

PROJECT DESCRIPTION

I. GENERAL

This project involves the reconstruction of the existing traffic control signal at the intersection of MD 115/Snouffer School Road and MD 124 in Montgomery County. Audible pedestrian pushbutton stations and countdown pedestrian signal heads shall be installed for all crossings of the intersection. Mast arms and associated new signal equipment will be installed. MD 115 is assumed to run in an east/west direction.

II. INTERSECTION OPERATION

- The intersection will operate in a semi-actuated mode using six phases. The MD 115 and Snouffer School Road approaches will operate under exclusive - permissive left turn phasing. The MD 124 approaches will operate under split phasing.
- A new NEMA full-traffic-actuated, eight (8) phase controller housed in a Type S base mounted cabinet shall be installed at this intersection under this project.

NOTES

- All pavement markings shall be installed in accordance with Administration standards.
- The contractor shall be responsible for terminating all signal cable to the appropriate terminals and properly labeling each cable.
- All traffic signal foundations shall be installed at the final sidewalk or curb grade for closed sections, highest roadway profile grade for open sections, to meet clearances as specified in the appropriate 800 series Standard Plans. The contractor shall verify ultimate grades prior to the installation of all signal equipment.
- 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.
- The contractor shall maintain the continuous operation of all interconnect, vehicular, pedestrian detectors, and lighting devices. If any device is damaged by the contractor, it shall be repaired within 72 hours by the contractor at no cost to the Administration after notification by the Engineer.
- The Contractor shall verify cabinet location prior to installation.
- Video camera location and signing shall be coordinated with the Montgomery County engineer.
- All proposed luminaires shall be provided with a photocell.
- Upon completion of this project, the Contractor shall notify Mr. Robert Snyder to arrange for the phone line installation. The contractor shall provide Mr. Snyder with the nearest street address, zip code, and phone number.
- The contractor shall deliver APS pushbuttons and central control unit to Mr. Kamal Hamud at Montgomery County Technical Center at 1283 Seven Locks Road, Rockville, MD 20854 at least 3 weeks prior to beginning work. The Contractor shall have the APS messages programmed from the factory and deliver the APS wave files to Mr. Kamal Hamud.
- The contractor shall notify Mr. Kamal Hamud 72 hours prior to beginning work.
- APS will function as follows:
 - To cross Muncaster Mill Road.
 - A. When Pedestrian locates and presses pushbutton for an extended time, the message will announce "WAIT to cross Muncaster Mill at Woodfield. WAIT."
 - B. When Walk phase begins, the message will be a rapid tick which will last for the duration of the walk phase.
 - To cross Snouffer School Road.
 - A. When Pedestrian locates and presses pushbutton for an extended time, the message will announce "WAIT to cross Snouffer School at Woodfield. WAIT."
 - B. When Walk phase begins, the message will be a rapid tick which will last for the duration of the walk phase.
 - To cross Woodfield Road.
 - A. When Pedestrian locates and presses pushbutton for an extended time, the message will announce "WAIT to cross Woodfield at Muncaster Mill. WAIT."
 - B. When Walk phase begins, the message will be a rapid tick which will last for the duration of the walk phase.
- Pushbuttons are to be located so that they can be activated by a person in a wheelchair reaching less than 18" from a 60" x 60" level landing area with a cross slope of less than or equal to 2%.
- The 10' separation between pushbuttons is to be measured from face of pushbutton to face of pushbutton, not center to center of pole.
- Pushbutton arrows are to be parallel to the crossing for which they are intended.
- Location of accessible pedestrian signal pushbuttons must follow requirements of MD MUTCD Secs. 4E.08 and 4E.10 and Figs. 4E-3 and 4E-4 and the NCHRP publication "Accessible pedestrian signals: Guide to best practice." If not met, the contractor is to stop work on pushbutton locations until a design waiver is obtained, approved by the Director, Office of Traffic & Safety.

CONTACTS

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|---|--|
| MONTGOMERY COUNTY MR. KAMAL HAMUD CHIEF OF TRAFFIC DIVISION MCDPW&T 240-777-8761 | OFFICE OF TRAFFIC AND SAFETY MS. CORREN JOHNSON CHIEF, TRAFFIC OPERATIONS 410-787-7630 |
| DISTRICT MR. BRIAN YOUNG DISTRICT ENGINEER 301-513-7311 MR. ANYESHA MOOKHERJEE ASSISTANT DISTRICT ENGINEER - TRAFFIC 301-513-7404 MR. VICTOR GRAFTON UTILITY ENGINEER 301-513-7350 MR. KEVIN NOWAK & MR. DUANE BERNARD ASSISTANT DISTRICT ENGINEERS - CONSTRUCTION 301-513-7385 MR. TOM FOUNTAIN ASSISTANT DISTRICT ENGINEER - MAINTENANCE 301-513-7304 | VACANT 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 410-787-7670 MR. MIKE STOCKER SUPPLY OFFICER IV (SIGNAL SHOP WAREHOUSE) 410-787-7668 |

EQUIPMENT LIST

A. EQUIPMENT TO BE FURNISHED BY STATE HIGHWAY ADMINISTRATION

| CAT CODE | DESCRIPTION | UNITS | QUANTITY |
|----------|--|-------|----------|
| 900000 | CONTROLLER CABINET, SIZE "S" W/CTRL, VIDEO INT. 1-8 CAM | EA | 1 |
| 900000 | SHEET ALUMINUM GROUND MOUNTED SIGNS CONSISTING OF: R4-7 (24" x 30") | SF | 23 |
| | DM1-3 (18" x 18") | EA | 1 |
| 900000 | SHEET ALUMINUM MAST ARM / POLE MOUNTED SIGNS CONSISTING OF: D-3(1) (VAR. x 16") | SF | 150 |
| | M1-5(6) (48" x 72") | EA | 8 |
| | M1-5(6) (30" x 48") | EA | 1 |
| | R3-5(L) (30" x 36") | EA | 2 |
| | R3-6(L) (30" x 36") | EA | 1 |
| | R10-3(1) (9" x 15") | EA | 8 |

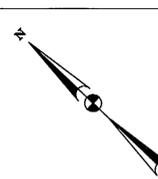
B. EQUIPMENT TO BE FURNISHED AND/OR INSTALLED BY CONTRACTOR

| CAT CODE | DESCRIPTION | UNITS | QUANTITY |
|----------|--|-------|----------|
| 100000 | MAINTENANCE OF TRAFFIC (PER INTERSECTION) | EA | 1 |
| 201032 | CLASS 2 EXCAVATION | CY | 10 |
| 203030 | TEST PIT EXCAVATION | CY | 6 |
| 504088 | HOT MIX ASPHALT SUPERPAVE 9.5MM FOR SURFACE, PG64-22, LEVEL-3 | TON | 2 |
| 504314 | HOT MIX ASPHALT SUPERPAVE 19.0MM FOR FULL DEPTH PATCH, PG64-22, LEVEL-3 | TON | 6 |
| 520109 | 3 INCH GRADED AGGREGATE BASE COURSE | SY | 29 |
| 585621 | 12 INCH WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINES | LF | 910 |
| 585625 | 24 INCH WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINES | LF | 110 |
| 585700 | REMOVAL OF EXISTING PAVEMENT MARKING LINES, ANY WIDTH | LF | 1270 |
| 600000 | TYPE A COMBINATION CURB AND GUTTER ANY HEIGHT OR DEPTH | LF | 740 |
| 600000 | TYPE A CURB ANY HEIGHT OR DEPTH | LF | 300 |
| 655105 | 5 INCH CONCRETE SIDEWALK | SF | 5000 |
| 655120 | DETECTABLE WARNING SURFACE FOR CURB RAMPS | SF | 175 |
| 704345 | PLACING FURNISHED TOPSOIL 4 INCH DEPTH | SY | 20 |
| 705500 | TURFGRASS ESTABLISHMENT | SY | 20 |
| 800000 | 2-WIRE APS CENTRAL CONTROL UNIT | EA | 1 |
| 800000 | ANY SIZE LIGHTING ARM ON SIGNAL POLE WITH LED ROADWAY LUMINAIRE | EA | 1 |
| 800000 | AUDIBLE/TACTILE PEDESTRIAN PUSHBUTTON STATION AND SIGNS | EA | 8 |
| 800000 | 16 INCH LED COUNTDOWN PEDESTRIAN SIGNAL HEAD | EA | 4 |
| 800000 | IP-BASED VIDEO DETECTION CAMERA & ANY LENGTH LEAD-IN CABLE | EA | 4 |
| 800000 | 5 FOOT OR 10 FOOT PEDESTAL POLE WITH BREAKAWAY COUPLINGS, FOUNDATION & GROUND ROD | EA | 4 |
| 800000 | MAST ARM POLE & 50' MAST ARM ANY 'T' DIMENSION, FOUNDATION & GROUND ROD | EA | 1 |
| 800000 | 100 AMP EMBEDDED METERED SERVICE PEDESTAL, CONCRETE COLLAR & GROUND RODS | EA | 1 |
| 800000 | REMOVE & DISPOSE OF EXISTING SIGNAL EQUIPMENT (PER SIGNALIZED INTERSECTION LOCATION) | EA | 1 |
| 800000 | INSTALL CONTROLLER AND CABINET BASE MOUNT (ANY SIZE) INCLUDING F&I FOUNDATION & GROUND ROD | EA | 1 |

B. EQUIPMENT TO BE FURNISHED AND/OR INSTALLED BY CONTRACTOR (CONT'D)

| CAT CODE | DESCRIPTION | UNITS | QUANTITY |
|----------|--|-------|----------|
| 800000 | 1 - CONDUCTOR ELECTRICAL CABLE, NO. 2/0 AWG, TYPE THHN | LF | 120 |
| 800000 | DISCONNECT, PULL-BACK & REROUTE CABLES | LF | 800 |
| 800000 | LASHING NEW CABLE TO EXISTING OVERHEAD CABLE | LF | 300 |
| 800000 | UP TO 4 INCH SCHEDULE 80 RIGID PVC CONDUIT - BORED OR SLOTTED | LF | 375 |
| 800000 | UP TO 4 INCH SCHEDULE 80 RIGID PVC CONDUIT-TRENCHED | LF | 250 |
| 800000 | WOOD SIGN SUPPORTS UP TO 4 INCH X 6 INCH | LF | 145 |
| 800000 | INSTALL OVERHEAD OR GROUND MOUNTED SIGN (INCLUDING ALL HARDWARE) | SF | 173 |
| 800000 | THIRD PARTY CONCRETE TESTING (PER INTERSECTION) | EA | 1 |
| 802501 | NO. 6 AWG STRANDED BARE COPPER GROUND WIRE | LF | 600 |
| 810022 | ELECTRICAL CABLE - 1 CONDUCTOR NO. 8 AWG-THHN/THWN | LF | 50 |
| 811001 | FURNISH AND INSTALL ELECTRICAL HANDHOLE | EA | 6 |
| 813023 | RELOCATE EXISTING GROUND MOUNTED SIGNS | SF | 79 |
| 830060 | 3 INCH DIAMETER POLYVINYL CHLORIDE CONDUIT, SCHEDULE 80, RISER | LF | 30 |
| 860284 | 12 INCH LED VEHICULAR TRAFFIC SIGNAL HEAD SECTION | EA | 48 |
| 860292 | CUT, CLEAN, GALVANIZE AND CAP TRAFFIC SIGNAL STRUCTURE | EA | 2 |
| 861105 | ELECTRICAL CABLE - 2 CONDUCTOR (NO. 14 AWG) | LF | 1325 |
| 861107 | ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 AWG) | LF | 1450 |
| 861108 | ELECTRICAL CABLE - 7 CONDUCTOR (NO. 14 AWG) | LF | 1800 |

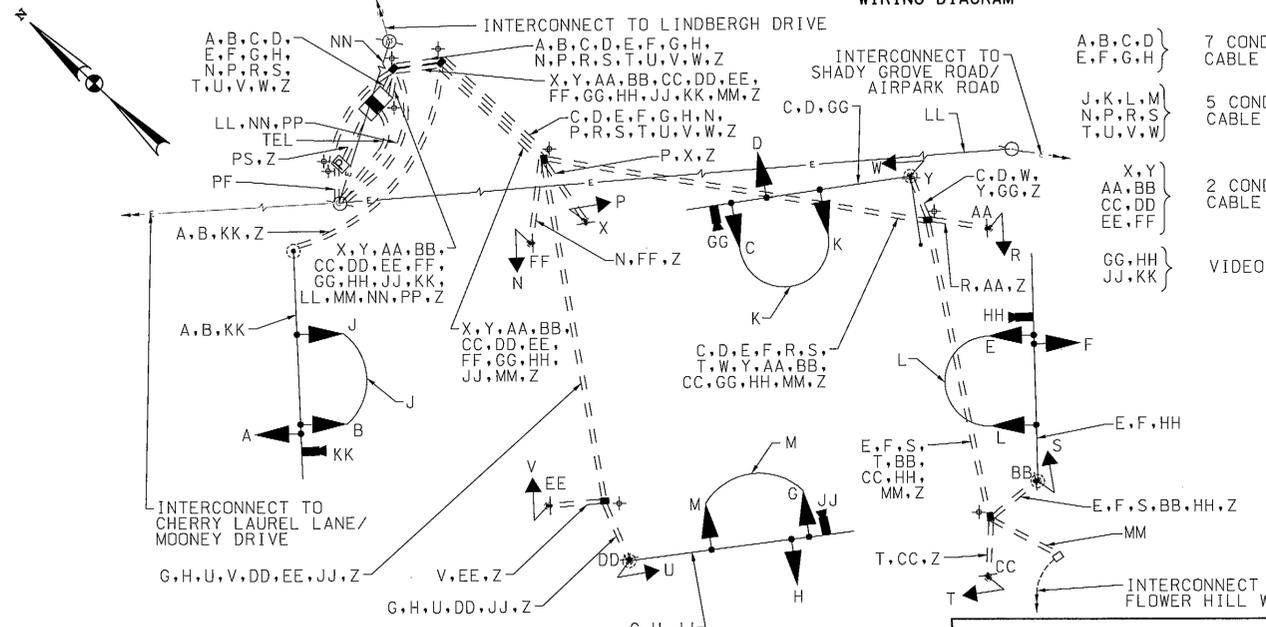
C. MONTGOMERY COUNTY FORCES SHALL REMOVE THE CONTROLLER AND ALL AUXILIARY EQUIPMENT FROM THE CONTROLLER CABINET. THE CABINET AND ALL OTHER MATERIALS TO BE REMOVED BY THE CONTRACTOR SHALL BECOME THE PROPERTY OF THE CONTRACTOR.



PHASE CHART

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|--|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| PHASE 1 AND 5 | +G/R | +G/R | R | +G/R | +G/R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R |
| 1 AND 5 MAY CHANGE TO 1 AND 6, 2 AND 5, OR 2 AND 6 | +G/G | +G/G | G | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R |
| PHASE 1 AND 6 | +G/G | +G/G | G | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R |
| 1 CHANGE | +Y/G | +Y/G | G | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R |
| PHASE 2 AND 5 | R | R | R | +G/G | +G/G | G | R | R | R | R | R | R | R | R | R | R | R | R | R | R |
| 5 CHANGE | R | R | R | +Y/G | +Y/G | G | R | R | R | R | R | R | R | R | R | R | R | R | R | R |
| PHASE 2 AND 6 | G | G | G | G | G | G | R | R | R | R | R | R | R | R | R | R | R | R | R | R |
| PED CLEARANCE | G | G | G | G | G | G | R | R | R | R | R | R | R | R | R | R | R | R | R | R |
| 2 AND 6 CHANGE | Y | Y | Y | Y | Y | Y | R | R | R | R | R | R | R | R | R | R | R | R | R | R |
| PHASE 3 | R | R | R | R | R | R | +G/G | +G/G | G | R | R | R | R | R | R | R | R | R | R | R |
| 3 CHANGE | R | R | R | R | R | R | Y | Y | Y | R | R | R | R | R | R | R | R | R | R | R |
| PHASE 3 ALT | R | R | R | R | R | R | +G/G | +G/G | G | R | R | R | R | R | R | R | R | R | R | R |
| PED CLEARANCE | R | R | R | R | R | R | +G/G | +G/G | G | R | R | R | R | R | R | R | R | R | R | R |
| 3 ALT CHANGE | R | R | R | R | R | R | Y | Y | Y | R | R | R | R | R | R | R | R | R | R | R |
| PHASE 4 | R | R | R | R | R | R | R | R | R | +G/G | +G/G | G | R | R | R | R | R | R | R | R |
| 4 CHANGE | R | R | R | R | R | R | R | R | R | Y | Y | Y | G | R | R | R | R | R | R | R |
| PHASE 4 ALT | R | R | R | R | R | R | R | R | R | +G/G | +G/G | G | R | R | R | R | R | R | R | R |
| PED CLEARANCE | R | R | R | R | R | R | R | R | R | +G/G | +G/G | G | R | R | R | R | R | R | R | R |
| 4 ALT CHANGE | R | R | R | R | R | R | R | R | R | Y | Y | Y | G | R | R | R | R | R | R | R |
| FLASHING OPERATION | FL/Y | FL/Y | FL/Y | FL/Y | FL/Y | FL/Y | FL/R | FL/R | FL/R | FL/R | FL/R | FL/R | DARK |

WIRING DIAGRAM



KEY

| | |
|------|--|
| Z} | 1 CONDUCTOR (NO. 6 AWG) STRANDED COPPER GROUND WIRE |
| PS} | POWER SERVICE UNDERGROUND 3 WIRE 1 CONDUCTOR (NO. 8 AWG) |
| TEL} | PROPOSED TELEPHONE DROP |
| PF} | POWER FEED 3 WIRE 1-CONDUCTOR (NO. 2/0 AWG), TYPE THHN (FINAL CONNECTION TO BE MADE BY PEPSCO) |
| LL} | RELOCATED PORTION OF EXISTING INTERCONNECT |
| MM} | |
| NN} | |
| PP} | |
| + | GROUND ROD |

NOTE: CONTRACTOR SHALL COIL 30 FEET OF POWER FEED CABLE AT THE BASE OF THE PEPSCO POLE.

SHA STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF TRAFFIC & SAFETY
TRAFFIC ENGINEERING DESIGN DIVISION
MD 115 (MUNCASTER MILL ROAD)/SNOUFFER SCHOOL ROAD AT
MD 124 (WOODFIELD ROAD)
GAITHERSBURG, MARYLAND

GENERAL INFORMATION SHEET

SCALE _____ N.T.S. ADVERTISED DATE AUGUST 2013 CONTRACT NO. XY2385185

DESIGNED BY R. WANG COUNTY MONTGOMERY
DRAWN BY R. WANG LOGMILE 15011500.00
CHECKED BY A. GRIFFIN TMS NO. M055
F.A.P. NO. SEE TITLE SHEET TOD NO. _____

SABRA WANG & ASSOCIATES, INC.
7055 SAMUEL MORSE DRIVE
SUITE 100
COLUMBIA, MD 21046
(410) 741-3500
WWW.SABRA-WANG.COM

PLOTTED: Thursday, August 22, 2013 AT 02:40 PM
FILE: R:\2008\73 SHA_BCS_2008-09A_TEDD_DESIGN_STV_JV_SSM\Task 240 Montgomery County APS-CPS(dgn)\MD 115 at MD 124\PSG-N001\MD115-MD124.dgn