DRILL HOLES

BORDER REV: DATE: June 1, 2004

PROJECT DESCRIPTION

I. GENERAL

This project involves the modification of an existing Traffic Control Signal with street lighting and interconnect at the intersection of MD 650 (New Hampshire Ave) and Lockwood Drive in Montgomery County. Countdown pedestrian signal heads with audible pushbuttons and LED signal heads with right turn overlaps shall be installed at this location. Exisiting video detection shall be maintained. MD 650 (New Hampshire Ave) is assumed to run a north-south direction.

II. INTERSECTION OPERATION

1. The intersection shall continue to operate in a NEMA six-phase, semi-actuated mode, with the MD 650 (New Hampshire Ave) approaches running concurrently. The Exclusive left turn phases for both approaches of MD 650 (New Hampshire Ave) shall continue be provided. Right turn overlap phases shall now be provided for both approaches of MD 650 (New Hampshire Ave). The pedestrian phases with pushbutton actuation across both legs of MD 650 (New Hampshire Ave) shall now be Countdown pedestrian phases with audible pushbuttons. The pedestrian phases on recall across Lockwood Drive shall now be Countdown pedestrian phases with audible pushbuttons. The Lockwood Drive approaches shall continue to operate as a side street split phase.

2. The existing full-traffic-actuated, eight-phase controller with all necessary equipment housed in a NEMA size "6" base-mounted cabinet shall be utilized at this intersection. Video interface shal be installed into the cabinet.

   Montgomery County signal shop shall instal APS control unit into controller cabinet. The Contractor shall deliver the Control Unit and audible pushbuttons to the Montgomery County 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 Montgomery County Forces. Contact Kamal Hamud at (240) 777-8761 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. "Pushbuttons are to be located so they can be activated by a person in a wheelchair from a 60" x 60" level landing area. A level landing area is an area with a cross slope of less than or equal to 2%."

5. "Location of Accessible Pedestrian signal pushbuttons must meet location requirements Of MUTCD Sec.4E.09 and 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".

The contact persons for District #3 (Montgomery County) are as follows:

Mr. Jeff Wentz
Assistant District Engineer - Traffic
Phone: (301) 513-7318

Mr. Wayne Mowdy
Assistant District Engineer - Maintenance
Phone: (301) 513-7304

Mr. Augie Rebish
District Engineer - Utility
Phone: (301) 513-7350

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

Mr. Keith Lord
Signal Shop (Mont Co.)
301-674-8965

Mr. Sonny Bailey
Sign Shop
410-787-7670

EQUIPMENT LIST

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

ITEM NO.	DESCRIPTION	QUANTITY
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)	44 SF
	R4-7 "KEEP RIGHT" sign, (24" x 30).	2 EA
	M6-2(L) "Arrow" sign, (21" x 15")	2 EA
	M6-2(R) "Arrow" sign, (21" x 15")	2 EA
	W11-2 "Pedestrian Crossing (Symbolic)" sign, (30"x30")	4 EA
9571	Sheet aluminum signs to consist of: (mast arm or pole mount)	6 SF
	Pedestrian education R10-4(1) mod sign. (Note: Sign to read "PUSHBUTTON TO CROSS LOCKWOOD DRIVE"	4 EA
	Pedestrian education R10-4(1) mod sign. (Note: Sign to read "PUSHBUTTON TO CROSS NEW HAMPSHIRE AVE"	4 EA

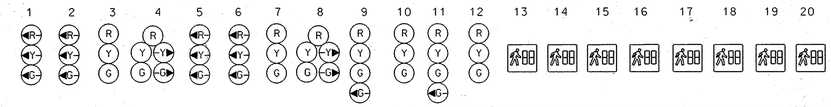
B. EEQUIPMENT TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR

ITEM NO.	DESCRIPTION	QUANTITY
1001	Maintenance of traffic per assignment.	2 EA
2002	Test Pit Excavation	6 C.Y.
6002	4" concrete sidewalk.	775 S.F.
8001	12" LED (R,Y,G) signal head section.	42 EA
8003	2 wire Central Control unit	1 EA
8010	Audible/tactile pedestrian pushbutton station & signs.	8 EA
8011	Breakaway Pedestal pole (10').	5 EA
8011	Breakaway Pedestal pole (5').	1 EA
8014	LED 16" countdown pedestrian signal head.	8 EA
8017	Remove and dispose of existing equipment per assignment.	1 EA
8026	Schedule 80 rigid PVC conduit up tp 4" - trenched.	90 L.F.
8027	Detectable warning surfaces	30 S.F.
8028	Relocate existing sign.	21 SF
8030	Concrete for signal foundation.	4 CY
8031	Wood sign supports 4"x4".	96 L.F.
8033	No. 6 AWG stranded bare copper ground wire.	125 L.F.
8046	Install overhead sign.	44 SF
8046	Install overhead sign.	6 SF
8058	Electrical cable - 2 conductor (No. 14 AWG).	1610 L.F.
8060	Electrical cable - 5 conductor (No. 14 AWG).	1980 L.F.
8061	Electrical cable - 7 conductor (No. 14 AWG).	735 L.F.

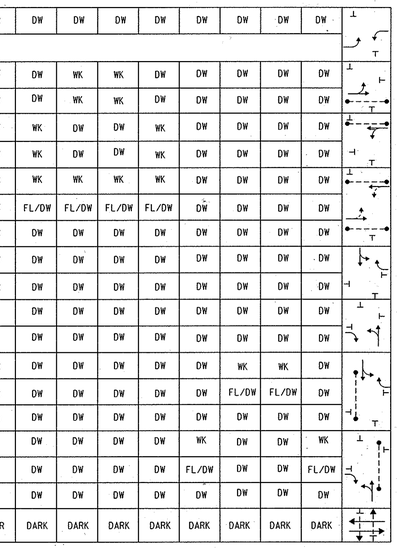
C. EQUIPMENT TO BE REMOVED

All removed signal materials are to become property of the Contractor.

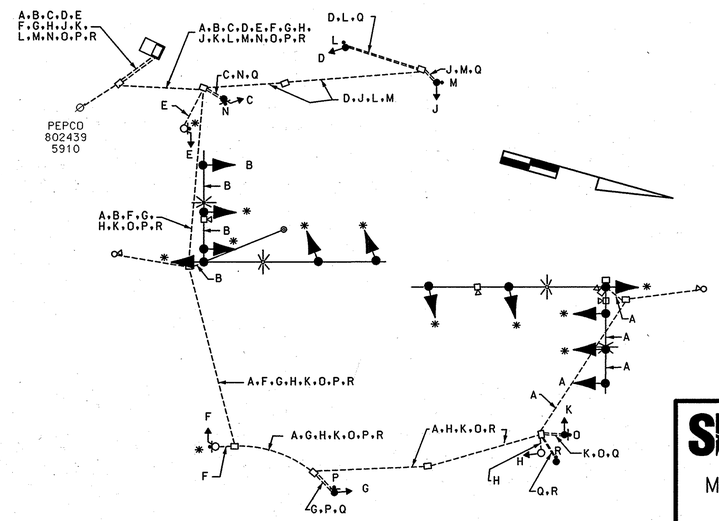
PHASE CHART



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
PHASE 1 & 5	◄G-	◄G-	R	R	◄G-	◄G-	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	◄G-	◄G-	G	G	◄R-	◄R-	R	R	R	R	R	R	DW	WK	WK	DW	DW	DW	DW	DW
1 & 6 CHANGE	◄Y-	◄Y-	G	G	◄R-	◄R-	R	R	R	R	R	R	DW	WK	WK	DW	DW	DW	DW	DW
PHASE 2 & 5	◄R-	◄R-	R	R	◄G-	◄G-	G	G	R	R	R	R	WK	DW	DW	WK	DW	DW	DW	DW
2 & 5 CHANGE	◄R-	◄R-	R	R	◄Y-	◄Y-	G	G	R	R	R	R	WK	DW	DW	WK	DW	DW	DW	DW
PHASE 2 & 6	◄R-	◄R-	G	G	◄R-	◄R-	G	G	R	R	R	R	WK	WK	WK	WK	DW	DW	DW	DW
PED CLEAR / COUNTDOWN	◄R-	◄R-	G	G	◄R-	◄R-	G	G	R	R	R	R	FL/DW	FL/DW	FL/DW	FL/DW	DW	DW	DW	DW
2 & 6 CHANGE	◄R-	◄R-	Y	Y	◄R-	◄R-	Y	Y	R	R	R	R	DW	DW	DW	DW	DW	DW	DW	DW
PHASE 3	◄R-	◄R-	R	R	◄R-	◄R-	R	R/-G►	G/◄G-	G	R	R	DW	DW	DW	DW	DW	DW	DW	DW
3 CHANGE	◄R-	◄R-	R	R	◄R-	◄R-	R	R/-Y►	Y	Y	R	R	DW	DW	DW	DW	DW	DW	DW	DW
PHASE 4	◄R-	◄R-	R	R/-G►	◄R-	◄R-	R	R	R	R	G/◄G-	G	DW	DW	DW	DW	DW	DW	DW	DW
4 CHANGE	◄R-	◄R-	R	R/-Y►	◄R-	◄R-	R	R	R	R	Y	Y	DW	DW	DW	DW	DW	DW	DW	DW
PHASE 3 ALT	◄R-	◄R-	R	R	◄R-	◄R-	R	R/-G►	G/◄G-	G	R	R	DW	DW	DW	DW	DW	WK	WK	DW
PED CLEAR / COUNTDOWN	◄R-	◄R-	R	R	◄R-	◄R-	R	R/-G►	G/◄G-	G	R	R	DW	DW	DW	DW	DW	FL/DW	FL/DW	DW
3 ALT CHANGE	◄R-	◄R-	R	R	◄R-	◄R-	R	R/-Y►	Y	Y	R	R	DW	DW	DW	DW	DW	DW	DW	DW
PHASE 4 ALT	◄R-	◄R-	R	R/-G►	◄R-	◄R-	R	R	R	R	G/◄G-	G	DW	DW	DW	DW	WK	DW	DW	WK
PED CLEAR / COUNTDOWN	◄R-	◄R-	R	R/-G►	◄R-	◄R-	R	R	R	R	G/◄G-	G	DW	DW	DW	DW	FL/DW	DW	DW	FL/DW
4 ALT CHANGE	◄R-	◄R-	R	R/-Y►	◄R-	◄R-	R	R	R	R	Y	Y	DW	DW	DW	DW	DW	DW	DW	DW
FLASHING OPERATION	FL/◄R-	FL/◄R-	FL/Y	FL/Y	FL/◄R-	FL/◄R-	FL/Y	FL/Y	FL/R	FL/R	FL/R	FL/R	DARK	DARK	DARK	DARK	DARK	DARK	DARK	DARK



WIRING DIAGRAM



WIRING KEY

A, B — 7-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G)

C, D, E, F, G, H, J, K — 5-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G)

L, M, N, O, P, R — 2-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G)

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

* -USE EXISTING CABLE

ES- EXISTING UNDERGROUND SERVICE TO BE MAINTAINED BY PEPCO

TOD NO: AT925-09
SHA No.: MO281A56/C56
MD 650 @ Lockwood drive

REVISION "D"

STREET TRAFFIC STUDIES, LTD.
400 Crain Hwy.,NW.
Glen Burnie,MD 21061
Ph (410) 590-5520
Fax (410) 590-6637

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STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

MD 650 (NEW HAMPSHIRE AVE) AND LOCKWOOD DRIVE

GENERAL INFORMATION SHEET

SCALE NONE DATE 2/21/07 CONTRACT NO. AT9255185

DESIGNED BY J.A. COUNTY MONTGOMERY
DRAWN BY R.C. LOGMILE 150650002.54
CHECKED BY TIMS NO. H611
F.A.P. NO. TOD NO.

TS NO. 2552D | DRAWING NO. 2 OF 2 | SHEET NO. OF

PLOTTED: $DATETIME$
FILE: $FILE$

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