## PROJECT DESCRIPTION

GENERAL

THIS PROJECT INVOLVES THE RECONSTRUCTION OF THE EXISTING TRAFFIC CONTROL SIGNAL AT THE INTERSECTION OF U.S. 1 (BELAIR ROAD) AND ROSSVILLE BOULEVARD IN BALTIMORE COUNTY, MARYLAND. U.S. 1 IS ASSUMED TO RUN IN A NORTH-SOUTH DIRECTION.

INTERSECTION OPERATION

THE INTERSECTION WILL OPERATE IN A NEMA EIGHT-PHASE, FULL-TRAFFIC-ACTUATED MODE WITH THE U.S. 1 APPROACHES OPERATING CONCURRENTLY AND THE ROSSVILLE BOULEVARD APPROACHES OPERATING CONCURRENTLY.

EXCLUSIVE LEFT-TURN PHASING IS PROVIDED FOR NORTHBOUND AND SOUTHBOUND U.S. 1 APPROACHES.

EXCLUSIVE/PERMISSIVE LEFT-TURN PHASING IS PROVIDED FOR EASTBOUND AND WESTBOUND ROSSVILLE BOULEVARD APPROACHES.

AN ALTERNATE PEDESTRIAN PHASE IS PROVIDED ACROSS THE SOUTH LEG OF U.S. 1 AND AND THE EAST LEG OF ROSSVILLE BOULEVARD.

TYPICAL MESSAGES FOR ACCESSIBLE PED SIGNALS

U.S. 1 (BELAIR ROAD) AND ROSSVILLE BOULEVARD - EAST LEG

INTERSECTION WITH ANGLED CROSSING

WAIT: "WAIT TO CROSS BELAIR AT ROSSVILLE. CROSSWALK ANGLES RIGHT. WAIT." **

WALK: RAPID TICK

ROSSVILLE BOULEVARD AND U.S. 1 (BELAIR ROAD) - SOUTH LEG

STREETS AT 90 DEGREES

WAIT: "WAIT TO CROSS ROSSVILLE AT BELAIR. WAIT." *

WALK: RAPID TICK

* MESSAGE USED IF DISTANCE FROM NEAREST PUSHBUTTON FOR PERPENDICULAR CROSSING IS < 10'
** MESSAGE USED IF CROSSWALK DIVERGES FROM OR CONVERGES WITH PARALLEL TRAFFIC

NOTE: MESSAGES FOR INTERSECTION CONFIGURATIONS, VARYING FROM THE ABOVE ARE TO BE APPROVED BY THE DIRECTOR, OFFICE OF TRAFFIC AND SAFETY.

CONTROLLER REQUIREMENTS

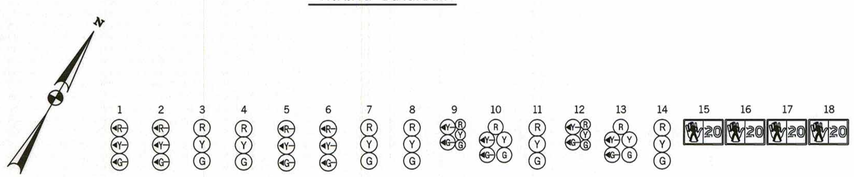
INSTALL A FULL-TRAFFIC-ACTUATED, EIGHT-PHASE CONTROLLER WITH TWO (2) FOUR-CHANNEL, TIME-DELAY-OUTPUT LOOP DETECTOR AMPLIFIERS, SYSTEM PACKAGE, MASTER CONTROLLER WITH TELEMETRY AND VIDEO INTERFACE EQUIPMENT (5-8 CAMERAS), INTERSECTION MONITOR WITH BATTERY BACKUP FOR PHONE DROP AND ASSOCIATED HARNESSES HOUSED IN A NEMA SIZE "S" BASE MOUNTED CABINET.

## MAINTENANCE OF TRAFFIC

THE FOLLOWING TRAFFIC CONTROL STANDARDS SHALL BE REFERENCED FOR THE PROJECT. ADDITIONAL TRAFFIC CONTROL STANDARDS MAY BE USED AS DIRECTED BY THE ENGINEER.

STANDARD NO. MD-104.04-03 (LEFT LANE CLOSURE)
STANDARD NO. MD-104.04-05 (RIGHT LANE CLOSURE)
STANDARD NO. MD-104.04-07 (CENTER LANE CLOSURE)
STANDARD NO. MD-104.02-13 (INTERSECTION FLAGGING OPERATION)
STANDARD NO. MD-104.04-13 (LEFT TURN BAY CLOSURE)

## WIRING DIAGRAM




| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PHASE 1 + 5 | ←G— | ←G— | R | R | ←G— | ←G— | R | R | R | R | R | R | R | R | DW | DW | DW | DW | |
| 1 + 5 CHANGE | PHASE 1 + 5 MAY CHANGE TO PHASE 1 + 6, PHASE 2 + 5 OR PHASE 2 + 6 | | | | | | | | | | | | | | | | | | |
| PHASE 1 + 6 | ←G— | ←G— | G | G | ←R— | ←R— | 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 | R | R | DW | DW | DW | DW | |
| PHASE 2 + 5 | ←R— | ←R— | R | R | ←G— | ←G— | G | G | R | R | R | R | R | R | DW | DW | DW | DW | |
| 2 + 5 CHANGE | ←R— | ←R— | R | R | ←Y— | ←Y— | G | G | 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 | R | R | WK | WK | DW | DW | |
| PED CLEARANCE | ←R— | ←R— | G | G | ←R— | ←R— | G | G | R | R | R | R | R | R | FL/DW | FL/DW | DW | DW | |
| 2 + 6 CHANGE | ←R— | ←R— | Y | Y | ←R— | ←R— | Y | Y | R | R | R | R | R | R | DW | DW | DW | DW | |
| PHASE 3 AND 7 | ←R— | ←R— | R | R | ←R— | ←R— | R | R | ←R/G— | ←R/G— | R | ←R/G— | ←R/G— | R | DW | DW | DW | DW | |
| 3 AND 7 CHANGE | PHASE 3 + 7 MAY CHANGE TO PHASE 3 + 8, PHASE 4 + 7 OR PHASE 4 + 8 | | | | | | | | | | | | | | | | | | |
| PHASE 3 AND 8 | ←R— | ←R— | R | R | ←R— | ←R— | R | R | R | R | R | ←G/G— | ←G/G— | G | DW | DW | DW | DW | |
| 3 AND 8 CHANGE | ←R— | ←R— | R | R | ←R— | ←R— | R | R | R | R | R | ←G/Y— | ←G/Y— | G | DW | DW | DW | DW | |
| PHASE 4 AND 7 | ←R— | ←R— | R | R | ←R— | ←R— | R | R | ←G/G— | ←G/G— | G | R | R | R | DW | DW | DW | DW | |
| 4 AND 7 CHANGE | ←R— | ←R— | R | R | ←R— | ←R— | R | R | ←G/Y— | ←G/Y— | G | R | R | R | DW | DW | DW | DW | |
| PHASE 4 AND 8 | ←R— | ←R— | R | R | ←R— | ←R— | R | R | G | G | G | G | G | G | DW | DW | DW | DW | |
| 4 AND 8 CHANGE | ←R— | ←R— | R | R | ←R— | ←R— | R | R | Y | Y | Y | Y | Y | Y | DW | DW | DW | DW | |
| PHASE 4 AND 8 ALT. | ←R— | ←R— | R | R | ←R— | ←R— | R | R | G | G | G | G | G | G | DW | DW | WK | WK | |
| PED CLEARANCE | ←R— | ←R— | R | R | ←R— | ←R— | R | R | G | G | G | G | G | G | DW | DW | FL/DW | FL/DW | |
| 4 + 8 ALT. CHANGE | ←R— | ←R— | R | R | ←R— | ←R— | R | R | Y | Y | 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 | FL/R | FL/R | DARK | DARK | DARK | DARK | |

## EQUIPMENT LIST "A"

A. EQUIPMENT TO BE SUPPLIED BY THE SHA

| ITEM NO. | QUANTITY | DESCRIPTION |
|---|---|---|
| 9000 | 1 EACH | EIGHT-PHASE, FULL-TRAFFIC-ACTUATED ASC III CONTROLLER |
| 9000 | 1 EACH | NEMA SIZE "S" BASE MOUNTED CABINET WITH INTERSECTION MONITOR |
| 9045 | 1 EACH | CONTROLLER, MASTER ASC 10,000 WITH TELEMETRY |
| 9571 | 132 S.F. | SHEET ALUMINUM SIGNS TO CONSIST OF (POLE MOUNT) : |
| | - 4 EACH | D-3(1) SIGN (VARIABLE x 16 IN.) DUAL FACED - MAST ARM MOUNT |
| | - 1 EACH | ASSOCIATED SHIELD ASSEMBLY (M1-5(6)) "NORTH, US 1, RIGHT ARROW" (24 IN. x 48 IN.) - POLE MOUNT |
| | - 1 EACH | ASSOCIATED SHIELD ASSEMBLY (M1-5(6)) "NORTH, US 1, LEFT ARROW" (36 IN. x 72 IN.) - POLE MOUNT |
| | - 1 EACH | ASSOCIATED SHIELD ASSEMBLY (M1-5(6)) "SOUTH, US 1, RIGHT ARROW" (24 IN. x 48 IN.) - POLE MOUNT |
| | - 1 EACH | ASSOCIATED SHIELD ASSEMBLY (M1-5(6)) "SOUTH, US 1, LEFT ARROW" (36 IN. x 72 IN.) - POLE MOUNT |
| | - 2 EACH | R10-3(1) SIGN (9 IN. x 15 IN.) TO READ "PUSHBUTTON TO CROSS BELAIR ROAD" |
| | - 2 EACH | R10-3(1) SIGN (9 IN. x 15 IN.) TO READ "PUSHBUTTON TO CROSS ROSSVILLE BLVD" |
| | - 2 EACH | R3-5L SIGN (30 IN. x 36 IN.) - MAST ARM MOUNT |
| | - 2 EACH | R3-5R SIGN (30 IN. x 36 IN.) - MAST ARM MOUNT |

## EQUIPMENT LIST "C"

C. EQUIPMENT TO BE REMOVED AND RETURNED TO SHA

1. AT THE TIME OF SIGNAL TURN ON, THE EXISTING VIDEO DETECTION CAMERAS AND INTERFACE EQUIPMENT SHALL BECOME PROPERTY OF SHA.
2. ALL REMOVED SIGNAL MATERIALS SHALL BECOME PROPERTY OF THE CONTRACTOR

## PROJECT CONTACTS

THE CONTACT PERSONS FOR SHA ARE AS FOLLOWS:

MS. ERIN KUHN
ASSISTANT DISTRICT ENGINEER - TRAFFIC
PHONE: (410) 229-2381

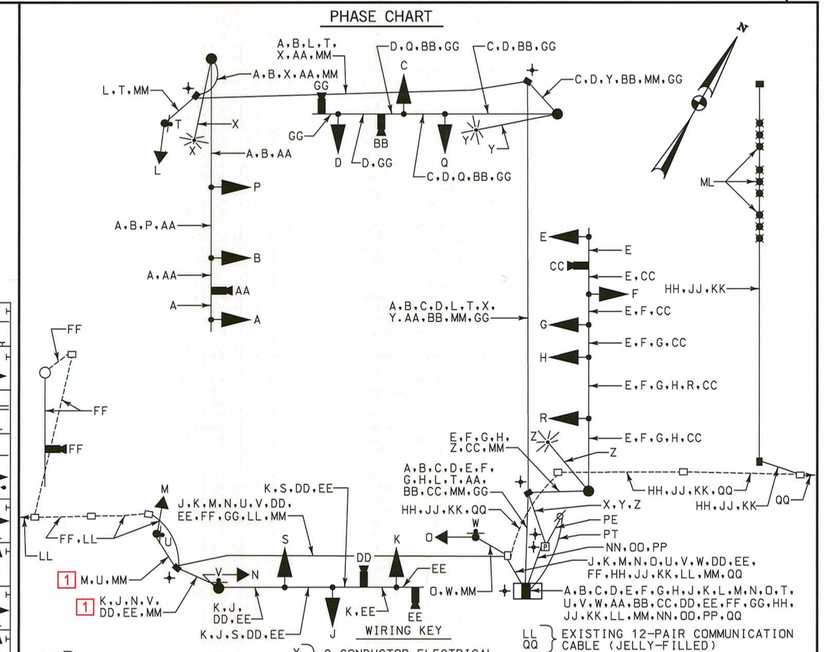
MR. ANDRE FUTRELL
ASSISTANT DISTRICT ENGINEER - MAINTENANCE
PHONE: (410) 229-2361

MR. MIKE PASQUARIELLO
DISTRICT UTILITY ENGINEER
PHONE: (410) 229-2341

MR. ROBERT SYNDER
ASSISTANT CHIEF, TRAFFIC OPERATIONS DIVISION
PHONE: (410) 787-7631

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

## PHASE CHART




A F B G C H D J E K } 7-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)

L P M Q N R O S } 5-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)

T U V W } 2-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)

X Y Z } 2-CONDUCTOR ELECTRICAL CABLE (NO. 12 A.W.G.) - TRAY CABLE

AA BB CC DD EE FF GG } VIDEO CAMERA DETECTION LEAD-IN CABLE

HH JJ KK } MICROLOOP PROBE LEAD-IN

LL QQ } EXISTING 12-PAIR COMMUNICATION CABLE (JELLY-FILLED)

MM } STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)

NN OO PP } 1-CONDUCTOR ELECTRICAL CABLE (NO. 8 A.W.G.)

ML - MICROLOOP PROBE SET

PE - PROPOSED UNDERGROUND ELECTRICAL SERVICE

PT - PROPOSED UNDERGROUND TELEPHONE SERVICE

+ - 3/4 IN. X 10 FT. GROUND ROD

## EQUIPMENT LIST "B"

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

| ITEM NO. | QUANTITY | DESCRIPTION |
|---|---|---|
| 1001 | 3 EACH | MAINTENANCE OF TRAFFIC |
| 2001 | 2 C.Y. | CLASS 2 EXCAVATION |
| 2002 | 8 C.Y. | TEST PIT EXCAVATION |
| 5003 | 400 L.F. | REMOVAL OF EXISTING PERMANENT PAVEMENT LINE MARKINGS - ANY WIDTH |
| 5004 | 355 L.F. | 12 INCH HEAT APPLIED WHITE PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKINGS |
| 5005 | 60 L.F. | 24 INCH HEAT APPLIED WHITE PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKINGS |
| 6001 | 1 340 ~~335~~ L.F. | STANDARD TYPE A COMBINATION CURB AND GUTTER 12 INCH GUTTER PAN 8 INCH DEPTH |
| 6003 | 1 90 ~~90~~ S.F. | DETECTABLE WARNING SURFACES |
| 6002 | 1 1290 ~~1235~~ S.F. | 5 INCH CONCRETE SIDEWALK |
| 8001 | 44 EACH | 12 INCH LED SIGNAL HEAD SECTION |
| 8002 | 1 EACH | 2 WIRE CENTRAL CONTROL UNIT |
| 8004 | 6 EACH | 8 INCH LED SIGNAL HEAD SECTION |
| 8005 | 2 EACH | ADJ EXISTING HANDHOLE TO GRADE INCLUDING COLLAR |
| 8007 | 3 EACH | ANY SIZE LIGHTING ARM ON SIGNAL POLE WITH 250 WATT HPS LAMP & LUMINAIRE |
| 8008 | 4 EACH | AUDIBLE/TACTILE PEDESTRIAN PUSHBUTTON STATION & SIGNS |
| 8009 | 3 EACH | BREAKAWAY PEDESTAL POLE (ANY SIZE) |
| 8012 | 1 EACH | EMBEDDED METERED SERVICE PEDESTAL |
| 8015 | 4 EACH | LED 16 INCH COUNTDOWN PEDESTRIAN SIGNAL HEADS |
| 8019 | 1 EACH | MAST ARM POLE & 60 FT MAST ARM ANY 'T' DIMENSION |
| 8020 | 3 EACH | MAST ARM POLE & 70 FT MAST ARM ANY 'T' DIMENSION |
| 8022 | 3 EACH | NONINVASIVE DETECTOR (ANY LENGTH) LEAD IN CABLE UP TO 1000 FT |
| 8023 | 1 EACH | REM & DISPOSE MAT & EQUIP PER ASSIGN |
| 8028 | 7 EACH | VIDEO DETECTION CAMERA & CABLE ANY LENGTH |
| 8033 | 360 L.F. | DISCONNECT, PULL-BACK & REROUTE CABLES |
| 8034 | 650 L.F. | ELECTRICAL CABLE - 2 CONDUCTOR (NO. 12 AWG) TC |
| 8036 | 100 L.F. | SCHEDULE 80 RIGID PVC CONDUIT UP TO 4 INCHES - BORED |
| 8037 | 270 L.F. | SCHEDULE 80 RIGID PVC CONDUIT UP TO 4 INCHES - SLOTTED |
| 8038 | 265 L.F. | SCHEDULE 80 RIGID PVC CONDUIT UP TO 4 INCHES - TRENCHED |
| 8040 | 148 S.F. | INSTALL OVERHEAD OR GROUND MOUNTED SIGN (INCLUDING ALL HARDWARE) |
| 8042 | 505 L.F. | NO. 6 AWG STRANDED BARE COPPER GROUND WIRE |
| 8045 | 100 L.F. | ELECTRICAL CABLE 1-CONDUCTOR NO. 8 AWG - THHN/THWN |
| 8046 | 4 EACH | FURNISH AND INSTALL ELECTRICAL HANDHOLE |
| 8051 | 1 EACH | CUT, CLEAN, GALVANIZE AND CAP TRAFFIC SIGNAL STRUCTURE |
| 8053 | 675 L.F. | ELECTRICAL CABLE - 2 CONDUCTOR (NO. 14 AWG) |
| 8055 | 805 L.F. | ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 AWG) |
| 8056 | 2250 L.F. | ELECTRICAL CABLE - 7 CONDUCTOR (NO. 14 AWG) |
| 8062 | 1 EACH | INSTALL CONTROLLER AND CABINET - BASE MOUNT (ANY SIZE) |

7-9-12
1 REDLINE REVISION NO. 1
REVISED QUANTITIES AND
WIRING DIAGRAM 7/02/2012

SHA
STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF TRAFFIC & SAFETY
TRAFFIC ENGINEERING DESIGN DIVISION
US 1 and Rossville Boulevard
Parkville, Maryland

WR&A
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, Maryland 21231

# GENERAL INFORMATION SHEET

SCALE NONE ADVERTISED DATE 10102011 CONTRACT NO. XX6455185

DESIGNED BY S. Bloss
DRAWN BY S. Bloss
CHECKED BY N. Leary
F.A.P. NO.
COUNTY Baltimore
LOGMILE 03000117.41
TIMS NO. K691
TOD NO.

TS NO. 2325 G | DRAWING TSP-3 OF 3 | SHEET NO. 3 OF 3

PLOTTED: July 03, 2012
FILE: N:\31669-139\CADD\2012.06.29_Greenline1\pSG-N003_K691_GI.1.dgn

BY: sbloss