF	16
6001	STANDARD TYPE A COMBINATION CURB AND GUTTER 12 INCH GUTTER PAN 8 INCH DEPTH	LF	325
6002	5 INCH CONCRETE SIDEWALK	SF	1,702
6003	DETECTABLE WARNING SURFACE FOR CURB RAMPS	SF	99
8001	12 INCH LED SIGNAL HEAD SECTION	EA	40
8002	2-WIRE CENTRAL CONTROL UNIT	EA	1
8004	8 INCH LED SIGNAL HEAD SECTION	EA	12
8007	ANY SIZE LIGHTING ARM ON SIGNAL POLE WITH 250 WATT HPS LAMP AND LUMINAIRE	EA	2
8008	AUDIBLE/TACTILE PEDESTRIAN PUSHBUTTON STATION AND SIGNS	EA	8
8009	BREAKAWAY PEDESTAL POLE (ANY SIZE)	EA	5
8012	EMBEDDED METERED SERVICE PEDESTAL	EA	1
8015	LED 16 INCH COUNTDOWN PEDESTRIAN SIGNAL HEAD	EA	8
8018	MAST ARM POLE & 50' MAST ARM ANY 'T' DIMENSION	EA	1
8020	MAST ARM POLE & 70' MAST ARM ANY 'T' DIMENSION	EA	1
8022	NONINVASIVE DETECTOR (ANY LENGTH) LEAD IN CABLE UP TO 1000'	EA	4
8023	REMOVE & DISPOSE OF EQUIPMENT (PER ASSIGNMENT)	EA	1
8026	TWIN MAST ARM POLE & 50'/70' MAST ARMS ANY 'T' DIMENSION	EA	1
8028	VIDEO DETECTION CAMERA AND CABLE ANY LENGTH	EA	6
8031	12-PAIR COMMUNICATION CABLE, SELF- SUPPORTING, JELLY-FILLED/UNDERGROUND	LF	1,300
8032	4 CONDUCTOR OPTICOM CABLE	LF	220
8034	ELECTRICAL CABLE - 2-CONDUCTOR (NO. 12 AWG) TYPE T/C	LF	305
8036	UP TO 4 INCH SCHEDULE 80 RIGID PVC CONDUIT-BORED	LF	670
8037	UP TO 4 INCH SCHEDULE 80 RIGID PVC CONDUIT-SLOTTED	LF	80
8038	UP TO 4 INCH SCHEDULE 80 RIGID PVC CONDUIT-TRENCHED	LF	850
8039	WOOD SIGN SUPPORTS UP TO 4' X 6'	LF	154
8040	INSTALL OVERHEAD OR GROUND MOUNTED SIGN (INCLUDING ALL HARDWARE)	SF	383
8042	NO. 6 AWG STRANDED BARE COPPER GROUND WIRE	LF	1,420
8045	ELECTRICAL CABLE 1-CONDUCTOR NO. 8 AWG-THHN/THWN	LF	60
8046	FURNISH AND INSTALL ELECTRICAL HANDHOLE	EA	12
8047	DISCRIMINATOR MODULE, 4 CHANNEL, NO. 764	EA	1
8049	OPTICOM NO. 721 DETECTOR EYE	EA	1
8053	ELECTRICAL CABLE - 2 CONDUCTOR (NO. 14 AWG)	LF	1,130
8055	ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 AWG)	LF	2,360
8056	ELECTRICAL CABLE - 7 CONDUCTOR (NO. 14 AWG)	LF	1,405
8062	INSTALL CONTROLLER AND CABINET - BASE MOUNT (ANY SIZE)	EA	1

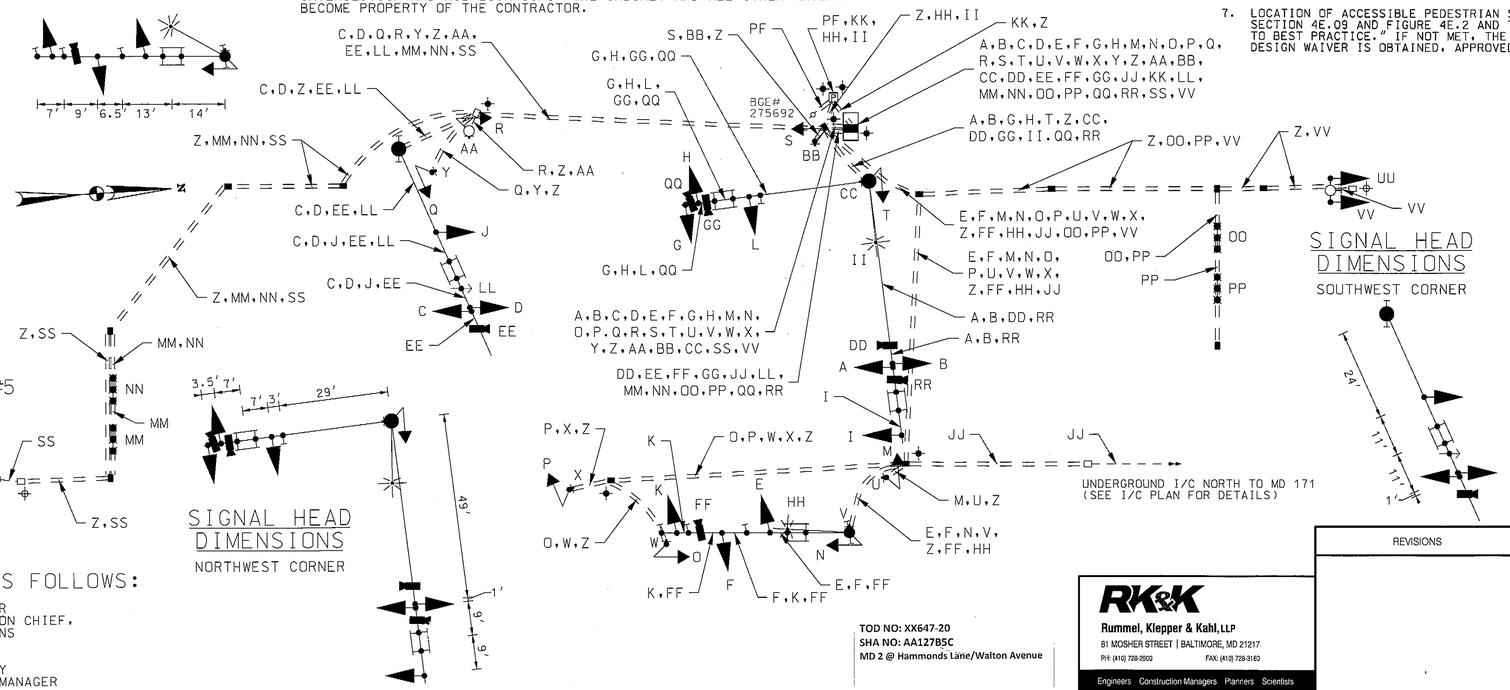
C. SHA FORCES SHALL REMOVE THE CONTROLLER AND ALL AUXILARY EQUIPMENT FROM THE CONTROLLER CABINETS AT THE INTERSECTION AND HIB LOCATIONS. THE CABINET AND ALL OTHER MATERIALS TO BE REMOVED BY THE CONTRACTOR SHALL BECOME PROPERTY OF THE CONTRACTOR.

PHASING CHART

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
PHASE 1 AND 5	R ←G-	R ←G-	R	R ←G-	R ←G-	R	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW	DW	DW
1 AND 5 CHANGE TO 1 AND 6, 2 AND 5, OR 2 AND 6																				
PHASE 1 AND 6	G ←G-	G ←G-	G	R	R	R	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW	DW	DW
1 CHANGE	G ←Y-	G ←Y-	G	R	R	R	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW	DW	DW
PHASE 2 AND 5	R	R	R	G ←G-	G ←G-	G	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW	DW	DW
5 CHANGE	R	R	R	G ←Y-	G ←Y-	G	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW	DW	DW
PHASE 2 AND 6	G	G	G	G	G	G	R	R	R	R	R	R	DW	DW	WK	WK	DW	DW	WK	WK
PED CLEARANCE	G	G	G	G	G	G	R	R	R	R	R	R	DW	DW	FL/DW	FL/DW	DW	DW	FL/DW	FL/DW
2 AND 6 CHANGE	Y	Y	Y	Y	Y	Y	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW	DW	DW
PHASE 3	R	R	R	R	R	R	R	R	R	G ←G-	G ←G-	G	DW	DW	DW	DW	DW	DW	DW	DW
3 CHANGE	R	R	R	R	R	R	R	R	R	Y	Y	Y	DW	DW	DW	DW	DW	DW	DW	DW
PHASE 3 ALT	R	R	R	R	R	R	R	R	R	G ←G-	G ←G-	G	WK	WK	WK	DW	DW	DW	DW	DW
PED CLEARANCE	R	R	R	R	R	R	R	R	R	G ←G-	G ←G-	G	FL/DW	FL/DW	FL/DW	DW	DW	DW	DW	DW
3 ALT CHANGE	R	R	R	R	R	R	R	R	R	Y	Y	Y	DW	DW	DW	DW	DW	DW	DW	DW
PHASE 4	R	R	R	R	R	R	G ←G-	G ←G-	G	R	R	R	DW	DW	DW	DW	DW	DW	DW	DW
4 CHANGE	R	R	R	R	R	R	Y	Y	Y	R	R	R	DW	DW	DW	DW	DW	DW	DW	DW
PHASE 4 ALT	R	R	R	R	R	R	G ←G-	G ←G-	G	R	R	R	DW	DW	DW	DW	WK	WK	DW	DW
PED CLEARANCE	R	R	R	R	R	R	G ←G-	G ←G-	G	R	R	R	DW	DW	DW	DW	FL/DW	FL/DW	DW	DW
4 ALT CHANGE	R	R	R	R	R	R	Y	Y	Y	R	R	R	DW	DW	DW	DW	DW	DW	DW	DW
PRE-EMPTION	G	G	G	G	G	G	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW	DW	DW
PRE-EMPTION CHANGE	Y	Y	Y	Y	Y	Y	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW	DW	DW
FLASHING OPERATION	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/R	FL/R	FL/R	FL/R	FL/R	FL/R	DARK	DARK	DARK	DARK	DARK	DARK	DARK	DARK

GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY ALL PROPOSED POLE AND CABINET LOCATIONS PRIOR TO INSTALLATION.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TERMINATING ALL SIGNAL CABLE TO THE APPROPRIATE TERMINALS AND PROPERLY LABELING EACH CABLE.
3. ALL UNUSED CABLE SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR.
4. 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.
5. ALL TRAFFIC SIGNAL FOUNDATIONS SHALL BE INSTALLED AT THE FINAL SIDEWALK OR CURB GRADE FOR CLOSED SECTIONS. HIGHEST ROADWAY PROFILE GRADE FOR OPEN SECTIONS. TO MEET CLEARANCES AS SPECIFIED IN MD 816.03, MD 818.01, MD 818.02, MD 818.04. THE CONTRACTOR SHALL VERIFY ULTIMATE GRADES PRIOR TO THE INSTALLATION OF ALL SIGNAL EQUIPMENT.
6. ALL PEDESTAL FOUNDATION TOPS SHALL BE INSTALLED FLUSH WITH SIDEWALK GRADE.
7. 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.
8. 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%.
9. 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.
10. PUSHBUTTON ARROWS AND SIGNS ARE TO BE ORIENTED PARALLEL TO THE CROSSING FOR WHICH THEY ARE INTENDED.
11. THE CONTRACTOR SHALL CAP AND ABANDON CONDUIT FEEDING SIGNAL EQUIPMENT THAT IS REMOVED.
12. PROPOSED LUMINAIRES SHALL BE SUPPLIED WITH A PHOTOCELL.
13. VIDEO CAMERA LOCATIONS/ALIGNMENT SHALL BE COORDINATED WITH THE SHA ENGINEER.
14. DURING CONSTRUCTION, PROPOSED SIGNAL EQUIPMENT SHALL NOT BLOCK EXISTING SIGNAL EQUIPMENT.
15. 10 FEET OF SLACK SHALL BE PROVIDED IN EACH HANDHOLE FOR INTERCONNECT CABLE.



TOD NO: XX647-20
SHA NO: AA127B5C
MD 2 @ Hammonds Lane/Walton Avenue

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STATE HIGHWAY ADMINISTRATION
OFFICE OF TRAFFIC & SAFETY
TRAFFIC ENGINEERING DESIGN DIVISION

MD 2 (GOV. RITCHIE HWY) AT HAMMONDS LN / WALTON AVE
GLEN BURNIE, MD

REVISIONS

GENERAL INFORMATION SHEET

SCALE NONE DATE APRIL 2012 CONTRACT NO. XX6475185
DESIGNED BY WFW COUNTY ANNE ARUNDEL
DRAWN BY WFW LOGMILE 02000240.11
CHECKED BY BJG TIMS NO. L087
FAP NO. TOD NO.
TS NO. 796G-GI DRAWING SP-2 OF 2 SHEET NO. 2 OF 5

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BY: BJG