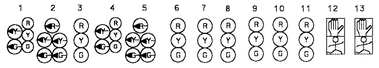
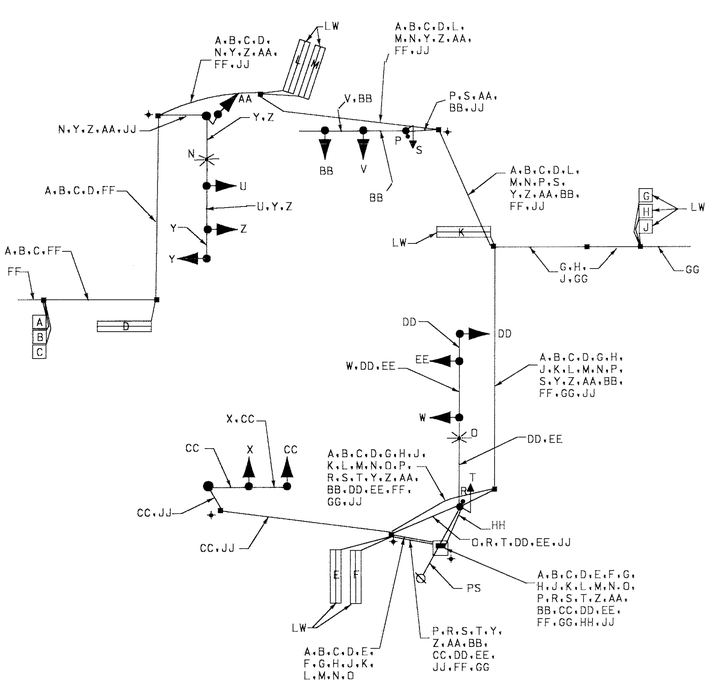
PHASE CHART



	1	2	3	4	5	6	7	8	9	10	11	12	13
PHASE 1 & 5	R G	R G	R	R G	R G	R	R	R	R	R	R	DW	DW
1 CHANGE	CHANGE TO PHASE 1 & 6 OR PHASE 2 & 5											DW	DW
PHASE 1 & 6	R	R	R	G Y	G Y	G	R	R	R	R	R	DW	DW
1 CHANGE	R	R	R	G Y	G Y	G	R	R	R	R	R	DW	DW
PHASE 2 & 5	G G	G G	G	R	R	R	R	R	R	R	R	DW	DW
5 CHANGE	G Y	G Y	G	R	R	R	R	R	R	R	R	DW	DW
PHASE 2 & 6	G	G	G	G	G	G	R	R	R	R	R	DW	DW
2 & 6 CHANGE	Y	Y	Y	Y	Y	Y	R	R	R	R	R	DW	DW
PHASE 4 & 8	R	R	R	R	R	R	G	G	G	G	G	DW	DW
4 & 8 CHANGE	R	R	R	R	R	R	Y	Y	Y	Y	Y	DW	DW
ALT PHASE 4 & 8	R	R	R	R	R	R	G	G	G	G	G	WK	WK
PED CLEARANCE	R	R	R	R	R	R	G	G	G	G	G	FL/DW	FL/DW
ALT 4 & 8 CHANGE	R	R	R	R	R	R	Y	Y	Y	Y	Y	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	DARK	DARK

WIRING DIAGRAM



WIRING KEY

- A B C D E F G H J K L M — 2-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.) (ALUMINUM SHIELDED)
- N O — 2-CONDUCTOR ELECTRICAL CABLE (NO. 12 A.W.G.) TYPE THHN TRAY CABLE
- P R — 2-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
- S T — 3-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
- U V W X — 5-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
- Y Z AA BB CC DD EE — 7-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
- FF GG — 12-PAIR, VOICE GRADE TELEMETRY CABLE (NO. 19 A.W.G.) (JELLY-FILLED)
- HH – 3-WIRE ELECTRICAL CABLE (NO. 4 A.W.G.)
- JJ – STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)
- LW – LOOP WIRE (NO. 14 A.W.G.)
- PS – PROPOSED UNDERGROUND SERVICE TO BE INSTALLED BY DP&L
- ✦ – GROUND ROD

PROJECT DESCRIPTION

I. GENERAL

This project involves the reconstruction three (3) existing Traffic Control Signals with street lighting along MD 150 in Baltimore County.

- MD 150 and Stemmers Run Road
- MD 150 and Bennett Road
- MD 150 and Kingston Ave

Interconnect cable shall be installed underground from Stemmers Run Rd. east to Kingston Rd. MD150 is assumed to travel in an east-west direction.

II. INTERSECTION OPERATION

. MD 150 and Kingston Rd./ Old Eastern Rd.

1. The intersection is to operate in a NEMA six-phase, fully-actuated mode, with the MD 150 approaches running concurrently. Exclusive/Permissive left turns shall be provided for eastbound and westbound approaches. The Kingston Rd. and Old Eastern Rd. approaches shall operate concurrently. A pedestrian phase with pushbutton actuation shall be provided to cross the east leg of MD 150.

2. A full-traffic-actuated, eight-phase local controller with three (3) four-channel, rack mount loop detector amplifiers, and associated harnesses housed in a NEMA size "6" base-mounted cabinet shall be installed at this intersection.

II. SPECIAL NOTES

1. Upon completion of this project, the Contractor shall notify Mr. Robert Snyder at (410) 787-7631 to arrange for the phone line installation. The Contractor is to provide Mr. Snyder with the nearest street address, zip code and phone number.

2. The Contractor shall be responsible for terminating all cables to the appropriate terminals and shall properly table each cable.

3. The Contractor shall be responsible to remove all existing equipment, unless otherwise specified on the plan.

EQUIPMENT LISTS

A. EQUIPMENT TO BE SUPPLIED BY S.H.A.

CATEGORY CODE	QUANTITY	DESCRIPTION
971017	1 Each	Furnish and Install eight-phase, full-traffic-actuated, solid state digital local controller with three (3) 4-channel, rack mount loop detector amplifiers and associated harnesses housed in a NEMA size "6" base-mounted cabinet.
973023	118 S.F.	Overhead mounted sheet aluminum signs to consist of:
	1 Each	D3-2 "Kingston RD(arrow),(arrow) Kingston RD" dual-faced sign, (variable x 16") mast arm mounted.
	2 Each	D3-2 "(arrow) Old Eastern RD,Old Eastern RD (arrow)" dual-faced sign, (variable x 16") mast arm mounted.
	2 Each	D3-2 "Eastern BLVD"dual-faced sign, (variable x 16") mast arm mounted.
	2 Each	R10-12 "LEFT TURN YIELD ON GREEN" sign, (36" x 42") mast arm mounted.
	2 Each	"Associated Shield Assembly" sign, (48" x 75") pole mounted.
	2 Each	"Associated Shield Assembly" sign, (30" x 51") pole mounted.

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

CATEGORY CODE	QUANTITY	DESCRIPTION
203030	5 C.Y.	Test pit excavation.
585416	170 L.F.	Furnish and install reflective thermoplastic pavement marking tape, white (24" width for stoplines).
801004	15 C.Y.	Furnish and install concrete foundation.
837001	5 Each	Furnish and install ground rod, ¾" diameter x 10' length.
800000	2 Each	Furnish and install one way, five-section (12" YA,GA) / 8" R,Y,G) head with adjustable bracket for mast arm mounting and tunnel visors
860128	2 Each	Furnish and install 12 in. one way, five-section (R,Y,YA,G,GA) head with adjustable bracket for mast arm mounting and tunnel visors
860122	7 Each	Furnish and install 12 in. one way, three-section (R,Y,G) head with adjustable bracket for mast arm mounting and tunnel visors
860168	2 Each	Furnish and install 12 in., one way, two-section (DW,W) symbolic pedestrian signal head with adjustable bracket for pole mounted and cutaway visors.
818031	2 Each	Furnish and install 27 ft. steel pole with a 40 ft. mast arm (Note:4 anchor bolts will be 1¾in. x 90 in)
818036	1 Each	Furnish and install 27 ft. steel pole with a 50 ft. mast arm (Note: 4 anchor bolts will be 1¾in. x 90 in.)
818041	1 Each	Furnish and install 27 ft. steel pole with a 60 ft. mast arm (Note: 4 anchor bolts will be 2 in. x 90 in.)
871202	1 Each	Install base-mounted cabinet and contoller.
813015	118 S.F.	Install overhead mounted sheet aluminum signs.
862102	1258 L.F.	Furnish and install sawcut.
805011	65 L.F.	Furnish and install 1" galvanized steel electrical conduit (detector wire sleeve).
805160	25 L.F.	Furnish and install 1" liquid tight flexible non-metallic electrical conduit (detector wire sleeve).
870116	140 L.F.	Furnish and install 2" polyvinyl chloride electrical conduit (Schedule 80) (trenched).
870119	765 L.F.	Furnish and install 3" polyvinyl chloride electrical conduit (Schedule 80) (trenched).
805118	60 L.F.	Furnish and install 4" polyvinyl chloride electrical conduit (Schedule 80) (bored).
870124	465 L.F.	Furnish and install 4" polyvinyl chloride electrical conduit (Schedule 80) (slotted).
870122	20 L.F.	Furnish and install 4" polyvinyl chloride electrical conduit (Schedule 80) (trenched).
800000	1 Each	Furnish and install control and distribution equipment Type B-6.
811001	13 Each	Furnish and install handhole (frame and cover).
832020	625 L.F.	Furnish and install stranded bare copper ground wire (No. 6 A.W.G.).
822002	1125 L.F.	Furnish and install 12-pair, voice grade interconnect cable (No. 19 A.W.G.) (jelly-filled).
862101	3880 L.F.	Furnish and install loop wire (No. 14 A.W.G.) encased in ¼" flexible tubing.
861104	3500 L.F.	Furnish and install 2-conductor electrical cable (No. 14 A.W.G.) (aluminum shielded).
861105	340 L.F.	Furnish and install 2-conductor electrical cable (No. 14 A.W.G.).
861106	360 L.F.	Furnish and install 3-conductor electrical cable (No. 14 A.W.G.).
861107	100 L.F.	Furnish and install 5-conductor electrical cable (No. 14 A.W.G.).
861108	2255 L.F.	Furnish and install 7-conductor electrical cable (No. 14 A.W.G.).
861116	565 L.F.	Furnish and install 2-conductor electrical cable (No. 12 A.W.G.) type THHN tray cable.
861117	40 L.F.	Furnish and install 3-wire electrical cable (No. 4 A.W.G.).
831010	2 Each	Furnish and install 250W-HPS luminaire.
866101	1 Each	Furnish and install 10' lighting arm.
866103	1 Each	Furnish and install 15' lighting arm.
865001	2 Each	Furnish and install pushbutton and sign.
800000	1 Each	Remove and delivery of existing controller cabinet.
800000	Lump Sum	Removal and disposal of existing signal equipment.

STREET TRAFFIC STUDIES, LTD.®
Gateway International
1302 Concourse Drive, Suite 104
Linthicum, Maryland 21090
Ph (410) 859-3553
Fax (410) 859-3579

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REVISIONS	APPROVALS
	ASST. CHIEF TEDD 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
GENERAL INFORMATION
MD 150 (EASTERN BLVD) AND KINGSTON ROAD

DRAWN BY: ANGELUS BULLOCK	COUNTY: BALTIMORE	TS NO. 1880B	SHEET NO. ___ OF ___
CHECK BY: EMM	LOG MILE: 03015005.65		
DATE: 2-5-99	F.A.P. NO.	T.I.M.S. NO.	
SCALE: N/A	S.H.A. NO. BA240A21		