## PROJECT DESCRIPTION

GENERAL

THIS PROJECT INVOLVES THE UPGRADING OF THE CROSSWALKS AND THE INSTALLATION OF APS/CPS FOR EAST, WEST AND SOUTH LEGS AT THE INTERSECTION OF MD 355 (ROCKVILLE PIKE) AND MONROE PLACE/ CHURCH STREET IN MONTGOMERY COUNTY. THE EXISTING TRAFFIC SIGNAL INDICATIONS WOULD ALSO BE UPGRADED TO NEW L.E.D. TRAFFIC SIGNAL INDICATIONS. MD 355 IS ASSUMED TO RUN IN THE NORTH -SOUTH DIRECTION.

INTERSECTION OPERATION

THE INTERSECTION OPERATES IN A NEMA FIVE PHASE, FULLY -ACTUATED MODE, WITH MD 355 APPROACHES RUNNING CONCURRENTLY WITH A LEADING EXCLUSIVE/ PERMISSIVE SOUTHBOUND LEFT TURN PHASE. THE MONROE PLACE AND CHURCH STREET APPROACHES RUN CONCURRENTLY. THE PEDESTRIAN PHASE ON MONROE PLACE AND CHURCH STREET RUNS CONCURRENTLY WITH MD 355 APPROACHES. AN ALTERNATE PEDESTRIAN PHASE WITH PUSH BUTTON ACTUATION IS PROVIDED ACROSS SOUTH LEG OF MD 355 (ROCKVILLE PIKE).

## EQUIPMENT LIST FOR CONTRACT NO.XX4495185

A. EQUIPMENT TO BE SUPPLIED BY THE SHA.

| ITEM | QUANTITY | UNIT | DESCRIPTION |
|---|---|---|---|
| 9042 | 1 | EA | [UPDATED] CONTROLLER ASC II WITH TELEMETRY |
| 9044 | 1 | EA | [UPDATED] CONTROLLER CABINET, SIZE 6 |
| 9086 | 2 | EA | [UPDATED] VIDEO DETECTION INTERFACE EQUIPMENT: 1-4 CAMERAS |
| 9570 | 143 | SF | [UPDATED] SHEET ALUMINUM GROUND MOUNTED SIGN |
| | 2 | EA | R4-7 (24"x30") , KEEP RIGHT SIGN |
| | 6 | EA | W11-2 (36"x36") PEDESTRIAN WARNING SIGN |
| | 4 | EA | W16-7p (15"x21") DIRECTIONAL ARROW SIGN |
| | 2 | EA | W13-4(1) (24"x36"") ACROSS RAMP SIGN |
| | 2 | EA | R9-3b (18"x12") USE CROSSWALK SIGN |
| | 2 | EA | R1-2 (36"x36") YIELD SIGN |
| | 1 | EA | R3-2 (30"x30") NO LEFT TURN SIGN |
| | 1 | EA | SHIELD ASSEMBLY (30"x87") ROUTE MARKER SIGN |
| | 1 | EA | SHIELD ASSEMBLY (30"x51") ROUTE MARKER SIGN |
| 9571 | 186 | SF | [UPDATED] SHEET ALUMINUM MAST ARM / POLE MOUNTED SIGN |
| | 1 | EA | SHIELD ASSEMBLY (48"x75") ROUTE MARKER SIGN |
| | 1 | EA | SHIELD ASSEMBLY (87"x75") ROUTE MARKER SIGN |
| | 1 | EA | SHIELD ASSEMBLY (96"x40") ROUTE MARKER SIGN |
| | 1 | EA | SHIELD ASSEMBLY (84"x40") ROUTE MARKER SIGN |
| | 1 | EA | D3-2 (VAR"x 32") (Church ST 001) / NO OUTLET ) MAST ARM MOUNTED, "NO OUTLET" SIGN WOULD BE BLACK IN COLOR ON YELLOW BACKGROUND. |
| | 1 | EA | D3-2 (VAR""x 32") (Monroe PL 001 / Church ST 001) MAST ARM MOUNTED |
| | 1 | EA | D3-2 (VAR"x 32") (Church ST 001 / MOnroe PL 001) MAST ARM MOUNTED |

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

| ITEM | QUANTITY | UNIT | DESCRIPTION |
|---|---|---|---|
| 1001 | 1 | EA | MAINTENANCE OF TRAFFIC PER ASSIGNMENT |
| 1002 | 2000 | LF | REMOVAL OF EXISTING PAVEMENT LINE MARKINGS, ANY WIDTH |
| 2002 | 3 | CY | TEST PIT EXCAVATION |
| 5002 | 750 | LF | 12 INCH WHITE LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKINGS |
| 5003 | 125 | LF | 24 INCH WHITE LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKINGS |
| 6001 | 270 | LF | STANDARD TYPE A COMBINATION CURB AND GUTTER 12 INCH GUTTER PAN 8 INCH DEPTH |
| 6002 | 1200 | SF | 5 INCH CONCRETE SIDEWALK |
| 8001 | 34 | EA | 12 INCH (R, Y, G) LED SIGNAL HEAD |
| 8003 | 1 | EA | 2 WIRE CENTRAL CONTROL UNIT |
| 8010 | 6 | EA | AUDIBLE/TACTILE PEDESTRIAN PUSHBUTTON STATION AND SIGNS |
| 8011 | 5 | EA | BREAKAWAY PEDESTAL POLE (ANY SIZE) |
| 8013 | 1 | EA | EMBEDDED METERED SERVICE PEDESTAL |
| 8014 | 6 | EA | LED 16 INCH COUNTDOWN PEDESTRIAN HEAD |
| 8016 | 1 | EA | REMOVE & DISPOSE OF EQUIPMENT PER ASSIGNMENT |
| 8026 | 375 | LF | UP TO 4 INCH SCHEDULE 80 RIGID PVC CONDUIT - SLOTTED |
| 8027 | 225 | LF | UP TO 4 INCH SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED |
| 8028 | 180 | SF | DETECTABLE WARNING SURFACES |
| 8031 | 180 | LF | WOOD SIGN SUPPORTS 4 INCH X 4 INCH |
| 8032 | 20 | LF | WOOD SIGN SUPPORTS 4 INCH X 6 INCH |
| 8033 | 600 | LF | NO. 6 AWG STRANDED BARE COPPER GROUND WIRE |
| 8038 | 120 | LF | ELECTRICAL CABLE 1-CONDUCTOR NO. 4 AWG-THHN/THWN |
| 8044 | 5 | EA | FURNISH AND INSTALL ELECTRICAL HANDHOLE |
| 8045 | 143 | SF | INSTALL GROUND MOUNTED SIGN |
| 8046 | 186 | SF | INSTALL OVERHEAD SIGN |
| 8047 | 5 | EA | VIDEO DETECTION CAMERA AND CABLE UP TO 500 FT |
| 8049 | 100 | LF | 12-PAIR COMMUNICATION CABLE, SELF-SUPPORTING (OVERHEAD) |
| 8053 | 4 | EA | CUT, CLEAN, GALVANIZE AND CAP TRAFFIC SIGNAL STRUCTURE |
| 8055 | 900 | LF | ELECTRICAL CABLE - 2 CONDUCTOR (NO. 14 AWG) |
| 8057 | 1100 | LF | ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 AWG) |
| 8058 | 950 | LF | ELECTRICAL CABLE - 7 CONDUCTOR (NO. 14 AWG) |
| 8065 | 1 | EA | INSTALL CONTROLLER AND CABINET - POLE MOUNT |
| 8066 | 1 | EA | INSTALL CONTROLLER AND CABINET - BASE MOUNT |

C. EQUIPMENT TO BE RETURNED TO MR. KEITH LORD (Phone: 301-279-1291)
AT MONTGOMERY COUNTY SIGNAL SHOP
ADDRESS- 1283, BUILDING C, SEVEN LOCKS ROAD, ROCKVILLE , MARYLAND 20854

| QUANTITY | UNIT | DESCRIPTION |
|---|---|---|
| 1 | EA | BASE CABINET SIZE 6 |

## PROJECT CONTACTS

THE CONTACT PERSONS FOR DISTRICT #3 ARE AS FOLLOWS:

Mr. Jeffery Wentz
Assistant District Engineer - Traffic
Phone: (301 513-7358

Mr. Wayne Mowdy
Assistant District Engineer - Maintenance
Phone: (301) 513-7304

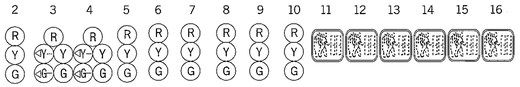
Mr. Augie Rebish
Utility Engineer
Phone: (301) 513-7350

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

Mr. Ed Rodenhizer
Supervisor, Signal Operations
Phone: 410-787-7650

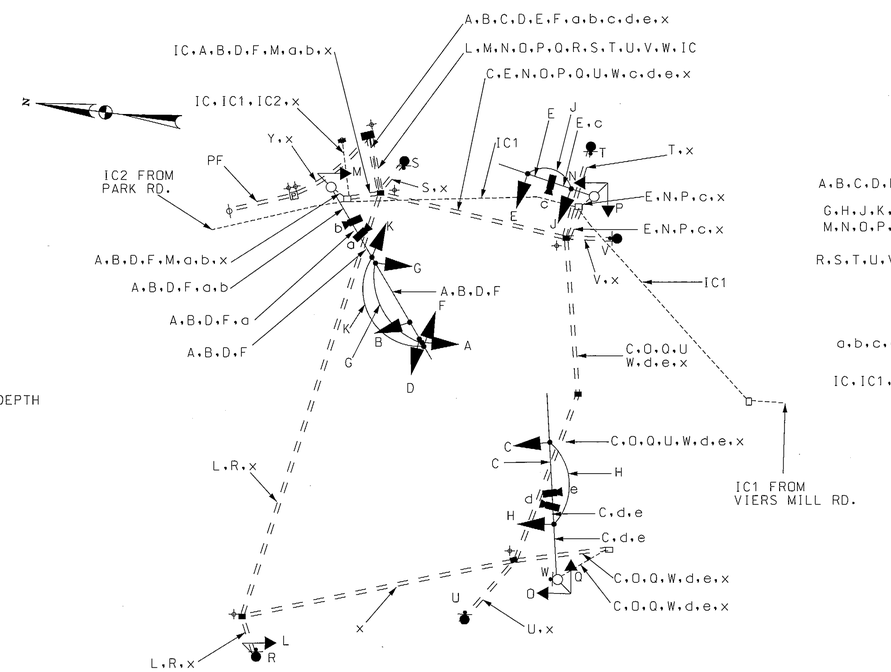
MR. Kamal Hamud
Montgomery County
Phone: 240-777-8761

## PHASING SEQUENCE CHART




| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PHASE 2 AND 5 | R | R | ←G/G | ←G/G | G | R | R | R | R | R | DW | DW | DW | DW | DW | DW |
| 5 CHANGE | R | R | ←Y/G | ←Y/G | G | R | R | R | R | R | DW | DW | DW | DW | DW | DW |
| PHASE 2 AND 6 | G | G | G | G | G | R | R | R | R | R | WK | WK | WK | WK | DW | DW |
| PED CLEARANCE | G | G | G | G | G | R | R | R | R | R | FL/DW | FL/DW | FL/DW | FL/DW | DW | DW |
| 2 AND 6 CHANGE | Y | Y | Y | Y | Y | R | R | R | R | R | DW | DW | DW | DW | DW | DW |
| PHASE 4 AND 8 | R | R | R | R | R | G | G | G | G | G | DW | DW | DW | DW | DW | DW |
| 4 AND 8 CHANGE | R | R | R | R | R | Y | Y | Y | Y | Y | DW | DW | DW | DW | DW | DW |
| PHASE 4 ALT | R | R | R | R | R | G | G | G | G | G | DW | DW | DW | DW | WK | WK |
| PED CLEARANCE | R | R | R | R | R | G | G | G | G | G | DW | DW | DW | DW | FL/DW | FL/DW |
| 4 ALT CHANGE | R | R | R | R | R | Y | Y | Y | Y | Y | DW | DW | DW | DW | DW | DW |
| FLASHING OPERATION | FL/Y | FL/Y | FL/Y | FL/Y | FL/Y | FL/R | FL/R | FL/R | FL/R | FL/R | DARK | DARK | DARK | DARK | DARK | DARK |

## WIRING DIAGRAM




## WIRING KEY

| | |
|---|---|
| A,B,C,D,E,F | 7 CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG) |
| G,H,J,K,L M,N,O,P,Q | 5 CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG) |
| R,S,T,U,V,W | 2 CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG) |
| x | 1 CONDUCTOR (NO. 6 AWG) STRANDED COPPER GROUND WIRE |
| a,b,c,d,e | VIDEO DETECTION CABLE |
| IC,IC1,IC2 | INTERCONNECT CABLE |
| Y | ELECTRICAL CABLE - 1 CONDUCTOR NO. 4 AWG THHN/THWN |
| PF | POWER FEED UNDERGROUND 3 WIRE 1 CONDUCTOR (NO. 4 AWG) |
| ⏚ | GROUND ROD |

TOD NO:XX449-26
SHA NO:MO205A57/B57
MD 355@ MONROE PL/CHURCH ST

SPECIAL NOTE

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TERMINATING ALL SIGNAL CABLES TO THE APPROPRIATE TERMINALS AND SHALL PROPERLY LABEL EACH CABLE.
2. THE CONTRACTOR SHALL NOTIFY MR. KAMAL HAMUD AT (240) 777-8761 72 HOURS IN ADVANCE OF ALL WORK.
3. THE APS PUSHBUTTONS SHALL BE DELIVERED TO MR. KEITH LORD (301) 674-8965 AT THE MONTGOMERY COUNTY TECHNICAL CENTER, SIX(6) WEEKS PRIOR TO INSTALLATION.
4. SPLICE CABINET WILL BE PROVIDED BY MONTGOMERY COUNTY.

BRUDIS & ASSOCIATES, INC.
Consulting Engineers
9220 Rumsey Road; Suite 110
Columbia, Maryland 21045
Phone 410-884-3007
www.brudis.com

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF TRAFFIC & SAFETY
TRAFFIC ENGINEERING DESIGN DIVISION

MD 355 (ROCKVILLE PIKE AND MONROE PLACE/CHURCH STREET)
TRAFFIC SIGNAL MODIFICATION

GENERAL INFORMATION SHEET

SCALE NTS ADVERTISED DATE ____ CONTRACT NO. XX4495185

DESIGNED BY NG
DRAWN BY NG
CHECKED BY JB
F.A.P. NO. ____
COUNTY MONTGOMERY
LOGMILE 15035509.40
TIMS NO. I780
TOD NO. ____

TS NO. 2587-C | DRAWING - OF | SHEET NO. 3 OF 3

PLOTTED: Wednesday, February 25, 2009 AT 02:52 PM
FILE: P:\04-005 Signals\MD 355 @ Monroe Pl\Drawings\CADD\Working\pGN-TD00_MD355@MonroePl.dgn

BY: nitesh