

PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE INSTALLATION OF LED COUNTDOWN PEDESTRIAN SIGNAL HEADS, APS PUSHBUTTONS AND SIGNS AT THE INTERSECTION OF MD 26 (LIBERTY ROAD) AT ESSEX ROAD. NON-INVASIVE MICRO-LOOP PROBES WILL BE INSTALLED FOR THE EAST AND WEST APPROACHES. MD 26 IS ASSUMED TO RUN IN A EAST-WEST DIRECTION.

INTERSECTION OPERATION

THIS INTERSECTION CURRENTLY OPERATES IN A NEMA EIGHT-PHASE FULL-TRAFFIC-ACTUATED MODE WITH CONCURRENT PEDESTRIAN PHASES FOR THE NORTH AND SOUTH LEGS AND ALTERNATE PEDESTRIAN PHASES FOR THE EAST AND WEST LEGS OF THE INTERSECTION. LEFT TURNS FOR ALL LEGS OPERATE IN EXCLUSIVE-PERMISSIVE 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 SHA.

EQUIPMENT LIST "A,B & C"

A. EQUIPMENT TO BE SUPPLIED BY THE SHA

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

ITEM NO.	DESCRIPTION	UNIT	QUANTITY
203030	TEST PIT EXCAVATION	CY	2
585621	12 INCH WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINES	LF	500
585625	24 INCH WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINES	LF	125
800000	16 INCH LED COUNTDOWN PEDESTRIAN SIGNAL HEAD	EA	8
800000	2-WIRE APS CENTRAL CONTROL UNIT	EA	1
800000	AUDIBLE / TACTILE PEDESTRIAN PUSHBUTTON STATION & SIGN	EA	8
800000	RE-AIM EXISTING VIDEO DETECTION CAMERAS	EA	3
800000	REMOVE AND DISPOSAL OF EXISTING SIGNAL EQUIPMENT	LS	1
800000	SHEET ALUMINUM PEDESTRIAN EDUCATION SIGN, R10-3(1) 9"x15" & MOUNTING HARDWARE	EA	8
800000	ELECTRICAL CABLE - 2 CONDUCTOR (NO. 12 AWG) TYPE T/C	LF	235
800000	ADJUST EXISTING HANDHOLE, AND REPLACE FRAME AND COVER	EA	3
801004	CONCRETE FOR SIGNAL FOUNDATION	CY	2
802501	NO. 6 AWG STRANDED BARE COPPER GROUND WIRE	LF	175
805118	4 INCH SCHEDULE 80 RIGID PVC CONDUIT - BORED	LF	65
805125	2 INCH SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED	LF	65
805135	3 INCH SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED	LF	390
805150	3 INCH SCHEDULE 80 RIGID PVC CONDUIT - SLOTTED	LF	150
805155	4 INCH SCHEDULE 80 RIGID PVC CONDUIT - SLOTTED	LF	90
810601	NONINVASIVE DETECTOR, 500 FOOT LEAD IN CABLE	EA	2
810605	NONINVASIVE DETECTOR, 1000 FOOT LEAD IN CABLE	EA	2
811001	FURNISH AND INSTALL ELECTRICAL HANDHOLE	EA	7
816010	CONTROL CABLE, 500 FOOT, VIDEO DETECTION CAMERA TO CONTROLLER	EA	2
818004	10 FOOT BREAKAWAY PEDESTAL POLE	EA	7
837001	GROUND ROD - 3/4 INCH DIAMETER X 10 FOOT LENGTH	EA	1
861105	ELECTRICAL CABLE - 2 CONDUCTOR (NO. 14 AWG)	LF	810
861107	ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 AWG)	LF	890
861108	ELECTRICAL CABLE - 7 CONDUCTOR (NO. 14 AWG)	LF	1770

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. ALL LOCATIONS SHALL BE APPROVED BY THE ENGINEER BEFORE 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 FINAL SIDEWALK GRADE.
- ACCESSIBLE PEDESTRIAN CONTROL EQUIPMENT SHALL BE DELIVERED TO THE SHA SIGNAL SHOP FOR TESTING AND PROGRAMMING PRIOR TO INSTALLATION. CONTACT MR. EDWARD RODENHIZER AT 410-787-7652 TO COORDINATE.
- 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.
- THE CONTRACTOR SHALL CAP AND ABANDON CONDUIT FEEDING SIGNAL EQUIPMENT THAT IS REMOVED.
- IN LOCATIONS WHERE SLOTTED CONDUIT IS SPECIFIED, BORED CONDUIT MAY BE USED AS AN ALTERNATE, AS APPROVED BY THE ENGINEER. HOWEVER, NO ADDITIONAL COMPENSATION WILL BE PROVIDED TO THE CONTRACTOR.

SPECIAL NOTES

APS WILL FUNCTION AS FOLLOWS:

TO CROSS LIBERTY ROAD:

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

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

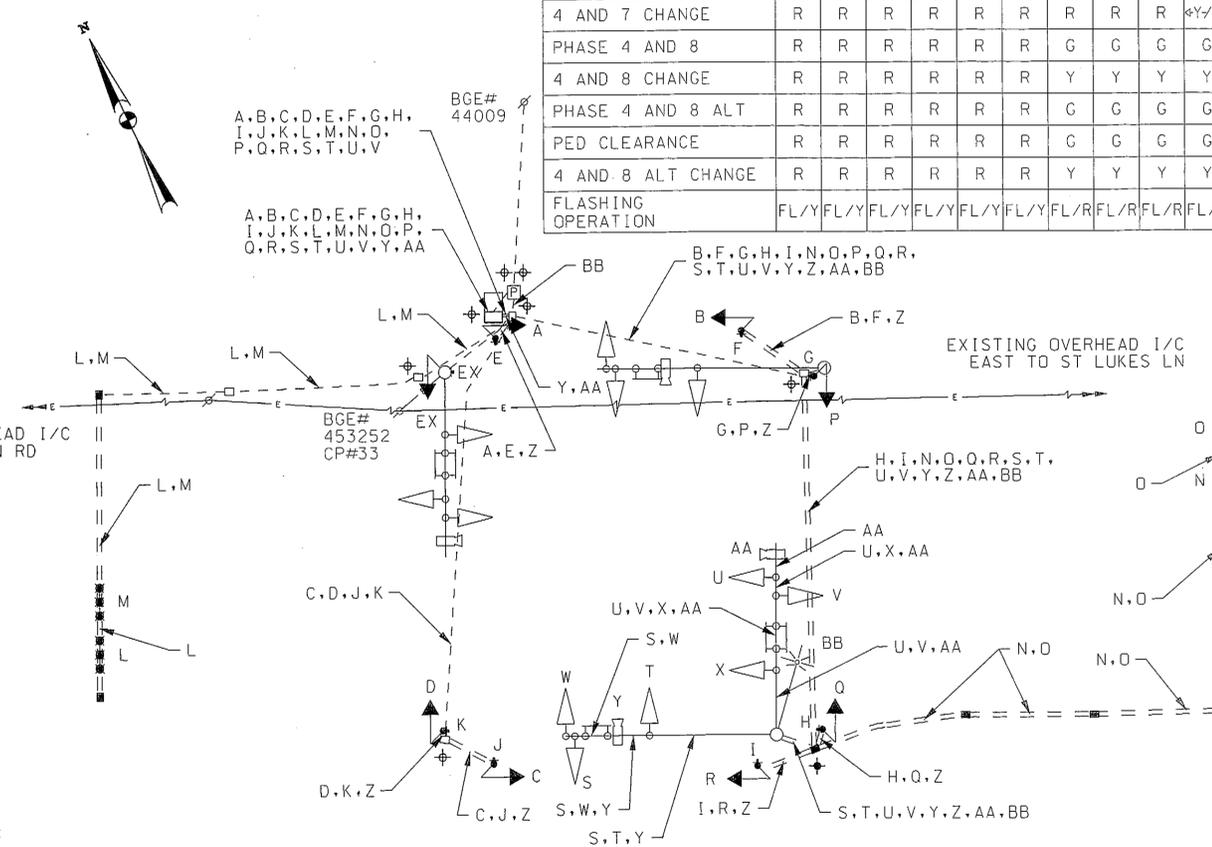
TO CROSS ESSEX ROAD:

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

B. 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	19	20
PHASE 1 AND 5	4G/R	4G/R	R	4G/R	4G/R	R	R	R	R	R	R	R	DW							
1 AND 5 CHANGE TO 1 AND 6, 2 AND 5, OR 2 AND 6																				
PHASE 1 AND 6	4G/G	4G/G	G	R	R	R	R	R	R	R	R	R	DW							
1 AND 6 CHANGE	4Y/G	4Y/G	G	R	R	R	R	R	R	R	R	R	DW							
PHASE 2 AND 5	R	R	R	4G/G	4G/G	G	R	R	R	R	R	R	DW							
2 AND 5 CHANGE	R	R	R	4Y/G	4Y/G	G	R	R	R	R	R	R	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							
PHASE 3 AND 7	R	R	R	R	R	R	4G/R	4G/R	R	4G/R	4G/R	R	DW							
3 AND 7 CHANGE TO 3 AND 8, 4 AND 7, OR 4 AND 8																				
PHASE 3 AND 8	R	R	R	R	R	R	4G/G	4G/G	G	R	R	R	DW							
3 AND 8 CHANGE	R	R	R	R	R	R	4Y/G	4Y/G	G	R	R	R	DW							
PHASE 4 AND 7	R	R	R	R	R	R	R	R	R	4G/G	4G/G	G	DW							
4 AND 7 CHANGE	R	R	R	R	R	R	R	R	R	4Y/G	4Y/G	G	DW							
PHASE 4 AND 8	R	R	R	R	R	R	G	G	G	G	G	G	DW							
4 AND 8 CHANGE	R	R	R	R	R	R	Y	Y	Y	Y	Y	Y	DW							
PHASE 4 AND 8 ALT	R	R	R	R	R	R	C	G	G	G	G	G	WK	WK	DW	DW	WK	WK	DW	DW
PED CLEARANCE	R	R	R	R	R	R	C	G	G	G	G	G	FL/DW	FL/DW	DW	DW	FL/DW	FL/DW	DW	DW
4 AND 8 ALT CHANGE	R	R	R	R	R	R	Y	Y	Y	Y	Y	Y	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							



**WIRING KEY**

S,T,U,V	7-CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
A,B,C,D,P,Q,R,W,X	5-CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
E,F,G,H,I,J,K	2-CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
L,M	NON-INVASIVE MICROLOOP PROBE SET WITH 500 FT. LEAD-IN CABLE
N,O	NON-INVASIVE MICROLOOP PROBE SET WITH 1000 FT. LEAD-IN CABLE
Y,AA	VIDEO DETECTION CAMERA CABLE
BB	2-CONDUCTOR ELECTRICAL CABLE (NO. 12 AWG TYPE T/C)
Z	STRANDED BARE COPPER GROUND WIRE (NO. 6 AWG)
EX	EXISTING CABLES
⊕	EXISTING GROUND ROD
⊕	PROPOSED GROUND ROD

CONTACT PERSONS FOR DISTRICT #4 ARE AS FOLLOWS:

- MS. ERIN KUHN  
ASSISTANT DISTRICT ENGINEER - TRAFFIC  
PHONE: (410) 229-2381
- MR. DONALD SCHAEFER  
ASSISTANT DISTRICT ENGINEER - CONSTRUCTION  
(410) 229-2421
- MR. ANDRE FUTRELL  
ASSISTANT DISTRICT ENGINEER - MAINTENANCE  
(410) 229-2361

CONTACT PERSONS FOR OOTS ARE AS FOLLOWS:

- MR. ROBERT SNYDER  
ASSISTANT DIVISION CHIEF  
TRAFFIC OPERATIONS  
(410)787-7630
- MR. ED RODENHIZER  
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- MR. EUGENE BAILEY  
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REVISIONS	GENERAL INFORMATION SHEET		
	SCALE	DATE	CONTRACT NO.
	NONE	AUGUST 2012	BA5965177
	DESIGNED BY	COUNTY	BALTIMORE
	WFW	LOGMILE	03002608.65
	DRAWN BY	TMS NO.	K-985
	WFW	TOD NO.	
	CHECKED BY		
	BJG		
	FAP NO.		
	TS NO. 6526-G1	DRAWING	SP-6 OF 10
			SHEET NO. 44 OF 62

**SHA** STATE OF MARYLAND  
DEPARTMENT OF TRANSPORTATION  
STATE HIGHWAY ADMINISTRATION  
OFFICE OF TRAFFIC & SAFETY  
TRAFFIC ENGINEERING DESIGN DIVISION  
MD 26 (LIBERTY ROAD) AT ESSEX ROAD  
LOCHEARN, MARYLAND