PROJECT DESCRIPTION

I. GENERAL

This project involves the reconstruction of an existing Traffic Control Signal with interconnect at the intersection of MD 190 (River Rd) and Little Falls Pkwy in Montgomery County. The existing strain pole signal shall be replaced with mast arm poles. MD 190 (River Rd) is assumed to run in an east-west [1] direction. Video detection **& Countdown pedestrian signal heads** shall be used at this intersection.

II. INTERSECTION OPERATION

1. The intersection is to operate in a NEMA five-phase, semi-actuated mode, with the MD 190 (River Rd) approaches continuing to run concurrently. An Exclusive left turn phase shall remain in operation for the eastbound approach of MD 190 (River Rd). ~~The pedestrian phase with pushbutton actuation shall continue to be provided across the west leg of MD 190 (River Rd). The pedestrian phases across Little Falls Pkwy shall remain on recall.~~ [1] Farside sampling stations shall be provided on both legs of Little Falls Pkwy and the west leg of MD 190 (River Rd) at this intersection. The Little Falls Pkwy approaches shall continue to operate as a side street split phase. **A new Countdown Pedestrian phase with audible pusbutton actuation shall be provided across the west leg of MD 190 and also across both legs of Little Falls Pkwy.** [1]

2. A full-traffic-actuated, eight-phase controller with video interface, L.A.U. and L.A.U. Panel and all necessary equipment housed in a NEMA size "6" base-mounted cabinet shall be installed at this intersection.

[1] 3. **SHA signal shop shall instal 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, excluding interconnect, to the appropriate terminals and shall properly label each cable.

2. Disconnecting and splicing of interconnect cable shall be performed by Montgomery County Forces. The contractor shall run the interconnect cable into the base of each cabinet and properly tag the cable. Contact Mr. 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.

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)	33 SF
		R4-7 "KEEP RIGHT (SYMBOLIC)" sign, (24"x30")	2 EA
		R10-6a Mod "STOP HERE ON RED (ARROW)" sign, (24"x30").	1 EA
		GUIDE SIGN M3-4 "WEST"(24"X12") M1-5 "MD 190"(30"X24") M6-1 "right arrow "(21"X15")	1 EA
		GUIDE SIGN M3-4 "EAST"(24"X12") M1-5 "MD 190"(30"X24") M6-1 "left arrow "(21"X15")	1 EA
[1]	9571	Sheet aluminum signs to consist of: (mast arm or pole mount)	119.5 ~~116.5~~ SF
		D3-2 "Little Falls Pkwy" sign, (variable x 16") dual faced. mast arm mounted.	2 EA
		D3-2 "River Rd" sign, (variable x 16") dual faced. mast arm mounted.	2 EA
		R3-5a "THRU ONLY" sign, (30" x 36") mast arm mounted.	1 EA
		R3-5L "LEFT TURN ONLY" sign, (30" x 36") mast arm mounted.	3 EA
		R3-6 "LEFT TURN AND THRU" sign, (30" x 36") mast arm mounted.	1 EA
		R10-11b "NO TURN ON RED" sign, (24"x24"). mast arm mounted.	1 EA
[1]		~~Pedestrian education R10-4(1) sign. (Top portion to be left blank) pole mounted.~~	~~2 EA~~
		GUIDE SHIELD ASSEMBLY (48"x75") pole mounted. M3-4 "WEST"(30"X15") M1-5 "MD 190"(48"X36") M6-1 "left arrow "(30"X24")	1 EA
		GUIDE SHIELD ASSEMBLY (30"x51") pole mounted. M3-4 "EAST"(24"X12") M1-5 "MD 190"(30"X24") M6-1 "right arrow "(21"X15")	1 EA
[1]		**Pedestrian pushbutton and R10-4(1) sign. (Note: Sign to read "PUSHBUTTON TO CROSS LITTLE FALLS PKWY".)**	**4 EA**
		Pedestrian pushbutton and R10-4(1) sign. (Note: Sign to read "PUSHBUTTON TO CROSS RIVER ROAD".)	**2 EA**

EQUIPMENT LIST

B. EQUIPMENT TO BE FURNISHED AND/~~OR~~ INSTALLED BY THE CONTRACTOR

	ITEM NO.	DESCRIPTION	QUANTITY
	1001	Maintenance of traffic per assignment.	3 EA
	2001	Class 2 Excavation.	6 C.Y.
[1]	2002	Test Pit Excavation	11 ~~9~~ C.Y.
	5001	5" white heat applied permanent preformed thermoplastic pavement marking.	140 L.F.
	5002	5" yellow heat applied permanent preformed thermoplastic pavement marking.	980 L.F.
	5003	Remove existing pavement markings - any width.	2160 L.F.
	5007	Heat applied permanent preformed thermoplastic pavement marking letter.	4 EA
	5008	Heat applied permanent preformed thermoplastic pavement marking arrow.	4 EA
	5005	12" white heat applied permanent preformed thermoplastic pavement marking.	1030 L.F.
	5006	24" white heat applied permanent preformed thermoplastic pavement marking.	190 L.F.
[1]	6001	Furnish and install depressed curb and gutter.	20 ~~5~~ L.F.
[1]	6002	Standard type A combination curb and gutter 12" gutter pan 8" depth.	100 ~~10~~ L.F.
	6003	Monolithic conrete median 4', type A-1.	10 L.F.
[1]	6004	4" concrete sidewalk.	1280 ~~580~~ S.F.
[1]	8001	Furnish and install concrete for signal foundation.	22 ~~20~~ C.Y.
[1]	~~8002~~	~~Furnish and install 12" pedestrian signal head section~~	~~12 EA~~
	8007	Pre-manufactured camera to controller (100' length) cable	1 EA
	8008	Pre-manufactured camera to controller (200' length) cable	1 EA
	8009	Pre-manufactured camera to controller (300' length) cable	1 EA
	8010	Pre-manufactured camera to controller (400' length) cable	1 EA
	8014	Furnish and install 15' T mast arm pole and 50' (cut to 40") mast arm.	1 EA
	8014	Furnish and install 15' T mast arm pole and 50' mast arm.	1 EA
	8015	Furnish and install 15' T mast arm pole and 60' mast arm.	2 EA
[1]	8018	Furnish and install breakaway pedestal pole (10').	4 ~~2~~ EA
	8018	Furnish and install breakaway pedestal pole (14').	1 EA
	8019	Remove and dispose of existing material and equipment per assignment.	1 EA
	8024	Disconnect, pull back and reroute cable.	770 L.F.
[1]	8026	**Detectable warning surfaces**	**80 SF**
	8029	Furnish and install wood sign supports 4" x 6".	35 L.F.
[1]	8030	Furnish and install No. 6 AWG stranded bare copper ground wire.	1140 ~~1090~~ L.F.
	8037	Furnish and install 4" schedule 80 rigid polyvinyl chloride conduit - bored.	335 L.F.
[1]	8039	Furnish and install 3" schedule 80 rigid polyvinyl chloride - trenched.	120 ~~90~~ L.F.
	8040	Furnish and install 4" schedule 80 rigid polyvinyl chloride - trenched.	125 L.F.
	8043	Furnish and install 4" schedule 80 rigid polyvinyl chloride - slotted.	225 L.F.
	8046	Furnish and install electrical utility service equipment (120/240 V, 1 phase 3 wire system).	1 EA
	8053	Furnish and install electrical handhole.	6 EA
	8055	Install ground mounted sign.	33 S.F.
[1]	8056	Install overhead sign.	119.5 ~~116.5~~ S.F.
	8057	Furnish and install video detector camera.	4 EA
	8069	Furnish and install 12-pair communication cable, jelly-filled, (underground).	345 L.F.

B. EQUIPMENT TO BE FURNISHED AND/~~OR~~ INSTALLED BY THE CONTRACTOR

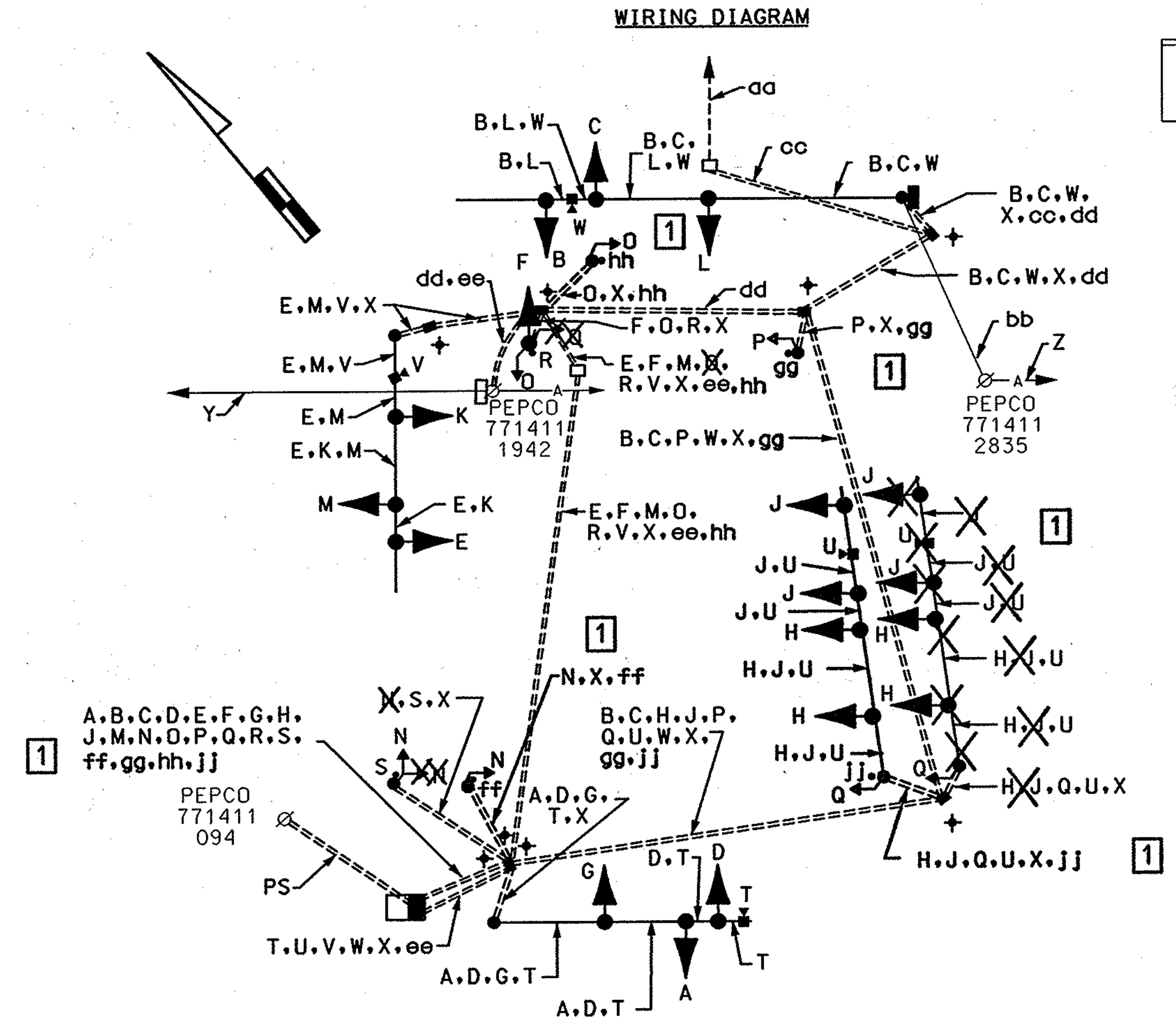
	ITEM NO.	DESCRIPTION	QUANTITY
	8074	Furnish and install ground rod - 3/4" x 10'.	8 EA
	8076	Furnish and install 12" vehicular traffic signal head section	48 EA
	8079	Cut, clean, galvanize and cap traffic signal structure.	1 EA
[1]	8082	Furnish and install electrical cable - 2 conductor (No. 14 AWG).	730 ~~185~~ L.F.
[1]	~~8083~~	~~Furnish and install electrical cable - 3 conductor (No. 14 AWG).~~	~~380 L.F.~~
[1]	8084	Furnish and install electrical cable - 5 conductor (No. 14 AWG).	1410 ~~1030~~ L.F.
	8085	Furnish and install electrical cable - 7 conductor (No. 14 AWG).	1225 L.F.
[1]	8088	**Saw cut**	**110 L.F.**
[1]	~~8089~~	~~Pedestrian pushbutton and R10-4(1) sign. (Note: Sign to read "PUSHBUTTON TO CROSS RIVER RD".)~~	~~2 EA~~
	8094	Install controller and cabinet pole mount. (Note: To be supplied by Montgomery County).	1 EA
	8095	Install controller and cabinet base mount.	1 EA
[1]	8104	**LED 16" countdown pedestrian signal head.**	**6 EA**
[1]	8105	**Audible/tactile pedestrian pushbutton.**	**6 EA**
[1]	8106	**2 wire Central Control unit**	**1 EA**
	8028	Furnish and install 4"x4" WOOD post.	48 LF

C. EQUIPMENT TO BE REMOVED

SHA shall remove all auxillary equipment from the cabinet
All other removed signal materials are to become property of the contractor.

[1] **NOTE: SET MAST ARM FOR EASTBOUND MD 190 APPROACH AT TIME OF TURN ON.**

WIRING DIAGRAM



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

Mr. Lee Starkloff
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. Ed Rodenhizer
Signal Shop
410-787-7652

Sonny bailey
Sign operations
410-787-7676

The power company representative is:

Mr. Steve Custer
PEPCO Customer Design
201 W Guide Dr.,
Rockville, MD 20850
Phone: 301 548-4333

TEDD APPROVAL [signature]   [1] REDLINE REVISION 2/1/06

REVISION "B"
STREET TRAFFIC STUDIES, LTD.
400 Crain Hwy.,N.W.
Glen Burnie,MD 21061
Ph (410) 590-5500
Fax (410) 590-6637
4569GIred.dgn   WT-18

SEQUENCE OF OPERATION SHEET

TRAFFIC OPERATIONS SECTION
DIVISION OF TRAFFIC ENGINEERING
MONTGOMERY COUNTY, MARYLAND

MD 190 RUNS IN AN EAST-WEST DIRECTION

INTERSECTION: MD 190 AND LITTLE FALLS PARKWAY

NO. ________

SIGNAL HEAD INDICATIONS

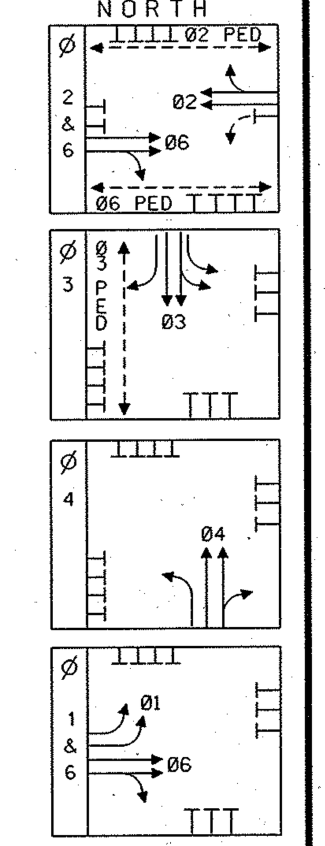
SIGNAL NO.	1,2,3	4,5,6,7,10	8,9,11,13	12,14	15-20
TOTAL:	3	5	4	2	4
LEGEND: ☐ OPTICALLY LIMITED; R RED; Y YELLOW; G GREEN; ◄— ARROW; F FLASHING	◄R, ◄Y, ◄G 12"	R, Y, G 12"	R, Y, G, ◄G 12"	R -R►, Y, G 12"	Countdown pedestrian heads 9" or 12" [1]

SEQUENCE OF OPERATION

SIGNAL NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	FLASH
1	◄R-	◄R-	◄R-	◄R-	◄R-	◄R-	◄R-	◄R-	◄R-	◄R-	◄R-	◄R-	◄G-	◄Y-	◄R-	FL/◄R
2	◄R-	◄R-	◄R-	◄R-	◄R-	◄R-	◄R-	◄R-	◄R-	◄R-	◄R-	◄R-	◄G-	◄Y-	◄R-	FL/◄R
3	◄R-	◄R-	◄R-	◄R-	◄R-	◄R-	◄R-	◄R-	◄R-	◄R-	◄R-	◄R-	◄G-	◄Y-	◄R-	FL/◄R
4	G	G	Y	R	R	R	R	R	R	R	R	R	G	G	G	FL/Y
5	G	G	Y	R	R	R	R	R	R	R	R	R	G	G	G	FL/Y
6	G	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	FL/Y
7	G	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	FL/Y
8	R	R	R	R	R	R	R	R	R	G ◄G	Y	R	R	R	R	FL/R
9	R	R	R	R	R	R	R	R	R	G ◄G	Y	R	R	R	R	FL/R
10	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	FL/R
11	R	R	R	R	G ◄G	G ◄G	G ◄G	Y	R	R	R	R	R	R	R	FL/R
12	R/-R►	R/-R►	R/-R►	R/-R►	G	G	G	Y	R/-R►	R/-R►	R/-R►	R/-R►	R/-R►	R/-R►	R/-R►	FL/R
13	R	R	R	R	G	G	G	Y	R	R	R	R	R	R	R	FL/R
14	R/-R►	R/-R►	R/-R►	R/-R►	G	G	G	Y	R/-R►	R/-R►	R/-R►	R/-R►	R/-R►	R/-R►	R/-R►	FL/R
15	WK	FL/DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DARK
16	WK	FL/DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	WK	WK	WK	DARK
17	WK	FL/DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	WK	WK	WK	DARK
18	WK	FL/DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DARK
19	DW	DW	DW	DW	WK	FL/DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DARK
20	DW	DW	DW	DW	WK	FL/DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DARK
PHASE	2 & 6			ALL RED	3				ALL RED	4		ALL RED	1 & 6		ALL RED	

NOTES:

PHASING



SUBMITTED: ________	CHECKED: ________	APPROVED: ________
IN SERVICE BY: ________	DATE: ________	TIME: ________

WIRING KEY

A, B, C, D, E, F, G } 7-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G)

H, J, K, L, M, N, O, P, Q } 5-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G)

~~P, Q } 3-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G)~~ [1]

R, S, ff, gg, hh, jj } 2-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G) [1]

T - PRE-MANUFACTURED CAMERA TO CONTROLLER CABLE (100')

U - PRE-MANUFACTURED CAMERA TO CONTROLLER CABLE (200')

V - PRE-MANUFACTURED CAMERA TO CONTROLLER CABLE (300')

W - PRE-MANUFACTURED CAMERA TO CONTROLLER CABLE (400')

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

Y, Z } EXISTING OVERHEAD INTERCONNECT CABLE

aa - EXISTING UNDERGROUND INTERCONNECT CABLE

bb - REROUTED OVERHEAD INTERCONNECT CABLE

cc - REROUTED UNDERGROUND INTERCONNECT CABLE

dd, ee } 12-PAIR VOICE GRADE INTERCONNECT CABLE (JELLY FILLED)

PS - PROPOSED UNDERGROND SERVICE TO BE INSTALLED BY PEPCO

✦ - GROUND ROD

MARYLAND DOT - STATE HIGHWAY ADMINISTRATION
Office of Traffic & Safety
TRAFFIC ENGINEERING DESIGN DIVISION

MD 190 AND LITTLE FALLS PARKWAY

DRAWN BY:	ROB CICCHINI	F.A.P. NO.		TS NO. 3180B	SHEET NO. 3 OF 3
CHECKED BY:	J ALLEN	S.H.A. NO.	AT3565185		
SCALE:	NONE	COUNTY:	MONTGOMERY	T.I.M.S. NO. G093	
DATE:	7/22/04	LOG MILE:	15019015.26		

...\4000's\4569\4569gired.dgn Feb. 09, 2006 15:48:57