

PROJECT DESCRIPTION

I. GENERAL

THIS PROJECT INVOLVES THE MODIFICATION OF THE EXISTING TRAFFIC CONTROL SIGNAL WITH INTERCONNECT AT THE INTERSECTION OF MD 450 (ANNAPOLIS RD) AND 85TH AVE IN PRINCE GEORGE'S COUNTY. THE MODIFICATION INVOLVES UPGRADING THE EXISTING PEDESTRIAN SIGNAL HEADS TO COUNTDOWN PEDESTRIAN SIGNALS AND INSTALLING AUDIBLE / TACTILE PEDESTRIAN PUSHBUTTONS IN CONJUNCTION WITH GEOMETRIC CHANGES AND SIDEWALK IMPROVEMENTS. UNDERGROUND SYSTEM AND SIGNAL DETECTION BEING AFFECTED BY THE GEOMETRIC IMPROVEMENTS ARE BEING REPLACED. MD 450 IS ASSUMED TO RUN IN AN EAST-WEST DIRECTION.

II. INTERSECTION OPERATION

- THE INTERSECTION OPERATES IN A NEMA SIX (6) PHASE, FULLY-ACTUATED MODE. BOTH MD 450 APPROACHES OPERATE CONCURRENTLY AND LEADING EXCLUSIVE-PERMISSIVE LEFT TURN PHASES ARE PROVIDED FOR BOTH APPROACHES OF MD 450. 85TH AVE APPROACHES OPERATES AS A SPLIT PHASE WITH SOUTHBOUND OPERATING BEFORE NORTHBOUND. AN ALTERNATE PEDESTRIAN PHASE WITH AUDIBLE PEDESTRIAN SIGNALS SHALL BE INSTALLED ON THE WEST LEG ACROSS MD 450. AN ACTUATED AUDIBLE PEDESTRIAN PHASE SHALL BE INSTALLED ACROSS BOTH LEGS OF 85TH AVE.
- AN EXISTING NEMA FULL-TRAFFIC-ACTUATED, EIGHT (8) PHASE CONTROLLER WITH VIDEO DETECTION INTERFACE AND ALL NECESSARY EQUIPMENT IN A NEMA SIZE "6" BASE MOUNTED CABINET SHALL BE UTILIZED AT THIS LOCATION. A 2 WIRE CENTRAL CONTROL UNIT SHALL BE INSTALLED INTO THE CABINET.

III. SPECIAL NOTES

APS WILL FUNCTION AS FOLLOWS:
TO CROSS MD 450 (ANNAPOLIS RD)

- WHEN A PEDESTRIAN LOCATES AND PRESSES THE PUSHBUTTON FOR AN EXTENDED TIME, THE PUSHBUTTON UNIT WILL ANNOUNCE THE FOLLOWING MESSAGE: "WAIT TO CROSS ANNAPOLIS AT 85TH, WAIT."
- WHEN THE WALK PHASE BEGINS, THE PUSHBUTTON UNIT WILL PROVIDE A RAPID TICK WHICH WILL LAST FOR THE DURATION OF THE WALK PHASE.

TO CROSS 85TH AVE

- WHEN A PEDESTRIAN LOCATES AND PRESSES THE PUSHBUTTON FOR AN EXTENDED TIME, THE PUSHBUTTON UNIT WILL ANNOUNCE THE FOLLOWING MESSAGE: "WAIT TO CROSS 85TH AT ANNAPOLIS, WAIT."
- WHEN THE WALK PHASE BEGINS, THE PUSHBUTTON UNIT WILL PROVIDE A RAPID TICK WHICH WILL LAST FOR THE DURATION OF THE WALK PHASE.

CONTACTS

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EQUIPMENT LIST

A. EQUIPMENT TO BE FURNISHED BY STATE HIGHWAY ADMINISTRATION

ITEM NO.	QUANTITY	DESCRIPTION
9000	1 EA	[UPDATED] VIDEO DETECTION INTERFACE EQUIPMENT: 1-8 CAMERAS
9571	131.5 SF	[UPDATED] SHEET ALUMINUM MAST ARM / POLE MOUNTED SIGN
	2 EA	D-3(1) '85th AVE' (VAR.x16")
	2 EA	D-3(1) 'Annapolis RD' (VAR.x16")
	1 EA	M1-5(6) 'EAST MD 450 <' (48"x72")
	1 EA	M1-5(6) 'EAST MD 450 >' (30"x48")
	1 EA	M1-5(6) 'WEST MD 450 <' (48"x72")
	1 EA	M1-5(6) 'WEST MD 450 >' (30"x48")
	4 EA	R10-3(1) '85TH AVE' (9"x15")
	2 EA	R10-3(1) 'ANNAPOLIS RD' (9"x15")
	1 EA	R3-5a 'THRU ONLY' (30"x36")
	1 EA	R3-5L 'LEFT ONLY' (30"x36")

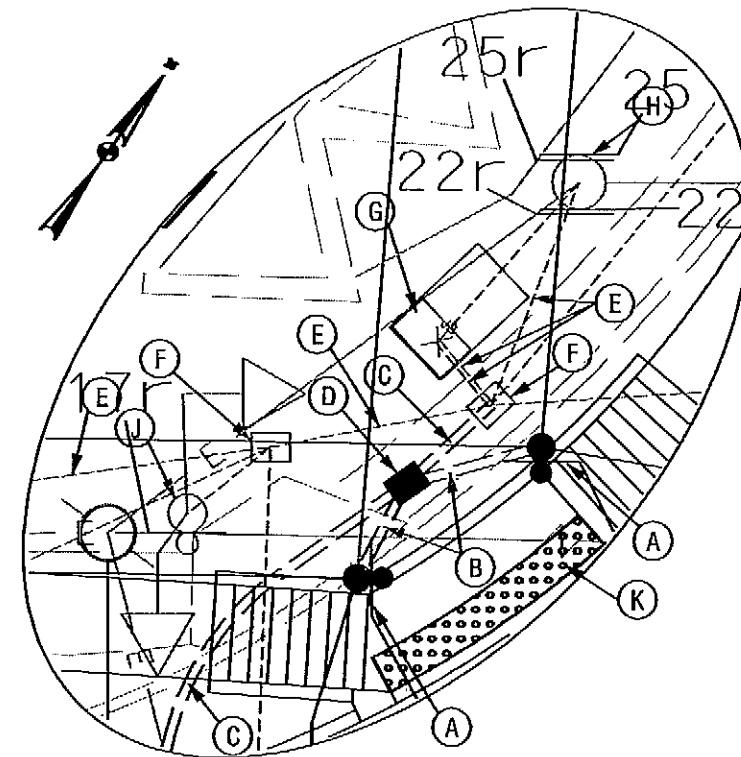
B. EQUIPMENT TO BE FURNISHED AND/OR INSTALLED BY CONTRACTOR

ITEM NO.	QUANTITY	DESCRIPTION
203030	3 CY	TEST PIT EXCAVATION
500000	2124 SF	BRICK PATTERNED PREFORMED THERMOPLASTIC PAVEMENT MARKINGS
585621	490 LF	12 INCH WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINES
585625	185 LF	24 INCH WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINES
800000	5 EA	16 INCH LED COUNTDOWN PEDESTRIAN SIGNAL HEAD SECTION PEDESTAL POLE MOUNT
800000	1 EA	2-WIRE CENTRAL CONTROL UNIT
800000	6 EA	AUDIBLE/TACTILE PEDESTRIAN PUSHBUTTON STATION AND SIGN
800000	1 EA	REMOVE SIGNAL HEAD FROM EXISTING STRUCTURE
800000	3 EA	REMOVE SIGNAL STRUCTURE
800000	6 EA	VIDEO DETECTION CAMERA AND CABLE UP TO 500'
801004	1 CY	CONCRETE FOR SIGNAL FOUNDATION
801706	60 SF	REMOVE SIGNS FROM EXISTING OVERHEAD STRUCTURE
802501	400 LF	NO. 6 AWG STRANDED BARE COPPER GROUND WIRE
805115	190 LF	3 INCH SCHEDULE 80 RIGID PVC CONDUIT-BORED
805125	95 LF	2 INCH SCHEDULE 80 RIGID PVC CONDUIT-TRENCHED
805135	25 LF	3 INCH SCHEDULE 80 RIGID PVC CONDUIT-TRENCHED
805140	105 LF	4 INCH SCHEDULE 80 RIGID PVC CONDUIT-TRENCHED
805155	180 LF	4 INCH SCHEDULE 80 RIGID PVC CONDUIT-SLOTTED
810605	9 EA	NONINVASIVE DETECTOR, 1000 FOOT LEAD IN CABLE
811001	7 EA	FURNISH AND INSTALL ELECTRICAL HANDHOLE
811002	6 EA	REMOVE ELECTRICAL HANDHOLE
813015	131.5 SF	INSTALL OVERHEAD SIGN
818004	5 EA	10 FOOT BREAKAWAY PEDESTAL POLE

APS NOTES

- PUSHBUTTONS ARE TO BE LOCATED SO THAT THEY CAN BE ACTIVATED BY A PERSON IN A WHEELCHAIR REACHING LESS THAN 18" FROM A 60"x60" 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 TO CENTER OF POLE.
- PUSHBUTTON ARROWS ARE TO BE PARALLEL TO THE CROSSING FOR WHICH THEY ARE INTENDED.
- LOCATION OF ACCESSIBLE PEDESTRIAN SIGNAL PUSHBUTTONS MUST MEET LOCATION REQUIREMENTS OF MUTCD SEC. 4E.09 AND FIG. 4E.2 AND THE NCHRP PUBLICATION, ACCESSIBLE PEDESTRIAN SIGNALS: GUIDE TO BEST PRACTICE. IF NOT MET, THE CONTRACTOR IS TO STOP WORK ON PUSHBUTTON LOCATION UNTIL A DESIGN WAIVER IS OBTAINED, APPROVED BY THE DIRECTOR, OFFICE OF TRAFFIC AND SAFETY.

DETAIL C
SCALE: 1"=10'



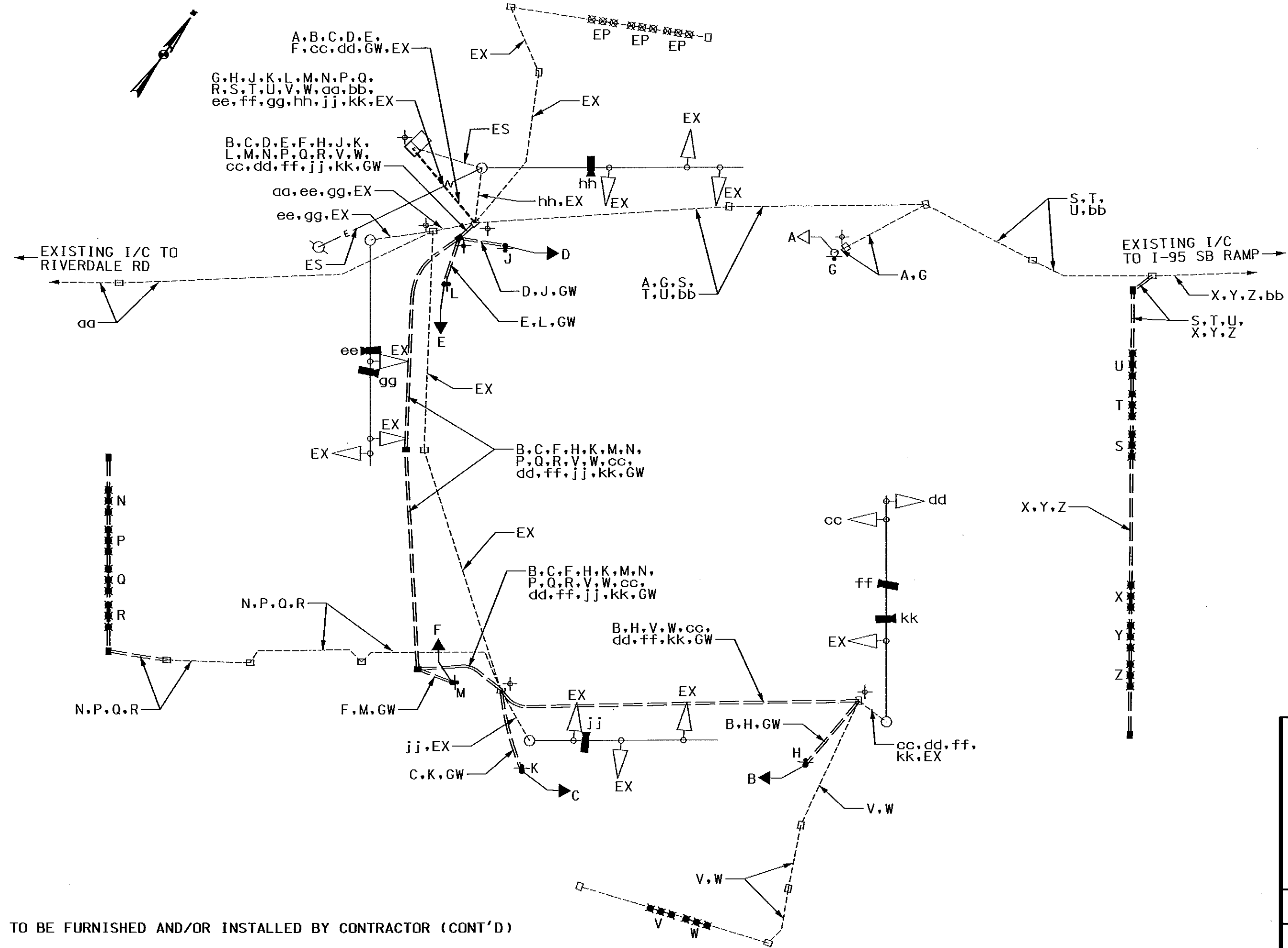
CONSTRUCTION DETAILS

- INSTALL 10 FT. PEDESTAL POLE ON MODIFIED BASE WITH BREAKAWAY COUPLINGS (MD 801.01-01), COUNTDOWN PEDESTRIAN SIGNAL HEAD, AUDIBLE-TACTILE PEDESTRIAN PUSHBUTTON AND SIGN (NOTE: INSTALL 1-2 IN. 90° PVC CONDUIT BEND). INCORPORATE CONCRETE FOUNDATION INTO PROPOSED CURB.
- INSTALL 2 IN. SCHEDULE 80 PVC CONDUIT (TRENCHED).
- INSTALL 4 IN. SCHEDULE 80 PVC CONDUIT (TRENCHED).
- INSTALL ELECTRICAL HANDHOLE.
- USE EXISTING CONDUIT.
- USE EXISTING ELECTRICAL HANDHOLE.
- USE EXISTING CABINET AND CONTROLLER.
- 2-WIRE CENTRAL CONTROL UNIT TO BE INSTALLED BY THE CONTRACTOR AND NEW VIDEO DETECTION INTERFACE TO BE INSTALLED BY SHA FORCES.
- USE EXISTING SIGNAL POLE AND INSTALL PROPOSED VIDEO DETECTION CAMERA AND SIGN.
- REMOVE EXISTING PEDESTAL POLE WITH ALL ASSOCIATED EQUIPMENT AND CAP AND ABANDON EXISTING CONDUIT.
- SIDEWALK RAMPS AND DETECTABLE WARNING SURFACES TO BE INSTALLED PER SIDEWALK PLANS.

PHASE CHART

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
PHASE 1 AND 5	←G-R	←G-R	R	←G-R	←G-R	R	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
1 AND 5 MAY 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	DW	WK	WK	DW	DW	DW
1 AND 6 CHANGE	←Y-G	←Y-G	G	R	R	R	R	R	R	R	R	R	DW	WK	WK	DW	DW	DW
PHASE 2 AND 5	R	R	R	←G-G	←G-G	G	R	R	R	R	R	R	WK	DW	DW	WK	DW	DW
2 AND 5 CHANGE	R	R	R	←Y-G	←Y-G	G	R	R	R	R	R	R	WK	DW	DW	WK	DW	DW
PHASE 2 AND 6	G	G	G	G	G	G	R	R	R	R	R	R	WK	WK	WK	DW	DW	DW
PHASE 2 AND 6 CHANGE	G	G	G	G	G	G	R	R	R	R	R	R	FLDW	FLDW	FLDW	DW	DW	DW
PHASE 3	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	DW	DW	DW	DW	DW	DW
PHASE 3 ALT	R	R	R	R	R	R	R	R	R	R	R	R	DW	DW	DW	DW	WK	WK
PHASE 3 ALT CHANGE	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	R	R	R	DW	DW	DW	DW	DW	DW
4 CHANGE	R	R	R	R	R	R	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
FLASHING OPERATION	FLY	FLY	FLY	FLY	FLY	FLY	FLR	FLR	FLR	FLR	FLR	FLR	DARK	DARK	DARK	DARK	DARK	DARK

WIRING DIAGRAM



WIRING KEY

- A, B, C, D, E, F - 5 CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
- G, H, J, K, L, M - 2 CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
- N, P, Q, R, S, T, U, V, W - NON-INVASIVE PROBE LEAD-IN CABLE (85TH AVE - THIS SIGNAL)
- X, Y, Z - NON-INVASIVE PROBE LEAD-IN CABLE (I-95 SB RAMPS)
- aa - EXISTING INTERCONNECT TO RIVERDALE RD (12-PAIR COMMUNICATION CABLE)
- bb - EXISTING INTERCONNECT TO I-95 SB RAMPS (12-PAIR COMMUNICATION CABLE)
- cc, dd - 7 CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
- ee, ff, gg, hh, jj, kk - VIDEO DETECTION CABLE (3 CONDUCTOR NO. 8 AWG)
- EX - EXISTING CABLE
- EP - EXISTING NONINVASIVE PROBES
- GW - 1 CONDUCTOR STRANDED BARE COPPER GROUND WIRE (NO. 6 AWG)
- ES - EXISTING POWER SERVICE
- ⊕ - EXISTING GROUND ROD
- ⊕ - PROPOSED GROUND ROD

B. EQUIPMENT TO BE FURNISHED AND/OR INSTALLED BY CONTRACTOR (CONT'D)

ITEM NO.	QUANTITY	DESCRIPTION
837001	1 EA	GROUND ROD - 3/4 INCH DIAMETER X 10 FOOT LENGTH
861105	1080 LF	ELECTRICAL CABLE - 2 CONDUCTOR (NO. 14 AWG)
861107	1110 LF	ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 AWG)
861108	815 LF	ELECTRICAL CABLE - 7 CONDUCTOR (NO. 14 AWG)

C. ALL MATERIALS TO BE REMOVED BY THE CONTRACTOR SHALL BECOME THE PROPERTY OF THE SIGNAL CONTRACTOR UPON COMPLETION OF THE SIGNAL MODIFICATIONS.

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

**MD 450 (ANNAPOLIS RD) AND 85TH AVE
PEDESTRIAN SIGNAL MODIFICATION
GENERAL INFORMATION SHEET**

SCALE	N.T.S.	DATE	FEBRUARY 14, 2012	CONTRACT NO.	PG5415176
DESIGNED BY	MF	COUNTY	PRINCE GEORGE'S		
DRAWN BY	MF	LOGMILE	16045004.44		
CHECKED BY	KMP	TIMS NO.	L092		
F.A.P. NO.	SEE TITLE SHEET	TOD NO.			
TS NO. 3691-GI	DRAWING	SG-02	OF 02	SHEET NO.	26 OF 28

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