

**PROJECT DESCRIPTION**

THIS PROJECT INVOLVES THE INSTALLATION OF APS PUSHBUTTONS AND SIGNS AT THE INTERSECTION OF MD 108 (OLD ANNAPOLIS ROAD) AND MD 100 RAMPS IN HOWARD COUNTY. MD 108 IS ASSUMED TO RUN IN AN EAST-WEST DIRECTION.

**INTERSECTION OPERATION**

THIS INTERSECTION CURRENTLY OPERATES IN A NEMA FOUR-PHASE FULL-TRAFFIC-ACTUATED MODE WITH AN EXCLUSIVE-PERMISSIVE LEFT TURN PHASE FOR EASTBOUND MD 108, AN ALTERNATE PEDESTRIAN PHASE TO CROSS THE WEST LEG OF MD 108 AND A CONCURRENT PEDESTRIAN PHASE TO CROSS THE MD 100 RAMPS.

**CONTROLLER REQUIREMENTS**

THE EXISTING FULL-TRAFFIC-ACTUATED EIGHT PHASE TRAFFIC SIGNAL CONTROLLER HOUSED IN A BASE MOUNTED CABINET WILL BE USED. AN APS CENTRAL CONTROL UNIT WILL BE FURNISHED BY THE CONTRACTOR AND INSTALLED BY SHA.

**CONTACT PERSONS FOR DISTRICT #7 ARE AS FOLLOWS:**

MR. JOHN CONCANNON ASSISTANT DISTRICT ENGINEER-TRAFFIC PHONE: (301)624-8140  
 MS. ANDREA ABEND UTILITY ENGINEER PHONE: (301)624-8115

MR. RAYMOND JOHNSON ASSISTANT DISTRICT ENGINEER-MAINTENANCE PHONE: (301)624-8105

**CONACT PERSONS FOR OOTS ARE AS FOLLOWS:**

MR. RICHARD L. DAFF, SR. CHIEF, TRAFFIC OPERATIONS DIVISION PHONE: (410)787-7630  
 MR. ROBERT SNYDER ASSISTANT DIVISION CHIEF TRAFFIC OPERATIONS (410)787-7630

MR. ED RODENHIZER CHIEF, SIGNAL OPERATIONS (410)787-7650  
 MR. EUGENE BAILEY CHIEF, SIGN OPERATIONS (410)787-7676

**EQUIPMENT LIST "A"**

A. EQUIPMENT TO BE SUPPLIED BY THE SHA.

ITEM NO.	DESCRIPTION	UNIT	QUANTITY
9570	SHEET ALUMINUM SIGNS - GROUND MOUNT	SF	17
	2 - W11-2 (30"X30") FY		
	2 - M6-2 (21"X15") FY		

**EQUIPMENT LIST "B"**

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

ITEM NO.	DESCRIPTION	UNIT	QUANTITY
2003	TEST PIT EXCAVATION	CY	1
5001	REMOVAL OF EXISTING PERMANENT PAVEMENT MARKINGS	LF	685
5006	12 INCH WHITE LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKINGS	LF	365
8001	CONCRETE FOR SIGNAL FOUNDATION	CY	1
8002	AUDIBLE/TACTILE PEDESTRIAN PUSHBUTTON	EA	4
8003	BREAKAWAY PEDESTRIAN POLE - ANY SIZE	EA	1
8005	REMOVE AND DISPOSE EXISTING EQUIPMENT - PER ASSIGNMENT	EA	1
8006	PEDESTRIAN EDUCATION SIGN	SF	3.75
	2-R10-3(1) "OLD ANNAPOLIS RD (9"X15") 2-R10-3(1) "MD 100 RAMP"		
8007	NO. 6 STRANDED BARE COPPER GROUND WIRE	LF	12
8008	3 INCH SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED	LF	12
8012	CUT, CLEAN, GALVANIZE AND CAP TRAFFIC SIGNAL STRUCTURE	EA	1
8013	ELECTRICAL CABLE - 2 CONDUCTOR (NO. 14 AWG)	LF	305
8015	INSTALL GROUND MOUNTED SIGN	SF	17
8016	APS CENTRAL CONTROL UNIT	EA	1
8020	WOOD SIGN SUPPORTS 4 INCH X 4 INCH	LF	32

**EQUIPMENT LIST "C"**

C. EQUIPMENT TO BE REMOVED BY THE CONTRACTOR AND RETURNED TO SHA.

ALL MATERIALS AND EQUIPMENT REMOVED BY THE CONTRACTOR SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

**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 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. 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.
7. LOCATION OF ACCESSIBLE PEDESTRIAN PUSHBUTTONS MUST MEET THE LOCATION REQUIREMENTS OF THE MUTCD, SECTION 4E-09 AND FIGURE 4E-2 AND THE NCHRP PUBLICATION, "ACCESSIBLE PEDESTRIAN SIGNAL: GUIDE TO BEST PRACTICE." IF NOT MET, THE CONTRACTOR IS TO STOP WORK ON PUSHBUTTON LOCATIONS UNTIL THE CONFLICT HAS BEEN RESOLVED. IF NEEDED, A DESIGN WAIVER SHALL BE 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 FROM 60"X60" LEVEL LANDING AREA. A LEVEL LANDING AREA IS AN AREA WITH A CROSS SLOPE OF LESS THAN 2%.

**PHASE CHART**

NO PHASE CHANGE

**SPECIAL NOTES**

APS WILL FUNCTION AS FOLLOWS:

TO CROSS MD 100 RAMPS:

- A. WHEN PEDESTRIAN LOCATES AND PRESSES PUSHBUTTON FOR AN EXTENDED TIME, THE PUSHBUTTON UNIT MESSAGE WILL BE "WAIT TO CROSS MD 100 AT OLD ANNAPOLIS ROAD, CROSSWALK ANGLES RIGHT".
- B. WHEN WALK PHASE BEGINS, THE MESSAGE WILL BE A RAPID TICK WHICH WILL LAST FOR THE DURATION OF THE WALK PHASE.

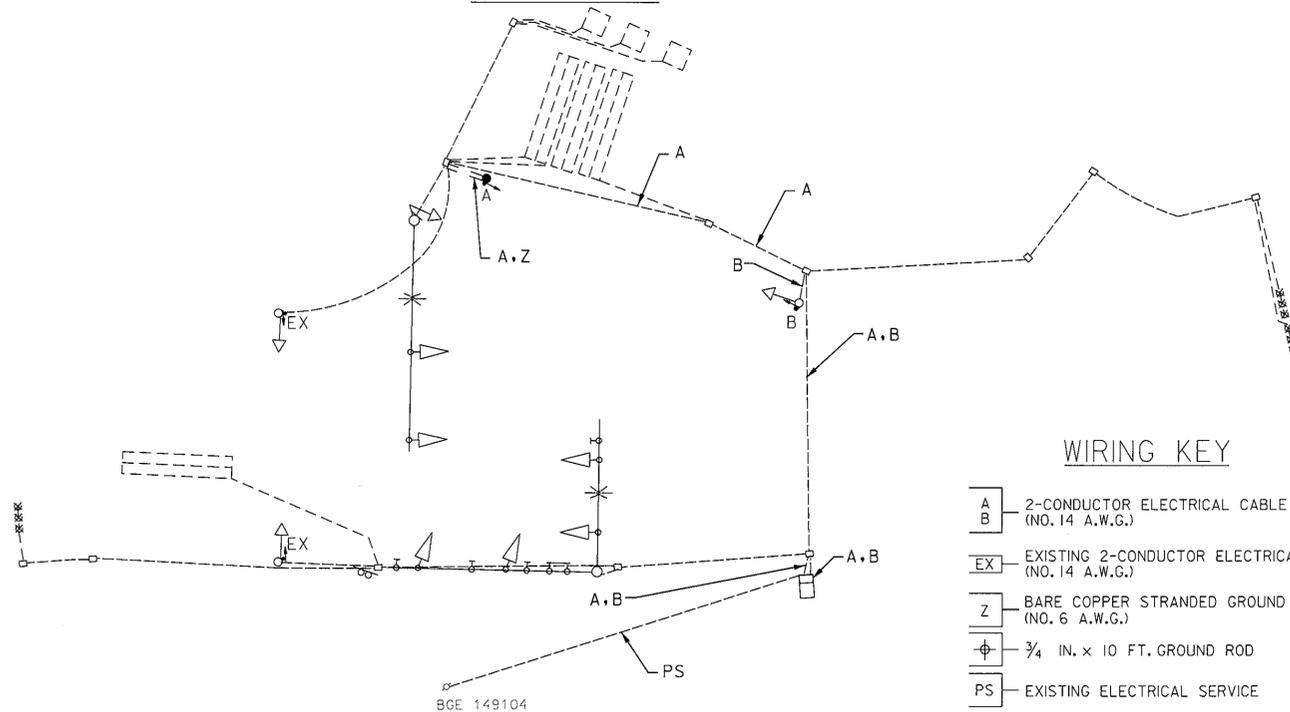
TO CROSS MD 108 (OLD ANNAPOLIS ROAD):

- A. WHEN PEDESTRIAN LOCATES AND PRESSES PUSHBUTTON FOR AN EXTENDED TIME, THE PUSHBUTTON UNIT MESSAGE WILL BE "WAIT TO CROSS OLD ANNAPOLIS ROAD AT MD 100".
- B. WHEN WALK PHASE BEGINS, THE MESSAGE WILL BE A RAPID TICK WHICH WILL LAST FOR THE DURATION OF THE WALK PHASE.

**GENERAL NOTES CONTINUED**

9. PUSHBUTTON IS TO BE LOCATED SO THAT A PEDESTRIAN IN A WHEELCHAIR LOCATED ON THE LEVEL LANDING AREA, DOES NOT HAVE TO REACH MORE THAN 18"
10. THE 10' SEPARATION BETWEEN PUSHBUTTONS IS TO BE MEASURED FROM FACE OF PUSHBUTTON, NOT CENTER TO CENTER OF POLE.

**WIRING DIAGRAM**



**WIRING KEY**

- A B 2-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
- EX EXISTING 2-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
- Z BARE COPPER STRANDED GROUND WIRE (NO. 6 A.W.G.)
- ⊕ 3/4 IN. x 10 FT. GROUND ROD
- PS EXISTING ELECTRICAL SERVICE

**SHA** STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION  
 OFFICE OF TRAFFIC & SAFETY TRAFFIC ENGINEERING DESIGN DIVISION  
**MD 108 (OLD ANNAPOLIS ROAD) AND MD 100 E.B. RAMPS**

REVISIONS		GENERAL INFORMATION	
SCALE	NONE	DATE	FEBRUARY 2009
DESIGNED BY	BJG	COUNTY	HOWARD
DRAWN BY	BJG	LOGMILE	13010812.23
CHECKED BY	DAE	TIMS NO.	1913
FAP NO.		TOD NO.	
TS NO.	4283E-GI	DRAWING	SG-02 OF 02
		SHEET NO.	OF

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