PROJECT DESCRIPTION

I. GENERAL

This project involves the reconstruction of an existing Traffic Control Signal with interconnect at the intersection of MD 97 (Georgia Avenue) and Arcola Avenue in Montgomery County. The strain pole signal shall be replaced with a new mast arm signal. This reconstruction is due to intersection geometric improvements. Video detection shall be used for side street and main line left turn detection as well as main line sampling. MD 97 (Georgia Avenue) is assumed to run a north-south direction.

II. INTERSECTION OPERATION

1. The intersection shall continue to operate in a NEMA five-phase, semi-actuated mode, with the MD 97 (Georgia Avenue) approaches running concurrently. An Exclusive/Permissive left turn phase shall remain in operation for the southbound approach MD 97 (Georgia Avenue) . The pedestrian phases with pushbutton actuation shall continue to operate across both legs MD 97 (Georgia Avenue) . The pedestrian phases Arcola Avenue shall remain on recall. Farside sampling stations via video detection shall provided for both directions MD 97 (Georgia Avenue) at this intersection. The Arcola Avenue approaches shall continue to run concurrently.

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.

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. Bob Gonzales 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 MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION AND INSTALLED BY THE CONTRACTOR

ITEM NO.	DESCRIPTION	QUANTITY
8088	D3-2 "Georgia Ave 11700>" sign (variable x 18") mast arm mounted.	1 Each
8088	D3-2 "Georgia Ave<11700" sign (variable x 18") mast arm mounted.	1 Each
8088	D3-2 "Arcola Ave 2500>" sign (variable x 18") mast arm mounted.	1 Each
8088	D3-2 "Arcola Ave<2500 " sign (variable x 18") mast arm mounted.	1 Each
8088	R3-5L "LEFT TURN ONLY" sign, (30" x 36") mast arm mounted.	2 Each
8088	R3-5R "RIGHT TURN ONLY" sign, (30" x 36") mast arm mounted.	1 Each
8088	R10-11b "NO TURN ON RED" sign, (24" x 24") mast arm mounted.	1 Each
8088	R10-12 "LEFT TURN YIELD ON GREEN BALL" sign, (36"x42") mast arm mounted.	1 Each
8103	27' steel pole with a 38' mast arm. (Note: Anchor bolts will be 1½" x 60".)	1 Each
8103	27' steel pole with a 40' mast arm. (Note: Anchor bolts will be 1¾" x 90".)	1 Each
8103	27' steel pole with a 50' mast arm. (Note: Anchor bolts will be 1¾" x 90".)	1 Each
8106	10' breakaway pedestal pole with transformer base.	3 Each
8122	12", one-way, three-section (R,Y,G) traffic signal head with adjustable bracket for mast arm mounting and tunnel visors.	8 Each
8122	12", one-way, five-section (R,YA,Y,GA,G) left arrows traffic signal head with adjustable bracket for mast arm mounting and tunnel visors.	2 Each
8122	12", one-way, five-section (R,YA,Y,GA,G) right arrows traffic signal head with adjustable bracket for mast arm mounting and tunnel visors.	1 Each
8124	12", one-way, two-section (DW,W) symbolic pedestrian signal head with adjustable bracket for pole mounting and cutaway visors.	4 Each
8124	12", one-way, two-section (DW,W) symbolic pedestrian signal head having proper post top adapter for pedestal mounting and cutaway visors.	4 Each
8126	Pedestrian pushbutton and pedestrian education R10-4(1) sign. (Note: Sign to read "PUSH BUTTON TO CROSS GEORGIA AVE".)	4 Each
8128	Splice cabinet with telemetry equipment, pole mounted.	1 Each
8129	Eight-phase, full-traffic-actuated, solid state digital controller with L.A.U., L.A.U. Panel and video interface equipment housed in a NEMA size "6" base-mounted cabinet.	1 Each
-	Video detector camera w/ coaxial cable (to be installed by County Forces)	4 Each
-	16'-6" upright mast arm pole with 15'T and 50' mast arm.	1 Each

EQUIPMENT LIST (CONT)

A. EQUIPMENT TO BE SUPPLIED BY MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION AND INSTALLED BY THE CONTRACTOR

ITEM NO.	DESCRIPTION	QUANTITY
	GUIDE SHIELD ASSEMBLY (48"x75") pole mounted. M3-3 "South"(30"X15") M1-5 "MD 97"(48"X36") M6-1 "left arrow "(30"X24")	1 Each
	GUIDE SHIELD ASSEMBLY (30"x51") pole mounted. M3-1 "NORTH"(24"X12") M1-5 "MD 97"(30"X24") M6-1 "right arrow "(21"X15")	1 Each

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

ITEM NO.	DESCRIPTION	QUANTITY
2002	Test pit excavation.	8 C.Y.
5016	4" concrete sidewalk, mix No. 2.	250 S.F.
5022	Remove sidewalk.	250 S.F.
8001	Concrete foundation.	17 C.Y.
8023	3" polyvinyl chloride electrical conduit (Schedule 80) (trenched).	60 L.F.
8027	4" polyvinyl chloride electrical conduit (Schedule 80) (trenched).	165 L.F.
8029	4" polyvinyl chloride electrical conduit (Schedule 80) (slotted).	360 L.F.
8030	4" polyvinyl chloride electrical conduit (Schedule 80) (2nd conduit within one slot or trench).	460 L.F.
8041	Control and distribution equipment.	1 Each
8043	Ground rod,¾" diameter x 10' length with clamp.	8 Each
8052	12-pair telemetry cable - jelly-filled (underground).	240 L.F.
8063	Canoga 4-conductor electrical cable (No. 14 A.W.G.) (shielded).	815 L.F.
8064	2-conductor electrical cable (No. 14 A.W.G.).	575 L.F.
8065	3-conductor electrical cable (No. 14 A.W.G.).	440 L.F.
8066	5-conductor electrical cable (No. 14 A.W.G.).	515 L.F.
8067	7-conductor electrical cable (No. 14 A.W.G.).	1395 L.F.
8075	1-conductor electrical cable (No. 6 A.W.G.) stranded bare copper ground wire.	995 L.F.
8109	3" weatherhead.	2 Each
8110	3" welded blind coupling.	2 Each
8131	Traffic signal handbox (pullbox).	8 Each
8148	Removal and salvage of signs less than 50 S.F.	5 Each
8152	Removal of electrical service.	1 Each
8153	Removal of span and associated wiring.	4 Each
8156	Removal and salvage of strain pole including foundation.	4 Each
8159	Removal and salvage of cabinet, base-mounted.	1 Each
8161	Removal of handbox.	2 Each
8162	Removal and salvage of traffic signal head.	9 Each
8162	Removal and salvage of pedestrian signal	8 Each
Neg.	3" galvanized LB	1 Each
Neg.	Signal technician labor to reroute existing overhead interconnect cable.	2 HRS

SEQUENCE OF OPERATION SHEET

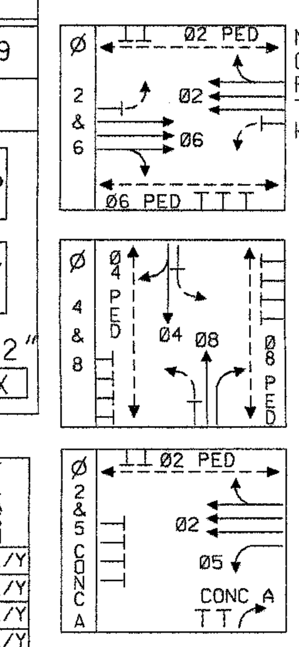
MD 97 RUNS IN AN NORTH-SOUTH DIRECTION

TRAFFIC OPERATIONS SECTION
DIVISION OF TRAFFIC ENGINEERING
MONTGOMERY COUNTY, MARYLAND

NO. ________

INTERSECTION: MD 97 AND ARCOLA AVENUE

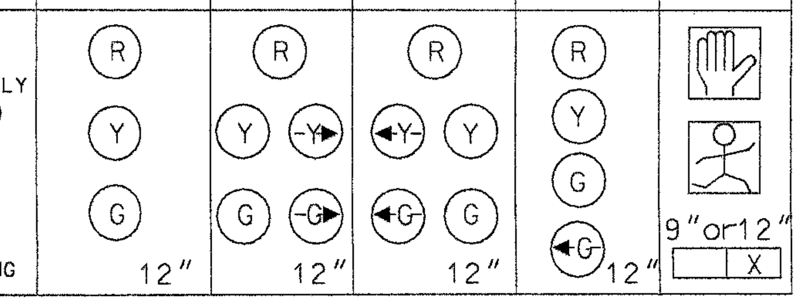
PHASING



SIGNAL HEAD INDICATIONS

SIGNAL NO.	1,2,5,6,7,8,9,10	11	3,4		12-19
TOTAL:	8	1	2		8

LEGEND
OPTICALLY LIMITED
R RED
Y YELLOW
G GREEN
← ARROW
F FLASHING

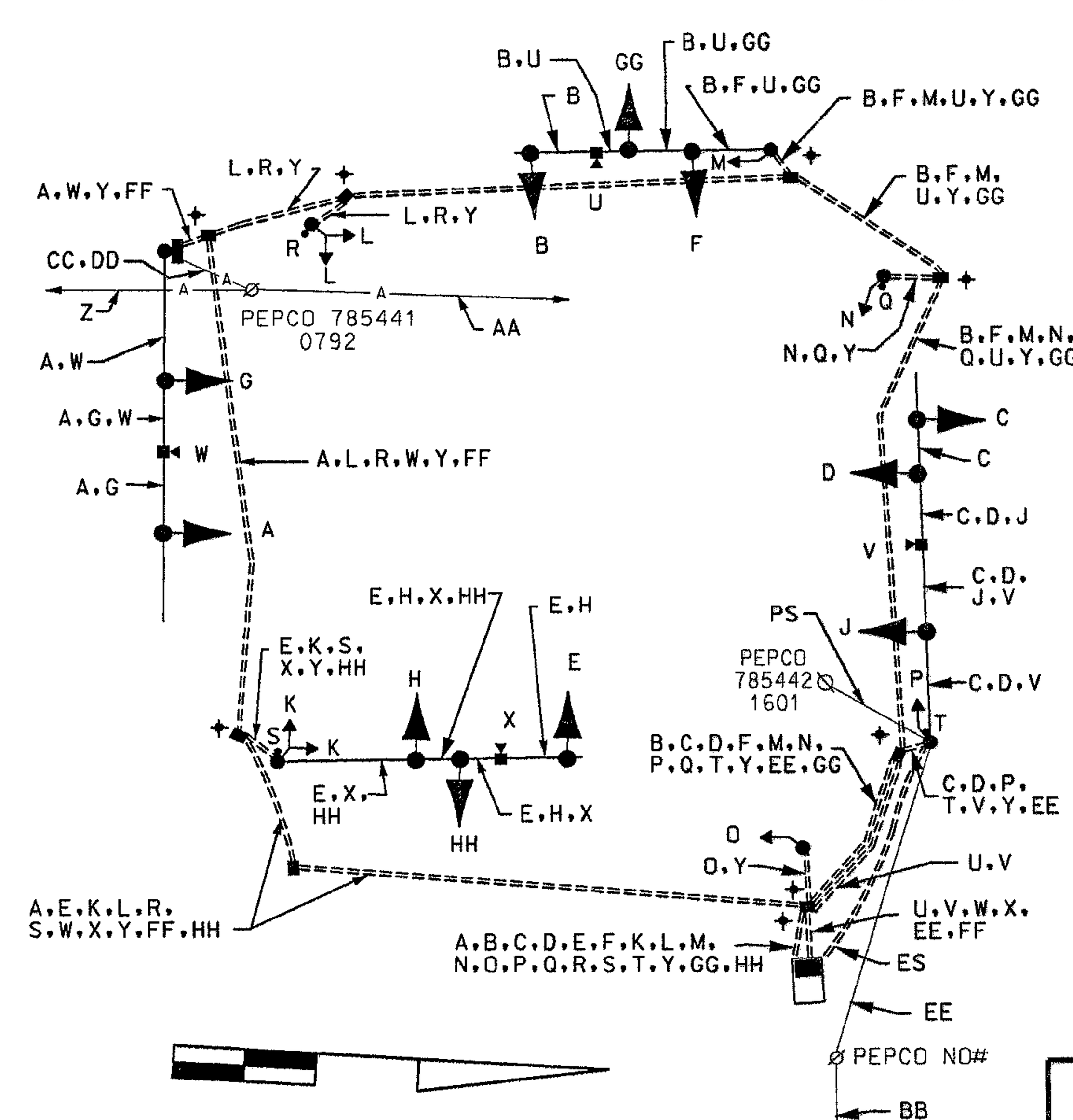


SIGNAL NO.	1	2	3	4	5	6	7	8	9	10	11	12	FLASH
	SEQUENCE OF OPERATION — INTERVAL												
1	G	G	Y	R	R	R	R	R	R	R	R	R	FL/Y
2	G	G	Y	R	R	R	R	R	R	R	R	R	FL/Y
3	G	G	Y	R	R	R	R	R	R	◄G/G	◄Y/G	G	FL/Y
4	G	G	Y	R	R	R	R	R	R	◄G/G	◄Y/G	G	FL/Y
5	G	G	Y	R	R	R	R	R	R	G	G	G	FL/Y
6	R	R	R	R	G	G	G	Y	R	R	R	R	FL/R
7	R	R	R	R	G	G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

NOTES:

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

WIRING DIAGRAM



WIRING KEY

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

G, H, J, K, L — 5-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G)

M, N, O, P — 3-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G)

Q, R, S, T — 2-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G)

U, V, W, X — CANOGA 4-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.) SHIELDED COAXIAL CABLE (INCIDENTAL WITH PURCHASE OF CAMERA)

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

Z - EXISTING 12-PAIR VOICE GRADE INTERCONNECT CABLE (SELF SUPPORTING) FROM BLUERIDGE AVE

AA - EXISTING 12-PAIR VOICE GRADE INTERCONNECT CABLE (SELF SUPPORTING) FROM SHOREFIELD RD

BB - EXISTING 12-PAIR VOICE GRADE INTERCONNECT CABLE (SELF SUPPORTING) FROM AMHERST AVE

CC - REROUTED 12-PAIR VOICE GRADE INTERCONNECT CABLE (SELF SUPPORTING) FROM BLUERIDGE AVE

DD - REROUTED 12-PAIR VOICE GRADE INTERCONNECT CABLE (SELF SUPPORTING) FROM SHOREFIELD RD

EE - REROUTED 12-PAIR VOICE GRADE INTERCONNECT CABLE (SELF SUPPORTING) FROM AMHERST AVE

FF - 12-PAIR VOICE GRADE INTERCONNECT CABLE (JELLY FILLED)

ES - ELECTRICAL SERVICE

PS - PROPOSED OVERHEAD ELECTRICAL SERVICE TO BE INSTALLED BY PEPCO

✦ - GROUND ROD

STREET TRAFFIC STUDIES, LTD.
400 Crain Hwy.,N.W.
Glen Burnie,MD 21061
Ph (410) 590-5500
Fax (410) 590-6637

4232.dgn

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

MD 97 AND ARCOLA AVENUE

DRAWN BY:	ROB CICCHINI	F.A.P. NO.		TS NO. 209A-GI	SHEET NO. 2 OF 2
CHECKED BY:		S.H.A. NO.	BW496M83		
SCALE:	NONE	COUNTY:	MONTGOMERY	T.I.M.S. NO. F819	
DATE:	6-19-03	LOG MILE:	15009702.94		