F.H.W.A. REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	MD			

PROJECT DESCRIPTION

I. GENERAL

This project involves the modification of an existing Traffic Control Signal at the intersection of US 29 and Greencastle Road in Montgomery County. The modification consists of replacing the signal equipment on the southwest quadrant of the intersection due to the widening of Greencastle Road. US 29 is assumed to run in a north-south direction.

II. INTERSECTION OPERATION

1. The intersection is to continue operating in a NEMA six-phase, semi-actuated mode, with the US 29 approaches running concurrently. The Exclusive left turn phases shall remain on both approaches of US 29. The pedestrian phase with pushbutton actuation shall remain across the south leg of US 29. The pedestrian phase across the west leg of Greencastle Road shall remain on recall. The Greencastle Road approaches shall also run concurrently.

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

III. SPECIAL NOTES

1. All field wiring to the proposed controller cabinet shall be terminated to the appropriate controller cabinet connectors by the Contractor and labeled. All other controller cabinet wiring will be performed by the S.H.A. Signal Shop. Contact Mr. Ed Rodenhizer at (410) 787-7650 seventy-two hours in advance of intended work.

2. Disconnecting and splicing of interconnect cable shall be performed by Montgomery County Forces. Contact Mr. Emil Wolanin at (301) 217-2208 seventy-two hours in advance of intended work.

IV. CONSTRUCTION SEQUENCE

The Contractor shall install the new pole, cabinet, handholes and conduit on the southwest quadrant of the intersection. The Contractor shall also install the proposed conduits crossing the south leg of US 29 and the west leg of Greencastle Road and the new span wire, span hangers and all proposed electrical cables.

At the direction of the MSHA inspector and Montgomery County D.P.W.&T., the existing signal will be turned off (overnight) and the existing signal heads and signs will be transfered to the proposed spans.

The following existing cables shall be pulled back across the south leg of US 29 to the handhole in the median and rerouted to the new cabinet.

Interconnect cable, 2-conductor cable for the pushbutton in median and two (2) runs of 2-conductor (aluminum shielded) for the northbound left turn presence detectors.

The following existing cables shall be pulled back across the west leg of Greencastle Road tto the handhole and rerouted to the new cabinet.

Interconnect cable, 3-conductor cable for the pedestrian signal on the northwest quadrant and two (2) runs of 2-conductor (aluminum shielded) for the southbound left turn presence detectors.

All cables will be routed into the new cabinet and labeled.

EQUIPMENT LISTS

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

QUANTITY	SPEC. SECTION	DESCRIPTION
7 Each	814	Tri-stud span wire assembly with balance adjuster (to be used for existing traffic signal heads to be relocated).
1 Each	818	12" x 32' (2-ply) steel strain pole. (Note: 4 anchor bolts will be 2 1/4" x 96".)
1 Each	816	Eight-phase, full-traffic-actuated, solid state digital controller with three (3) 4-channel, rack mount loop detector amplifiers, L.A.U., L.A.U. Panel and associated harnesses housed in a NEMA size "6" base-mounted cabinet.

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

QUANTITY	SPEC. SECTION	DESCRIPTION
LS	104	Mobilization
LS	104	Maintenance of traffic.
150 SF	104	Temporary traffic sign.
5 UD	104	Flashing arrow panels.
1 CY	204	Test pit excavation.
310 LF	SP-555	Furnish and install thermoplastic pavement marking tape, white (12" width for crosswalks).
40 SF	805	Remove existing sidewalk.
8 CY	801	Furnish and install concrete foundation.
1 Each	801	Furnish and install grout.
2 Each	804	Furnish and install ground rod, 3/4" diameter x 10' length.
1 Each	818	Install steel strain pole.
1 Each	816	Install base-mounted cabinet and controller.
1 Each	870	Furnish and install 3" weatherhead.

EQUIPMENT LISTS (CON'T.)

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

QUANTITY	SPEC. SECTION	DESCRIPTION
350 LF	819	Furnish and install 3/8" steel span wire.
90 LF	819	Furnish and install 1/4" steel tether wire.
7 Each	814	Relocate traffic signal head.
2 Each	814	Relocate pedestrian signal head.
1 Each	817	Relocate pushbutton and sign.
4 Each	813	Relocate sign.
370 LF	815	Furnish and install sawcut.
20 LF	805	Furnish and install 1" liquid tight flexible non-metallic electrical conduit (detector wire sleeve).
25 LF	805	Furnish and install 2" polyvinyl chloride electrical conduit (Schedule 80) (trenched).
50 LF	805	Furnish and install 3" polyvinyl chloride electrical conduit (Schedule 80) (trenched).
85 LF	805	Furnish and install 3" polyvinyl chloride electrical conduit (Schedule 80) (slotted).
80 LF	805	Furnish and install 3" polyvinyl chloride electrical conduit (Schedule 80) (bored).
30 LF	805	Furnish and install 2" polyvinyl chloride electrical conduit (Schedule 40) (trenched).
30 LF	805	Furnish and install 3" polyvinyl chloride electrical conduit (Schedule 40) (trenched).
20 LF	805	Furnish and install 4" polyvinyl chloride electrical conduit (Schedule 40) (trenched).
1 Each	807	Furnish and install control and distribution equipment.
2 Each	811	Furnish and install handhole (frame and cover).
40 LF	810	Furnish and install stranded bare copper ground wire (No. 6 A.W.G.).
1455 LF	810	Furnish and install loop wire (No. 14 A.W.G.) encased in 1/4" flexible tubing.
1955 LF	810	Furnish and install 2-conductor electrical cable (No. 14 A.W.G.) (aluminum shielded).
435 LF	810	Furnish and install 2-conductor electrical cable (No. 14 A.W.G.).
395 LF	810	Furnish and install 3-conductor electrical cable (No. 14 A.W.G.).
1280 LF	810	Furnish and install 5-conductor electrical cable (No. 14 A.W.G.).
925 LF	810	Furnish and install 7-conductor electrical cable (No. 14 A.W.G.).
280 LF	822	Remove 12" crosswalk pavement marking utilizing grinder method.
LS		Pull back and reroute existing cables.
LS	822	Remove and salvage existing signal equipment.
1 EA		Use existing plan on disk and as-built traffic control device.

C. EXISTING EQUIPMENT TO BE REMOVED BY THE CONTRACTOR AND DELIVERED TO: STATE HIGHWAY ADMINISTRATION, OFFICE OF TRAFFIC AND SAFETY, SIGNAL OPERATIONS WAREHOUSE, 7941 CONNELLEY DRIVE, HANOVER, MARYLAND 21076. CONTACT MR. DAVID SCHWARTZ @ (410) 787-7667, FORTY-EIGHT (48) HOURS IN ADVANCE OF RETURNING EQUIPMENT.

QUANTITY	DESCRIPTION
1 Each	8-phase controller and pole-mounted cabinet.

NOTE: All equipment and/or materials to be removed by the Contractor but not listed above are to become the property of the Contractor.

CATEGORY 800

UTILITIES

SECTION 875-UTLITIES

The following contact persons for District #3 are as follows:

Mr. Charlie Watkins
District Engineer
Phone: (301) 513-7311

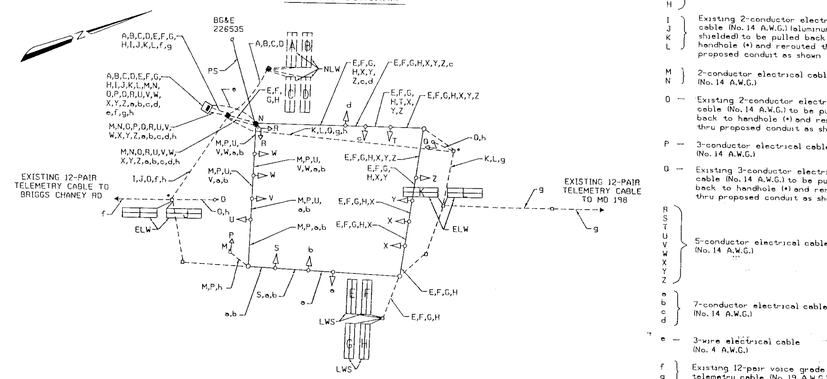
Mr. Majid Shakib
Assistant District Engineer - Traffic
Phone: (301) 513-7359

Mr. Randy Brown
Assistant District Engineer - Maintenance
Phone: (301) 513-7304

Mr. Augustine Rebish
Assistant District Engineer - Utility
Phone: (301) 513-7350

Mr. Richard L. Daff, Sr.
Chief, Traffic Operations Division
Phone: (410) 787-7630

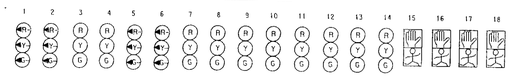
WIRING DIAGRAM



WIRING KEY

- A, B, C, D, E, F, G, H — 2-conductor electrical cable (No. 14 A.W.G.) (aluminum shielded)
- I, J, K, L — Existing 2-conductor electrical cable (No. 14 A.W.G.) (aluminum shielded) to be pulled back to handhole (*) and rerouted thru proposed conduit as shown
- M, N — 2-conductor electrical cable (No. 14 A.W.G.)
- O — Existing 2-conductor electrical cable (No. 14 A.W.G.) to be pulled back to handhole (*) and rerouted thru proposed conduit as shown
- P — 3-conductor electrical cable (No. 14 A.W.G.)
- Q — Existing 3-conductor electrical cable (No. 14 A.W.G.) to be pulled back to handhole (*) and rerouted thru proposed conduit as shown
- R, S, T, U, V, W, X, Y, Z — 5-conductor electrical cable (No. 14 A.W.G.)
- a, b, c, d — 7-conductor electrical cable (No. 14 A.W.G.)
- e — 3-wire electrical cable (No. 4 A.W.G.)
- f, g — Existing 12-pair voice grade telemetry cable (No. 19 A.W.G.) (gelly-filled) to be pulled back to handhole (*) and rerouted thru proposed conduit as shown
- h — Stranded bare copper ground wire (No. 6 A.W.G.)
- LW — Loop wire (No. 14 A.W.G.)
- ELW — Existing loop wire (No. 14 A.W.G.)
- LWS — Existing loop wire (No. 14 A.W.G.) to be spliced into new 2-conductor electrical cable (No. 14 A.W.G.) (aluminum shielded)
- PS — Proposed overhead electrical service to be installed by BG&E

PHASE CHART



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
PHASE 1 & 5	G	G	R	R	G	G	R	R	R	R	R	R	R	R	DW	DW	DW	DW
1 CHANGE	CHANGE TO PHASE 1 & 6 OR PHASE 2 & 5														DW	DW	DW	DW
PHASE 1 & 6	G	G	G	G	R	R	R	R	R	R	R	R	R	R	DW	DW	DW	DW
1 CHANGE	Y	Y	G	G	R	R	R	R	R	R	R	R	R	R	DW	DW	DW	DW
PHASE 2 & 5	R	R	R	R	G	G	G	G	R	R	R	R	R	R	DW	DW	DW	DW
5 CHANGE	R	R	R	R	Y	Y	G	G	R	R	R	R	R	R	DW	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 CLEARANCE	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 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
ALT PHASE 4	R	R	R	R	R	R	R	R	G	G	G	G	G	G	DW	DW	WK	WK
PED CLEARANCE	R	R	R	R	R	R	R	R	G	G	G	G	G	G	DW	DW	FL/DW	FL/DW
ALT 4 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

REVISION "B"

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

3257SPC.DGN

REVISIONS	
B	7-14-97 RELOCATE STRAIN POLE
A	4-1-94 ADD CROSSWALKS, CURB RAMPS AND PEDESTRIAN SIGNALS

SHA NO.: RR2
JRG/DCI

APPROVALS

ASST. CHIEF TEOD SECTION
ASST. DISTRICT ENGINEER, TRAFFIC
CHIEF, TRAFFIC ENGINEERING DESIGN DIVISION
DIRECTOR, TRAFFIC & SAFETY

ORIGINAL ON FILE

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

US 29 AND GREENCASTLE ROAD

DRAWN BY: BRUCE THOMPSON	COUNTY: MONTGOMERY	TS. NO. 2438B	SHEET NO. 2 OF 2
CHECK BY: R.R. ZACHERL	LOG MILE: 1500290.31		
DATE: 1-25-89	F.A.P. NO.	T.I.M.S. NO.	
SCALE: NONE	S.H.A. NO. M-613-459-385		