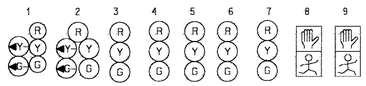
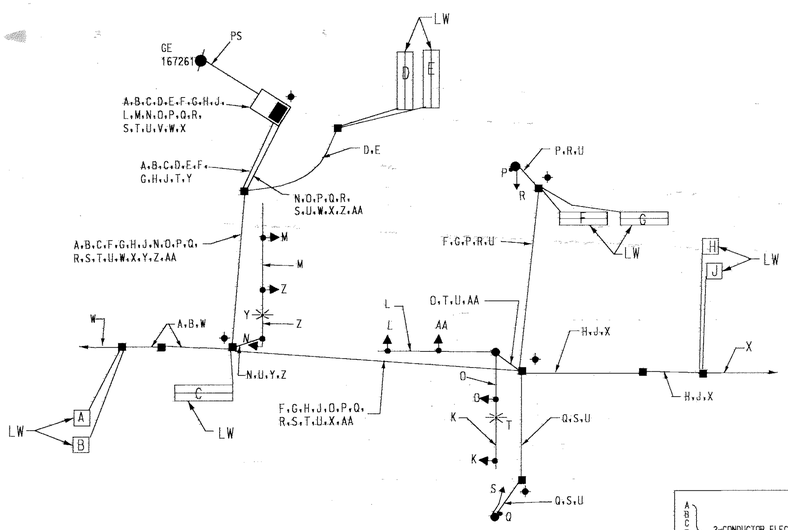
PHASE CHART



	1	2	3	4	5	6	7	8	9
PHASE 1 & 6	G G	G G	G	R	R	R	R	DW	DW
1 CHANGE	G Y	G Y	G	R	R	R	R	DW	DW
PHASE 2 & 6	G	G	G	G	G	R	R	DW	DW
2 & 6 CHANGE	Y	Y	Y	Y	Y	R	R	DW	DW
PHASE 4	R	R	R	R	R	G	G	DW	DW
4 CHANGE	R	R	R	R	R	Y	Y	DW	DW
PHASE 4 ALT	R	R	R	R	R	G	G	WK	WK
PED CLEARANCE	R	R	R	R	R	G	G	FL/DW	FL/DW
ALT 4 CHANGE	R	R	R	R	R	Y	Y	DW	DW
FLASHING OPERATION	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/R	FL/R	DARK	DARK

WIRING DIAGRAM



WIRING KEY

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

PROJECT DESCRIPTION

I. GENERAL

This project involves the reconstruction four (4) 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 Old Eastern Ave
- MD 150 and Kingston Rd.

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

II. INTERSECTION OPERATION

MD 150 AND Bennett Rd.

1. The intersection is to operate in a NEMA four-phase, fully-actuated mode, with the MD 150 approaches running concurrently. An Exclusive/ Permissive left turn phase shall be provided for the eastbound approach of MD 150 . The Bennett Rd . approach shall operate alone. Detection will be provided for the bus lane. 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 lable 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	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	76 S.F.	Overhead mounted sheet aluminum signs to consist of:
	1 Each	D3-2 "Eastern BLVD" sign, (variable x 16") mast arm mounted.
	2 Each	D3-2 "Bennett RD" dual-face sign, (variable x 16") mast arm mounted.
	1 Each	R10-11b "NO TURN ON RED" (24"X24") mast arm mounted.
	1 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.

EQUIPMENT LISTS (CON'T.)

B. EQUIPMENT TO BE SUPPLIED BY S.H.A. (CON'T.).

CATEGORY CODE	QUANTITY	DESCRIPTION
203030	4 C.Y.	Test pit excavation.
585416	124 L.F.	Furnish and install reflective thermoplastic pavement marking tape, white (24" width for staplines).
818029	1 Each	Furnish and install 27' steel pole with a 36' mast arm. (Note: 4 anchor bolts will be 1¾" x 90".)
800000	1 Each	Furnish and install 27' steel pole with twin 50'-60' mast arms. (Note: 4 anchor bolts will be 2" x 90".)
868003	2 Each	Furnish and install 10' steel pedestal pole. (Note: 4 anchor bolts will be 1" x 40".)
860122	4 Each	Furnish and install 12", one-way, three-section (R,Y,G) traffic signal head with adjustable bracket for mast arm mounting and tunnel visors.
860128	1 Each	Furnish and install 12" ,one-way, five-section (R,Y,YA,G,GA) (left arrows) traffic signal head with adjustable bracket for mast arm mounting and tunnel visors.
800000	1 Each	Furnish and install Combination 8"-12", one-way, five-section (8"-R,Y,G) (12"-YA,GA) (left arrow) traffic signal head with adjustable bracket for pole mounting and tunnel visors.
860148	2 Each	Furnish and install 12", one-way, two-section (DW,W) symbolic pedestrian signal head having proper post top adapter for pedestal mounting and cutaway visors.
801004	14 C.Y.	Furnish and install concrete foundation.
837001	5 Each	Furnish and install ground rod, ¾" diameter x 10' length.
871202	1 Each	Install base-mounted cabinet and contoller.
813015	76 S.F.	Install overhead mounted sheet aluminum signs.
862102	722 L.F.	Furnish and install sawcut.
805011	63 L.F.	Furnish and install 1" galvanized steel electrical conduit (detector wire sleeve).
805160	19 L.F.	Furnish and install 1" liquid tight flexible non-metallic electrical conduit (detector wire sleeve).
870116	110 L.F.	Furnish and install 2" polyvinyl chloride electrical conduit (Schedule 80) (trenched).
870119	815 L.F.	Furnish and install 3" polyvinyl chloride electrical conduit (Schedule 80) (trenched).
870124	280 L.F.	Furnish and install 4" polyvinyl chloride electrical conduit (Schedule 80) (slotted).
870122	40 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	10 Each	Furnish and install handhole (frame and cover).
832020	440 L.F.	Furnish and install stranded bare copper ground wire (No. 6 A.W.G.).
822002	1080 L.F.	Furnish and install 12-pair, voice grade interconnect cable (No. 19 A.W.G.) (jelly-filled).
862101	2780 L.F.	Furnish and install loop wire (No. 14 A.W.G.) encased in ¼" flexible tubing.
861104	2700 L.F.	Furnish and install 2-conductor electrical cable (No. 14 A.W.G.) (aluminum shielded).
861105	520 L.F.	Furnish and install 2-conductor electrical cable (No. 14 A.W.G.).
861106	530 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	1020 L.F.	Furnish and install 7-conductor electrical cable (No. 14 A.W.G.).
861116	370 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.
866104	1 Each	Furnish and install 20' lighting arm.
865001	3 Each	Furnish and install pushbutton and sign.
800000	Lump Sum	Remove and disposal of existing equipment.
800000	1 Each	Remove and deliver controllor cabinet and equipment.

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

T21BG1.DGN

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 BENNETT ROAD

DRAWN BY: MILESKY	COUNTY: BALTIMORE	TS NO. 1874B	SHEET NO.
CHECK BY: EMM 2/99	LOG MILE: 03015005.02		
DATE: 2-8-99	F.A.P. NO.	T.I.M.S. NO.	OF
SCALE: N/A	S.H.A. NO. BA240A21		