DRILL HOLES

BORDER REV. DATE: June 1, 2004

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PROJECT DESCRIPTION

I. GENERAL

This project involves the reconstruction of an existing Traffic Control Signal at the intersection of MD 144 (Frederick Rd) and MD 166 (Rolling Rd) / Hillcrest Elem School Entrance in Baltimore County. The existing strain pole structure shall be replaced with a new mast arm signal with street lighting. Video detection shall be installed in all directions. The existing school Hazard Identification Beacons shall be upgraded to LED signals. MD 144 (Frederick Rd) is assumed to run an east-west direction

II. INTERSECTION OPERATION

1. The intersection is to operate in a NEMA seven-phase, fully-actuated mode, with the MD 144 (Frederick Rd) approaches running concurrently. Exclusive/Permissive left turn phases shall be provided for both approaches of MD 144 (Frederick Rd). The MD 166 (Rolling Rd) / Hillcrest Elem School Entrance approaches shall operate as a side street split phase. A right turn overlap phase shall be provided for the eastbound approach of MD 144 (Frederick Rd). A separate Countdown pedestrian phase with audible pushbutton actuation shall be provided across all legs of this intersection.
2. A full-traffic-actuated, eight-phase controller with video interface and all necessary equipment housed in a NEMA size "6" base-mounted cabinet shall be installed at this intersection.
3. SHA signal shop shall install APS control unit into controller cabinet. The Contractor shall deliver the Control Unit and audible pushbuttons to the SHA Signal Shop for testing and programming.

III. SPECIAL NOTES

1. The Contractor shall be responsible for terminating all signal cables, to the appropriate terminals and shall properly label each cable.
2. All controller cabinet wiring will be performed by the S.H.A. Signal Shop Contact Mr. Ed Rodenhizerat (410) 787-7650 seventy-two hours in advance of intended work.
3. All underground and overhead utilities shown on these plans are schematic only and may not be complete. The Contractor shall be responsible for notifying Miss Utility 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 will occur, the Contractor shall notify the Project Engineer immediately so that the conflict may be resolved.

4. APS will function as follows:

FOR FREDERICK ROAD

a When pedestrian locates and presses pushbutton for an extended time, the at the pushbutton unit will be " Wait to cross Frederick Road."

b. When WALK phase begins, the message will be a rapid tick which will last for the duration of the WALK phase.

FOR ROLLING ROAD

a When pedestrian locates and presses pushbutton for an extended time, the at the pushbutton unit will be " Wait to cross Rolling Road."

b. When WALK phase begins, the message will be a rapid tick which will last for the duration of the WALK phase.

FOR HILLCREST ELEMENTARY SCHOOL ENTRANCE

a When pedestrian locates and presses pushbutton for an extended time, the at the pushbutton unit will be " Wait to cross Hillcrest Elementary School Entrance."

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. EQUIPMENT TO BE SUPPLIED BY S.H.A..

ITEM NO.	DESCRIPTION	QUANTITY
9042	Controller ASC II with telemetry	1 EA
9044	Controller cabinet, size "6"	1 EA
9086	Video detection interface equipment: 1-4 cameras (To be installed by signal shop).	1 EA
9570	Sheet aluminum signs to consist of: (ground mount)	40 SF
	S2-1 "SCHOOL CROSSING (Symbolic)" sign, (36" x 36") (FY/G)	2 EA
	M6-2 "Arrow (left)" sign, (21"x15") (FY/G)	1 EA
	M6-2 "Arrow (right)" sign, (21"x15") (FY/G)	1 EA
	R2-1 "SPEED LIMIT 35 MPH" sign, (30"x24")	2 EA
	R7-4(1) "NO STOPPING ANYTIME / 2 way arrow" sign, (12"x18")	1 EA
	S4-4(1) "FINES DOUBLE" sign, (15" x 30").	2 EA
	Sheet aluminum signs to consist of: (mast arm or pole mount)	51.5 SF
9571	D3-2 "(arrow) S. Rolling RD/ S. Rolling RD (arrow)" (variable x 16") (dual faced).	1 EA
	D3-2 "Frederick RD" (variable x 16") (dual faced).	1 EA
	R3-5R "RIGHT TURN ONLY" sign, (30" x 36")	1 EA
	R10-11b "NO TURN ON RED" sign, (24"x24").	3 EA
	R10-11(mod) "NO TURN ON RED ARROW" sign, (24"x24").	1 EA
	Pedestrian education R10-4(1) mod sign. (Note: Sign to read "PUSHBUTTON TO CROSS FREDERICK RD")	4 EA

EQUIPMENT LIST (CONT.)

A. EQUIPMENT TO BE SUPPLIED BY S.H.A..

ITEM NO.	DESCRIPTION	QUANTITY
	Pedestrian education R10-4(1) mod sign. (Note: Sign to read "PUSHBUTTON TO CROSS ROLLING RD")	2 EA
	Pedestrian education R10-4(1) mod sign. (Note: Sign to read "PUSHBUTTON TO CROSS HILLCREST E.S.")	2 EA

B. EQUIPMENT TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR

ITEM NO.	DESCRIPTION	QUANTITY
1001	Maintenance of traffic per assignment.	3 EA
2002	Test Pit Excavation	11 C.Y.
5002	Removal of existing permanent pavement line markings	465 L.F.
5004	12" heat applied white permanent preformed thermoplastic pavement marking.	370 L.F.
5005	24" heat applied white permanent preformed thermoplastic pavement marking.	95 L.F.
6001	Standard type A combination curb and gutter 12" gutter pan 8" depth.	105 L.F.
6002	4" concrete sidewalk.	460 S.F.
8001	12" LED signal head section.	43 EA
8002	2 wire Central Control unit	1 EA
8004	8" LED signal head section.	12 EA
8007	Any size lighting arm on signal pole with 250 watt HPS lamp & luminaire.	1 EA
8008	Audible/tactile pedestrian pushbutton station & signs.	8 EA
8009	Breakaway Pedestal pole (10'). (any size).	6 EA
8014	LED 16" countdown pedestrian signal head.	8 EA
8016	Mast arm pole and 38' mast arm any "T" dimension	2 EA
8021	Non-invasive detector (any length) lead-in cable up to 1000'.	3 EA
8022	Remove and dispose of existing material and equipment per assignment.	1 EA
8025	Twin mast arm pole and 50'/50' mast arms any "T" dimension.	1 EA
8026	Video detection camera & cable up to 500'	4 EA
8033	Schedule 80 rigid PVC conduit up tp 4" - slotted.	290 L.F.
8034	Schedule 80 rigid PVC conduit up tp 4" - trenched.	275 L.F.
8036	Wood sign supports up to 4"x6".	64 L.F.
8037	Detectable warning surfaces	42 S.F.
8038	Install overhead or ground mounted sign (including hardware).	91.5 S.F.
8040	No. 6 AWG stranded bare copper ground wire.	565 L.F.
8042	Metered service pedestal embedded.	1 EA
8044	Electrical cable 1-conductor No. 4 AWG THHN/THWN.	40 L.F.
8046	Furnish and install electrical handhole.	8 EA
8053	Electrical cable - 2 conductor (No. 14 AWG).	825 L.F.
8055	Electrical cable - 5 conductor (No. 14 AWG).	1065 L.F.
8056	Electrical cable - 7 conductor (No. 14 AWG).	1180 L.F.
8057	Electrical cable - 2 conductor (No. 12 AWG) tray cable.	140 L.F.
8064	Install controller and cabinet base mount.	1 EA

C. EQUIPMENT TO BE REMOVED

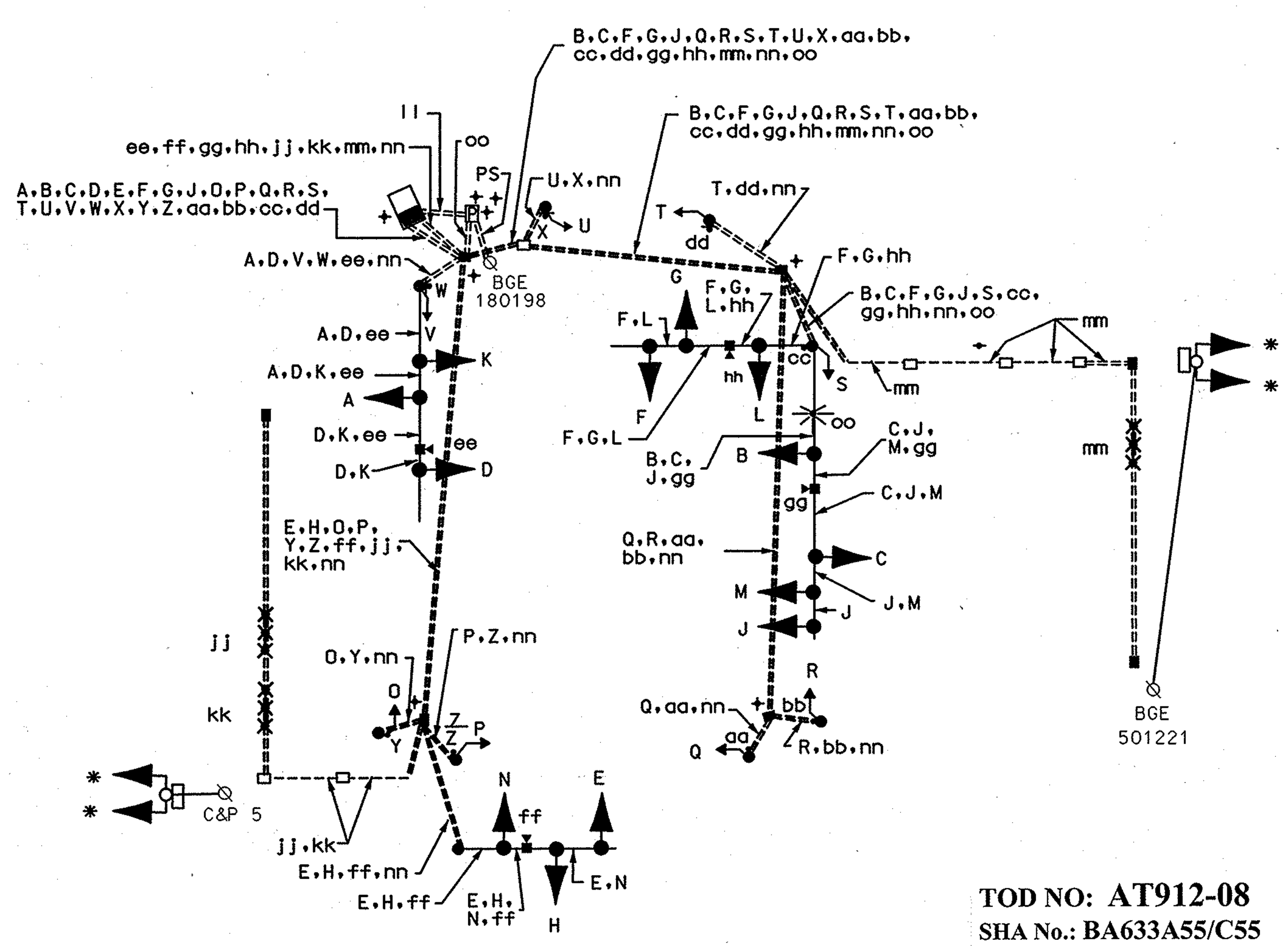
SHA Forces shall remove the controller and all auxiliary equipment from the controller cabinet. The cabinet and all other removed signal materials are to become property of the contractor.

PHASE CHART

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
PHASE 1 & 5	DARK	DARK	←G-/R	←G-/R	R	-R→	DARK	DARK	←G-/R	←G-/R	R	R	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW	DW	DW
CHANGES TO PHASES 1 & 6, 2 & 5 OR 2 & 6																										
PHASE 1 & 6	DARK	DARK	←G-/G	←G-/G	R	-R→	DARK	DARK	R	R	R	R	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW	DW	DW
1 & 6 CHANGE	DARK	DARK	←Y-/G	←Y-/G	R	-R→	DARK	DARK	R	R	R	R	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW	DW	DW
PHASE 2 & 5	DARK	DARK	R	R	R	-R→	DARK	DARK	←G-/G	←G-/G	G	R	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW	DW	DW
2 & 5 CHANGE	DARK	DARK	R	R	R	-R→	DARK	DARK	←Y-/G	←Y-/G	G	R	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW	DW	DW
PHASE 2 & 6	DARK	DARK	G	G	G	-R→	DARK	DARK	G	G	G	R	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW	DW	DW
2 & 6 CHANGE	DARK	DARK	Y	Y	Y	-R→	DARK	DARK	Y	Y	Y	R	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW	DW	DW
PHASE 3	DARK	DARK	R	R	R	-R→	DARK	DARK	R	R	R	R	R	R	G / ←G-	G	G / ←G-	G	DW	DW	DW	DW	DW	DW	DW	DW
3 CHANGE	DARK	DARK	R	R	R	-R→	DARK	DARK	R	R	R	R	R	R	Y	Y	Y	Y	DW	DW	DW	DW	DW	DW	DW	DW
PHASE 4	DARK	DARK	R	R	R	-G→	DARK	DARK	R	R	R	G / ←G-	G / ←G-	G	R	R	R	R	DW	DW	DW	DW	DW	DW	DW	DW
4 CHANGE	DARK	DARK	R	R	R	-Y→	DARK	DARK	R	R	R	Y	Y	Y	R	R	R	R	DW	DW	DW	DW	DW	DW	DW	DW
PED CROSS COUNTDOWN	DARK	DARK	R	R	R	-R→	DARK	DARK	R	R	R	R	R	R	R	R	R	R	WK	WK	WK	WK	WK	WK	WK	WK
PED CLEAR COUNTDOWN	DARK	DARK	R	R	R	-R→	DARK	DARK	R	R	R	R	R	R	R	R	R	R	FL/DW	FL/DW	FL/DW	FL/DW	FL/DW	FL/DW	FL/DW	FL/DW
FLASHING OPERATION	DARK	DARK	FL/Y	FL/Y	FL/Y	FL/Y	DARK	DARK	FL/Y	FL/Y	FL/Y	FL/R	FL/R	FL/R	FL/R	FL/R	FL/R	FL/R	DARK	DARK	DARK	DARK	DARK	DARK	DARK	DARK

NOTES: 1.) SIGNAL HEADS 1,2,7 AND 8 SHALL FLASH "YELLOW" DURING NORMAL SCHOOL OPERATING HOURS.
2.) EASTBOUND RIGHT TURN OPERATES AS A 12 SECOND LAG RIGHT TURN CONCURRENT PHASE.

WIRING DIAGRAM



TOD NO: AT912-08
SHA No.: BA633A55/C55
MD 144 @ MD 166/Ent. To Hillcrest Elem. School

WIRING KEY

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

K L M N O P Q R S T U V – 5-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G)

W X Y Z aa bb cc dd – 2-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G)

ee ff gg hh – Video control cable up to 500'

jj kk mm – MICROLOOP LEAD-IN CABLE (1000')

nn - STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)

oo - 2-CONDUCTOR TRAY CABLE (NO. 12 A.W.G)

* - USE EXISTING CABLE

ll - 3-1 CONDUCTOR ELECTRICAL CABLE (NO. 4 A.W.G.)

PS - PROPOSED UNDERGROUND SERVICE TO BE INSTALLED BY BGE

+ - GROUND ROD

The contact persons for District #4 are as follows:

Mr. Randall Scott
Assistant District Engineer - Traffic
Phone: (410) 321-2781

Mr. Steve Marciszewski
Assistant District Engineer - Maintenance
Phone: (410) 321-2761

Mr. Michael Pasquariello
Assistant District Engineer - Utility
Phone: (410) 321-2841

Mr. Richard L. Daff, Sr.
Chief, Traffic Operations Division
Phone: (410) 787-7630

Mr. Ed Rodenhizer
Signal Shop
410-787-7652

Mr. Sonny Bailey
Sign Shop
410-787-7670

The power company representative is:

Mr. Steve Schneider
Baltimore Gas and Electric
7317 Parkway Drive South
Hanover, MD 21076
410-859-9310

STREET TRAFFIC STUDIES, LTD.
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STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

MD 144 (FREDERICK RD) & MD 166 (ROLLING RD) / ENTRANCE TO HILLCREST ELEM SCHOOL

CATONSVILLE, MARYLAND

GENERAL INFORMATION SHEET

SCALE NONE	DATE 3/23/07	CONTRACT NO. AT9125185	
DESIGNED BY J ALLEN		COUNTY BALTIMORE	
DRAWN BY R. C.		LOGMILE 03014402.72	
CHECKED BY		TIMS NO. I414	
F.A.P. NO.		TOD NO.	
TS NO. 3191H	DRAWING NO. 2 OF 2	SHEET NO. OF	

PLOTTED: $DATETIME$
FILE: $FILE$

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