

DRILL HOLES  
 BORDER REV. DATE: June 1, 2004  
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**PROJECT DESCRIPTION**

**I. GENERAL**

This project involves the modification of an existing mast arm Traffic Control Signal with street lighting and interconnect at the intersection of MD 650 (New Hampshire Ave) and Jackson Road in Montgomery County. The existing traffic signals shall be replaced by with LED signals. Additionally, the pedestrian signals shall be converted to Countdown pedestrian signals with audible pushbuttons. MD 650 (New Hampshire Ave) is assumed to run a north-south direction.

**II. INTERSECTION OPERATION**

- The intersection shall continue to operate in a NEMA four-phase, semi-actuated mode, with the MD 650 (New Hampshire Ave) approaches running concurrently. The Exclusive/Permissive left turn phase for the southbound approach of MD 650 (New Hampshire Ave) shall remain in operation. The pedestrian phase across the south leg of MD 650 (New Hampshire Ave) shall now be a Countdown pedestrian phase with audible pushbutton actuation. The pedestrian phase across Jackson Road shall now be a Countdown pedestrian phase with audible pushbuttons on recall. The Jackson Road approach shall continue to run in its own phase.
- The existing full-traffic-actuated, eight-phase controller with video interface and all necessary equipment housed in a NEMA size "6" base-mounted cabinet shall be utilized at this intersection.
- Montgomery County 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**

- The Contractor shall be responsible for terminating all signal cables, to the appropriate terminals and shall properly label each cable.
- 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.
- 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:**

- TO CROSS MD 650 (NEW HAMPSHIRE AVE)**
- When pedestrian locates and presses the pushbutton for an extended time, the pushbutton unit will announce the following message "Wait to cross New Hampshire at Jackson."
  - When the WALK phase begins, the pushbutton unit will provide a rapid tick which will last for the duration of the WALK phase.
- TO CROSS JACKSON ROAD**
- When pedestrian locates and presses the pushbutton for an extended time, the pushbutton unit will announce the following message "Wait to cross Jackson at New Hampshire."
  - When the WALK phase begins, the pushbutton unit will provide a rapid tick which will last for the duration of the WALK phase.

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

Mr. Jeff Wentz Assistant District Engineer - Traffic Phone: (301) 513-7358	Mr. Keith Lord Montgomery County Signal Shop (301) 674-8965
Mr. Wayne Mowdy Assistant District Engineer - Maintenance Phone: (301) 513-7304	Mr. Sonny Bailey Sign Shop 410-787-7676
Mr. Augie Rebish District Engineer - Utility Phone: (301) 513-7350	Mr. Kamal Hamud Montgomery County Traffic (240) 777-8761
Mr. Richard L. Daff, Sr. Chief, Traffic Operations Division Phone: (410) 787-7630	

**EQUIPMENT LIST**

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

ITEM NO.	DESCRIPTION	QUANTITY
9570	Sheet aluminum signs to consist of: (ground mount)	55 SF
	Pedestrian education R10-3(1) sign. (Note: Sign to read "PUSHBUTTON TO CROSS NEW HAMPSHIRE AVE")	2 EA
	Pedestrian education R10-3(1) sign. (Note: Sign to read "PUSHBUTTON TO CROSS JACKSON ROAD")	2 EA
	R4-7(2) "KEEP RIGHT (symbolic)" sign. (18" x 30")	1 EA
	R4-7 "KEEP RIGHT (symbolic)" sign. (24" x 30")	1 EA
	S1-1 "SCHOOL" sign. (36" x 36")	4 EA
	W16-7p "arrow (symbolic)" right diagonal sign. (24" x 12")	2 EA
	W16-7p "arrow (symbolic)" left diagonal sign. (24" x 12")	1 EA

**EQUIPMENT LIST (cont)**

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

ITEM NO.	DESCRIPTION	QUANTITY
9571	Sheet aluminum signs to consist of: (pole mount)	16 SF
	D3-2 "Jackson Rd 700" sign. (variable x 16").	1 EA
	R3-4 "No U Turn (Symbolic)" (symbolic)" sign. (30" x 30")	1 EA

**B. EQUIPMENT TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR**

ITEM NO.	DESCRIPTION	QUANTITY
1003	Maintenance of traffic	2 EA
2001	Class 2 Excavation.	2 C.Y.
2002	Test Pit Excavation	3 C.Y.
5004	12" white heat applied permanent preformed thermoplastic pavement marking.	720 L.F.
5005	24" white heat applied permanent preformed thermoplastic pavement marking.	110 L.F.
6001	Standard type A combination curb and gutter 12" gutter pan 8" depth.	165 L.F.
6002	5" concrete sidewalk.	800 S.F.
8001	2 wire Central Control unit	1 EA
8004	Adjust existing handhole to grade.	2 EA
8006	Any size lighting arm on signal pole with 250 watt HPS lamp & luminaire.	1 EA
8007	Audible/tactile pedestrian pushbutton station & signs.	4 EA
8008	Breakaway pedestal pole (10').	1 EA
8008	Breakaway pedestal pole (5').	3 EA
8013	LED 16" countdown pedestrian signal heads.	4 EA
8015	Mast arm pole and 38' mast arm any "T" dimension	1 EA
8021	Remove and dispose of existing material & equipment per assignment.	1 EA
8026	1" electrical conduit - galvanized sleeve or flexible liquid tight.	50 L.F.
8033	Schedule 80 rigid PVC conduit up to 4" - bored.	195 L.F.
8035	Schedule 80 rigid PVC conduit up to 4" - trenched.	65 L.F.
8036	Wood sign supports up to 4"x6".	64 L.F.
8037	Detectable warning surfaces	66 S.F.
8038	Install overhead or ground mounted sign (including hardware).	71 S.F.
8040	No. 6 AWG stranded bare copper ground wire.	80 L.F.
8050	12" LED signal head section.	25 EA
8053	Electrical cable - 2 conductor (aluminum shielded)	850 L.F.
8054	Electrical cable - 2 conductor (No. 14 AWG).	480 L.F.
8056	Electrical cable - 5 conductor (No. 14 AWG).	535 L.F.
8057	Electrical cable - 7 conductor (No. 14 AWG).	200 L.F.
8058	Electrical cable - 2 conductor (No. 12 AWG) TC.	225 L.F.
8059	Loop wire encased in flexible tubing (No. 14 AWG).	750 L.F.
8060	Saw cut for signal (loop detector).	225 L.F.

**C. EQUIPMENT TO BE REMOVED**

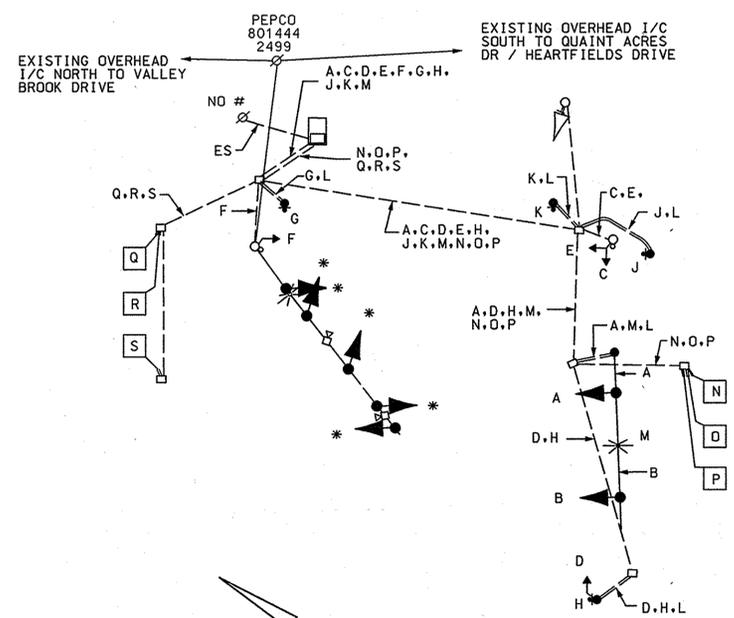
All removed signal materials are to become property of the contractor.

**PHASE CHART**

	1	2	3	4	5	6	7	8	9	10	11	12	13
PHASE 2 & 5	←G→/G	←G→/G	G	R	R	R	R	DARK	DARK	DW	DW	DW	DW
2 & 5 CHANGE	←Y→/G	←Y→/G	G	R	R	R	R	DARK	DARK	DW	DW	DW	DW
PHASE 2 & 6	G	G	G	G	G	R	R	DARK	DARK	WK	WK	DW	DW
PED CLEAR / COUNTDOWN	G	G	G	G	G	R	R	DARK	DARK	FL/DW	FL/DW	DW	DW
2 & 6 CHANGE	Y	Y	Y	Y	Y	R	R	DARK	DARK	DW	DW	DW	DW
PHASE 4	R	R	R	R	R	G	G	DARK	DARK	DW	DW	DW	DW
4 CHANGE	R	R	R	R	R	Y	Y	DARK	DARK	DW	DW	DW	DW
PHASE 4 ALT	R	R	R	R	R	G	G	DARK	DARK	DW	DW	WK	WK
PED CLEAR / COUNTDOWN	R	R	R	R	R	G	G	DARK	DARK	DW	DW	FL/DW	FL/DW
4 ALT CHANGE	R	R	R	R	R	Y	Y	DARK	DARK	DW	DW	DW	DW
FLASHING OPERATION	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/R	FL/R	DARK	DARK	DARK	DARK	DARK	DARK

NOTE: SIGNAL HEADS 8 AND 9 FLASH "YELLOW" DURING SCHOOL HOURS.

**WIRING DIAGRAM**



**WIRING KEY**

- A - 7-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
- L - STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)
- M - 2-CONDUCTOR TRAY CABLE (NO. 14 A.W.G.)
- ES - EXISTING UNDERGROUND SERVICE TO BE MAINTAINED BY PEPCO

\* - USE EXISTING CABLE

TOD No. XX444-05  
SHA No. MO526A53/B53

**SHA** STATE OF MARYLAND  
DEPARTMENT OF TRANSPORTATION  
STATE HIGHWAY ADMINISTRATION

**MD 650 (NEW HAMPSHIRE AVE) AND JACKSON RD**

**GENERAL INFORMATION SHEET**

SCALE NONE DATE 6/27/08 CONTRACT NO. XX4445185

DESIGNED BY R R ZACHERL COUNTY MONTGOMERY  
DRAWN BY ROB CICCHINI LOGMILE 15065006.00  
CHECKED BY \_\_\_\_\_ TMS NO. 1411  
F.A.P. NO. \_\_\_\_\_ TOD NO. \_\_\_\_\_

TS NO. 2577B DRAWING NO. 2 OF 2 SHEET NO. 2 OF 4

**ST**  
STREET TRAFFIC STUDIES, LTD.  
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Glen Burnie, MD 21061  
Ph (410) 590-5500  
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