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

## PROJECT DESCRIPTION

GENERAL

THIS PROJECT INVOLVES THE RECONSTRUCTION OF THE EXISTING TRAFFIC CONTROL SIGNAL AT THE INTERSECTION OF MD 410 AND TAYLOR ROAD IN PRINCE GEORGES COUNTY. MD 410 IS ASSUMED TO RUN IN AN EAST-WEST DIRECTION.

INTERSECTION OPERATION

THE TRAFFIC SIGNAL WILL OPERATE IN A NEMA SIX PHASE, FULL-TRAFFIC-ACTUATED MODE WITH THE MD 410 APPROACHES OPERATING CONCURRENTLY AND THE TAYLOR ROAD APPROACHES OPERATING CONCURRENTLY. A LEAD EXCLUSIVE LEFT-TURN PHASE WILL BE PROVIDED FOR EASTBOUND MD 410 AND A LAG EXCLUSIVE LEFT-TURN PHASE WILL BE PROVIDED FOR WESTBOUND MD 410.

CONTROLLER REQUIREMENTS

INSTALL A FULL-TRAFFIC-ACTUATED CONTROLLER WITH THREE (3) FOUR-CHANNEL, TIME-DELAY-OUTPUT LOOP DETECTOR AMPLIFIERS AND ASSOCIATED HARNESSES HOUSED IN A NEMA SIZE "6" BASE MOUNTED CABINET.

## PROJECT CONTACTS

THE CONTACT PERSONS FOR SHA ARE AS FOLLOWS:

MR. CHARLES WATKINS
DISTRICT ENGINEER
PHONE: (301) 513-7311

MR. MAJIB SHAKIB
ASSISTANT DISTRICT ENGINEER - TRAFFIC
PHONE: (301) 513-7358

MR. RANDY BROWN
ASSISTANT DISTRICT ENGINEER - MAINTENANCE
PHONE: (301) 513-7304

MR. AUGIE REBISH
DISTRICT UTILITIES ENGINEER
PHONE: (301) 513-7350

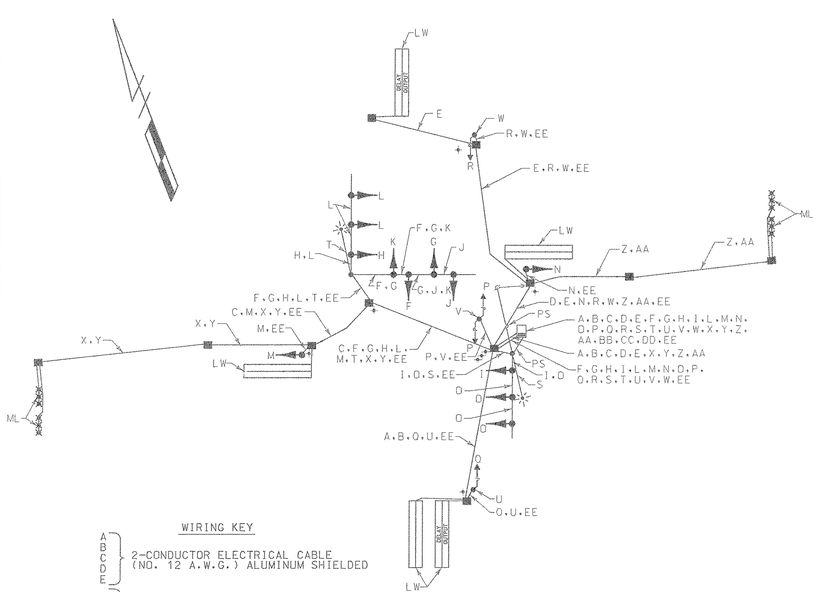
MR. RICHARD L. DAFF, SR.
CHIEF, TRAFFIC OPERATIONS DIVISION
PHONE: (410) 787-7630

## MAINTENANCE OF TRAFFIC

THE FOLLOWING WORK ZONE TRAFFIC CONTROL STANDARDS SHALL BE USED FOR THE PROJECT.

STANDARD NO. MD-104.00-104.00-12
STANDARD NO. MD-104.31-01 (FLAGGING OPERATION)
STANDARD NO. MD-104.49-01 (SHOULDER WORK)
STANDARD NO. MD-104.44-01 (LEFT LANE CLOSURE)
STANDARD NO. MD-104.45-01 (RIGHT LANE CLOSURE)
STANDARD NO. MD-104.46-01 (CENTER LANE CLOSURE)

## WIRING DIAGRAM




WIRING KEY

| | |
|---|---|
| A B C D E | 2-CONDUCTOR ELECTRICAL CABLE (NO. 12 A.W.G.) ALUMINUM SHIELDED |
| F G H I | 7-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.) |
| J K L M N O P Q R | 5-CONDUCTOR ELECTRICAL CABLE (NO. 12 A.W.G.) |
| S T | 2-CONDUCTOR ELECTRICAL CABLE (NO. 12 A.W.G.) |
| U V W | 2-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.) |
| X Y Z AA | MICROLOOP PROBE LEAD-IN |

WIRING KEY CONTINUED

| | |
|---|---|
| BB CC DD | 1-CONDUCTOR ELECTRICAL CABLE (NO. 4 A.W.G.) |
| EE | STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.).) |

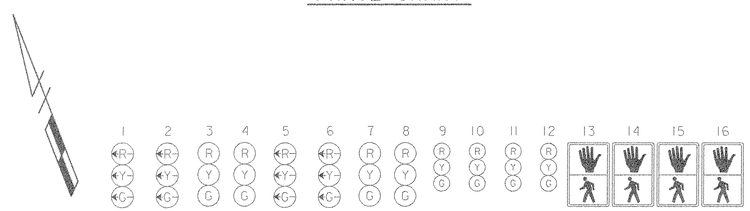
ML - MICROLOOP PROBE SET
LW - LOOP WIRE (NO. 14 A.W.G.)
PS - PROPOSED ELECTRICAL SERVICE
+ - 3/4 IN. X 10 FT. GROUND ROD

## EQUIPMENT LIST "A"

A. EQUIPMENT TO BE SUPPLIED BY THE SHA

| ITEM NO. | QUANTITY | DESCRIPTION |
|---|---|---|
| 9002 | 3 EACH | FOUR-CHANNEL, TIME-DELAY-OUTPUT, LOOP DETECTOR AMPLIFIER |
| 9014 | 4 EACH | 12 IN., ONE-WAY, THREE-SECTION (R,Y,G) TRAFFIC SIGNAL HEAD - MAST ARM MOUNTING |
| 9014 | 2 EACH | 12 IN., ONE-WAY, THREE-SECTION (RA,YA,GA) TRAFFIC SIGNAL HEAD - MAST ARM MOUNTING |
| 9022 | 4 EACH | 8 IN., ONE-WAY, THREE-SECTION (R,Y,G) TRAFFIC SIGNAL HEAD - MAST ARM MOUNTING |
| 9027 | 2 EACH | 12 IN., ONE-WAY, TWO-SECTION PEDESTRIAN SIGNAL HEAD - PEDESTAL MOUNT |
| 9028 | 2 EACH | 12 IN., ONE WAY, THREE -SECTION (RA,YA,GA) TRAFFIC SIGNAL HEAD PEDESTAL MOUNT |
| 9029 | 1 EACH | 12 IN., TWO-WAY, TWO-SECTION PEDESTRIAN SIGNAL HEAD - PEDESTAL MOUNT |
| 9081 | 1 EACH | EIGHT-PHASE, FULL-TRAFFIC-ACTUATED CONTROLLER AND INTERSECTION MONTIOR II WITH BATTERY BACKUP FOR PHONE DROP HOUSED IN A NEMA SIZE "6" BASE MOUNTED CABINET |
| 9089 | 74 S.F. | SHEET ALUMINUM SIGNS TO CONSIST OF : |
| | - 2 EACH | D3-2 SIGN "TAYLOR ROAD" (VARIABLE X 16 IN.) DUAL FACED - MAST ARM MOUNT |
| | - 1 EACH | ASSOCIATED SHIELD ASSEMBLY, "EAST, MD 410, RIGHT ARROW" (30 IN. X 51 IN.) - POLE MOUNTED |
| | - 1 EACH | ASSOCIATED SHIELD ASSEMBLY, "EAST, MD 410, LEFT ARROW" (30 IN. X 51 IN.) - POLE MOUNTED |
| | - 1 EACH | ASSOCIATED SHIELD ASSEMBLY, "WEST, MD 410, RIGHT ARROW" (30 IN. X 51 IN.) - POLE MOUNTED |
| | - 1 EACH | ASSOCIATED SHIELD ASSEMBLY, "WEST, MD 410, LEFT ARROW" (30 IN. X 51 IN.) - POLE MOUNTED |
| | - 1 EACH | R3-5R SIGN (30 IN. X 36 IN.) - MAST ARM MOUNT |
| 9096 | 3 EACH | PEDESTRIAN PUSHBUTTON AND R10-3C SIGN (NOTE: SIGN TO READ "PUSH BUTTON TO CROSS EAST-WEST HIGHWAY") |

## PHASE CHART




| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PHASE 1 + 6 | R | G | G | G | R | R | R | R | R | R | R | R | DW | DW | DW | DW |
| 1 + 6 CHANGE | Y | Y | G | G | R | R | 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 | DW | DW | DW | DW |
| 2 + 6 CHANGE | R | R | Y | Y | R | R | G | G | R | R | R | R | DW | DW | DW | DW |
| PHASE 2 + 5 | R | R | R | R | G | G | G | G | R | R | R | R | DW | DW | DW | DW |
| 2 + 5 CHANGE | R | R | R | R | Y | Y | Y | Y | R | R | R | R | DW | DW | DW | DW |
| PHASE 4 + 8 | R | R | R | R | R | R | R | R | G | G | G | G | DW | DW | DW | DW |
| 4 + 8 CHANGE | R | R | R | R | R | R | R | R | Y | Y | Y | Y | DW | DW | DW | DW |
| PHASE 4 ALT | R | R | R | R | R | R | R | R | G | G | G | G | WK | WK | WK | WK |
| PED CLEARANCE | R | R | R | R | R | R | R | R | G | G | G | G | FL/DW | FL/DW | FL/DW | FL/DW |
| 4 ALT CHANGE | R | R | R | R | R | R | R | R | Y | Y | Y | Y | DW | DW | DW | DW |
| FLASHING OPERATION | FL/R | FL/R | FL/Y | FL/Y | FL/R | FL/R | FL/Y | FL/Y | FL/R | FL/R | FL/R | FL/R | DARK | DARK | DARK | DARK |

## EQUIPMENT LIST "B"

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

| ITEM NO. | QUANTITY | DESCRIPTION |
|---|---|---|
| 1001 | 1 EACH | MAINTENANCE OF TRAFFIC PER ASSIGNMENT |
| 2001 | 8 C.Y. | TEST PIT EXCAVATION |
| 5007 | 400 L.F. | 6 IN. YELLOW THERMOPLASTIC PAVEMENT MARKING TAPE |
| 5008 | 100 L.F. | 6 IN. WHITE THERMOPLASTIC PAVEMENT MARKING TAPE |
| 5009 | 110 L.F. | 12 IN. WHITE THERMOPLASTIC PAVEMENT MARKING TAPE |
| 5010 | 95 L.F. | 24 IN. WHITE THERMOPLASTIC PAVEMENT MARKING TAPE |
| 5013 | 155 L.F. | REMOVE PAVEMENT MARKINGS - ANY WIDTH |
| 6001 | 40 S.F. | 4 IN. CONCRETE SIDEWALK |
| 8001 | 13 C.Y. | FURNISH AND INSTALL CONCRETE FOR SIGNAL FOUNDATION |
| 8003 | 5 EACH | FURNISH AND INSTALL BREAKAWAY PEDESTAL POLE (ANY SIZE) |
| 8006 | 1 EACH | CUT, CLEAN, GALVANIZE AND CAP TRAFFIC SIGNAL STRUCTURE |
| 8011 | 15 EACH | INSTALL SIGNAL HEAD (ANY TYPE) |
| 8017 | 4 EACH | FURNISH AND INSTALL MICROLOOP PROBE SET WITH 1000 FT. LEAD-IN |
| 8018 | 3 EACH | INSTALL PUSHBUTTON AND SIGN |
| 8020 | 1 EACH | INSTALL CONTROLLER AND CABINET - BASE MOUNT |
| 8021 | 700 L.F. | INSTALL SAW CUT FOR SIGNAL (LOOP DETECTOR) |
| 8023 | 80 L.F. | FURNISH AND INSTALL 1 IN. LIQUID TIGHT FLEXIBLE NON-METALLIC CONDUIT FOR DETECTOR SLEEVE |
| 8024 | 740 L.F. | FURNISH AND INSTALL 2 INCH SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED |
| 8025 | 190 L.F. | FURNISH AND INSTALL 2 INCH SCHEDULE 80 RIGID PVC CONDUIT - SLOTTED |
| 8026 | 10 L.F. | FURNISH AND INSTALL 2 IN. SCHEDULE 80 RIGID PVC CONDUIT - BORED |
| 8027 | 10 L.F. | FURNISH AND INSTALL 3 INCH SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED |
| 8030 | 90 L.F. | FURNISH AND INSTALL 4 INCH SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED |
| 8031 | 60 L.F. | FURNISH AND INSTALL 4 INCH SCHEDULE 80 RIGID PVC CONDUIT - SLOTTED |
| 8033 | 11 EACH | FURNISH AND INSTALL ELECTRICAL HANDHOLE |
| 8034 | 7 EACH. | FURNISH AND INSTALL GROUND ROD - 3/4 IN. DIA. X 10 FT. LENGTH |
| 8040 | 2300 L.F. | FURNISH AND INSTALL LOOP WIRE ENCASED IN FLEXIBLE TUBING (NO. 14 A.W.G.) |
| 8041 | 560 L.F. | FURNISH AND INSTALL ELECTRICAL CABLE - 2 CONDUCTOR (ALUMINUM SHIELDED) |
| 8042 | 310 L.F. | FURNISH AND INSTALL ELECTRICAL CABLE - 2 CONDUCTOR (NO. 14 A.W.G.) |
| 8044 | 850 L.F. | FURNISH AND INSTALL ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 A.W.G.) |
| 8045 | 540 L.F. | FURNISH AND INSTALL ELECTRICAL CABLE - 7 CONDUCTOR (NO. 14 A.W.G.) |
| 8046 | 230 L.F. | FURNISH AND INSTALL ELECTRICAL CABLE - 2 CONDUCTOR (NO. 12 A.W.G.) |
| 8047 | 1 EACH | FURNISH AND INSTALL MAST ARM POLE AND TWIN 50 FT./50FT. MAST ARMS |
| 8049 | 500 L.F. | FURNISH AND INSTALL NO. 6 A.W.G. STRANDED BARE COPPER GROUND WIRE |
| 8050 | 45 L.F. | FURNISH AND INSTALL ELECTRICAL CABLE - 1 CONDUCTOR (NO. 4 A.W.G. - THHN/THWN) |
| 8054 | 74 S.F. | INSTALL OVERHEAD SIGN |
| 8056 | 2 EACH | FURNISH AND INSTALL 250 WATT HPS LUMINAIRE WITH PHOTOCELL |
| 8057 | 2 EACH | FURNISH AND INSTALL 20 FT. LIGHTING BRACKET ARM FOR TRAFFIC SIGNAL STRUCTURE |
| 8058 | 4 EACH | REMOVE AND DISPOSE OF EXISTING FOUNDATION 12 IN. BELOW GRADE |
| 8059 | 1 EACH | REMOVAL OF EXISTING CONTROLLER, CABINET AND GALVANIZED SIGNAL STRUCTURE |
| 8060 | 1 EACH | DELIVERY OF REMOVED CONTROLLER, CABINET AND GALVANIZED SIGNAL STRUCTURE |
| 8061 | 1 EACH | REMOVE AND DISPOSE OF EXISTING MATERIAL AND EQUIPMENT PER ASSIGNMENT |
| 8069 | 30 L.F. | FURNISH AND INSTALL 1 IN. ELECTRICAL CONDUIT - GALVANIZED RISER |
| 8070 | 1 EACH | FURNISH AND INSTALL CONTROL AND DISTRIBUTION EQUIPMENT (120/240 V, 1 PHASE 3 WIRE SYST) |
| 8081 | 1 EACH | FURNISH AND INSTALL MAST ARM POLE AND 38 FT. MAST ARM |


WR&A
Whitman, Requardt and Associates
Engineers and Planners
2315 Saint Paul Street
Baltimore, Maryland 21218
(410) 235-3450


| REVISIONS | APPROVALS | REVISIONS |
|---|---|---|
| | ORIGINAL ON FILE | |
| | ASSISTANT DIVISION CHIEF | |
| | ASST. DISTRICT ENGINEER, TRAFFIC | |
| | CHIEF, TRAFFIC ENGINEERING DESIGN DIVISION | |
| | DIRECTOR, OFFICE OF TRAFFIC & SAFETY | |

MARYLAND DOT - STATE HIGHWAY ADMINISTRATION
Office of Traffic & Safety
TRAFFIC ENGINEERING DESIGN DIVISION
GENERAL INFORMATION SHEET
MD 410 AND TAYLOR ROAD

| | | | | | |
|---|---|---|---|---|---|
| DATE: 10-1-97 | DRAWN BY: M.LARSON | F.A.P. NO. AW-277-5185 | PLAN SHEET NO.: | SHEET NO. |
| SCALE: NONE | DESIGNED BY: N.LEARY | S.H.A. NO. AW 277 A5H / B5H | TS-3204A | 3 OF 3 |
| APPROVED BY: | CHECKED BY: T.HANNAN | COUNTY PRINCE GEORGE'S | | |

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