

PROJECT DESCRIPTION

I. GENERAL

This project involves the modification of an existing Traffic Control Signal with interconnect at the intersection of MD 117 (Clopper Rd) and Waring Station Rd in Montgomery County. A Hazard Identification Beacon will be installed approximately 1080' west of the intersection to alert eastbound MD 117 traffic of the traffic signal at Waring Station Rd. An exclusive/permissive left turn phase will be added for the eastbound MD 117 (Clopper Rd) approach. MD 117 (Clopper Rd) is assumed to run in an east-west direction.

II. INTERSECTION OPERATION

- The intersection is to operate in a NEMA five-phase, semi-actuated mode, with the MD 117 (Clopper Rd) approaches remaining concurrent. An Exclusive/Permissive left turn phase shall be provided for the eastbound MD 117 (Clopper Rd) approach. The exclusive left turn phase shall operate as a lag phase and operate only if a vehicle is detected in the eastbound approach for an extended period. The Waring Station Road approach shall continue to run in its own phase.
- The existing full-traffic-actuated, eight-phase controller with all necessary equipment housed in a NEMA size "6" pole-mounted cabinet shall be utilized at this intersection.

III. SPECIAL NOTES

- The Contractor shall be responsible for terminating all signal cables, excluding interconnect, to the appropriate terminals and shall properly label each cable.
- Splicing of interconnect cable shall be performed by Montgomery County Forces. The contractor shall run the interconnect cable into the base of each cabinet and properly tag the cable. Contact Mr. Bob Gonzales at (240) 777-8761 seventy-two hours in advance of intended.
- 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.

EQUIPMENT LIST

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

| ITEM NO | DESCRIPTION | QUANTITY |
|---------|---|----------|
| 9037 | Cabinet "G" type - pole mount | 1 EA |
| 9042 | Controller ASC II with telemetry | 1 EA |
| 9571 | Sheet aluminum signs to consist of: (mast arm or pole mount) | 53 SF |
| | R10-12 "LEFT TURN YIELD ON GREEN (BALL)" sign, (36" x 42") mast arm mounted. | 1 EA |
| | W3-3(2) "SIGNAL AHEAD - PREPARE TO STOP WHEN FLASHING" (120"x40") mast arm mounted. | 1 EA |
| | W3-3 NEW "SIGNAL AHEAD" sign, (36" x 36") pole mounted. | 1 EA |

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

| ITEM NO | DESCRIPTION | QUANTITY |
|---------|--|----------|
| 1001 | Maintenance of traffic per assignment. | 1 EA |
| 2002 | Test Pit Excavation | 2 C.Y. |
| 5005 | 24" white heat applied permanent preformed thermoplastic pavement marking. | 15 L.F. |
| 6005 | Traffic barrier with beam. | 20 L.F. |
| 6007 | Special traffic barrier with beam end treatment. | 1 EA |

EQUIPMENT LIST (CONT)
B) EQUIPMENT TO BE FURNISHED AND/OR INSTALLED BY THE CONTRACTOR

| ITEM NO | DESCRIPTION | QUANTITY |
|---------|--|-----------|
| 8006 | Cut, clean, galvanize and cap traffic signal structure. | 1 EA |
| 8011 | Furnish and install 12" vehicular traffic signal head section | 15 EA |
| 8015 | Furnish and install 3" weatherhead. | 1 EA |
| 8020 | Furnish and install electrical utility service equipment (120/240 V, 1 phase 3 wire system). | 1 EA |
| 8023 | Furnish and install 27' mast arm pole and 60' (cut to 30') mast arm. | 1 EA |
| 8030 | Furnish and install breakaway pedestal pole (10'). | 1 EA |
| 8048 | Remove and dispose of existing material and equipment per assignment. | 1 EA |
| 8051 | Furnish and install 3" schedule 80 rigid polyvinyl chloride conduit - trenched | 30 L.F. |
| 8059 | Furnish and install concrete for signal foundation. | 6 C.Y. |
| 8062 | Furnish and install No. 6 AWG stranded bare copper ground wire. | 130 L.F. |
| 8069 | Furnish and install 4" schedule 80 rigid polyvinyl chloride conduit - slotted. | 70 L.F. |
| 8070 | Furnish and install 1" liquid tight flexible non-metallic conduit for detector sleeve. | 10 L.F. |
| 8074 | Furnish and install electrical handhole. | 2 EA |
| 8077 | Install overhead sign. | 53 S.F. |
| 8078 | Furnish and install 12-pair communication cable, jelly-filled, (underground). | 1450 L.F. |
| 8082 | Furnish and install ground rod - 3/4" x 10'. | 2 EA |
| 8083 | Furnish and install electrical cable - 2 conductor (aluminum shielded) (No. 14 AWG) | 110 L.F. |
| 8086 | Furnish and install electrical cable - 5 conductor (No. 14 AWG). | 85 L.F. |
| 8087 | Furnish and install electrical cable - 7 conductor (No. 14 AWG). | 190 L.F. |
| 8089 | Furnish and install loop wire encased in flexible tubing (No. 14 AWG). | 445 L.F. |
| 8090 | Furnish and install saw cut for signal (loop detector). | 110 L.F. |
| 8092 | Furnish and install steel span wire, 3/8" diameter. | 85 L.F. |
| 8094 | Install controller and cabinet pole mount. | 1 EA |

C. EQUIPMENT TO BE REMOVED

All removed signal materials are to become property of the contractor.

The contact persons for District #3 (Montgomery County) are as follows:

Mr. Lee Starkloff
Assistant District Engineer - Traffic
Phone: (301) 513-7318

Mr. Raleigh Medley
Assistant District Engineer - Maintenance
Phone: (301) 513-7304

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

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

SEQUENCE OF OPERATION SHEET

MD 117
RUNS IN AN
EAST-WEST
DIRECTION

TRAFFIC OPERATIONS SECTION
DIVISION OF TRAFFIC ENGINEERING
MONTGOMERY COUNTY, MARYLAND

INTERSECTION: MD 117 (CLOPPER ROAD) AND WARING STATION ROAD NO. _____

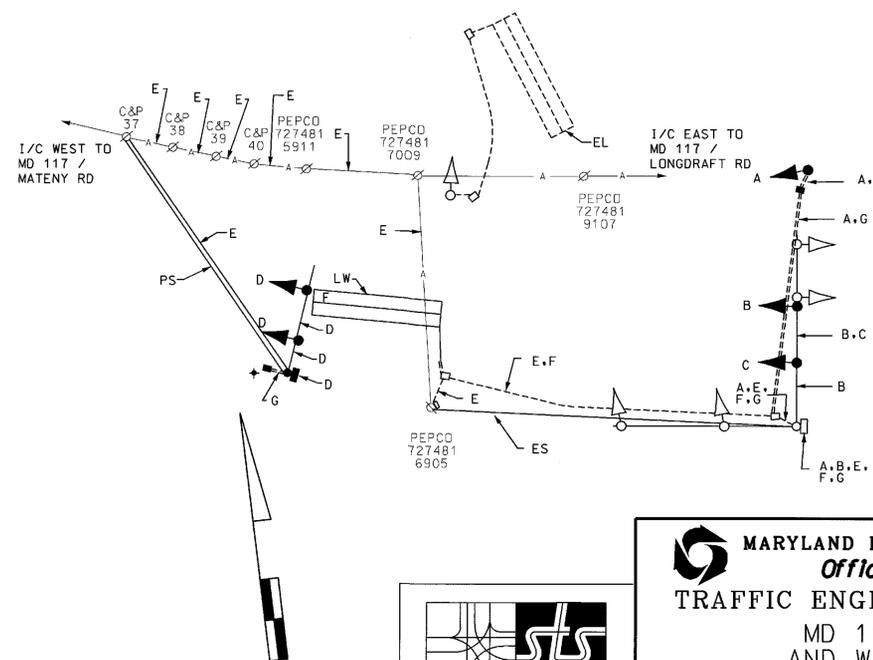
| SIGNAL NO. | SIGNAL HEAD INDICATIONS | | | |
|-------------------|-------------------------|-----|-----|-----|
| | 5,6,7,8,9,10 | 1,2 | 4 | 3 |
| TOTAL: | 6 | 2 | 1 | 1 |
| LEGEND | (R) | (R) | (R) | (R) |
| OPTICALLY LIMITED | (Y) | (Y) | (Y) | (Y) |
| R RED | (G) | (G) | (G) | (G) |
| Y YELLOW | (G) | (G) | (G) | (G) |
| G GREEN | (G) | (G) | (G) | (G) |
| ← ARROW | (G) | (G) | (G) | (G) |
| F FLASHING | (G) | (G) | (G) | (G) |

| SIGNAL NO. | SEQUENCE OF OPERATION | | | | | | | | | F A S H |
|------------|-----------------------|---------|-------|---------|------|---------|------|------|------|---------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| 1 | FL/Y | FL/Y | FL/Y | FL/Y | FL/Y | FL/Y | FL/Y | FL/Y | FL/Y | FL/Y |
| 2 | FL/Y | FL/Y | FL/Y | FL/Y | FL/Y | FL/Y | FL/Y | FL/Y | FL/Y | FL/Y |
| 3 | G | Y | R | G | Y | R | R | R | R | FL/Y |
| 4 | G | Y | R | G | Y | R | R | R | R | FL/Y |
| 5 | G | Y | R | G | Y | R | R | R | R | FL/Y |
| 6 | G | Y | R | R | R | R | R | R | R | FL/Y |
| 7 | G | Y | R | R | R | R | R | R | R | FL/Y |
| 8 | R | R | R | R | R | R | G | Y | R | FL/R |
| 9 | R | R | R | R | R | R | G | Y | R | FL/R |
| 10 | R | R | R | R | R | R | G | Y | R | FL/R |
| PHASE | 2 & 5 | ALL RED | 2 & 6 | ALL RED | 4 | ALL RED | | | | |

NOTES:
PHASE 2/6 SHALL ONLY OPERATE WHEN A VEHICLE IS DETECTED IN THE EASTBOUND LANE OF MD 117 (CLOPPER RD)

SUBMITTED: _____ CHECKED: _____ APPROVED: _____
IN SERVICE BY: _____ DATE: _____ TIME: _____

WIRING DIAGRAM



WIRING KEY

- A } 7-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
- B } 5-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
- C } 5-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
- D } 5-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
- E - 12-PAIR INTERCONNECT CABLE
- F - 2-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.) ALUMINUM SHIELDED
- G - STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)
- LW - LOOP WIRE (NO. 14 A.W.G.)
- EL - LOOP WIRE (NO. 14 A.W.G.) EXISTING
- PS - PROPOSED OVERHEAD SERVICE (FOR FLASHER) TO BE INSTALLED BY PEPCO
- ES - EXISTING OVERHEAD SERVICE TO BE MAINTAINED BY PEPCO
- ⊕ - GROUND ROD

MARYLAND DOT - STATE HIGHWAY ADMINISTRATION
Office of Traffic & Safety
TRAFFIC ENGINEERING DESIGN DIVISION
MD 117 (CLOPPER ROAD) AND WARING STATION ROAD

STREET TRAFFIC STUDIES, LTD.
400 Crain Hwy. N.W.
Olen Burto, MD 21051
Ph (410) 590-5500
Fax (410) 590-6637

| | | | |
|-------------------------------|------------------------------|------------------------------|-------------------------|
| DRAWN BY: <u>ROB CICCHINI</u> | F.A.P. NO. <u>4225A</u> | TS NO. <u>4225A</u> | SHEET NO. <u>2 OF 2</u> |
| CHECKED BY: <u>NONE</u> | S.H.A. NO. <u>MONTGOMERY</u> | T.I.M.S. NO. <u>F-350</u> | |
| SCALE: <u>3-5-03</u> | COUNTY: <u>MONTGOMERY</u> | LOG MILE: <u>15011709.22</u> | |
| DATE: <u>3-5-03</u> | | | |