PROJECT DESCRIPTION

GENERAL

THIS PROJECT INVOLVES THE RECONSTRUCTION OF THE EXISTING TRAFFIC CONTROL SIGNAL AT THE INTERSECTION OF MD 2 (RITCHIE HIGHWAY) AND 16TH AVENUE IN ANNE ARUNDEL COUNTY, MARYLAND. MD 2 IS ASSUMED TO RUN IN A NORTH-SOUTH DIRECTION.

INTERSECTION OPERATION

THE INTERSECTION WILL OPERATE IN A NEMA SIX-PHASE, FULL-TRAFFIC-ACTUATED MODE WITH THE MD 2 APPROACHES OPERATING CONCURRENTLY AND THE 16TH AVENUE/SHOPPING CENTER ENTRANCE APPROACHES OPERATING CONCURRENTLY.

EXCLUSIVE/PERMISSIVE LEFT-TURN PHASING IS PROVIDED FOR NORTHBOUND AND SOUTHBOUND MD 2 APPROACHES.

AN ALTERNATE PEDESTRIAN PHASE IS PROVIDED ACROSS MD 2 AND PEDESTRIAN INDICATIONS ARE PROVIDED ACROSS 16TH AVENUE AND THE SHOPPING CENTER ENTRANCE.

TYPICAL MESSAGES FOR ACCESSIBLE PED SIGNALS

MD 2 (RITCHIE HIGHWAY) AND 16TH AVENUE - NORTH LEG

STREETS AT 90 DEGREES

WAIT: "WAIT TO CROSS RITCHIE AT 16TH. WAIT." *

WALK: RAPID TICK

16TH AVENUE AND MD 2 (RITCHIE HIGHWAY) - WEST LEG

STREETS AT 90 DEGREES

WAIT: "WAIT TO CROSS 16TH AT RITCHIE. WAIT." *

WALK: RAPID TICK

SHOPPING CENTER ENTRANCE AND MD 2 (RITCHIE HIGHWAY) - EAST LEG

STREETS AT 90 DEGREES

WAIT: "WAIT TO CROSS SHOPPING CENTER AT RITCHIE. 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 SYSTEM PACKAGE, VIDEO INTERFACE EQUIPMENT (1-8 CAMERAS), INTERSECTION MONITOR WITH BATTERY BACKUP FOR PHONE DROP AND ASSOCIATED HARNESSES HOUSED IN A NEMA SIZE "S" BASE 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-104.02-13 (INTERSECTION FLAGGING OPERATION)

PROJECT CONTACTS

THE CONTACT PERSONS FOR SHA ARE AS FOLLOWS:

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

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

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

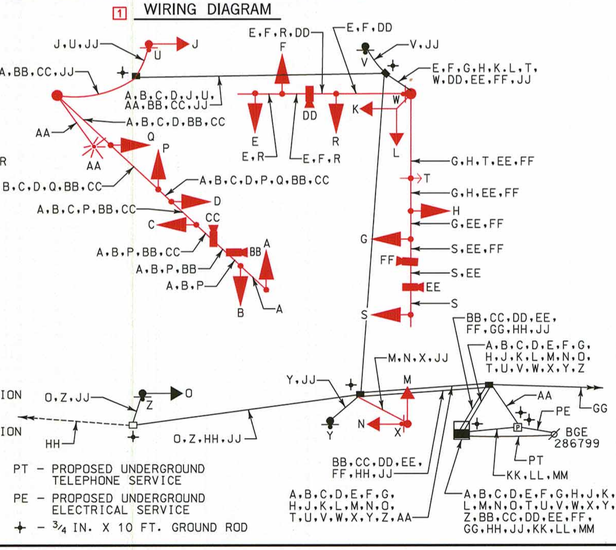
MR. RICHARD L. DAFF, SR.
CHIEF, TRAFFIC OPERATIONS DIVISION
PHONE: (410) 787-7630

WIRING KEY

- A, B, C, D — 7-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
- E, F, G, H — 7-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
- J, K, L, M, N — 5-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
- O, P, Q, R, S — 5-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
- T — 4-CONDUCTOR OPTICOM DETECTOR CABLE (NO. 14 A.W.G.)
- U, V, W, X, Y, Z — 2-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
- AA — 2-CONDUCTOR ELECTRICAL CABLE (NO. 12 A.W.G.) - TRAY CABLE
- BB, CC, DD, EE, FF — VIDEO CAMERA DETECTION LEAD-IN CABLE
- GG — EXISTING 12-PAIR COMMUNICATION CABLE (JELLY-FILLED)
- HH — PROPOSED 12-PAIR COMMUNICATION CABLE (JELLY-FILLED)
- JJ — STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)
- KK, LL, MM — 1-CONDUCTOR ELECTRICAL CABLE (NO. 8 A.W.G.)

PT - PROPOSED UNDERGROUND TELEPHONE SERVICE
PE - PROPOSED UNDERGROUND ELECTRICAL SERVICE
⏚ - 3/4 IN. X 10 FT. GROUND ROD

1 WIRING DIAGRAM



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	1 8 ~~7~~ C.Y.	TEST PIT EXCAVATION
5001	5 EACH	REMOVAL OF EXISTING PERMANENT PAVEMENT MARKING LETTERS, SYMBOLS, ARROWS AND NUMBERS
5002	85 L.F.	5 INCH HEAT APPLIED WHT OR YEL PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKING
5003	765 L.F.	REMOVAL OF EXISTING PERMANENT PAVEMENT LINE MARKINGS - ANY WIDTH
5004	770 L.F.	12 INCH HEAT APPLIED WHITE PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKINGS
5005	80 L.F.	24 INCH HEAT APPLIED WHITE PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKINGS
6001	1 285 ~~270~~ L.F.	STANDARD TYPE A COMBINATION CURB AND GUTTER 12 INCH GUTTER PAN 8 INCH DEPTH
6002	1 1085 ~~975~~ S.F.	5 INCH CONCRETE SIDEWALK
6003	68 S.F.	DETECTABLE WARNING SURFACES
8001	1 38 ~~32~~ 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	1 EACH	ADJUST HANDHOLE TO GRADE WITH NEW FRAME AND COVER
8007	1 EACH	ANY SIZE LIGHTING ARM ON SIGNAL POLE WITH 250 WATT HPS LAMP & LUMINAIRE
8008	6 EACH	AUDIBLE/TACTILE PEDESTRIAN PUSHBUTTON STATION & SIGNS
8009	4 EACH	BREAKAWAY PEDESTAL POLE (ANY SIZE)
8012	1 EACH	EMBEDDED METERED SERVICE PEDESTAL
8015	6 EACH	LED 16 INCH COUNTDOWN PEDESTRIAN SIGNAL HEADS
1 8020	1 EACH	MAST ARM POLE & 70' MAST ARM ANY 'T' DIMENSION
8023	1 EACH	REM & DISPOSE MAT & EQUIP PER ASSIGN
~~1 8024~~	~~1 EACH~~	~~TWIN MAST ARM POLE & 50 FT/50 FT MAST ARMS ANY 'T' DIMENSION~~
~~1 8025~~	~~1 EACH~~	~~TWIN MAST ARM POLE & 50 FT/60 FT MAST ARMS ANY 'T' DIMENSION~~
1 8026	1 EACH	TWIN MAST ARM POLE & 50 FT/70 FT MAST ARMS ANY 'T' DIMENSION
8028	5 EACH	VIDEO DETECTION CAMERA & CABLE UP TO 500 FT
8031	780 L.F.	12 - PAIR COMMUNICATION CABLE, SELF-SUPPORTING OR JELLYFILLED
8032	1 235 ~~125~~ L.F.	FURNISH AND INSTALL 4 CONDUCTOR OPTICOM CABLE
8033	200 L.F.	DISCONNECT, PULL-BACK & REROUTE CABLES
8034	1 290 ~~270~~ L.F.	ELECTRICAL CABLE - 2 CONDUCTOR (NO. 12 AWG) TC
8037	175 L.F.	SCHEDULE 80 RIGID PVC CONDUIT UP TO 4 INCHES - SLOTTED
8038	1 355 ~~330~~ L.F.	SCHEDULE 80 RIGID PVC CONDUIT UP TO 4 INCHES - TRENCHED
8039	1 32 ~~47~~ L.F.	WOOD SIGN SUPPORTS UP TO 4 X 6
8040	1 94 ~~116~~ S.F.	INSTALL OVERHEAD OR GROUND MOUNTED SIGN (INCLUDING ALL HARDWARE)
8042	1 400 ~~380~~ L.F.	NO. 6 AWG STRANDED BARE COPPER GROUND WIRE
8045	85 L.F.	ELECTRICAL CABLE 1-CONDUCTOR NO. 8 AWG - THHN/THWN
8046	4 EACH	FURNISH AND INSTALL ELECTRICAL HANDHOLE
8047	1 EACH	DISCRIMINATOR MODULE, 4 CHANNEL, NO. 764
8049	1 EACH	OPTICOM NO. 721 DETECTOR EYE
8051	1 EACH	CUT, CLEAN, GALVANIZE AND CAP TRAFFIC SIGNAL STRUCTURE
8053	1 900 ~~865~~ L.F.	ELECTRICAL CABLE - 2 CONDUCTOR (NO. 14 AWG)
8055	1 1035 ~~980~~ L.F.	ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 AWG)
8056	1 2360 ~~1270~~ L.F.	ELECTRICAL CABLE - 7 CONDUCTOR (NO. 14 AWG)
8062	1 EACH	INSTALL CONTROLLER AND CABINET - BASE MOUNT

1 REDLINE REVISION NO. 1
REVISED QUANTITIES, WIRING DIAGRAM AND PHASE CHART
8/10/2012

EQUIPMENT LIST "A"

A. EQUIPMENT TO BE SUPPLIED BY THE SHA

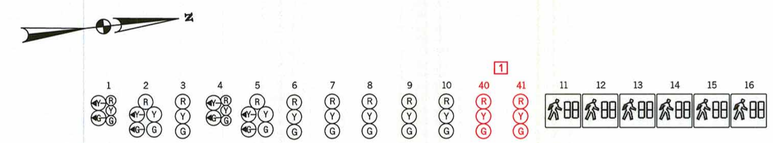
ITEM NO.	QUANTITY	DESCRIPTION
9000	1 EACH	EIGHT-PHASE, FULL-TRAFFIC-ACTUATED ASC III CONTROLLER
9000	1 EACH	NEMA SIZE "S" BASE MOUNTED CABINET WITH INTERSECTION MONITOR WITH VIDEO INTERFACE EQUIPMENT: 1-8 CAMERAS
9570	8 S.F.	SHEET ALUMINUM SIGNS TO CONSIST OF (GROUND MOUNT) :
		- 1 EACH M2-1 SIGN (21 IN. x 15 IN.) - GROUND MOUNT
		- 1 EACH M1-5 SIGN (30 IN. x 24 IN.) - GROUND MOUNT
9571	68 S.F.	SHEET ALUMINUM SIGNS TO CONSIST OF (POLE MOUNT) :
		- 2 EACH D-3(1) SIGN (VARIABLE x 16 IN.) DUAL FACED - MAST ARM MOUNT
		- 2 EACH M1-5(4) (78 IN. x 36 IN.) - MAST ARM MOUNT
		- 2 EACH R10-3(1) SIGN (9 IN. x 15 IN.) TO READ "PUSHBUTTON TO CROSS RITCHIE HIGHWAY"
		- 2 EACH R10-3(1) SIGN (9 IN. x 15 IN.) TO READ "PUSHBUTTON TO CROSS 16TH AVENUE"
		- 2 EACH R10-3(1) SIGN (9 IN. x 15 IN.) TO READ "PUSHBUTTON TO CROSS SHOPPING CENTER"

EQUIPMENT LIST "C"

C. EQUIPMENT TO BE REMOVED AND RETURNED TO SHA

SHA 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	40	41	11	12	13	14	15	16
PHASE 1 AND 5	R ←G—	R ←G—	R	R ←G—	R ←G—	R	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
1 AND 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—	G	R	R	R	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
1 + 6 CHANGE	G ←Y—	G ←Y—	G	R	R	R	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
PHASE 2 + 5	R	R	R	G ←G—	G ←G—	G	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
2 + 5 CHANGE	R	R	R	G ←Y—	G ←Y—	G	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
PHASE 2 + 6	G	G	G	G	G	G	R	R	R	R	R	R	WK	WK	WK	WK	DW	DW
PED CLEARANCE	G	G	G	G	G	G	R	R	R	R	R	R	FL/DW	FL/DW	FL/DW	FL/DW	DW	DW
2 + 6 CHANGE	Y	Y	Y	Y	Y	Y	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
PHASE 4 + 8	R	R	R	R	R	R	G	G	G	G	G	G	DW	DW	DW	DW	DW	DW
4 + 8 CHANGE	R	R	R	R	R	R	Y	Y	Y	Y	Y	Y	DW	DW	DW	DW	DW	DW
PHASE 4 + 8 ALT	R	R	R	R	R	R	G	G	G	G	G	G	DW	DW	DW	DW	WK	WK
PED CLEARANCE	R	R	R	R	R	R	G	G	G	G	G	G	DW	DW	DW	DW	FL/DW	FL/DW
4 + 8 ALT CHANGE	R	R	R	R	R	R	Y	Y	Y	Y	Y	Y	DW	DW	DW	DW	DW	DW
EMERGENCY PRE-EMPTION 1	G	G	G	G	G	G	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
	Y	Y	Y	Y	Y	Y	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
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	DARK	DARK	DARK	DARK	DARK

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

MD 2 (Ritchie Highway) and 16TH Avenue

Brooklyn Park, MD

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

GENERAL INFORMATION SHEET

SCALE NONE — DATE 4/30/2012 — CONTRACT NO. XX6475185

DESIGNED BY S. Bloss — COUNTY Anne Arundel
DRAWN BY S. Bloss — LOGMILE
CHECKED BY N. Leary — TIMS NO. L201
F.A.P. NO. — TOD NO.

TS NO. 2105C — DRAWING TSP-4 OF 4 — SHEET NO. 4 OF 4

PLOTTED: August 14, 2012
FILE: N:\31669-207\CADD\Redline1_2012.08\pSG-N004_L201_RL1.dgn

BY: sbloss