# PROJECT DESCRIPTION

## I. GENERAL

THIS PROJECT INVOLVES A TRAFFIC SIGNAL INSTALLATION IN CONJUNCTION WITH GEOMETRIC IMPROVEMENTS ALONG ROBERT S. CRAIN HIGHWAY (US 301) AND CHRYSLER DRIVE.

## II. INTERSECTION OPERATION

US 301 WILL OPERATE WITH EXCLUSIVE LEFT TURN PHASING. CHRYSLER DRIVE WILL OPERATE WITH CONCURRENT PHASING. EASTBOUND CHRYSLER DRIVE WILL HAVE RIGHT TURN OVERLAP PHASING.

## III. CONTROLLER REQUIREMENTS

INSTALL A FULL-TRAFFIC ACTUATED, EIGHT PHASE CONTROLLER WITH SYSTEM PACKAGE, AND TWO (2), FOUR-CHANNEL, TIME DELAY OUTPUT LOOP DETECTOR AMPLIFIER HOUSED IN A NEMA SIZE "6" BASE MOUNTED CABINET.

## IV. SPECIAL NOTES

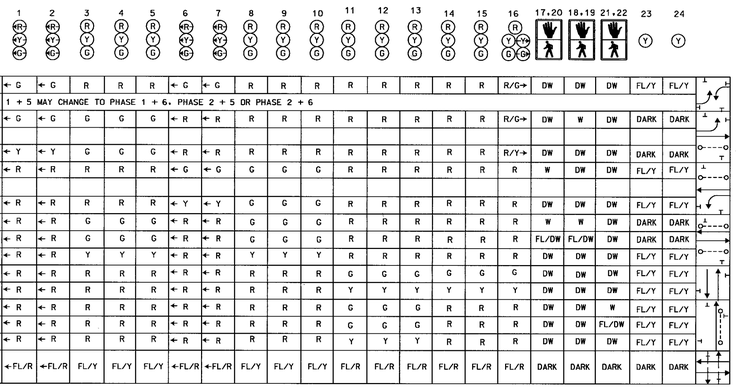
1. MAINTENANCE OF TRAFFIC WILL BE HANDLED BY THE CONTRACTOR UTILIZING THE FOLLOWING STANDARD PLATES FOR TRAFFIC CONTROL: 104.00-13, 104.00-19, 104.00-21-104.00-24, 104.17-01, 104.17-02, 104.39-02, 104.41-02, 104.48-01, 104.48-02, 104.49-01, 104.49-02, 104.81-01, 104.81-02.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PULLING ALL CABLE TO THE CABINET AND SHALL PROPERLY LABEL EACH CABLE.

3. 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.

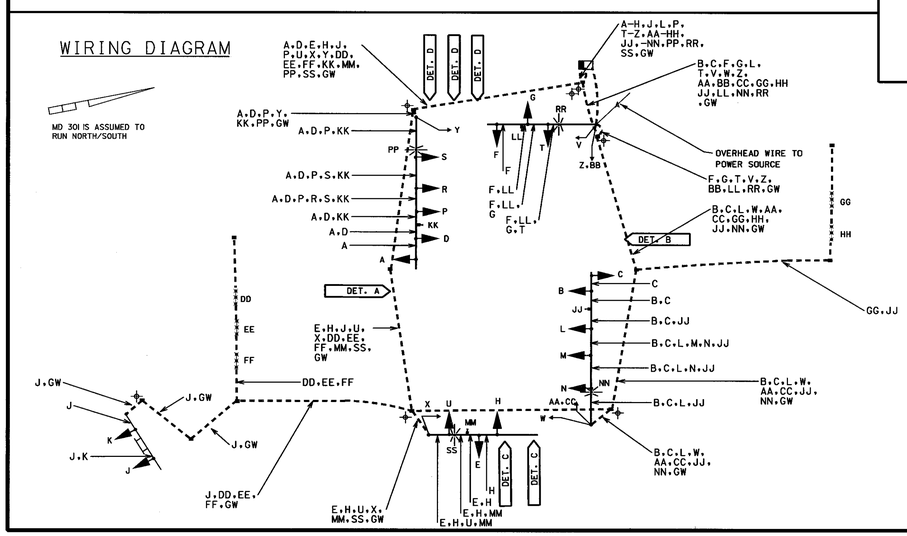
# PHASE CHART

## NORMAL OPERATION



| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17,20 | 18,19 | 21,22 | 23 | 24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | RR, YY, RG | RR, YY, RG | R, Y, G | R, Y, G | R, Y, G | RR, YY, RG | RR, YY, RG | R, Y, G | R, Y, G | R, Y, G | R, Y, G | R, Y, G | R, Y, G | R, Y, G | R, Y, G | R, Y, YW, DW, DR | | | | Y | Y |
| PHASE 1 + 5 | ← G | ← G | R | R | R | ← G | ← G | R | R | R | R | R | R | R | R | R/G→ | DW | DW | DW | FL/Y | FL/Y |
| 1 + 5 CHANGE | 1 + 5 MAY CHANGE TO PHASE 1 + 6, PHASE 2 + 5 OR PHASE 2 + 6 | | | | | | | | | | | | | | | | | | | | |
| PHASE 1 + 6 | ← G | ← G | G | G | G | ← R | ← R | R | R | R | R | R | R | R | R | R/G→ | DW | W | DW | DARK | DARK |
| | | | | | | | | | | | | | | | | | | | | | |
| 1 CHANGE | ← Y | ← Y | G | G | G | ← R | ← R | R | R | R | R | R | R | R | R | R/Y→ | DW | DW | DW | DARK | DARK |
| PHASE 2 + 5 | ← R | ← R | R | R | R | ← G | ← G | G | G | G | R | R | R | R | R | R | W | DW | DW | FL/Y | FL/Y |
| | | | | | | | | | | | | | | | | | | | | | |
| 5 CHANGE | ← R | ← R | R | R | R | ← Y | ← Y | G | G | G | R | R | R | R | R | R | DW | DW | DW | FL/Y | FL/Y |
| PHASE 2 + 6 | ← R | ← R | G | G | G | ← R | ← R | G | G | G | R | R | R | R | R | R | W | W | DW | DARK | DARK |
| PED. CLEARANCE | ← R | ← R | G | G | G | ← R | ← R | G | G | G | R | R | R | R | R | R | FL/DW | FL/DW | DW | DARK | DARK |
| 2 + 6 CHANGE | ← R | ← R | Y | Y | Y | ← R | ← R | Y | Y | Y | R | R | R | R | R | R | DW | DW | DW | FL/Y | FL/Y |
| PHASE 4 & 8 | ← R | ← R | R | R | R | ← R | ← R | R | R | R | G | G | G | G | G | G | DW | DW | DW | FL/Y | FL/Y |
| 4 & 8 CHANGE | ← R | ← R | R | R | R | ← R | ← R | R | R | R | Y | Y | Y | Y | Y | Y | DW | DW | DW | FL/Y | FL/Y |
| PHASE 4 ALT. | ← R | ← R | R | R | R | ← R | ← R | R | R | R | G | G | G | R | R | R | DW | DW | W | FL/Y | FL/Y |
| PED CLEARANCE | ← R | ← R | R | R | R | ← R | ← R | R | R | R | G | G | G | R | R | R | DW | DW | FL/DW | FL/Y | FL/Y |
| 4 ALT. CHANGE | ← R | ← R | R | R | R | ← R | ← R | R | R | R | Y | Y | Y | R | R | R | DW | DW | DW | FL/Y | FL/Y |
| FLASHING OPERATION | ←FL/R | ←FL/R | FL/Y | FL/Y | FL/Y | ←FL/R | ←FL/R | FL/Y | FL/Y | FL/Y | FL/R | FL/R | FL/R | FL/R | FL/R | FL/R | DARK | DARK | DARK | DARK | DARK |

# WIRING DIAGRAM




# EQUIPMENT LIST "A"

A. EQUIPMENT TO BE FURNISHED AND/OR INSTALLED BY SHA

None

# EQUIPMENT LIST "B"

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

| QUANTITY | UNITS | SPECIFICATION SECTION | DESRCRIPTION |
|---|---|---|---|
| 1 | LS | 104 | Maintenance of Traffic. |
| 1 | LS | 108 | Mobilization. |
| 4 | CY | 205 | Test pit excavation. |
| 25 | CY | 801 | Furnish and install concrete for signal foundation. |
| 7 | EA | 804 | Ground rod -3/4 in. diameter X 10 ft. |
| 600 | LF | 804 | Stranded bare copper ground wire (#6 AWG) |
| 1100 | LF | 805 | 3 in. schedule 80 rigid PVC conduit (trenched). |
| 75 | LF | 805 | 4 in. schedule 80 rigid PVC conduit (trenched). |
| 450 | LF | 805 | 4 in. schedule 80 rigid PVC conduit (bored). |
| 250 | LF | 805 | 3 in. schedule 80 rigid PVC conduit (bored). |
| 4 | EA | 806 | 250 watt HPS luminaire with photocell. |
| 1 | EA | 807 | Electrical service equipment. |
| 4 | EA | 812 | 4"x4" wood post |
| 14 | EA | 821 | Flex posts with yellow reflective tape |
| 4 | EA | 549 | Furnish and install heat applied white permanant preformed thermoplastic pavement marking arrows. |
| 8 | EA | 549 | Furnish and install heat applied white permanent preformed thermoplastic pavement marking letters. |
| 160 | LF | 549 | Furnish and install double yellow (5in. mark, 4 in. space, 5 in. mark) heat applied thermoplastic pavement marking tape. |
| 165 | LF | 549 | Furnish and install 24in. white heat applied thermoplastic pavement marking tape. |

# PROJECT CONTACTS

THE CONTACT PERSONS FOR THIS PROJECT ARE AS FOLLOWS:

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

MR. WAYNE MOWDY
ASSISTANT DISTRICT ENGINEER - MAINTENANCE
PHONE: (301) 513-7304

MR. ROBERT SNYDER
ASSISTANT DIVISION CHIEF, TRAFFIC OPERATIONS
410-787-7630

MR. ED RODENHIZER
TEAM LEADER SIGNAL OPERATIONS
410-787-7650

MR. EUGENE BAILEY
TEAM LEADER SIGN OPERATIONS
410-787-7676

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

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

MR. RICHARD CHILCOAT
POTOMAC ELECTRIC POWER COMPANY
301-967-5805

MR. VERNON WOODS
POTOMAC ELECTRIC POWER COMPANY
301-967-5802

| WIRING LEGEND | WIRING LEGEND |
|---|---|
| A-H, J,K | 7 CONDUCTOR ELECTRICAL CABLE (#14 AWG) |
| L-N, P,R-AA | 5 CONDUCTOR ELECTRICAL CABLE (#14 AWG) |
| BB,CC | 2 CONDUCTOR ELECTRICAL CABLE (#14 AWG) |
| DD-HH | MICROLOOP LEAD-IN CABLE |
| JJ-MM | VIDEO DETECTOR LEAD-IN |
| NN,PP,RR,SS | 2 CONDUCTOR ELECTRICAL CABLE (TRAY CABLE) FOR LUMINAIRES |
| GW | STRANDED BARED COPPER GROUND WIRE (#6 AWG) |
| ⊕ | GROUND ROD (IN HANDHOLE) |
| PS | POWER SOURCE (AERIAL) |

# EQUIPMENT LIST "B" (cont.)

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

| QUANTITY | UNITS | SPECIFICATION SECTION | DESRCRIPTION |
|---|---|---|---|
| 4 | EA | 808 | 15 ft lighting arm on signal pole. |
| 1000 | LF | 810 | 2 conductor electrical cable (NO.14 A.W.G.) (tray cable for luminaire) |
| 400 | LF | 810 | 2 conductor electrical cable (NO.14 A.W.G.) |
| 100 | LF | 810 | 3 conductor electrical cable (No. 4 AWG) (for power). |
| 2000 | LF | 810 | 5 conductor electrical cable (No.14 AWG). |
| 3700 | LF | 810 | 7 conductor electrical cable (No.14 AWG). |
| 15 | EA | 811 | Electrical handhole. |
| 5 | EA | 810 | Noninvasive microloop probe set 1000' lead-in |
| 165 | SF | 813 | Sheet aluminum signs consisting of:<br>14 ea. OM-(1)1 18"x18" -(GROUND MOUNT)<br>2 ea. R3-5(L) 30"x36" -(MAST ARM MOUNT)<br>1 ea. R3-5(MOD) 30"x36" -(MAST ARM MOUNT)<br>1 ea. R3-5(R) 30"x36" -(MAST ARM MOUNT)<br>1 ea. W3-3(2) 120"x60" -(MAST ARM MOUNT)<br>2 ea. D-3(2) 16"x var. -(MAST ARM MOUNT)-DUAL FACE<br>1 ea. R3-3(3) 18"x36" - (GROUND MOUNTED)<br>1 ea. D-3(3) 24"x72" - (GROUND MOUNTED) |
| 6 | EA | 814 | 16 in., one way, one section (LED symbolic WALK/DON'T WALK & countdown) black-faced aluminum signal head, pole mount |
| 52 | EA | 814 | 12 in. vehicular signal head section |
| 1 | EA | 816 | Video detection interface equipment. |
| 2 | EA | 816 | 250' video cable for detection unit |
| 2 | EA | 816 | 500' video cable for detection unit |
| 4 | EA | 816 | Video detection camera with arm and clamp. |
| 1 | EA | 816 | Econolite eight-phase, full-traffic-actuated controller with system package housed in a NEMA size "6" base mounted cabinet per MSHA specifications. Cabinet to be delivered to SHA Signal Shop for wiring and testing prior to installation. Contact Ed Rodenhelzer 72 hours prior to delivery. |
| 2 | EA | 817 | Pedestrian push button and R10-4(1) sign. |
| 2 | EA | 818 | 27' steel pole with 50' mast arm |
| 2 | EA | 818 | 27' steel pole with 70' mast arm |
| 1 | EA | 818 | 27' steel pole with 60' mast arm, cut and cap to 30' |
| 510 | LF | 549 | Furnish and install 12in. white heat applied thermoplastic pavement marking tape. |
| 300 | LF | 549 | Furnish and install 5in. white heat applied thermoplastic pavement marking tape. |
| 150 | LF | 549 | Furnish and install 5in. yellow heat applied thermoplastic pavement marking tape. |

# EQUIPMENT LIST "C"

C. EQUIPMENT TO BE REMOVED AND RETURNED TO SHA

None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MARYLAND DOT - STATE HIGHWAY ADMINISTRATION
*Office of Traffic & Safety*
TRAFFIC ENGINEERING DESIGN DIVISION

TRAFFIC SIGNAL DESIGN PLAN
US 301 (ROBERT S. CRAIN. HWY.) &
CHRYSLER DRIVE/CHEVY DRIVE

| | | | | | |
|---|---|---|---|---|---|
| DRAWN BY: | WTB | F.A.P. NO. | N/A | TS NO. 4395 | SHEET NO. |
| CHECKED BY: | CT | S.H.A. NO. | BW996M82 | | |
| SCALE: | NTS | COUNTY: | PRINCE GEORGE'S | T.I.M.S. NO. G851 | 2 OF 2 |
| DATE: | 4/6/05 | LOG MILE: | 16030114.34 | | |