

**PROJECT DESCRIPTION**

THIS PROJECT INVOLVES THE MODIFICATION OF THE EXISTING TRAFFIC CONTROL SIGNAL AT THE INTERSECTION OF ARUNDEL MILLS CIRCLE AND COSTCO IN ANNE ARUNDEL COUNTY. THE WORK IS NECESSITATED BY THE WIDENING OF ARUNDEL MILLS CIRCLE AND INSTALLATION OF ADA RAMPS. ARUNDEL MILLS CIRCLE IS ASSUMED TO RUN IN AN EAST-WEST DIRECTION.

**INTERSECTION OPERATION**

THE INTERSECTION CURRENTLY OPERATES IN A NEMA SIX-PHASE, FULLY-ACTUATED MODE WITH EXCLUSIVE-PERMISSIVE LEFT TURN PHASES FOR EASTBOUND AND WESTBOUND ARUNDEL MILLS CIRCLE. A NEW EXCLUSIVE-PERMISSIVE LEFT TURN PHASE AND A RIGHT TURN OVERLAP PHASE WILL BE ADDED FOR THE NORTHBOUND SIDE STREET. THE EXISTING PEDESTRIAN PHASES AT THE INTERSECTION WILL REMAIN

**CONTROLLER REQUIREMENTS**

THE EXISTING EIGHT-PHASE, FULLY-ACTUATED CONTROLLER HOUSED IN A BASE MOUNTED CABINET WILL BE USED.

**APS NOTES**

TO CROSS ARUNDEL MILLS CIRCLE (WEST LEG)

- A. WHEN PEDESTRIAN LOCATES AND PRESSES PUSHBUTTON FOR AN EXTENDED TIME, THE PUSHBUTTON UNIT WILL BE "WAIT TO CROSS ARUNDEL MILLS AT ARUNDEL MILLS WEST, 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 ARUNDEL MILLS CIRCLE (SOUTH LEG)

- A. WHEN PEDESTRIAN LOCATES AND PRESSES PUSHBUTTON FOR AN EXTENDED TIME, THE PUSHBUTTON UNIT WILL BE "WAIT TO CROSS ARUNDEL MILLS AT ARUNDEL MILLS SOUTH, WAIT."
- B. WHEN WALK PHASE BEGINS, THE MESSAGE WILL BE A RAPID TICK, WHICH WILL LAST FOR THE DURATION OF THE WALK PHASE

**EQUIPMENT LIST "A"**

A. EQUIPMENT TO BE FURNISHED BY THE SHA AND INSTALLED BY THE CONTRACTOR

ITEM NO. QUANTITY DESCRIPTION

NONE

**EQUIPMENT LIST "B"**

B. EQUIPMENT TO BE FURNISHED AND/OR INSTALLED BY CONTRACTOR. ALL EQUIPMENT SHALL HAVE CATALOG CUTS SUBMITTED TO THE OFFICE OF TRAFFIC AND SAFETY FOR APPROVAL PRIOR TO INSTALLATION.

QUANTITY	DESCRIPTION
LS	MAINTENANCE OF TRAFFIC
4 CY	TEST PIT EXCAVATION
1425 LF	5 IN. YELLOW HEAT APPLIED THERMOPLASTIC PAVEMENT MARKING
965 LF	5 IN. WHITE HEAT APPLIED THERMOPLASTIC PAVEMENT MARKING
110 LF	10 IN. WHITE HEAT APPLIED THERMOPLASTIC PAVEMENT MARKING
540 LF	12 IN. WHITE HEAT APPLIED THERMOPLASTIC PAVEMENT MARKING
200 LF	24 IN. WHITE HEAT APPLIED WHITE THERMOPLASTIC PAVEMENT MARKING
5 EA	HEAT APPLIED WHITE PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKING ARROW
2 EA	VIDEO INTERFACE EQUIPMENT
42 EA	12 IN. LED SIGNAL HEAD SECTION
9 EA	8 IN. LED SIGNAL HEAD SECTION
4 EA	16 IN. COUNTDOWN PEDESTRIAN SIGNAL
4 EA	AUDIBLE /TACTILE PEDESTRIAN PUSHBUTTON AND SIGN
9 X CY	CONCRETE FOUNDATION FOR SIGNAL
3 X EA	10 FT. BREAKAWAY PEDESTAL POLE
1 EA	27 FT. MAST ARM POLE & 50 FT. MAST ARM
1 EA	27 FT. MAST ARM POLE & 70 FT. MAST ARM
1 EA	15 FT. LIGHTING ARM WITH 250 WATT HPSV LUMINAIRE
3 X EA	CUT, CLEAN, GALVANIZE, AND CAP TRAFFIC SIGNAL STRUCTURE
3 X EA	ELECTRICAL HANDHOLE
1 EA	ADJUST HANDHOLE TO FINAL GRADE
80 LF	1 IN. DETECTOR SLEEVE GALVANIZED OR FLEXIBLE, LIQUID-TIGHT CONDUIT
35 LF	3 IN. SCHEDULE 80 RIGID PVC ELECTRICAL CONDUIT - TRENCHED
60 X 26 LF	3 IN. SCHEDULE 80 RIGID PVC ELECTRICAL CONDUIT - BORED
170 X 185 LF	4 IN. SCHEDULE 80 RIGID PVC ELECTRICAL CONDUIT - TRENCHED
85 LF	4 IN. SCHEDULE 80 RIGID PVC ELECTRICAL CONDUIT - BORED
LS	REMOVE AND DISPOSE OF MATERIAL AND EQUIPMENT
5 EA	VIDEO DETECTION CAMERA AND CABLE
30 LF	WOOD SIGN SUPPORTS 4 IN. X 4 IN.
20 LF	WOOD SIGN SUPPORTS 4 IN. X 6 IN.
1210 LF	ELECTRICAL CABLE 2 - CONDUCTOR (NO. 14 A.W.G.)
1100 LF	ELECTRICAL CABLE 5 - CONDUCTOR (NO. 14 A.W.G.)
1815 LF	ELECTRICAL CABLE 7 - CONDUCTOR (NO. 14 A.W.G.)
240 LF	ELECTRICAL CABLE 2 - CONDUCTOR (NO. 12 A.W.G.) TRAY CABLE
500 X 188 LF	STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)
5 X EA	3/4 IN. X 10 FT. GROUND ROD
5 EA	MICRO-LOOP PROBE
2 EA	D-3(1) (VAR X 16") DUAL FACE SIGN - MAST ARM MOUNT
1 EA	W3-3 (36" X 36") SIGN AND W16-14(1) (24" X 24") SIGN AND FLAGS - GROUND MOUNT
1 EA	R3-8a (48" X 30") SIGN - GROUND MOUNT
1 EA	R3-6L (30" X 36") SIGN - MAST ARM MOUNT
2 EA	R3-6R (30" X 36") SIGN - MAST ARM MOUNT
1 EA	R3-6R (30" X 36") SIGN - MAST ARM MOUNT
160 LF	SAWCUT
1 EA	2-WIRE CENTRAL CONTROL UNIT

**EQUIPMENT LIST "C"**

C. EXISTING EQUIPMENT TO BE REMOVED BY THE CONTRACTOR AND DELIVERED TO THE STATE HIGHWAY ADMINISTRATION, 7491 CONNELLEY DRIVE, HANOVER, MARYLAND 21076. THE CONTRACTOR SHALL NOTIFY THE SHA AT (410) 787-7652 AT LEAST THREE DAYS IN ADVANCE OF DELIVERY.

ITEM NO. QUANTITY DESCRIPTION

NONE

ALL SIGNAL EQUIPMENT TO BE REMOVED AND NOT RETURNED TO THE SHA SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

**CONTACT PERSONS FOR DISTRICT 5 ARE AS FOLLOWS:**

MRS. KIM TRAN  
ASSISTANT DISTRICT ENGINEER - TRAFFIC  
(410) 841-1003

MR. JOHN MAYS  
ASSISTANT DISTRICT ENGINEER - MAINTENANCE  
(410) 841-1002

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

**CONTACTS FOR OFFICE OF TRAFFIC AND SAFETY**

MR. RICHARD DAFF, SR.  
CHIEF, TRAFFIC OPERATIONS  
(410) 787-7630

MR. EUGENE BAILEY  
TEAM LEADER SIGN OPERATIONS  
(410) 787-7676

MR. ROBERT SNYDER  
ASSISTANT DIVISION CHIEF,  
TRAFFIC OPERATIONS  
(410) 787-7631

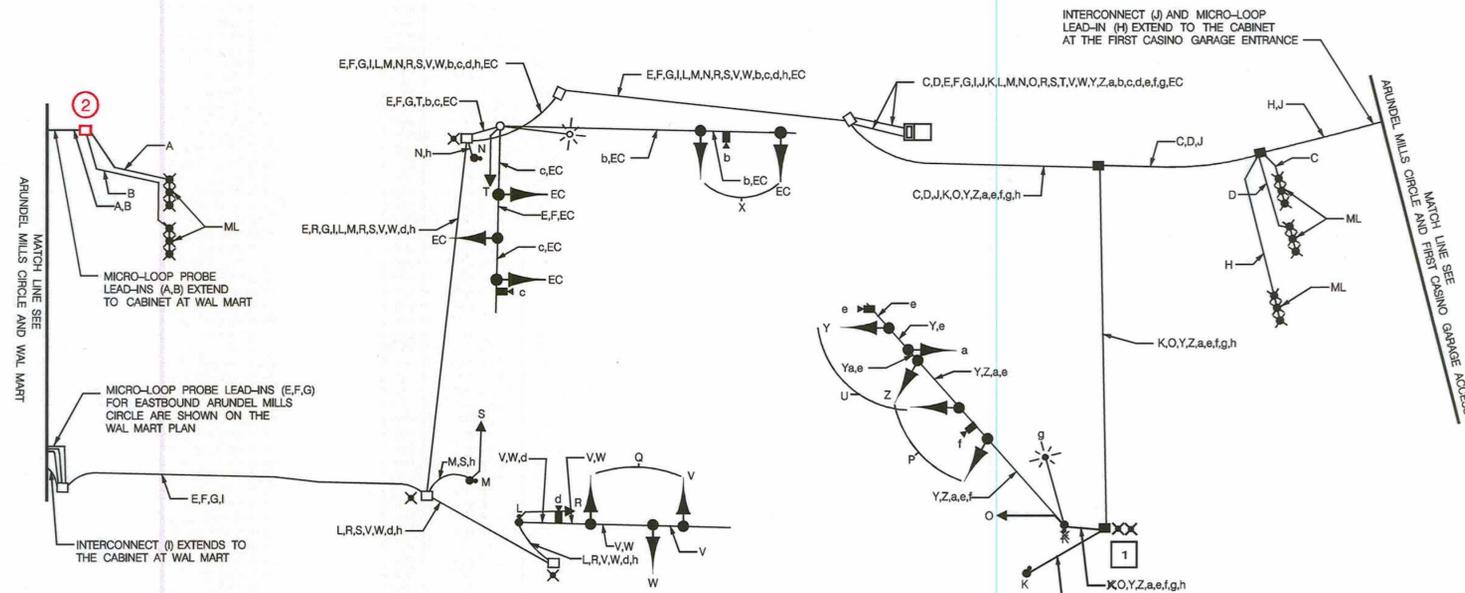
MR. MIKE STOCKER  
SUPPLY OFFICE  
SIGNAL SHOP WAREHOUSE  
(410) 787-7668

MR. ED RODENHIZER  
CHIEF - SIGNAL OPERATIONS SECTION  
(410) 787-7652

**PHASE CHART**

PHASE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
PHASE 1 & 5	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
1 & 5 CHANGE	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
PHASE 1 & 6	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
PED CLEAR	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
1 & 6 CHANGE	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
PHASE 2 & 5	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
2 & 5 CHANGE	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
PHASE 2 & 6	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
PED CLEAR	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
2 & 6 CHANGE	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
PHASE 3 & 8	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
3 CHANGE	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
PHASE 4 & 8	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
4 & 8 CHANGE	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
PHASE 4 & 8 ALT.	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
PED CLEAR	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
4 & 8 ALT. CHANGE	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
FLASHING OPERATION	FLY																

**WIRING DIAGRAM**



**WIRING KEY**

A-H	MICRO-LOOP PROBE LEAD-IN
I-J	12-PAIR VOICE GRADE INTERCONNECT CABLE
K-N	2-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
O-U	5-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
V,W,Y,Z,a	7-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
b-f	VIDEO DETECTION CABLE
g	2-CONDUCTOR ELECTRICAL CABLE (NO. 12 A.W.G.) TRAY CABLE
h	STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)
ml	MICRO-LOOP PROBE
ec	EXISTING CABLE
x	GROUND ROD

**RED LINE REVISION NO. ②**  
March 7, 2012  
Revise Geometrics Along Westbound Arundel Mills Circle  
TEDD Approval: *[Signature]* 3/13/12

**TRAFFIC CONCEPTS, INC.**  
325 Gambrills Road  
Suite B  
Gambrills, MD 21054  
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**SHA** STATE OF MARYLAND  
DEPARTMENT OF TRANSPORTATION  
STATE HIGHWAY ADMINISTRATION  
OFFICE OF TRAFFIC & SAFETY  
TRAFFIC ENGINEERING DESIGN DIVISION  
ARUNDEL MILLS CIRCLE AND COSTCO  
HANOVER, MARYLAND

**GENERAL INFORMATION PLAN**

SCALE	NONE	DATE	6-23-11	CONTRACT NO.	EW996M82
DESIGNED BY	J.K. SCHMID	COUNTY	ANNE ARUNDEL		
DRAWN BY	J.K. SCHMID	LOGMILE	02550100.00		
CHECKED BY	T. ZAYDEL	T.I.M.S. NO.	K-976		
F.A.P. NO.	NA	TOD NO.			
DRAWING NO.	TS-3963 A GI	SHEET NO.	2	OF	2