PROJECT DESCRIPTION

GENERAL

THIS PROJECT INVOLVES THE INSTALLATION OF NEW TRAFFIC CONTROL SIGNALS AT THE INTERSECTIONS OF MD 648 (BALTIMORE ANNAPOLIS BLVD) AND LYNVUE ROAD/I-695 WB OFF-RAMP AND MD 648 (BALTIMORE ANNAPOLIS BLVD) AND I-695 EB OFF-RAMP IN ANNE ARUNDEL COUNTY, MARYLAND. MD 648 IS ASSUMED TO RUN IN A NORTH-SOUTH DIRECTION.

INTERSECTION OPERATION

1. MD 648 (BALTIMORE ANNAPOLIS BLVD) AND LYNVUE ROAD/I-695 WB OFF-RAMP

   THE INTERSECTION WILL OPERATE IN A NEMA SIX-PHASE, FULL-TRAFFIC-ACTUATED MODE WITH THE MD 648 APPROACHES OPERATING CONCURRENTLY AND THE LYNVUE ROAD/I-695 OFF-RAMP APPROACHES OPERATING SPLIT.

   EXCLUSIVE/PERMISSIVE LEFT-TURN PHASING IS PROVIDED FOR NORTHBOUND AND SOUTHBOUND MD 648 APPROACHES.

2. MD 648 (BALTIMORE ANNAPOLIS BLVD) AND I-695 EB OFF-RAMP

   THE INTERSECTION WILL OPERATE IN A NEMA FOUR-PHASE, FULL-TRAFFIC-ACTUATED MODE WITH THE MD 648 APPROACHES OPERATING CONCURRENTLY AND THE I-695 OFF-RAMP APPROACHES OPERATING ALONE.

   EXCLUSIVE/PERMISSIVE LEFT-TURN PHASING IS PROVIDED FOR THE SOUTHBOUND MD 648 APPROACH.

CONTROLLER REQUIREMENTS

1. MD 648 (BALTIMORE ANNAPOLIS BLVD) AND LYNVUE ROAD/I-695 WB OFF-RAMP

   INSTALL A FULL-TRAFFIC-ACTUATED, EIGHT-PHASE CONTROLLER WITH VIDEO INTERFACE EQUIPMENT (1-4) CAMERAS, ONE (1) FOUR-CHANNEL, TIME-DELAY-OUTPUT LOOP DETECTOR AMPLIFIERS WITH SYSTEM PACKAGE, MASTER CONTROLLER WITH TELEMETRY AND INTERSECTION MONITOR WITH BATTERY BACKUP FOR PHONE DROP AND ASSOCIATED HARNESSES HOUSED IN A NEMA SIZE "S" BASE MOUNTED CABINET. [1]

2. MD 648 (BALTIMORE ANNAPOLIS BLVD) AND I-695 EB OFF-RAMP

   INSTALL A FULL-TRAFFIC-ACTUATED, EIGHT-PHASE CONTROLLER WITH ONE (1) FOUR-CHANNEL, TIME-DELAY-OUTPUT LOOP DETECTOR AMPLIFIERS, SYSTEM PACKAGE, VIDEO INTERFACE EQUIPMENT (1-4 CAMERAS), INTERSECTION MONITOR WITH BATTERY BACKUP FOR PHONE DROP AND ASSOCIATED HARNESSES HOUSED IN A NEMA SIZE "S" BASE [1] MOUNTED CABINET.

PHONE DROP

UPON COMPLETION OF THIS PROJECT, THE CONTRACTOR SHALL NOTIFY MR. ROBERT SNYDER OF SHA AT (410) 787-7635 TO ARRANGE FOR THE PHONE LINE INSTALLATION. THE CONTRACTOR IS TO PROVIDE MR. SNYDER THE NEAREST STREET ADDRESS, ZIP CODE, AND PHONE NUMBER.

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-104.04-01 (SHOULDER WORK)
STANDARD NO. MD-104.04-03 (LEFT LANE CLOSURE)
STANDARD NO. MD-104.04-05 (RIGHT LANE CLOSURE)
STANDARD NO. MD-104.02-09 (FLAGGING OPERATION)
STANDARD NO. MD-104.04-13 (LEFT TURN BAY CLOSURE)

PROJECT CONTACTS

THE CONTACT PERSONS FOR SHA ARE AS FOLLOWS:

MS. KIMBERLY TRAN
ASSISTANT DISTRICT ENGINEER - TRAFFIC
PHONE: (410) 841-1019

MR. JOHN S. MAYS
ASSISTANT DISTRICT ENGINEER - MAINTENANCE
PHONE: (410) 841-1013

MR. MIKE HUBER
DISTRICT UTILITY ENGINEER
PHONE: (410) 841-1039

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

EQUIPMENT LIST "A"

A. EQUIPMENT TO BE SUPPLIED BY THE SHA

ITEM NO.	QUANTITY	DESCRIPTION
[1] 9000	2 EACH	EIGHT-PHASE, FULL-TRAFFIC-ACTUATED ASC III CONTROLLER
[1] 9000	2 EACH	NEMA SIZE "S" BASE MOUNTED CABINET WITH INTERSECTION MONITOR
[1] 9000	2 EACH	UNINTERRUPTABLE POWER SUPPLY
[1] 9000	2 EACH	UPS BATTERIES (6 BATTERY BANK)
[1] 9000	2 EACH	UPS BYPASS SWITCH
9000	3 EACH	QUICK CONNECT BLOCK AND HARNESS FOR TELEMETRY INTERFACE PANEL
9016	5 EACH	FOUR-CHANNEL, TIME-DELAY-OUTPUT, LOOP DETECTOR AMPLIFIER
[1] ~~9044~~	~~1 EACH~~	~~EIGHT-PHASE, FULL-TRAFFIC-ACTUATED CONTROLLER WITH INTERSECTION MONITOR HOUSED IN A NEMA SIZE "S" BASE MOUNTED CABINET~~
9045	1 EACH	CONTROLLER, MASTER ASC 10,000 WITH TELEMETRY
9046	1 EACH	RETRO FIT DETECTOR RACK
9570	185 S.F.	SHEET ALUMINUM SIGNS TO CONSIST OF (GROUND MOUNT) :
	- 6 EACH	W3-3 SIGN (48 IN. x 48 IN.) WITH "NEW" PANEL (24 IN. x 24 IN.) AND FLAG - GROUND MOUNT
	- 1 EACH	D3 - (2) "I-695" SIGN (VAR. x 16 IN.) - GROUND MOUNT
	- 2 EACH	D3 - (2) "LYNVUE RD/I-695" SIGN (VAR. x 32 IN.) - GROUND MOUNT
	- 1 EACH	M1-5(6) ASSOCIATED SHIELD ASSEMBLY "NORTH, MD , RIGHT ARROW" (30 IN. x 48 IN.) - GROUND MOUNT
9571	160 S.F.	SHEET ALUMINUM SIGNS TO CONSIST OF (POLE MOUNT) :
	- 3 EACH	D-3(1) SIGN (VARIABLE x 16 IN.) DUAL FACED - MAST ARM MOUNT
	- 2 EACH	D-3(1) SIGN (VARIABLE x 16 IN.) - MAST ARM MOUNT
	- 1 EACH	R3-1 SIGN (30 IN. x 30 IN.) - MAST ARM MOUNT
	- 1 EACH	R3-2 SIGN (30 IN. x 30 IN.) - MAST ARM MOUNT
	- 1 EACH	M1-5(6)ASSOCIATED SHIELD ASSEMBLY "SOUTH, MD , LEFT ARROW" (48 IN. x 72 IN.) - POLE MOUNT
	- 1 EACH	M1-5(6)ASSOCIATED SHIELD ASSEMBLY "SOUTH, MD , RIGHT ARROW" (30 IN. x 48 IN.) - POLE MOUNT
	- 1 EACH	M1-5(6) ASSOCIATED SHIELD ASSEMBLY "NORTH, MD , LEFT ARROW" (48 IN. x 72 IN.) - POLE MOUNT

EQUIPMENT LIST "C"

C. EQUIPMENT TO BE REMOVED AND RETURNED TO SHA

ALL REMOVED SIGNAL MATERIALS SHALL BECOME PROPERTY OF THE CONTRACTOR

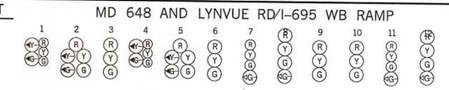
EQUIPMENT LIST "B"

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

ITEM NO.	QUANTITY	DESCRIPTION
1001	3 EACH	MAINTENANCE OF TRAFFIC
2002	11 C.Y.	TEST PIT EXCAVATION
5002	190 L.F.	5 INCH HEAT APPLIED WHT OR YEL PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKING
5003	120 L.F.	REMOVAL OF EXISTING PERMANENT PAVEMENT LINE MARKINGS - ANY WIDTH
5005	260 L.F.	24 INCH HEAT APPLIED WHITE PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKINGS
6002	325 S.F.	5 INCH CONCRETE SIDEWALK
8001	58 EACH	12 INCH LED SIGNAL HEAD SECTION
8004	18 EACH	8 INCH LED SIGNAL HEAD SECTION
8007	4 EACH	ANY SIZE LIGHTING ARM ON SIGNAL POLE WITH 250 WATT HPS LAMP & LUMINAIRE
8010	2 EACH	CLASS II WOOD POLE WITH 2 DOWN GUYS
8012	2 EACH	EMBEDDED METERED SERVICE PEDESTAL
8017	1 EACH	MAST ARM POLE & 38 FT MAST ARM ANY 'T' DIMENSION
8018	1 EACH	MAST ARM POLE & 50 FT MAST ARM ANY 'T' DIMENSION
8019	1 EACH	MAST ARM POLE & 60 FT MAST ARM ANY 'T' DIMENSION
8022	8 EACH	NONINVASIVE DETECTOR (ANY LENGTH) LEAD IN CABLE UP TO 1000 FT
8023	2 EACH	REM & DISPOSE MAT & EQUIP PER ASSIGN
8025	2 EACH	TWIN MAST ARM POLE & 50 FT/60 FT MAST ARMS ANY 'T' DIMENSION
8028	6 EACH	VIDEO DETECTION CAMERA & CABLE UP TO 500 FT
8029	25 L.F.	1 INCH DETECTOR SLEEVE GALVANIZED OR FLEXIBLE LIQUID TIGHT
8031	4300 L.F.	12 - PAIR COMMUNICATION CABLE, SELF-SUPPORTING OR JELLYFILLED
8034	740 L.F.	ELECTRICAL CABLE - 2 CONDUCTOR (NO. 12 AWG) TC
8036	805 L.F.	SCHEDULE 80 RIGID PVC CONDUIT UP TO 4 INCHES - BORED
8037	50 L.F.	SCHEDULE 80 RIGID PVC CONDUIT UP TO 4 INCHES - SLOTTED
8038	2510 L.F.	SCHEDULE 80 RIGID PVC CONDUIT UP TO 4 INCHES - TRENCHED
8039	291 L.F.	WOOD SIGN SUPPORTS UP TO 4 X 6
8040	352 S.F.	INSTALL OVERHEAD OR GROUND MOUNTED SIGN (INCLUDING ALL HARDWARE)
8042	525 L.F.	NO. 6 AWG STRANDED BARE COPPER GROUND WIRE
8045	185 L.F.	ELECTRICAL CABLE 1-CONDUCTOR NO. 8 AWG - THHN/THWN
8046	26 EACH	FURNISH AND INSTALL ELECTRICAL HANDHOLE
8050	65 L.F.	3 INCH ELECTRICAL CONDUIT-PVC RISER
8051	4 EACH	CUT, CLEAN, GALVANIZE AND CAP TRAFFIC SIGNAL STRUCTURE
8052	800 L.F.	ELECTRICAL CABLE - 2 CONDUCTOR (ALUMINUM SHIELDED)
8055	640 L.F.	ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 AWG)
8056	1825 L.F.	ELECTRICAL CABLE - 7 CONDUCTOR (NO. 14 AWG)
8057	500 L.F.	LOOP WIRE ENCASED IN FLEXIBLE TUBING (NO. 14 AWG)
8058	165 L.F.	SAW CUT FOR SIGNAL (LOOP DETECTOR)
8060	460 L.F.	STEEL SPAN WIRE - 3/8 INCH DIAMETER
8062	2 EACH	INSTALL CONTROLLER AND CABINET - BASE MOUNT

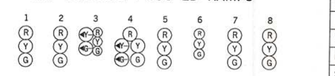
PHASE CHART

MD 648 AND LYNVUE RD/I-695 WB RAMP



	1	2	3	4	5	6	7	9	10	11
PHASE 1 AND 5	R ←G-	←G-	R	R ←G-	←G-	R	R	R	R	R	R	R
1 AND 5 CHANGE	PHASE 1 + 5 MAY CHANGE TO PHASE 1 + 6, PHASE 2 + 5 OR PHASE 2 + 6											
PHASE 1 + 6	R	R	R	G ←G-	G ←G-	G	R	R	R	R	R	R
1 + 6 CHANGE	R	R	R	G ←Y-	G ←Y-	G	R	R	R	R	R	R
PHASE 2 + 5	G ←G-	G ←G-	G	R	R	R	R	R	R	R	R	R
2 + 5 CHANGE	G ←Y-	G ←Y-	G	R	R	R	R	R	R	R	R	R
PHASE 2 + 6	G	G	G	G	G	G	R	R	R	R	R	R
2 + 6 CHANGE	Y	Y	Y	Y	Y	Y	R	R	R	R	R	R
PHASE 3	R	R	R	R	R	R	G ←G-	G ←G-	R	R	G	G
3 CHANGE	R	R	R	R	R	R	Y	Y	R	R	Y	Y
PHASE 4	R	R	R	R	R	R	R	R	G ←G-	G ←G-	G	G
4 CHANGE	R	R	R	R	R	R	R	R	Y	Y	Y	Y
FLASHING OPERATION	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/R	FL/R	FL/R	FL/R	FL/R	FL/R	FL/R

MD 648 AND I-695 EB RAMPS



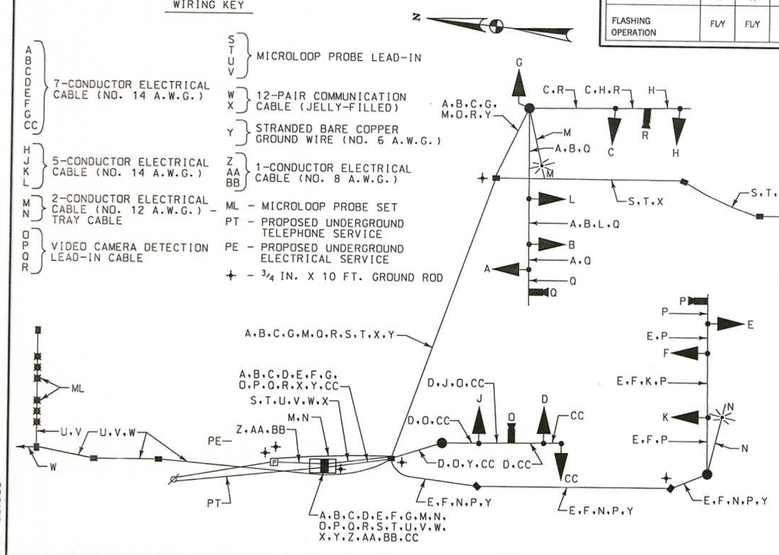
	1	2	3	4	5	6	7	8
PHASE 1 + 6	R	R	G ←G-	G ←G-	G	R	R	R
1 + 6 CHANGE	PHASE 1 + 6 MAY CHANGE TO PHASE 2 + 6							
PHASE 2 + 6	G	G	G	G	G	R	R	R
2 + 6 CHANGE	Y	Y	Y	Y	Y	R	R	R
PHASE 4	R	R	R	R	R	G	G	G
4 CHANGE	R	R	R	R	R	Y	Y	Y
FLASHING OPERATION	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/R	FL/R	FL/R

WIRING DIAGRAMS

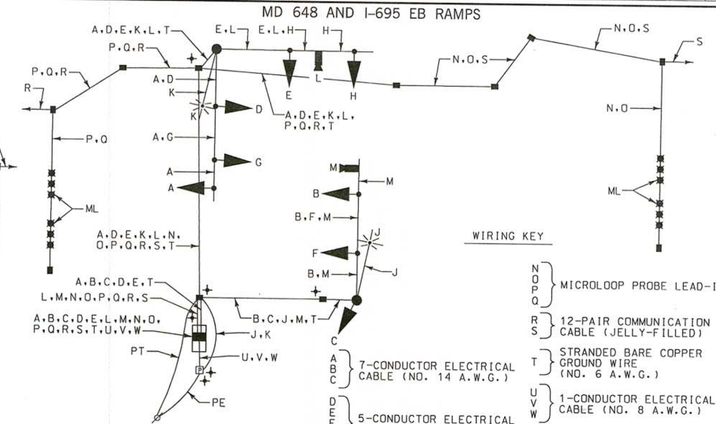
MD 648 AND LYNVUE RD/I-695 WB RAMP

WIRING KEY

- A B C D E F G CC — 7-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
- H J K L — 5-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
- M N — 2-CONDUCTOR ELECTRICAL CABLE (NO. 12 A.W.G.) - TRAY CABLE
- O P Q R — VIDEO CAMERA DETECTION LEAD-IN CABLE
- S T U V — MICROLOOP PROBE LEAD-IN
- W X — 12-PAIR COMMUNICATION CABLE (JELLY-FILLED)
- Y — STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)
- Z AA BB — 1-CONDUCTOR ELECTRICAL CABLE (NO. 8 A.W.G.)
- ML - MICROLOOP PROBE SET
- PT - PROPOSED UNDERGROUND TELEPHONE SERVICE
- PE - PROPOSED UNDERGROUND ELECTRICAL SERVICE
- ⏚ - 3/4 IN. X 10 FT. GROUND ROD



MD 648 AND I-695 EB RAMPS



WIRING KEY

- N O P Q — MICROLOOP PROBE LEAD-IN
- R S — 12-PAIR COMMUNICATION CABLE (JELLY-FILLED)
- T — STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)
- U V W — 1-CONDUCTOR ELECTRICAL CABLE (NO. 8 A.W.G.)
- A B C — 7-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
- D E F G H — 5-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
- J K — 2-CONDUCTOR ELECTRICAL CABLE (NO. 12 A.W.G.) - TRAY CABLE
- L M — VIDEO CAMERA DETECTION LEAD-IN CABLE
- ML - MICROLOOP PROBE SET
- PT - PROPOSED UNDERGROUND TELEPHONE SERVICE
- PE - PROPOSED UNDERGROUND ELECTRICAL SERVICE
- ⏚ - 3/4 IN. X 10 FT. GROUND ROD

[1] REDLINE REVISION NO. 1
REVISED QUANTITIES
11/2/2011

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

MD 648 Signals
Linthicum Heights, Maryland

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

GENERAL INFORMATION SHEET

SCALE NONE ADVERTISED DATE 9/7/2011 CONTRACT NO. XX6475185

DESIGNED BY S. Bloss
DRAWN BY S. Bloss
CHECKED BY N. Leary
F.A.P. NO.
COUNTY Anne Arundel
LOGMILE
TIMS NO. K562
TOD NO.

TS NO. | DRAWING TSP-3 OF 3 | SHEET NO. 6 OF 6

PLOTTED: November 02, 2011
FILE: N:\31669-150\CADD\Redline 1\pSG-N006_K562-RL1.dgn

BY: sbloss