F.A.P. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	MD		1	1

PROJECT DESCRIPTION

I. GENERAL

THIS PROJECT INVOLVES THE INSTALLATION OF A PEDESTRIAN SIGNAL IN THE SOUTHEAST ISLAND OF MD 193 AND MD 320 IN MONTGOMERY COUNTY. IT ALSO INVOLVES REMOVING THE EXISTING GROUND MOUNTED EXCLUSIVE SIGNAL HEADS AND INSTALLING THEM ON THE EXISTING SPAN WIRE FOR EASTBOUND. AND WESTBOUND MD 193. AND PROVIDE EXCLUSIVE/ PERMISSIVE LEFT TURNS FOR SOUTHBOUND MD 320. MD 193 RUNS IN A EAST-WEST DIRECTION.

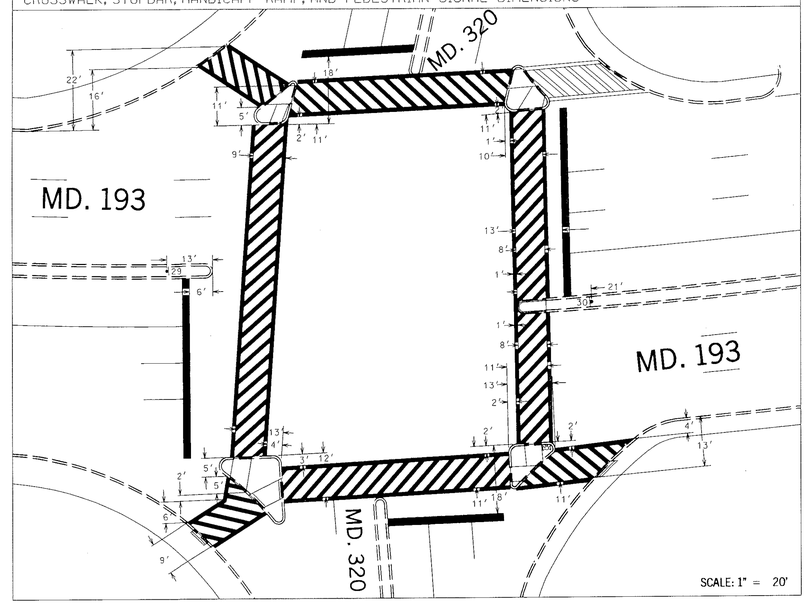
A. EQUIPMENT TO BE SUPPLIED BY THE ADMINISTRATION

ITEM NO.	QUANTITY	DESCRIPTION
	4 EACH	12" ONE WAY. THREE SECTION (RA.YA.GA) POLYCARBONITE SIGNAL HEAD. SPAN MOUNTED HARDWARE
	4 EACH	12" ONE WAY. FIVE SECTION (R.YA.GA.Y.G) POLYCARBONITE SIGNAL HEAD. SPAN MOUNTED HARDWARE
	7 EACH	12" ONE WAY. THREE SECTION (R.Y.G) POLYCARBONITE SIGNAL HEAD. SPAN MOUNTED HARDWARE
	46 S.F.	2 EACH R10-12 SIGN. "LEFT TURN YIELD ON (GREEN BALL)". 36" x 42". SPAN MOUNTED HARDWARE 2 EACH R4-7 SIGN. 24" x 30". POLE MOUNTED HARDWARE 2 EACH R3-5(L) SIGN. "(LEFT TURN ARROW) ONLY". 30" x 36". SPAN MOUNTED HARDWARE
	1 EACH	12" TWO WAY. TWO SECTION SYMBOLIC PEDESTRIAN SIGNAL. POLE MOUNTED HARDWARE
	1 EACH	PUSHBUTTON WITH R10-3C SIGN. "PUSH BUTTON TO CROSS UNIVERSITY BOULEVARD". 9" x 12". POLE MOUNTED HARDWARE

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

ITEM NO.	QUANTITY	DESCRIPTION
1001	1 EACH	MAINTENANCE OF TRAFFIC
2001	1 C.Y.	TEST PIT EXCAVATION
2003	10.1 C.Y.	CLASS 1-A EXCAVATION
5003	2,135 L.F.	F & I 12" WHITE PERMANENT PREFORMED PAVEMENT MARKING TAPE
5004	210 L.F.	F & I 24" WHITE PERMANENT PREFORMED PAVEMENT MARKING TAPE
5013	2,465 L.F.	REMOVE EXISTING PAVEMENT MARKINGS - ANY WIDTH
6001	30 S.F.	F & I 4" CONCRETE SIDEWALK
6002	20 L.F.	F & I STANDARD TYPE A COMBINATION CURB AND GUTTER 12" GUTTER PAN. 8" DEPTH
8001	.5 C.Y.	F & I CONCRETE FOR SIGNAL FOUNDATION
8003	1 EACH	F & I 10' BREAKAWAY POLE AND BASE
8011	16 EACH	INSTALL SIGNAL HEAD (ANY TYPE)
8018	1 EACH	INSTALL PUSHBUTTON AND SIGN
8021	115 L.F.	F & I SAWCUT FOR SIGNAL (LOOP DETECTOR)
8023	10 L.F.	F & I 1" LIQUID TIGHT FLEXIBLE NON-METALLIC CONDUIT FOR DETECTOR SLEEVE
8024	10 L.F.	F & I 2" SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED
8025	30 L.F.	F & I 2" SCHEDULE 80 RIGID PVC CONDUIT - SLOTTED
8028	150 L.F.	F & I 3" SCHEDULE 80 RIGID PVC CONDUIT - SLOTTED
8034	1 EACH	F & I GROUND ROD - ¾" DIAMETER x 10' LENGTH
8040	410 L.F.	F & I LOOP WIRE ENCASED IN FLEXIBLE TUBING (NO. 14 AWG)
8041	375 L.F.	F & I ELECTRICAL CABLE - 2 CONDUCTOR (ALUMINUM SHIELDED)
8042	450 L.F.	F & I ELECTRICAL CABLE - 2 CONDUCTOR (NO. 14 AWG)
8044	500 L.F.	F & I ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 AWG)
8045	1,440 L.F.	F & I ELECTRICAL CABLE - 7 CONDUCTOR (NO. 14 AWG)
8046	350 L.F.	F & I ELECTRICAL CABLE - 2 CONDUCTOR (NO. 12 AWG) - T/C
8052	30 L.F.	F & I WOOD SIGN SUPPORTS - 4" x 6"
8053	10 S.F.	INSTALL GROUND MOUNTED SIGN
8054	36 S.F.	INSTALL OVERHEAD SIGN
8056	1 EACH	F & I 250 WATT HPS LUMINAIRE WITH PHOTOCELL
8057	1 EACH	F & I 20' LIGHTING BRACKET ARM FOR TRAFFIC SIGNAL PURPOSES

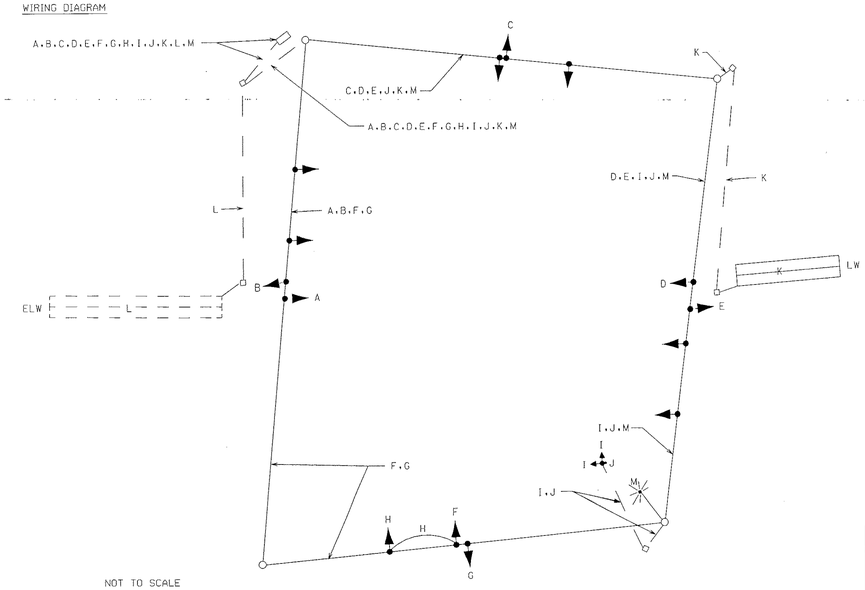
CROSSWALK, STOPBAR, HANDICAPP RAMP, AND PEDESTRIAN SIGNAL DIMENSIONS



PHASE CHART

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15,18	16,17	19,22	20,21
PHASE 1 & 5	◄G-	◄G-	R	R	◄G-	◄G-	R	R	R	R	R	R	R	R	DW	DW	DW	DW
1 & 5 CHANGE	THE CONTROLLER MAY SKIP TO PHASES 1 & 6, OR 2 & 5, OR 2 & 6																	
PHASE 1 & 6	◄G-	◄G-	G	G	◄R-	◄R-	R	R	R	R	R	R	R	R	DW	WK	DW	DW
1 CHANGE	◄Y-	◄Y-	G	G	◄R-	◄R-	R	R	R	R	R	R	R	R	DW	WK	DW	DW
PHASE 2 & 5	◄R-	◄R-	R	R	◄G-	◄G-	G	G	R	R	R	R	R	R	WK	DW	DW	DW
5 CHANGE	◄R-	◄R-	R	R	◄Y-	◄Y-	G	G	R	R	R	R	R	R	WK	DW	DW	DW
PHASE 2 & 6	◄R-	◄R-	G	G	◄R-	◄R-	G	G	R	R	R	R	R	R	WK	WK	DW	DW
PED. CLEAR	◄R-	◄R-	G	G	◄R-	◄R-	G	G	R	R	R	R	R	R	FL/DW	FL/DW	DW	DW
2 & 6 CHANGE	◄R-	◄R-	Y	Y	◄R-	◄R-	Y	Y	R	R	R	R	R	R	DW	DW	DW	DW
PHASE 3 & 7	◄R-	◄R-	R	R	◄R-	◄R-	R	R	◄G-R	◄G-R	R	◄G-R	◄G-R	R	DW	DW	DW	DW
3 & 7 CHANGE	THE CONTROLLER MAY SKIP TO PHASES 3 & 8, OR 4 & 7, OR 4 & 8																	
PHASE 3 & 8	◄R-	◄R-	R	R	◄R-	◄R-	R	R	◄G-G	◄G-G	G	R	R	R	DW	DW	DW	WK
3 CHANGE	◄R-	◄R-	R	R	◄R-	◄R-	R	R	◄Y-G	◄Y-G	G	R	R	R	DW	DW	DW	WK
PHASE 4 & 7	◄R-	◄R-	R	R	◄R-	◄R-	R	R	R	R	R	◄G-G	◄G-G	G	DW	DW	WK	DW
7 CHANGE	◄R-	◄R-	R	R	◄R-	◄R-	R	R	R	R	R	◄Y-G	◄Y-G	G	DW	DW	WK	DW
PHASE 4 & 8	◄R-	◄R-	R	R	◄R-	◄R-	R	R	G	G	G	G	G	G	DW	DW	DW	DW
4 & 8 CHANGE	◄R-	◄R-	R	R	◄R-	◄R-	R	R	Y	Y	Y	Y	Y	Y	DW	DW	DW	DW
4 & 8 ALT.	◄R-	◄R-	R	R	◄R-	◄R-	R	R	G	G	G	G	G	G	DW	DW	WK	WK
PED. CLEAR	◄R-	◄R-	R	R	◄R-	◄R-	R	R	G	G	G	G	G	G	DW	DW	FL/DW	FL/DW
4 & 8 CHANGE	◄R-	◄R-	R	R	◄R-	◄R-	R	R	Y	Y	Y	Y	Y	Y	DW	DW	DW	DW
FLASHING OPERATION	FL/RA	FL/RA	FL/Y	FL/Y	FL/RA	FL/RA	FL/Y	FL/Y	FL/R	FL/R	FL/R	FL/R	FL/R	FL/R	DARK	DARK	DARK	DARK

WIRING DIAGRAM



NOT TO SCALE

A-G = 7 CONDUCTOR CABLE (NO. 14 AWG)
H-I = 5 CONDUCTOR CABLE (NO. 14 AWG)
J = 2 CONDUCTOR CABLE (NO. 14 AWG)
K-L = 2 CONDUCTOR (ALUMINUM SHIELDED) CABLE (NO. 14 AWG)
M = 2 CONDUCTOR CABLE (NO. 12 AWG) - T/C
LW = LOOP WIRE
ELW = EXISTING LOOP WIRE

UTILITY LEGEND

G	GAS MAIN
W	WATER MAIN
S	SEWER MAIN
E	ELECTRIC CABLES
A	AERIAL CABLES
T	TELEPHONE CABLES

REVISIONS	APPROVALS
	ASST. DIVISION CHIEF, TEDD ORIGINAL
	ASST. DISTRICT ENGINEER, TRAFFIC ON
	CHIEF, TRAFFIC ENGINEERING DESIGN DIVISION FILE
	DIRECTOR, OFFICE OF TRAFFIC & SAFETY

MARYLAND DOT - STATE HIGHWAY ADMINISTRATION
Office of Traffic & Safety
TRAFFIC ENGINEERING DESIGN DIVISION

MD. 193 (UNIVERSITY BLVD.) & MD. 320 (PINEY BRANCH RD.)

DATE

DRAWN BY: W. Malcolm	F.A.P. NO.	PLAN SHEET NO.:	SHEET NO.
DES. BY: W. Malcolm	S.H.A. NO.		
CHECK BY:	COUNTY MONTGOMERY	TS-3661 A	1 OF 1
SCALE: AS SHOWN			

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