

PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE INSTALLATION OF LED COUNTDOWN PEDESTRIAN SIGNAL HEADS, APS PUSHBUTTONS, AND SIGNS AT THE INTERSECTION OF US 40 AND BETHANY LANE/CENTENNIAL LANE IN HOWARD COUNTY. US 40 IS ASSUMED TO RUN IN AN EAST-WEST DIRECTION.

INTERSECTION OPERATION

THIS INTERSECTION CURRENTLY OPERATES IN A NEMA SIX-PHASE FULL-TRAFFIC-ACTUATED MODE WITH EXCLUSIVE LEFT TURN PHASES FOR WEST BOUND AND EAST BOUND US 40, SPLIT PHASING FOR BETHANY LANE/CENTENNIAL LANE, AND AN ALTERNATE PEDESTRIAN PHASE FOR THE WEST LEG OF THE INTERSECTION. THE ONLY PHASE CHANGE IS ADDING PEDESTRIAN INDICATIONS TO PHASE 2 AND 6.

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 THE SHA.

SPECIAL NOTE

APS WILL FUNCTION AS FOLLOWS:

FOR US 40:

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

FOR BETHANY LANE:

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

FOR CENTENNIAL LANE:

- A. WHEN PEDESTRIAN LOCATES AND PRESSES PUSHBUTTON FOR AN EXTENDED TIME, THE PUSHBUTTON UNIT MESSAGE WILL BE "WAIT TO CROSS CENTENNIAL LANE AT BALTIMORE NATIONAL PIKE. CROSSWALK ANGLES SLIGHTLY LEFT."
- B. WHEN WALK PHASE BEGINS, THE MESSAGE WILL BE A RAPID TICK WHICH WILL LAST FOR THE DURATION OF THE WALK PHASE.

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

CONTACT 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.
 NONE

EQUIPMENT LIST "B"

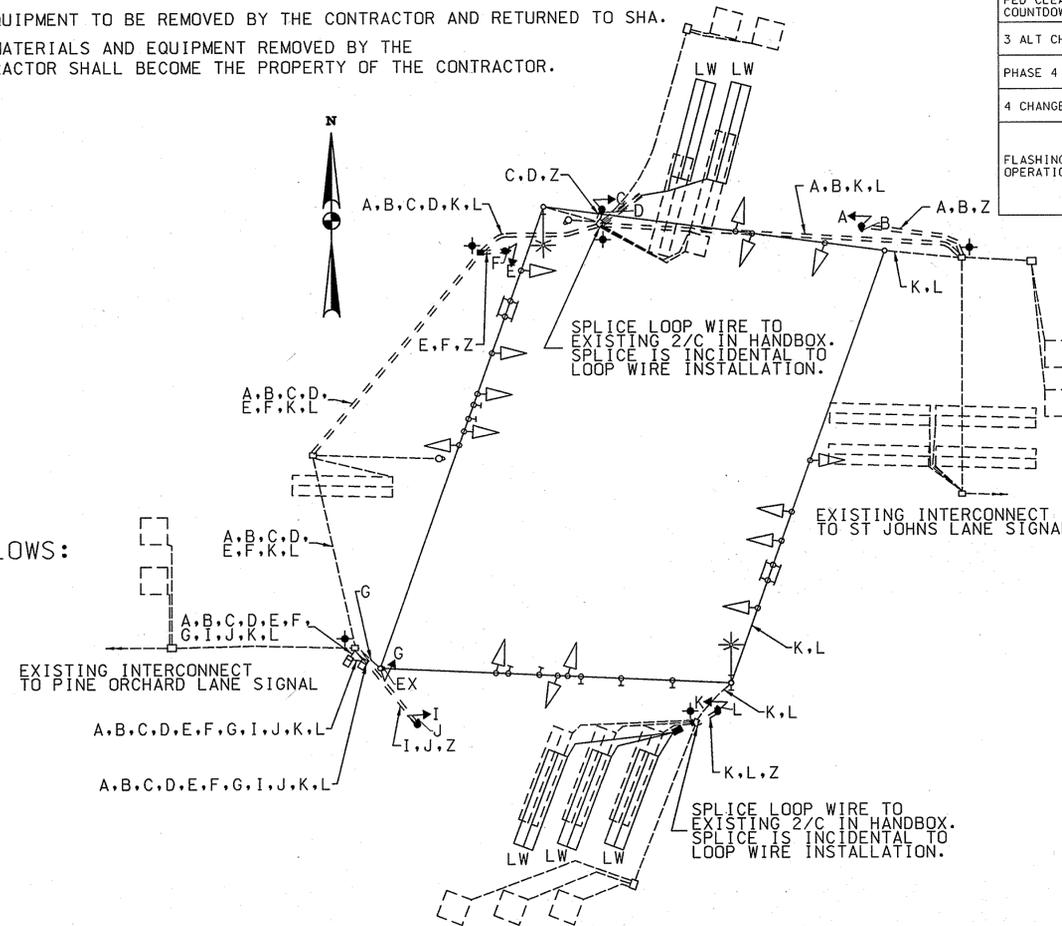
B. EQUIPMENT TO BE FURNISHED AND/OR INSTALLED BY THE CONTRACTOR.

ITEM NO.	DESCRIPTION	UNIT	QUANTITY
2003	TEST PIT EXCAVATION	CY	10
5001	REMOVAL OF EXISTING PERMANENT PAVEMENT MARKINGS	LF	690
5006	12 INCH WHITE LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKINGS	LF	550
5007	24 INCH WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINES	LF	70
8001	CONCRETE FOR SIGNAL STRUCTURE	CY	1
8002	AUDIBLE/TACTILE PEDESTRIAN PUSHBUTTON	EA	6
8003	BREAKAWAY PEDESTRIAN POLE - ANY SIZE	EA	5
8004	LED 16 INCH COUNTDOWN PEDESTRIAN SIGNAL HEAD	EA	6
8005	REMOVE AND DISPOSE PER ASSIGNMENT	EA	1
8006	PEDESTRIAN EDUCATION SIGN 6-R10-3(1) MOD (9"x15")	SF	6
8007	NO. 6 STRANDED BARE COPPER GROUND WIRE	LF	110
8008	3 INCH SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED	LF	170
8009	FURNISH AND INSTALL ELECTRICAL HANDHOLE	EA	1
8011	GROUND ROD - 3/4 INCH DIAMETER X 10 FOOT LENGTH	EA	5
8013	ELECTRICAL CABLE - 2 CONDUCTOR (NO. 14 AWG)	LF	1600
8014	ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 AWG)	LF	1700
8016	APS CENTRAL CONTROL UNIT	EA	1
8017	LOOP WIRE ENCASED IN FLEXIBLE TUBING (NO. 14 AWG)	LF	2500
8018	SAW CUT FOR SIGNAL (LOOP DETECTOR)	LF	650
8019	1 INCH DIAMETER RIGID STEEL CONDUIT FOR DETECTOR SLEEVE	LF	70
8021	ADJUST EXISTING HANDHOLE	EA	1
8023	4 INCH SCHEDULE 80 PVC CONDUIT - SLOTTED	LF	160

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.



WIRING KEY

A,C,E,G,I,K	5-CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)	Z	NO. 6 AWG STRANDED BARE COPPER GROUND WIRE
B,D,F,J,L	2-CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)	EX	EXISTING 2-CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
LW	LOOP WIRE (NO. 14 AWG)	+	GROUND ROD

PHASING CHART

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

GENERAL NOTES

- THE CONTRACTOR SHALL VERIFY ALL PROPOSED POLE LOCATIONS PRIOR TO 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 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.
- 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 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.
- 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%.
- 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"
- THE 10' SEPARATION BETWEEN PUSHBUTTONS IS TO BE MEASURED FROM FACE OF PUSHBUTTON, NOT CENTER TO CENTER OF POLE.

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

US 40 @ CENTENNIAL LN / BETHANY LN
 ELLICOTT CITY, MARYLAND

GENERAL INFORMATION SHEET

SCALE	NONE	DATE	10/9/2007	CONTRACT NO.	AX3755133
DESIGNED BY	BJG	COUNTY	HOWARD		
DRAWN BY	BJG	LOGMILE	13004016.17		
CHECKED BY	DAE	TMS NO.	1889		
FAP NO.		TOD NO.			
TS NO.	717L-GI	DRAWING	SG-2	OF 2	SHEET NO. 17 OF 17

RK & H
RUMMEL, KLEPPER & KAHL, LLP
 CONSULTING ENGINEERS
 81 MOSHER STREET
 BALTIMORE, MARYLAND 21217
 TELE: (410)728-2900 FAX: (410)383-3270