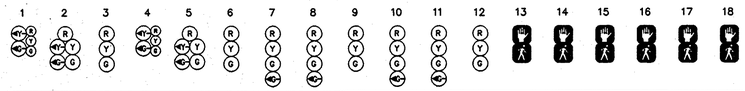
PHASING DIAGRAM

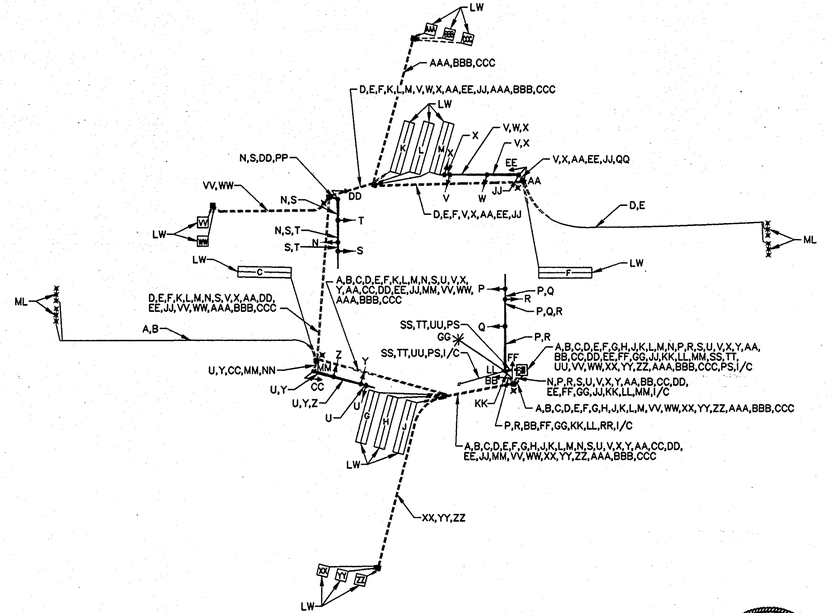


PHASE 1+5	G	G	R	G	G	R	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
1+5 CHANGE	TO PHASE 1+6 OR PHASE 2+5 OR PHASE 2+6																	
PHASE 1+6	G	G	G	R	R	R	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
1 CHANGE	G	G	G	R	R	R	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
PHASE 2+5	R	R	R	G	G	G	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
5 CHANGE	R	R	R	C	C	G	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
PHASE 2+6	G	G	G	G	G	G	R	R	R	R	R	R	DW	W	W	W	W	DW
PED CLEAR	G	G	G	G	G	G	R	R	R	R	R	R	DW	FL DW	FL DW	FL DW	FL DW	DW
2+6 CHANGE	Y	Y	Y	Y	Y	Y	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
PHASE 3	R	R	R	R	R	R	G	G	G	R	R	R	DW	DW	DW	DW	DW	DW
3 CHANGE	R	R	R	R	R	R	Y	Y	Y	R	R	R	DW	DW	DW	DW	DW	DW
PHASE 3 ALT.	R	R	R	R	R	R	G	G	G	R	R	R	W	DW	DW	DW	DW	W
PED. CLEAR	R	R	R	R	R	R	G	G	G	R	R	R	FL DW	DW	DW	DW	DW	FL DW
3 ALT. CHANGE	R	R	R	R	R	R	Y	Y	Y	R	R	R	DW	DW	DW	DW	DW	DW
PHASE 4	R	R	R	R	R	R	R	R	R	G	G	G	DW	DW	DW	DW	DW	DW
4 CHANGE	R	R	R	R	R	R	R	R	R	Y	Y	Y	DW	DW	DW	DW	DW	DW
FLASHING OPERATION	FL Y	FL Y	FL Y	FL Y	FL Y	FL Y	FL R	FL R	FL R	FL R	FL R	FL R	OFF	OFF	OFF	OFF	OFF	OFF

WIRING LEGEND

A – MICRO-LOOP PROBE LEAD-IN
B – MICRO-LOOP PROBE LEAD-IN
C – 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
D – MICRO-LOOP PROBE LEAD-IN
E – MICRO-LOOP PROBE LEAD-IN
F – 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
G – 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
H – 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
J – 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
K – 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
L – 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
M – 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
N – 7 CONDUCTOR CABLE (NO. 14 A.W.G.)
P – 7 CONDUCTOR CABLE (NO. 14 A.W.G.)
Q – 5 CONDUCTOR CABLE (NO. 14 A.W.G.)
R – 7 CONDUCTOR CABLE (NO. 14 A.W.G.)
S – 7 CONDUCTOR CABLE (NO. 14 A.W.G.)
T – 5 CONDUCTOR CABLE (NO. 14 A.W.G.)
U – 7 CONDUCTOR CABLE (NO. 14 A.W.G.)
V – 7 CONDCUTOR CABLE (NO. 14 A.W.G.)
W – 5 CONDUCTOR CABLE (NO. 14 A.W.G.)
X – 7 CONDUCTOR CABLE (NO. 14 A.W.G.)
Y – 7 CONDUCTOR CABLE (NO. 14 A.W.G.)
Z – 5 CONDUCTOR CABLE (NO. 14 A.W.G.)
AA – 3 CONDUCTOR CABLE (NO. 14 A.W.G.)
BB – 3 CONDUCTOR CABLE (NO. 14 A.W.G.)
CC – 3 CONDUCTOR CABLE (NO. 14 A.W.G.)
DD – 3 CONDUCTOR CABLE (NO. 14 A.W.G.)
EE – 3 CONDUCTOR CABLE (NO. 14 A.W.G.)
FF – 3 CONDUCTOR CABLE (NO. 14 A.W.G.)
GG – 2 CONDUCTOR TRAY CABLE (NO. 12 A.W.G.)
JJ – 2 CONDUCTOR CABLE (NO. 14 A.W.G.)
KK – 2 CONDUCTOR CABLE (NO. 14 A.W.G.)
LL – 2 CONDUCTOR CABLE (NO. 14 A.W.G.)
MM – 2 CONDUCTOR CABLE (NO. 14 A.W.G.)
NN – STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)
PP – STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)
QQ – STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)
RR – STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)
SS – 1 CONDUCTOR CABLE (NO. 4 A.W.G.)
TT – 1 CONDUCTOR CABLE (NO. 4 A.W.G.)
UU – 1 CONDUCTOR CABLE (NO. 4 A.W.G.)
VV – 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
WW – 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
XX – 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
YY – 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
ZZ – 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
AAA– 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
BBB– 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
CCC– 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
PS – PROPOSED ELECTRICAL SERVICE
⏚ – 3/4"x10' GROUND ROD
LW – LOOP WIRE
ML – MICRO-LOOP PROBE SET
I/C – INTERCONNECT WIRE

WIRING DIAGRAM



PROJECT DESCRIPTION

I. GENERAL

THE WORK TO BE PERFORMED INVOLVES THE RECONSTRUCTION OF THE EXISTING TRAFFIC SIGNAL AT MD 150 (EASTERN BOULEVARD) AND MARLYN AVENUE IN ESSEX, MARYLAND. IT IS ASSUMED THAT MD 150 (EASTERN BOULEVARD) RUNS IN AN EAST-WEST DIRECTION.

II. INTERSECTION OPERATION

THE INTERSECTION WILL OPERATE IN A NEMA SIX (6) PHASE FULLY TRAFFIC ACTUATED MODE. EASTBOUND AND WESTBOUND MD 150 (EASTERN BOULEVARD) WILL OPERATE CONCURRENTLY AND NORTHBOUND AND SOUTHBOUND MARLYN AVENUE WILL OPERATE SEPERATELY.

A NEW EIGHT PHASE FULLY ACTUATED CONTROLLER WITH TELEMETRY MODULE HOUSED IN A GROUND MOUNTED CABINET WILL BE INSTALLED.

EQUIPMENT LIST

A. EQUIPMENT TO BE SUPPLIED BY THE SHA.

QUANTITY	UNIT	SPECIFICATION SECTION	DESCRIPTION
1	EA	SP	BASE MOUNTED LOCAL CABINET (SIZE 6) WITH DETECTION EQUIPMENT WITH 8 PHASE CONTROLLER, MASTER ASC 10,000 WITH TELEMETRY AND OPTICOM PRE-EMPTION MODULE
185	SF	SP	FLAT SHEET ALUMINUM SIGN-YELLOW, ORANGE OR SILVER TO CONSIST OF-
			2 EACH R10-12 "LEFT TURN YIELD ON GREEN" SIGN (30"x36") MAST ARM MOUNTED
			2 EACH R3-5(L) "LANE USE CONTROL-LEFT ONLY" SIGN (30"x36") MAST ARM MOUNTED
			4 EACH D-3(1) "MARLYN AVE" SIGN (VAR.x16") MAST ARM MOUNTED
			1 EACH R3-6 " LANE USE CONTROL-LEFT THRU" SIGN (30"x36") MAST ARM MOUNTED
			4 EACH D-3(1) "EASTERN BLVD" SIGN (VAR.x16") MAST ARM MOUNTED
			2 EACH R12-5(4) "NO TRUCK (SYMBOL) OVER 3/4T" SIGN (36"x48") SIDE POLE MOUNTED

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

QUANTITY	UNIT	SPECIFICATION SECTION	DESCRIPTION
10	CY		TEST PIT EXCAVATION
690	LF		SAWCUTTING
545	LF		12 INCH WHITE PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKING TAPE
160	LF		24 INCH WHITE PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKING TAPE
45	LF		REMOVE EXISTING PAVEMENT MARKINGS-ANY WIDTH
4	EA		FURNISH AND INSTALL MICRO-LOOP TRIPLE PROBE SET (1000')
1	LS		REMOVE AND DISPOSE OF EXISTING MATERIAL
1	LS		DELIVERY OF SALVAGED CONTROLLER AND CABINET
1	EA		INSTALL MASTER CONTROLLER
1	LS		REMOVAL AND SALVAGE OF CONTROLLER AND CABINET
4	EA		FURNISH AND INSTALL 12", 1 WAY, 3 SECTION POLYCARBONATE SIGNAL HEAD-MAST ARM MOUNTED
2	EA		FURNSIH AND INSTALL 9", 1 WAY, 2 SECTION POLYCARBONATE PEDESTRAIN SIGNAL HEAD-SIDE POLE MOUNTED
2	EA		FURNSIH AND INSTALL 9", 2 WAY, 2 SECTION POLYCARBONATE PEDESTRAIN SIGNAL HEAD-SIDE POLE MOUNTED
2	EA		FURNISH AND INSTALL 12", 1 WAY, 5 SECTION ALUMINUM AND PLASTIC SIGNAL HEAD-MAST ARM MOUNTED
4	EA		FURNISH AND INSTALL 12", 1 WAY, 4 SECTION POLYCARBONATE SIGNAL HEAD-MAST ARM MOUNTED
2	EA		FURNISH AND INSTALL 12"/8", 1 WAY, 5 SECTION ALUMINUM AND PLASTIC SIGNAL HEAD-MAST ARM MOUNTED
20	CY		FURNISH AND INSTALL CONCRETE FOR SIGNAL FOUNDATION
55	LF		FURNISH AND INSTALL NO. 6 A.W.G. STRANDED BARE COPPER GROUND WIRE
30	LF		FURNISH AND INSTALL 2" (SCHEDULE 80) RIGID P.V.C. CONDUIT (TRENCHED)
70	LF		FURNISH AND INSTALL 4" (SCHEDULE 80) RIGID P.V.C. CONDUIT (TRENCHED)
310	LF		FURNISH AND INSTALL 2" (SCHEDULE 80) RIGID P.V.C. CONDUIT (SLOTTED)
275	LF		FURNISH AND INSTALL 4" (SCHEDULE 80) RIGID P.V.C. CONDUIT (SLOTTED)
145	LF		FURNISH AND INSTALL 1" LIQUID TIGHT FLEXIBLE NON-METALLIC CONDUIT FOR DETECTOR SLEEVE
200	LF		FURNISH AND INSTALL ELECTRICAL CABLE-1 CONDUCTOR NO. 4 (THHN/THWN)
9	EA		FURNISH AND INSTALL ELECTRICAL HANDHOLE
2	EA		BAND SIGN TO SUPPORT
130	SF		INSTALL OVERHEAD SIGN
1	EA		FURNISH AND INSTALL STEEL POLE WITH A SINGLE 38' MAST ARM
2	EA		FURNISH AND INSTALL STEEL POLE WITH A SINGLE 48' MAST ARM
1	EA		FURNISH AND INSTALL STEEL POLE WITH A SINGLE 60' MAST ARM
1290	LF		FURNISH AND INSTALL 12-PAIR COMMUNICATION CABLE-SELF SUPPORTING (OVERHEAD)
30	LF		FURNISH AND INSTALL 12-PAIR COMMUNICATION CABLE-JELLYFILLED (UNDERGROUND)
1	EA		FURNISH AND INSTALL 250 WATT HIGH PRESSURE SODIUM LAMP AND LUMINAIRE
4	EA		FURNISH AND INSTALL GROUND ROD 3/4" DIAMETERx10' LENGTH
1	EA		FURNISH AND INSTALL CONTROL AND DISTIBUTION EQUIPMENT (120v/240v, 1 PHASE 3 WIRE SYSTEM)
3530	LF		FURNISH AND INSTALL ELECTRICAL CABLE 2 CONDUCTOR (ALUMINUM SHIELDED
600	LF		FURNISH AND INSTALL ELECTRICAL CABLE 2 CONDUCTOR (NO. 14 A.W.G.)
1250	LF		FURNISH AND INSTALL ELECTRICAL CABLE 3 CONDUCTOR (NO. 14 A.W.G.)
115	LF		FURNISH AND INSTALL ELECTRICAL CABLE 5 CONDUCTOR (NO. 14 A.W.G.)
2115	LF		FURNISH AND INSTALL ELECTRICAL CABLE 7 CONDUCTOR (NO. 14 A.W.G.)
95	LF		FURNISH AND INSTALL ELECTRICAL CABLE 2 CONDUCTOR (NO. 12 A.W.G.) TRAY CABLE
3830	LF		FURNISH AND INSTALL LOOP WIRE ENCASED IN FLEXIBLE TUBING (NO. 14 A.W.G.)
1545	LF		FURNISH AND INSTALL SAWCUT FOR SIGNAL (LOOP DETECTOR)
4	EA		FURNISH AND INSTALL PEDESTRIAN PUSHBUTTON AND SIGN
1	EA		FURNISH AND INSTALL 20' LIGHTING ARM ON SIGNAL POLE
1	EA		INSTALL EIGHT PHASE (FULLY ACTUATED) CONTROLLER AND CABINET-BASE MOUNT

2-11-1999

A/E GROUP, INC.
ENGINEERS • PLANNERS
181 E. Main Street
Westminster, Maryland 21157
A/E Job No. 98-367-002

REVISIONS	APPROVALS
© REBUILD EXISTING TRAFFIC SIGNAL AND INTERCONNECT. 02/09/99	CHIEF, DESIGN SECTION
	ASST. DISTRICT ENGINEER, TRAFFIC
	CHIEF, TRAFFIC ENGINEERING DESIGN DIVISION
	DIRECTOR, TRAFFIC & SAFETY

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

MD 150 (EASTERN BOULEVARD) AND MARLYN AVENUE

LOG MI. 03015003.88 — GENERAL INFORMATION SHEET — DATE: FEBRUARY 09,1999

DRAWN BY: WRS	F.A.P. NO.		PLAN TS NO.: 3017C	SHEET NO. 29 OF 42
CHECK BY: CRM	S.H.A. NO.			
SCALE: 1"=20'	COUNTY BALTIMORE			