

PROJECT DESCRIPTION
GENERAL
THIS PROJECT INVOLVES THE RECONSTRUCTION OF THE EXISTING TRAFFIC SIGNAL AT THE INTERSECTION OF MD 404 AT LEGION ROAD IN CAROLINE COUNTY. MD 404 IS CONSIDERED TO RUN IN AN EAST/WEST DIRECTION.

INTERSECTION OPERATION
A CONTROLLER HOUSED IN A BASE MOUNTED CABINET SHALL BE INSTALLED AT THIS LOCATION. THE INTERSECTION WILL OPERATE IN A FULLY ACTUATED MODE USING 8 NEMA PHASES. THERE WILL BE EXCLUSIVE LEFT TURN PHASES FOR BOTH THE EAST AND WESTBOUND MOVEMENTS OF MD 404. THE MD 404 THROUGH MOVEMENTS WILL OPERATE CONCURRENTLY WITH AN ACTUATED PEDESTRIAN MOVEMENT ACROSS THE NORTH LEG OF THE INTERSECTION. THERE WILL BE EXCLUSIVE/PERMISSIVE LEFT TURN PHASES FOR BOTH THE NORTH AND SOUTHBOUND MOVEMENTS OF LEGION ROAD. THE LEGION ROAD THROUGH MOVEMENTS WILL OPERATE CONCURRENTLY.

THE EXISTING INTERSECTION LIGHTING POLES, ELECTRICAL SERVICE, AND CABLES ARE TO BE REMOVED. NEW INTERSECTION LIGHTING IS TO BE PROVIDED ON THE NEW TRAFFIC SIGNAL POLES.

ALL INTERNAL CABINET WIRING SHALL BE PERFORMED BY THE SHA SIGNAL SHOP. CONTRACTOR SHALL CONTACT ED RODENHIZER 72 HOURS PRIOR TO CONSTRUCTION.

THE CONTRACTOR SHALL NOTIFY MR. ROBERT SNYDER OF SHA AT 410-787-7635 TO ARRANGE FOR THE PHONE DROP INSTALLATION. THE CONTRACTOR IS TO PROVIDE MR. SNYDER WITH THE NEAREST STREET NUMBER, ZIP CODE, AND TELEPHONE NUMBER.

EQUIPMENT LIST

- A. EQUIPMENT TO BE SUPPLIED BY THE ADMINISTRATION.
NONE.
- B. EQUIPMENT TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR.

QUANTITY	ea/TS	DESCRIPTION
LUMP SUM	LS	MAINTENANCE OF TRAFFIC
LUMP SUM	LS	MOBILIZATION
1	EA	27 FT. STEEL MAST ARM POLE WITH 60 FT. MAST ARM
2	EA	27 FT. STEEL MAST ARM POLE WITH 70 FT. MAST ARM
1	EA	14 FT. STEEL POLE WITH BREAK-AWAY TRANSFORMER BASE
1	EA	STANDARD S.H.A. TRAFFIC SIGNAL CONTROLLER, BASE MOUNTED NEMA "S" CABINET, WITH UPS EQUIPMENT, VIDEO DETECTION INTERFACE, TELEMETRY INTERFACE EQUIPMENT, AND ONE (1) FOUR-CHANNEL LOOP DETECTOR AMPLIFIER (NOT A CONTROLLER AND CABINET SHALL BE PURCHASED FROM ECONOLITE. APS CONTROL UNIT & AUDIBLE PUSHBUTTON SHALL BE DELIVERED TO THE S.H.A. SIGNAL SHOP FOR WIRING AND TESTING. CONTACT MR. ED RODENHIZER (410) 787-7650]
4	EA	TERRA VIDEO DETECTOR CAMERA
900	LF	TERRA VIDEO DETECTOR CAMERA CABLE
4	EA	NON-INVASIVE PROBE (SET OF 3) WITH 1000 FT. LEAD-IN CABLE
6	EA	12 IN. 3-SECTION LED SIGNAL HEAD - MAST ARM
2	EA	12 IN. 3-SECTION LED SIGNAL HEAD (RA,YA,GA) - MAST ARM
2	EA	12 IN. 3-SECTION LED SIGNAL HEAD (RA,YA,GA) - SIDE POLE
2	EA	12 IN. 5-SECTION LED SIGNAL HEAD - MAST ARM
2	EA	12 IN. 5-SECTION LED SIGNAL HEAD - SIDE POLE
4	EA	20 IN. X VAR. D-3(1) SIGN - MAST ARM
2	EA	60 IN. X 48 IN. SHIELD ASSEMBLY -GROUND MOUNT
2	EA	96 IN. X 72 IN. SHIELD ASSEMBLY -GROUND MOUNT
2	EA	20 FT. LUMINAIRE ARM
3	EA	250W HPS LAMP AND LUMINAIRE
7	EA	TEST PIT EXCAVATION
15	EA	HANDHOLE
30	LF	1-CONDUCTOR CABLE (NO. 8 AWG)
1	EA	10 FT. LUMINAIRE ARM

GENERAL NOTES

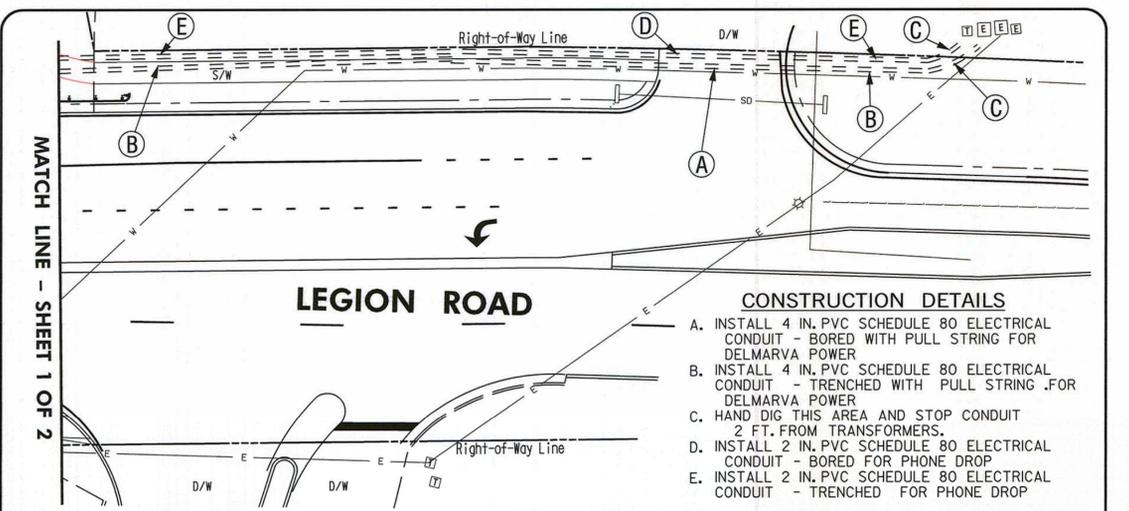
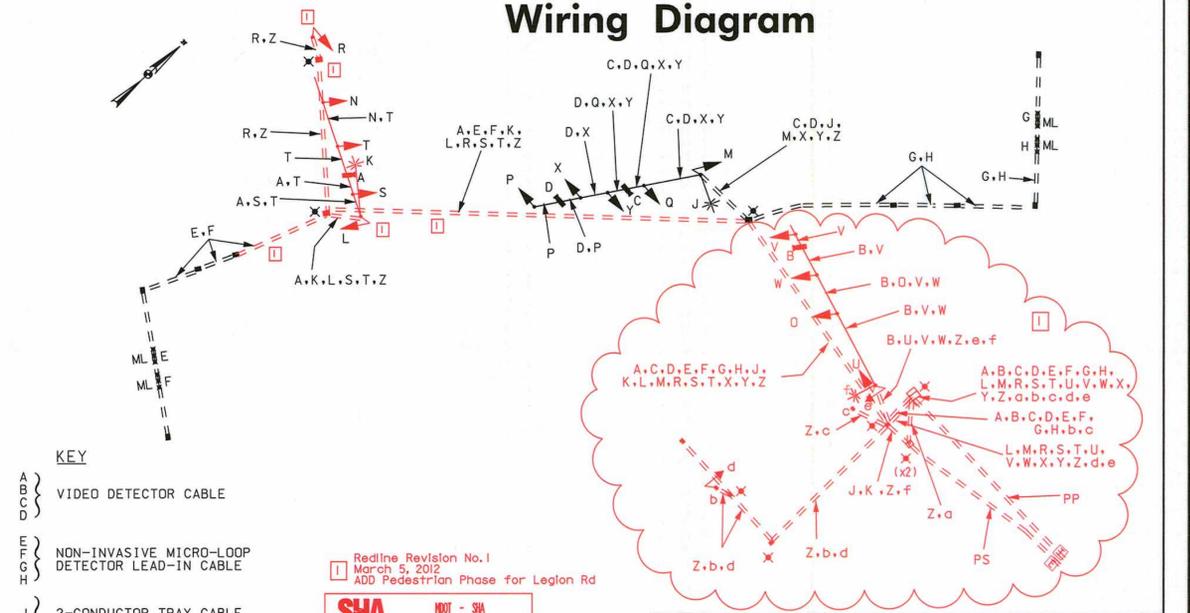
1. VIDEO CAMERA LOCATION/ALIGNING SHALL BE COORDINATED WITH THE SHA ENGINEER.
2. THE CONTRACTOR SHALL VERIFY ALL PROPOSED POLE AND CABINET LOCATIONS PRIOR TO INSTALLATION.
3. PAVEMENT MARKINGS DETAILED ARE PROPOSED AND ARE TO BE INSTALLED BY THE CONTRACTOR IN ACCORDANCE WITH MD-SHA STANDARDS. ALL OTHER PAVEMENT MARKINGS ARE TO BE CONSIDERED AS EXISTING.
4. GEOMETRICS SHALL BE CONFIRMED PRIOR TO THE INSTALLATION OF SIGNAL EQUIPMENT. ALL TRAFFIC SIGNAL FOUNDATIONS SHALL BE INSTALLED AT FINAL SIDEWALK OR CURB GRADE FOR CLOSED SECTIONS. HIGHEST ROADWAY PROFILE GRADE FOR OPEN SECTIONS. TO MEET CLEARANCES AS SPECIFIED IN MD 816.03, MD 818.01, MD 818.02, MD 818.04. THE CONTRACTOR SHALL VERIFY ULTIMATE GRADES PRIOR TO THE INSTALLATION OF ALL SIGNAL EQUIPMENT.
5. ALL UNDERGROUND AND OVERHEAD UTILITIES SHOWN ON THESE PLANS ARE SCHEMATIC AND ARE NOT TO BE CONSIDERED COMPLETE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ALL UTILITY COMPANIES 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 EQUIPMENT WILL OCCUR, THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE PROJECT ENGINEER IMMEDIATELY.
6. ALL UNUSED CABLE SHALL BE REMOVED.
7. PUSHBUTTONS ARE TO BE LOCATED SO THAT THEY CAN BE ACTIVATED BY A PERSON IN A WHEELCHAIR REACHING LESS THAN 18 IN. FROM A 60 IN. X 60 IN. LEVEL LANDING AREA WITH A CROSS SLOPE OF LESS THAN OR EQUAL TO 2%.
8. THE 10 FT. SEPARATION BETWEEN PUSHBUTTONS IS TO BE MEASURED FROM FACE OF PUSHBUTTON TO FACE OF PUSHBUTTON, NOT CENTER TO CENTER OF POLE.
9. PUSHBUTTON ARROWS ARE TO BE PARALLEL TO THE CROSSING FOR WHICH THEY ARE INTENDED.
10. THE LOCATION OF ACCESSIBLE PEDESTRIAN SIGNAL PUSHBUTTONS MUST MEET LOCATION REQUIREMENTS OF MUTCD SEC. 4E.09 & FIG 4E-2 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 AND SAFETY.

QUANTITY	UNITS	DESCRIPTION
560	475 LF	2-CONDUCTOR TRAY CABLE (NO.12 AWG)
725	550 LF	5-CONDUCTOR CABLE (NO. 14 AWG)
	2100 LF	7-CONDUCTOR CABLE (NO. 14 AWG)
550	375 LF	BARE COPPER GROUND WIRE (NO. 6 AWG)
295	265 LF	2 IN. PVC CONDUIT [SCHEDULE 80] - TRENCHED
	90 LF	2 IN. PVC CONDUIT [SCHEDULE 80] - BORED
950	850 LF	3 IN. PVC CONDUIT [SCHEDULE 80] - TRENCHED
	145 LF	3 IN. PVC CONDUIT [SCHEDULE 80] - BORED
	300 LF	4 IN. PVC CONDUIT [SCHEDULE 80] - TRENCHED
460	380 LF	4 IN. PVC CONDUIT [SCHEDULE 80] - BORED
18	49 CY	CONCRETE FOUNDATION FOR TRAFFIC SIGNAL EQUIPMENT
8	7 EA	GROUND ROD -3/4" N. X 10 FT. LENGTH
	1 EA	EMBEDDED ELECTRICAL SERVICE PEDESTAL (100 AMPS)
	125 LF	24 IN. WHITE THERMOPLASTIC PAVEMENT MARKING - STOP LINE
75	60 LF	4 IN. X 4 IN. WOOD SIGN SUPPORTS
102	72 LF	4 IN. X 6 IN. WOOD SIGN SUPPORTS
	LS	REMOVE EXISTING SIGNAL EQUIPMENT
	LS	REMOVE EXISTING LIGHTING EQUIPMENT
2	EA	10 FT. STEEL PEDESTAL POLE WITH BREAKAWAY COUPLING BASE
2	EA	AUDIBLE PEDESTRIAN PUSHBUTTON ASSEMBLY WITH PUSHBUTTON SIGN
1	EA	APS 2-WIRE CENTRAL CONTROL UNIT
1	EA	16 IN. 1-SECTION, 1-WAY LED (COUNTDOWN) PEDESTRIAN SIGNAL HEAD - POLE
1	EA	16 IN. 1-SECTION, 1-WAY LED (COUNTDOWN) PEDESTRIAN SIGNAL HEAD - POST TOP
175	LF	2-CONDUCTOR CABLE (NO. 14 AWG)
350	LF	12 IN. WHITE THERMOPLASTIC PAVEMENT MARKING - CROSSWALK
1	EA	18"x18" OM 1-3 SIGN FOR GROUND MOUNTING
1	EA	30"x30" W11-2 AND 24"x12" W16-7p(L) SIGNS FOR GROUND MOUNTING
1	EA	30"x30" W11-2 AND 24"x12" W16-7p(R) SIGNS FOR GROUND MOUNTING

Phase Chart

PHASE	1	2	3	4	5	6	7	8	9	10	11	12	13	14
PHASE 1 AND 5	←G-	←G-	R	R	←G-	←G-	R	R	R	R	R	R	R	R
1 AND 5 CHANGE TO 1 AND 6, 2 AND 5, OR 2 AND 6	←G-	←G-	G	G	←R-	←R-	R	R	R	R	R	R	R	R
PHASE 1 AND 6	←G-	←G-	G	G	←R-	←R-	R	R	R	R	R	R	R	R
1 CHANGE	←Y-	←Y-	G	G	←R-	←R-	R	R	R	R	R	R	R	R
PHASE 2 AND 5	←R-	←R-	R	R	←G-	←G-	G	G	R	R	R	R	R	R
5 CHANGE	←R-	←R-	R	R	←Y-	←Y-	G	G	R	R	R	R	R	R
PHASE 2 AND 6	←R-	←R-	G	G	←R-	←R-	G	G	R	R	R	R	R	R
PHASE 2 AND 6 CHANGE	←R-	←R-	G	G	←R-	←R-	G	G	R	R	R	R	R	R
2 AND 6 CHANGE	←R-	←R-	Y	Y	←R-	←R-	Y	Y	R	R	R	R	R	R
PHASE 3 AND 7	←R-	←R-	R	R	←R-	←R-	R	R	←GR	←GR	←GR	←GR	←GR	←GR
3 AND 7 CHANGE TO 3 AND 8, 4 AND 7, OR 4 AND 8	←R-	←R-	R	R	←R-	←R-	R	R	←GG	←GG	R	R	R	R
PHASE 3 AND 8	←R-	←R-	R	R	←R-	←R-	R	R	←GG	←GG	R	R	R	R
3 CHANGE	←R-	←R-	R	R	←R-	←R-	R	R	←YG	←YG	R	R	R	R
PHASE 4 AND 7	←R-	←R-	R	R	←R-	←R-	R	R	R	R	←GG	←GG	←GG	←GG
7 CHANGE	←R-	←R-	R	R	←R-	←R-	R	R	R	R	←YG	←YG	←YG	←YG
PHASE 4 AND 8	←R-	←R-	R	R	←R-	←R-	R	R	G	G	G	G	G	G
4 AND 8 CHANGE	←R-	←R-	R	R	←R-	←R-	R	R	Y	Y	Y	Y	Y	Y
FLASHING OPERATION	←FL	←FL	FLY	FLY	←FL	←FL	FLY	FLY	FLR	FLR	FLR	FLR	FLR	FLR

Wiring Diagram



PROJECT CONTACTS:
MR. JEFFREY WENTZ, ASSISTANT DISTRICT ENGINEER - TRAFFIC PHONE: (410) 810-3240
MR. NORRIS EMBERT, ASSISTANT DISTRICT ENGINEER - CONSTRUCTION PHONE: (410) 810-3270
MR. MIKE LEWIS, ASSISTANT DISTRICT ENGINEER - MAINTENANCE PHONE: (410) 398-1565
MR. BARRY CLOTHIER, UTILITY ENGINEER PHONE: (410) 810-3275
MR. RICHARD L. DAFF, SR., CHIEF TRAFFIC OPERATIONS DIVISION PHONE: (410) 787-7630
MR. EDWARD RODENHIZER, SUPERVISOR, SIGNAL OPERATIONS PHONE: (410) 787-7652

THE POWER COMPANY REPRESENTATIVE IS:
CURTIS A. KILMON
DELMARVA POWER
P.O. BOX 159
CENTERTVILLE ROAD
CENTERTVILLE, MARYLAND 21617-0159
TEL: 410-758-4105
WR # 6092895

The Traffic Group, Inc.
Suite H
9900 Franklin Square Drive
Baltimore, Maryland 21236
410-931-6600
1-800-583-8411
Fax 410-931-6601

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

MD 404 (SHORE HIGHWAY) AND LEGION ROAD
DENTON, MARYLAND

GENERAL INFORMATION PLAN

SCALE: N/A DATE: SEPT 9, 2011 CONTRACT NO.: BW996M82

DESIGNED BY: FRANK HOECKEL COUNTY: CAROLINE
DRAWN BY: FRANK HOECKEL LOGMILE: 05040409.30
CHECKED BY: _____ TMS NO.: K413
F.A.P. NO.: N/A TOD NO.: _____

TS NO. G-12400C DRAWING SG - 01 OF 01 SHEET NO. 2 OF 2

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