

**PROJECT DESCRIPTION**

- I. GENERAL**  
THIS PROJECT INVOLVES THE CONSTRUCTION OF A TRAFFIC SIGNAL AT THE INTERSECTION OF EDMONDSON AVENUE AND I-695 INNER LOOP RAMP IN CATONSVILLE, BALTIMORE COUNTY, MARYLAND.
- II. INTERSECTION OPERATION**
- A SYSTEM CONTROLLER HOUSED IN A BASE MOUNTED CABINET SHALL BE INSTALLED AT THIS LOCATION. THE INTERSECTION WILL OPERATE IN A FULLY ACTUATED MODE USING 4 NEMA PHASES, WITH A PERMISSIVE/PROTECTED EASTBOUND LEFT TURN PHASE, AND A SEPARATE PHASE FOR NORTHBOUND.

**NOTES**

- ALL PAVEMENT MARKINGS SHALL BE INSTALLED IN ACCORDANCE WITH ADMINISTRATION STANDARDS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR TERMINATING ALL SIGNAL CABLE TO THE APPROPRIATE TERMINALS AND PROPERLY LABELING EACH CABLE.
- 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 THE APPROPRIATE 800 SERIES STANDARD PLATES. THE CONTRACTOR SHALL VERIFY ULTIMATE GRADES PRIOR TO THE INSTALLATION OF ALL SIGNAL EQUIPMENT.
- ALL UNDERGROUND AND OVERHEAD 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.
- THE CONTRACTOR SHALL MAINTAIN THE CONTINUOUS OPERATION OF ALL EXISTING INTERCONNECT, VEHICULAR, PEDESTRIAN DETECTORS, AND LIGHTING DEVICES. IF ANY DEVICE IS DAMAGED BY THE CONTRACTOR, IT SHALL BE REPAIRED WITHIN 72 HOURS BY THE CONTRACTOR AT NO COST TO THE ADMINISTRATION AFTER NOTIFICATION BY THE ENGINEER.

**CONTACTS**

<b>DISTRICT</b>	<b>OFFICE OF TRAFFIC AND SAFETY</b>
DAVID J. MALKOWSKI DISTRICT ENGINEER 410-229-2310 / 2311	MR. RICHARD DAFF SR. CHIEF, TRAFFIC OPERATIONS 410-787-7630
ERIN KUHN ASSISTANT DISTRICT ENGINEER - TRAFFIC 410-229-2381	MR. ROBERT SNYDER ASSISTANT DIVISION CHIEF, TRAFFIC OPERATIONS 410-787-7630
MICHAEL PASQUARIELLO UTILITIES ENGINEER 410-229-2341	MR. ED RODENHIZER TEAM LEADER SIGNAL OPERATIONS 410-787-7650
DONALD SCHAEFER ASSISTANT DISTRICT ENGINEER - CONSTRUCTION 410-229-2421	MS. DARLENE EIDE SUPPLY OFFICER IV (SIGNAL SHOP WAREHOUSE) 410-787-7668
ANDRE FUTRELL ASSISTANT DISTRICT ENGINEER - MAINTENANCE 410-229-2361	

**EQUIPMENT LIST**

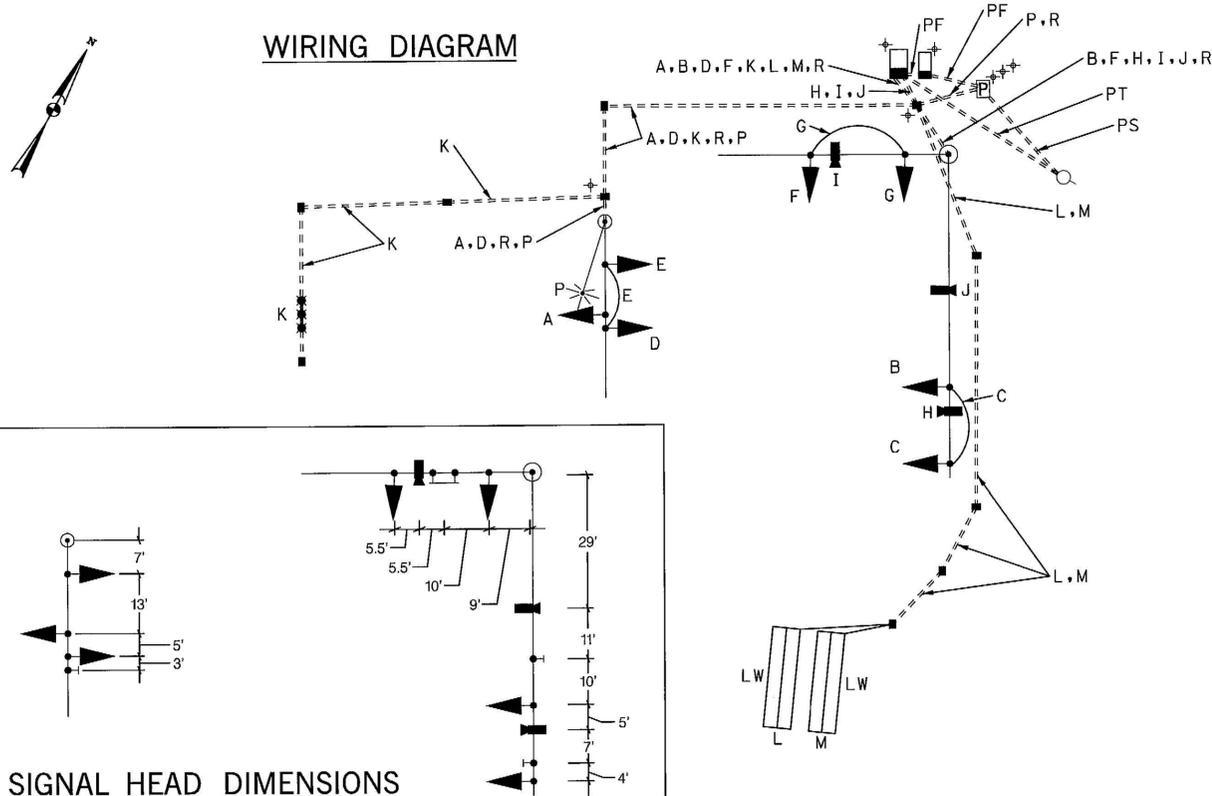
**A. EQUIPMENT TO BE FURNISHED BY STATE HIGHWAY ADMINISTRATION**

CAT CODE	QUANTITY	UNITS	DESCRIPTION
900000	1	EA	MASTER LOCAL CONTROLLER AND CABINET SIZE 6 W/ VIDEO DETECTION INTERFACE EQUIPMENT
900000	1	EA	UNINTERRUPTED POWER SUPPLY (UPS) CABINET SIZE 5 W/ UPS EQUIPMENT
973022	96	SF	EXTRUDED ALUMINUM SIGNS CONSISTING OF:
	2	EA	CUSTOM SIGN (GM 16 AND 17) GROUND MOUNT
973023	69	SF	FLAT SHEET ALUMINUM SIGNS CONSISTING OF:
	1	EA	D-3(1) (VAR. X 16") MAST ARM MOUNT
	1	EA	R3-1 (24"x24") MAST ARM MOUNT
	2	EA	R3-2 (24"x24") MAST ARM MOUNT
	1	EA	R3-5R (30"x36") MAST ARM MOUNT
	1	EA	R3-6L (30"x36") MAST ARM MOUNT
	2	EA	W16-14(1) (24" X 24") AND W3-3 (36" X 36") GROUND MOUNT SIGN ASSEMBLY
	1	EA	R3-7R (24"x24") GROUND MOUNT
	1	EA	R3-7R (24"x24") BANDED TO EXISTING LIGHT POLE

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

CAT CODE	QUANTITY	UNITS	DESCRIPTION
203030	3	CY	TEST PIT EXCAVATION
585405	175	LF	5 INCH WHITE LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKINGS
585407	900	LF	5 INCH YELLOW LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKINGS
585625	110	LF	24 INCH WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINES
585627	51.8	LF	WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LEGENDS AND SYMBOLS
585700	250	LF	REMOVAL OF EXISTING PAVEMENT MARKING LINES, ANY WIDTH
801106	72	LF	WOOD SIGN SUPPORTS 4 INCH X 6 INCH
801001	2.2	CY	CONCRETE FOR SIGN FOUNDATION
801004	7.4	CY	CONCRETE FOR SIGNAL FOUNDATION
802501	185	LF	NO. 6 AWG STRANDED BARE COPPER GROUND WIRE
805125	135	LF	2 INCH SCHEDULE 80 RIGID PVC CONDUIT-TRENCHED
805115	250	LF	3 INCH SCHEDULE 80 RIGID PVC CONDUIT-BORED
805118	225	LF	4 INCH SCHEDULE 80 RIGID PVC CONDUIT-BORED
805135	150	LF	3 INCH SCHEDULE 80 RIGID PVC CONDUIT-TRENCHED
805140	100	LF	4 INCH SCHEDULE 80 RIGID PVC CONDUIT-TRENCHED
805155	180	LF	4 INCH SCHEDULE 80 RIGID PVC CONDUIT-SLOTTED
805160	35	LF	1 INCH LIQUID TIGHT FLEXIBLE NON-METALLIC CONDUIT FOR DETECTOR SLEEVE
807500	1	EA	EMBEDDED METERED SERVICE PEDESTAL
810550	1	EA	MICROLOOP DETECTOR, 500 FOOT LEAD IN CABLE
811001	10	EA	FURNISH AND INSTALL ELECTRICAL HANDHOLE
813010	1	EA	BAND SIGN TO SIGN SUPPORT
813014	126	SF	INSTALL GROUND MOUNTED SIGN
813015	35	SF	INSTALL OVERHEAD SIGN
816001	3	EA	IP-BASED VIDEO DETECTION CAMERA AND CABLE
816105	1	EA	INSTALL NEMA SIZE 5 UPS CABINET AND EQUIPMENT - BASE MOUNT
816110	1	EA	INSTALL TRAFFIC SIGNAL CONTROLLER AND CABINET, NEMA SIZE 6 - BASE MOUNT
818030	1	EA	STEEL POLE WITH A SINGLE 38 FOOT MAST ARM
818051	1	EA	STEEL POLE WITH TWIN 50 FOOT AND 70 FOOT MAST ARMS
821001	2	EA	BREAKAWAY BASE SUPPORT SYSTEM FOR STEEL BEAMS
831010	1	EA	250 WATTS HPS LAMP AND LUMINAIRE WITH PHOTOCELL
837001	7	EA	GROUND ROD - 3/4 INCH DIAMETER X 10 FOOT LENGTH
851002	32.5	LF	GALVANIZED STEEL BEAMS (W6X9)
860272	25	EA	12 INCH LED VEHICULAR TRAFFIC SIGNAL HEAD SECTION
860292	2	EA	CUT, CLEAN, GALVANIZE AND CAP TRAFFIC SIGNAL STRUCTURE
861107	80	LF	ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 AWG)
861108	550	LF	ELECTRICAL CABLE - 7 CONDUCTOR (NO. 14 AWG)
861104	900	LF	ELECTRICAL CABLE - 2 CONDUCTOR (NO. 12 AWG) - ALUMINUM SHIELDED
861116	200	LF	ELECTRICAL CABLE - 2 CONDUCTOR (NO. 12 AWG) - TRAY CABLE
862101	175	LF	LOOP WIRE ENCASED IN FLEXIBLE TUBING (NO. 14 AWG)
862102	200	LF	SAW CUT FOR SIGNAL (LOOP DETECTOR)
866103	1	LF	15 FOOT LIGHTING ARM ON SIGNAL STRUCTURE

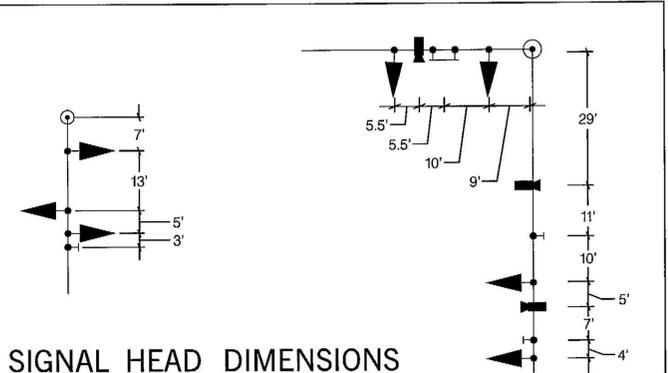
**WIRING DIAGRAM**



**KEY**

A, B, D, F, K, L, M, R	7 CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
C, E, G	5 CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
H, I, J	3-CONDUCTOR POWER CABLE FOR VIDEO DETECTION CAMERA
K	NON-INVASIVE MICRO LOOP PROBES CABLE LEAD-IN
L, M	2 CONDUCTOR ALUMINUM SHIELDED (NO. 12 AWG)
R	1 CONDUCTOR (NO. 6 AWG) STRANDED COPPER GROUND WIRE
P	2 CONDUCTOR ELECTRICAL CABLE (NO. 12 AWG TRAY CABLE)
LW	LOOP WIRE CABLE IN FLEXIBLE TUBING (6 TURNS)
PS	EMPTY CONDUIT W/PULLSTRING, BGE TO MAKE FINAL CONNECTION
PF	POWER SERVICE UNDERGROUND 1 CONDUCTOR (NO. 4 AWG THHN/THWN) - 3 RUNS
PT	PROPOSED TELEPHONE DROP (BY OTHERS)
+	GROUND ROD

**SIGNAL HEAD DIMENSIONS**



**GROUND MOUNTED SIGN DETAILS**

PANEL DESIGNATION	SHEET NO.	QUANTITY	LEGEND	SIZE			COLOR	BORDER		SHIELD	REMARKS	
				AREA	WIDTH	HEIGHT	LEGEND	BCKGRND	WIDTH			RADIUS
GM-16	pSG P008	1		48 SF	6"	8"	W	G	2"	9"	A-T	M1-1 30"x24" EXTRUDED ALUMINUM FONT: (1) ClearviewHwy-4-W (2) ClearviewHwy-5-W
GM-17	PSG P008	1		48 SF	6"	8"	W	G	2"	9"	A-T @ 45 DEG	M1-1 30"x24" EXTRUDED ALUMINUM FONT: (1) ClearviewHwy-4-W (2) ClearviewHwy-5-W

- SIGNING NOTES:**
- INSTALL SIGNS GM-16 AND GM-17 BACK TO BACK ON TWO (2) W6X9 SUPPORTS WITH TYPE A BREAKAWAY SUPPORT SYSTEM, AND WITH SPACING OF 1.2' / 3.6' / 1.2'.
  - REFER TO CS-23 FOR CROSS SECTION FOR GM 16 AND GM 17.

**PHASE CHART**

	1	2	3	4	5	6	7	
PHASE 1 AND 6	G	G	G	G	R	R	R	R
1 AND 6 CHANGE	G	G	G	G	R	R	R	R
PHASE 2 AND 6	G	G	G	G	G	R	R	R
2 AND 6 CHANGE	Y	Y	Y	Y	Y	R	R	R
PHASE 8	R	R	R	R	R	G	G	R
8 CHANGE	R	R	R	R	R	Y	Y	R
FLASHING OPERATION	FLY	FLY	FLY	FLY	FLY	FL/R	FL/R	R

**SHA** STATE OF MARYLAND  
DEPARTMENT OF TRANSPORTATION  
STATE HIGHWAY ADMINISTRATION  
OFFICE OF TRAFFIC & SAFETY  
TRAFFIC ENGINEERING DESIGN DIVISION  
EDMONDSON AVENUE AT I-695 INNER LOOP RAMPS

**GENERAL INFORMATION SHEET**

SCALE _____ NTS _____	DATE SEPTEMBER 2010	CONTRACT NO. BA725380
DESIGNED BY _____ B. BRINKER _____	COUNTY _____ BALTIMORE _____	
DRAWN BY _____ B. BRINKER _____	LOGMILE _____	
CHECKED BY _____ J.PALADUJUS.DU _____	T.I.M.S. NO. _____	
F.A.P. NO. _____ SEE TITLE SHEET _____	TOD NO. _____	
TS NO. 4772	DRAWING NO. pSG OF N008	SHEET NO. 199 OF 235

**SABRA, WANG & ASSOCIATES, INC.**  
1504 JOH AVENUE  
SUITE 160  
BALTIMORE, MD 21227  
(410) 737-6564  
WWW.SABRA-WANG.COM