

PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE INSTALLATION OF LED SIGNAL HEADS, IP-BASED VIDEO DETECTION CAMERAS, COUNTDOWN PEDESTRIAN SIGNAL HEADS, ACCESSIBLE PEDESTRIAN PUSHBUTTONS AND SIGNS AT THE INTERSECTION OF MD 355 (FREDERICK ROAD) AT HENDERSON CORNER ROAD / NORTH MALL ENTRANCE. MD 355 IS ASSUMED TO RUN IN A NORTH-SOUTH DIRECTION.

INTERSECTION OPERATION

THE INTERSECTION WILL CONTINUE TO OPERATE IN A NEMA SIX-PHASE FULL-TRAFFIC-ACTUATED MODE WITH AN ALTERNATE PEDESTRIAN PHASE FOR THE NORTH LEG AND CONCURRENT PEDESTRIAN PHASES FOR THE EAST AND WEST LEGS OF THE INTERSECTION. THE MD 355 NORTHBOUND AND SOUTHBOUND LEFT TURNS OPERATE IN EXCLUSIVE PHASING. THE SIDE STREET APPROACHES OPERATE IN SPLIT PHASING.

CONTROLLER REQUIREMENTS

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

SPECIAL NOTES

APS WILL FUNCTION AS FOLLOWS:

TO CROSS MD 355 (FREDERICK ROAD):

- A. WHEN PEDESTRIAN LOCATES AND PRESSES PUSHBUTTON FOR AN EXTENDED TIME, THE PUSHBUTTON UNIT MESSAGE WILL BE "WAIT TO CROSS FREDERICK AT HENDERSON CORNER. 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 HENDERSON CORNER ROAD:

- A. WHEN PEDESTRIAN LOCATES AND PRESSES PUSHBUTTON FOR AN EXTENDED TIME, THE PUSHBUTTON UNIT MESSAGE WILL BE "WAIT TO CROSS HENDERSON CORNER AT FREDERICK. 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 DRIVEWAY:

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

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. 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 PEDESTAL FOUNDATION TOPS SHALL BE INSTALLED FLUSH WITH SIDEWALK GRADE.
6. LOCATION OF ACCESSIBLE PEDESTRIAN SIGNAL PUSHBUTTONS MUST MEET LOCATION REQUIREMENTS OF MUTCD SECTION 4E.10, MUTCD FIGURES 4E.3 AND 4E.4 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.
7. 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%.
8. 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.
9. PUSHBUTTON ARROWS AND SIGNS ARE TO BE ORIENTED PARALLEL TO THE CROSSING FOR WHICH THEY ARE INTENDED.
10. VIDEO DETECTION CAMERA ALIGNMENT SHALL BE COORDINATED WITH THE ENGINEER.
11. THE CONTRACTOR SHALL CONTACT ED RODENHIZER AT THE SIGNAL SHOP (410) 787-7652 TO DELIVER APS EQUIPMENT FOR TESTING.

PHASING CHART

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
	(R)	(R)	(R)	(R)	(R)	(R)	(R)	(R)	(R)	(R)	(R)	(R)	(R)	(R)	(R)	(R)	(R)	(R)	(R)	(R)	(R)
PHASE 1 AND 5	←G-	←G-	←G-	R	R	←G-	←G-	R	R	R	R	R	R	R	R	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	R	DW	DW	DW	DW	DW	DW
1 CHANGE	←Y-	←Y-	←Y-	G	G	←R-	←R-	R	R	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
PHASE 2 AND 5	←R-	←R-	←R-	R	R	←G-	←G-	G	G	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
2 CHANGE	←R-	←R-	←R-	R	R	←Y-	←Y-	G	G	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
PHASE 2 AND 6	←R-	←R-	←R-	G	G	←R-	←R-	G	G	R	R	R	R	R	R	WK	WK	DW	DW	WK	WK
PED CLEARANCE	←R-	←R-	←R-	G	G	←R-	←R-	G	G	R	R	R	R	R	R	FL/DW	FL/DW	DW	DW	FL/DW	FL/DW
2 AND 6 CHANGE	←R-	←R-	←R-	Y	Y	←R-	←R-	Y	Y	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
PHASE 3	←R-	←R-	←R-	R	R	←R-	←R-	R	R	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
3 CHANGE	←R-	←R-	←R-	R	R	←R-	←R-	R	R	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
PHASE 3 ALT	←R-	←R-	←R-	R	R	←R-	←R-	R	R	R	R	R	R	R	R	DW	DW	WK	WK	DW	DW
PED CLEARANCE	←R-	←R-	←R-	R	R	←R-	←R-	R	R	R	R	R	R	R	R	FL/DW	FL/DW	DW	DW	FL/DW	FL/DW
3 ALT CHANGE	←R-	←R-	←R-	R	R	←R-	←R-	R	R	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
PHASE 4	←R-	←R-	←R-	R	R	←R-	←R-	R	R	←G-	←G-	G	R	R	R	DW	DW	DW	DW	DW	DW
4 CHANGE	←R-	←R-	←R-	R	R	←R-	←R-	R	R	←G-	←G-	G	R	R	R	DW	DW	DW	DW	DW	DW
FLASHING OPERATION	FL/←R-	FL/←R-	FL/←R-	FL/Y/FL/Y	FL/←R-	FL/←R-	FL/Y/FL/Y	FL/R/FL/R	DARK	DARK	DARK	DARK	DARK	DARK							

EQUIPMENT LIST "A, B & C"

A. EQUIPMENT TO BE SUPPLIED BY SHA.

ITEM NO.	DESCRIPTION	UNIT	QUANTITY
900000	SHEET ALUMINUM GROUND MOUNTED SIGNS	SF	44
	1 - R4-7 24"x30"		
	2 - W11-2 FY 36"x36"		
900000	SHEET ALUMINUM MAST ARM/POLE MOUNTED SIGNS	SF	6
	1 - M1-5(6) 30"x51"		
	2 - M6-2(1) FY 30"x24"		
900000	SHEET ALUMINUM SPAN MOUNTED	SF	95
	1 - M1-5(6) 48"x72"		
	4 - D-3(1) 78"x16"		
	2 - R3-6L 30"x36"		
	2 - R3-5R 30"x36"		
900000	IP-BASED VIDEO DETECTION INTERFACE EQUIPMENT (1 - 8 CAMERAS)	EA	1

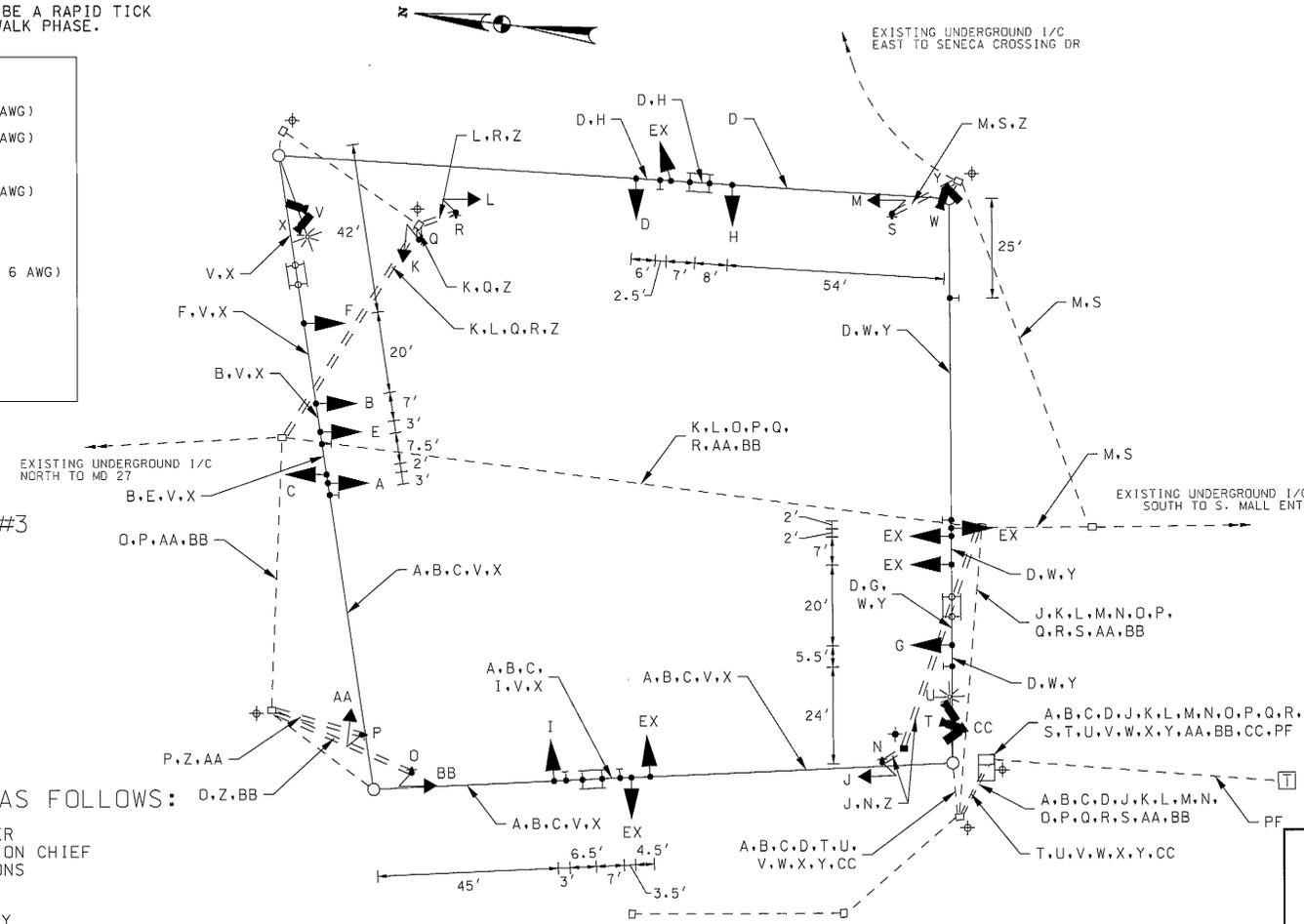
B. EQUIPMENT TO BE FURNISHED AND/OR INSTALLED BY THE CONTRACTOR.

ITEM NO.	DESCRIPTION	UNIT	QUANTITY
203030	TEST PIT EXCAVATION	CY	1
585405	5 INCH WHITE LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKINGS	LF	70
585621	12 INCH WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINES	LF	655
585625	24 INCH WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINES	LF	150
800000	16 INCH LED COUNTDOWN PEDESTRIAN SIGNAL HEAD	EA	6
800000	REMOVE AND DISPOSE OF EQUIPMENT AND MATERIALS	LS	1
800000	DISCONNECT, PULL BACK & REROUTE EXISTING CABLE	LF	80
800000	AUDIBLE/TACTILE PEDESTRIAN PUSHBUTTON STATION AND SIGN	EA	6
800000	2-WIRE APS CENTRAL CONTROL UNIT	EA	1
800000	IP-BASED VIDEO DETECTION CAMERA WITH LEAD-IN CABLE	EA	7
800000	ADJUST EXISTING HANDHOLE AND REPLACE FRAME & COVER	EA	1
801004	CONCRETE FOR SIGNAL FOUNDATION	CY	2
801104	WOOD SIGN SUPPORTS 4 INCH X 4 INCH	LF	47
802501	NO. 6 AWG STRANDED BARE COPPER GROUND WIRE	LF	285
805125	2 INCH SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED	LF	140
805155	4 INCH SCHEDULE 80 RIGID PVC CONDUIT - SLOTTED	LF	135
811001	FURNISH AND INSTALL ELECTRICAL HANDHOLE	EA	1
812002	WOOD SIGN SUPPORT 6 INCH X 6 INCH	LF	40
813014	INSTALL GROUND MOUNTED SIGN	SF	74
813015	INSTALL OVERHEAD SIGN	SF	95
818004	10 FOOT BREAKAWAY PEDESTAL POLE	EA	6
837001	GROUND ROD - 3/4 INCH DIAMETER X 10 FOOT LENGTH	EA	1
860284	12 INCH LED VEHICULAR TRAFFIC SIGNAL HEAD SECTION	EA	49
861105	ELECTRICAL CABLE - 2 CONDUCTOR (NO. 14 AWG)	LF	2080
861107	ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 AWG)	LF	2240
861108	ELECTRICAL CABLE - 7 CONDUCTOR (NO. 14 AWG)	LF	1300

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

WIRING KEY

A,B,C,D	7-CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
E,F,G,H, I,J,K,L, M,AA,BB	5-CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
N,O,P, Q,R,S	2-CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
T,U,V,W, X,Y,CC	IP-BASED VIDEO DETECTION CAMERA CABLE
Z	STRANDED BARE COPPER GROUND WIRE (NO. 6 AWG)
EX	EXISTING CABLES
PF	EXISTING UNDERGROUND POWER FEED
⊕	EXISTING GROUND ROD
⊕	PROPOSED GROUND ROD



CONTACT PERSONS FOR DISTRICT #3 ARE AS FOLLOWS:

- ASSISTANT DISTRICT ENGINEER - TRAFFIC  
PHONE: (301) 513-7404
- MR. AUGUSTINE REBISH  
DEPUTY DISTRICT ENGINEER - MAINTENANCE  
(301) 513-7331
- MR. DUANE BERNARD  
ASSISTANT DISTRICT ENGINEER - CONSTRUCTION  
(301) 513-7341

CONTACT PERSONS FOR OOTS ARE AS FOLLOWS:

- MR. ROBERT SNYDER  
ASSISTANT DIVISION CHIEF  
TRAFFIC OPERATIONS  
(410)787-7630
- MR. EUGENE BAILEY  
CHIEF, SIGN OPERATIONS  
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- MR. ED RODENHIZER  
CHIEF, SIGNAL OPERATIONS  
(410)787-7650

**SHA** STATE OF MARYLAND  
DEPARTMENT OF TRANSPORTATION  
STATE HIGHWAY ADMINISTRATION  
OFFICE OF TRAFFIC & SAFETY  
TRAFFIC ENGINEERING DESIGN DIVISION  
MD 355 (FREDERICK RD) AT HENDERSON  
CORNER RD / NORTH MALL ENT.  
GERMANTOWN, MARYLAND

REVISIONS		
SCALE	NONE	DATE OCTOBER 2012
CONTRACT NO.	MD1315577	
DESIGNED BY	WFW	COUNTY
DRAWN BY	WFW	LOGMILE
CHECKED BY	BJG	TMS NO.
FAP NO.		TOD NO.
TS NO. 3394A-G1	DRAWING	SP-5 OF 7
		SHEET NO. 5 OF 7

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