PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE RECONSTRUCTION OF THE EXISTING FULL-COLOR TRAFFIC SIGNAL AT THE INTERSECTION OF MD 140 (MAIN STREET) AT CHATSWORTH AVENUE. THE INSTALLATION INCLUDES LED SIGNAL HEADS, IP-BASED VIDEO DETECTION CAMERAS, LED COUNTDOWN PEDESTRIAN SIGNAL HEADS, APS PUSHBUTTONS AND SIGNS.
MD 140 IS ASSUMED TO RUN IN A NORTH-SOUTH DIRECTION.

INTERSECTION OPERATION

THE INTERSECTION WILL CONTINUE TO OPERATE IN A NEMA FIVE-PHASE FULL-TRAFFIC-ACTUATED MODE WITH ALTERNATE PEDESTRIAN PHASES FOR THE NORTH AND SOUTH LEGS AND A CONCURRENT PEDESTRIAN PHASE FOR THE EAST AND LEG OF THE INTERSECTION. THE MD 140 SOUTHBOUND LEFT TURNS OPERATE IN EXCLUSIVE-PERMISSIVE PHASING.

CONTROLLER REQUIREMENTS

THE EXISTING POLE MOUNTED CABINET AND CONTROLLER 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 SHALL BE FURNISHED AND INSTALLED BY SHA.

SPECIAL NOTES

APS WILL FUNCTION AS FOLLOWS:

TO CROSS MD 140 (MAIN STREET):

A. WHEN PEDESTRIAN LOCATES AND PRESSES PUSHBUTTON FOR AN EXTENDED TIME, THE PUSHBUTTON UNIT MESSAGE WILL BE "WAIT TO CROSS MAIN AT CHATSWORTH. 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 CHATSWORTH AVENUE:

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

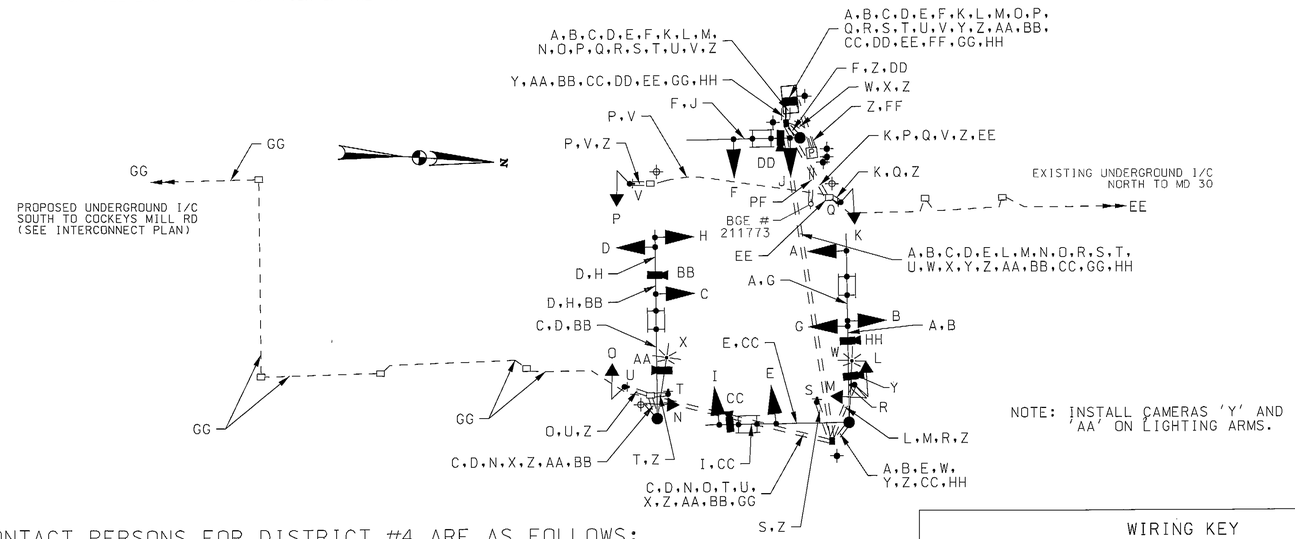
B. WHEN WALK PHASE BEGINS, THE MESSAGE WILL BE A RAPID TICK WHICH WILL LAST FOR THE DURATION OF THE WALK PHASE.

EQUIPMENT LIST "B & C"

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

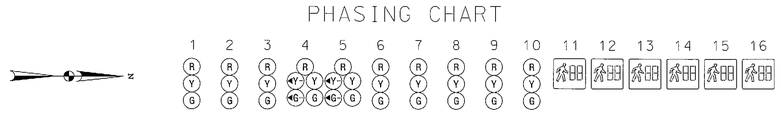
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
100000	MAINTENANCE OF TRAFFIC (PER INTERSECTION)	EA	1
203030	TEST PIT EXCAVATION	CY	2
500000	8 INCH PORTLAND CEMENT CONCRETE FOR DRIVEWAY MIX 9	SY	36
585621	12 INCH WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINES	LF	480
585625	24 INCH WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINES	LF	70
585700	REMOVAL OF EXISTING PAVEMENT MARKING LINES, ANY WIDTH	LF	295
600000	TYPE A COMBINATION CURB AND GUTTER ANY HEIGHT OR DEPTH	LF	203
600000	TYPE A CURB ANY HEIGHT OR DEPTH	LF	93
600000	DETECTABLE WARNING SURFACE FOR CURB RAMPS (TYPE 3 BRICK PAVERS)	SF	86
600000	REMOVE & RESET DECORATIVE BRICK SIDEWALK	SF	24
655105	5 INCH CONCRETE SIDEWALK	SF	834
800000	2-WIRE APS CENTRAL CONTROL UNIT	EA	1
800000	ADJUST HANDHOLE TO GRADE AND REPLACE FRAME AND COVER	EA	3
800000	ANY SIZE LIGHTING ARM ON SIGNAL POLE WITH LED ROADWAY LUMINAIRE	EA	2
800000	AUDIBLE/TACTILE PEDESTRIAN PUSHBUTTON STATION AND SIGNS	EA	6
800000	16 INCH LED COUNTDOWN PEDESTRIAN SIGNAL HEAD	EA	6
800000	IP-BASED VIDEO DETECTION CAMERA & ANY LENGTH LEAD-IN CABLE	EA	6
800000	5 FOOT OR 10 FOOT PEDESTAL POLE WITH BREAKAWAY COUPLINGS, FOUNDATION & GROUND ROD	EA	6
800000	MAST ARM POLE & 38' MAST ARM ANY 'T' DIMENSION, FOUNDATION & GROUND ROD	EA	1
800000	MAST ARM POLE & 50' MAST ARM ANY 'T' DIMENSION, FOUNDATION & GROUND ROD	EA	1
800000	TWIN MAST ARM POLE & 50'/50' MAST ARMS ANY 'T' DIMENSION, FOUNDATION & GROUND ROD	EA	1
800000	100 AMP EMBEDDED METERED SERVICE PEDESTAL, CONCRETE COLLAR & GROUND RODS	EA	1
800000	REMOVE & DISPOSE OF EXISTING SIGNAL EQUIPMENT (PER SIGNALIZED INTERSECTION LOCATION)	EA	1
800000	INSTALL CONTROLLER AND CABINET BASE MOUNT (ANY SIZE) INCLUDING F&I FOUNDATION & GROUND ROD	EA	1
800000	ELECTRICAL CABLE - 3 CONDUCTOR (NO. 12 AWG) (B.W.G) TYPE TC	LF	385
800000	DISCONNECT, PULL-BACK & REROUTE CABLES	LF	135
800000	UP TO 4 INCH SCHEDULE 80 RIGID PVC CONDUIT - BORED OR SLOTTED	LF	145
800000	UP TO 4 INCH SCHEDULE 80 RIGID PVC CONDUIT-TRENCHED	LF	160
800000	WOOD SIGN SUPPORTS UP TO 4 INCH X 6 INCH	LF	88
800000	INSTALL OVERHEAD OR GROUND MOUNTED SIGN (INCLUDING ALL HARDWARE)	SF	233
802501	NO. 6 AWG STRANDED BARE COPPER GROUND WIRE	LF	320
810022	ELECTRICAL CABLE 1-CONDUCTOR NO. 8 AWG-THHN/THWN	LF	60
811001	FURNISH AND INSTALL ELECTRICAL HANDHOLE	EA	2
813023	RELOCATE EXISTING GROUND MOUNTED SIGNS	SF	8
860284	12 INCH LED VEHICULAR TRAFFIC SIGNAL HEAD SECTION	EA	34
860292	CUT, CLEAN, GALVANIZE AND CAP TRAFFIC SIGNAL STRUCTURE	EA	1
861105	ELECTRICAL CABLE - 2 CONDUCTOR (NO. 14 AWG)	LF	820
861107	ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 AWG)	LF	930
861108	ELECTRICAL CABLE - 7 CONDUCTOR (NO. 14 AWG)	LF	1075

C. THE EXISTING VIDEO DETECTION CAMERAS AND CONTROLLER SHALL BE RETURNED TO SHA. ALL OTHER MATERIALS TO BE REMOVED BY THE CONTRACTOR SHALL BECOME THE PROPERTY OF THE CONTRACTOR.



NOTE: INSTALL CAMERAS 'Y' AND 'AA' ON LIGHTING ARMS.

PHASING CHART



PHASE 2 AND 5	R	R	R	G ←G—	G ←G—	G	R	R	R	R	DW	DW	DW	DW	DW	DW
2 AND 5 CHANGE	R	R	R	G ←Y—	G ←Y—	G	R	R	R	R	DW	DW	DW	DW	DW	DW
PHASE 2 AND 6	G	G	G	G	G	G	R	R	R	R	DW	DW	WK	WK	DW	DW
PED CLEARANCE	G	G	G	G	G	G	R	R	R	R	DW	DW	FL/DW	FL/DW	DW	DW
2 AND 6 CHANGE	Y	Y	Y	Y	Y	Y	R	R	R	R	DW	DW	DW	DW	DW	DW
PHASE 4 AND 8	R	R	R	R	R	R	G	G	G	G	DW	DW	DW	DW	DW	DW
4 AND 8 CHANGE	R	R	R	R	R	R	Y	Y	Y	Y	DW	DW	DW	DW	DW	DW
PHASE 4 AND 8 ALT	R	R	R	R	R	R	G	G	G	G	WK	WK	DW	DW	WK	WK
PED CLEARANCE	R	R	R	R	R	R	G	G	G	G	FL/DW	FL/DW	DW	DW	FL/DW	FL/DW
4 AND 8 ALT CHANGE	R	R	R	R	R	R	Y	Y	Y	Y	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	DARK	DARK	DARK	DARK	DARK	DARK

GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY ALL PROPOSED POLE 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. 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 AND MD 818.04. THE CONTRACTOR SHALL VERIFY ULTIMATE GRADES PRIOR TO THE INSTALLATION OF ALL SIGNAL EQUIPMENT.
5. 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.
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.10, MUTCD FIGURES 4E-3 AND 4E-4, 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. PROPOSED LUMINAIRES SHALL BE SUPPLIED WITH A PHOTOCELL.
12. VIDEO DETECTION CAMERA ALIGNMENT SHALL BE COORDINATED WITH THE ENGINEER.
13. DURING CONSTRUCTION, PROPOSED SIGNAL EQUIPMENT SHALL NOT BLOCK EXISTING SIGNAL EQUIPMENT.
14. THE CONTRACTOR SHALL CAP AND ABANDON CONDUITS FEEDING EXISTING SIGNAL EQUIPMENT THAT IS REMOVED.
15. THE CONTRACTOR SHALL CONTACT ED RODENHIZER AT THE SIGNAL SHOP (410-787-7652) TO DELIVER APS EQUIPMENT FOR TESTING.

EQUIPMENT LIST "A"

A. EQUIPMENT TO BE SUPPLIED BY SHA.

ITEM NO.	DESCRIPTION	UNIT	QUANTITY
900000	SHEET ALUMINUM GROUND MOUNTED SIGN 8 - S1-1 FYG 36"X36" 8 - M6-2 FYG 30"X24"	SF	112
900000	SHEET ALUMINUM MAST ARM / POLE MOUNTED SIGN 4 - M1-5(4) 78"X36" 4 - D-3(1) (DUAL FACE) 84"X16" 6 - R10-3(1) 9"X15"	SF	121
900000	CONTROLLER CABINET, SIZE "S" W/CTRL, VIDEO INT. 1-8 CAM	EA	1

CONTACT PERSONS FOR DISTRICT #4 ARE AS FOLLOWS:

MS. ERIN KUHN
ASSISTANT DISTRICT ENGINEER - TRAFFIC
PHONE: 410-229-2381

MR. ANDRE FUTRELL
ASSISTANT DISTRICT ENGINEER - MAINTENANCE
410-229-2361

MR. JESSE FREE
ASSISTANT DISTRICT ENGINEER - CONSTRUCTION
410-229-2421

CONTACT PERSONS FOR OOTS ARE AS FOLLOWS:

MR. AVIJIT MAJI
DIVISION CHIEF,
TRAFFIC OPERATIONS
PHONE: 410-787-7630

MR. ROBERT SNYDER
ASSISTANT DIVISION CHIEF
TRAFFIC OPERATIONS
410-787-7631

MR. ED RODENHIZER
CHIEF, SIGNAL OPERATIONS
410-787-7650

MR. EUGENE BAILEY
CHIEF, SIGN OPERATIONS
410-787-7676

WIRING KEY

A,B,C,D,E,F	7-CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
G,H,I,J,K, L,M,N,O,P	5-CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
Q,R,S,T,U,V	2-CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
W,X	3-CONDUCTOR ELECTRICAL CABLE, TYPE TC (NO. 12 AWG)
Y,AA,BB,CC, DD,HH	IP-BASED VIDEO DETECTION CAMERA CABLE
Z	STRANDED BARE COPPER GROUND WIRE (NO. 6 AWG)
EE	DISCONNECT, PULLBACK AND REROUTE EXISTING INTERCONNECT COMMUNICATION CABLE
FF	1-CONDUCTOR ELECTRICAL CABLE (NO. 8 AWG - TYPE THHN/THWN), 3 RUNS
GG	12-PAIR COMMUNICATION CABLE, JELLYFILLED (SEE INTERCONNECT PLANS)
PF	PROPOSED POWER FEED BY BGE
⊕	EXISTING GROUND ROD
✦	PROPOSED GROUND ROD

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF TRAFFIC & SAFETY
TRAFFIC ENGINEERING DESIGN DIVISION

MD 140 (MAIN STREET) AT CHATSWORTH ROAD
REISTERSTOWN, MARYLAND

REVISIONS

GENERAL INFORMATION SHEET

SCALE NONE DATE FEBRUARY 2013 CONTRACT NO. XY1515185

DESIGNED BY WFW COUNTY BALTIMORE
DRAWN BY WFW LOGMILE 03014009.73
CHECKED BY BJG TIMS NO. L825
FAP NO. TOD NO.

TS NO. 822C-GI DRAWING SP-4 OF 4 SHEET NO. 2 OF 7

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BY: WFW