PROJECT DESCRIPTION

I. GENERAL

This project involves the modification of an existing traffic control signal in conjunction with geometric improvements at the intersection of Germantown Road (MD 118) and Middlebrook Road in Montgomery County, Maryland. Germantown Road (MD 118) is assumed to run in a North-South direction.

II. INTERSECTION OPERATION

The phasing operation will be changed from a split phase on Middlebrook Road to a concurrent phase. Both Eastbound and Westbound left turns will be exclusive only.

III. CONTROLLER REQUIREMENTS

The controller assembly will be an eight phase fully actuated NEMA controller complete with system package: three (3), four-channel, time delay output loop detector amplifiers; video detection equipment; and miscellaneous auxiliary equipment as required to provide the intended operation. A NEMA "6" base mounted cabinet is to be used.

IV. SPECIAL NOTES

1. MAINTENANCE OF TRAFFIC WILL BE HANDLED BY THE CONTRACTOR UTILIZING THE FOLLOWING STANDARD PLATES FOR TRAFFIC CONTROL: 104.00-13, 104.00-19, 104.00-21-104.00-24, 104.17-01, 104.17-02, 104.39-02, 104.41-02, 104.48-01, 104.48-02, 104.49-01, 104.49-02, 104.81-01, 104.81-02.

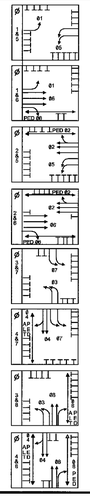
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PULLING ALL CABLE TO THE CABINET AND SHALL PROPERLY LABEL EACH CABLE.

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.

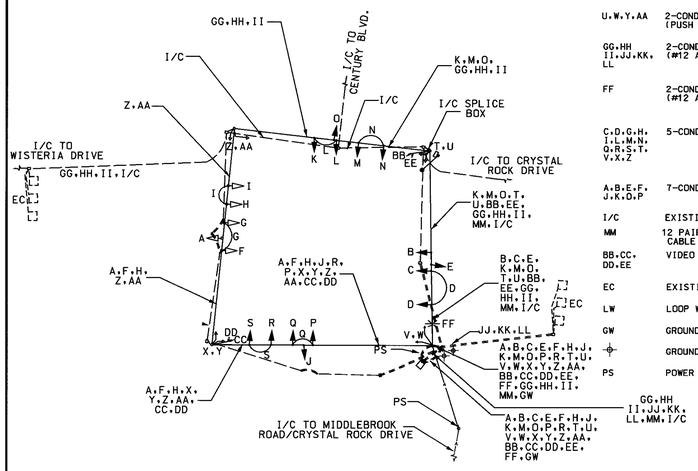
4. ALL DISCONNECTING AND CONNECTING OF TRAFFIC SIGNAL INTERCONNECT CABLE SHALL BE THE RESPONSIBILITY OF THE MONTGOMERY COUNTY DPW&T. CONTACT MR. ROBERT GONZALES AT (240) 777-8761 AT LEAST 72 HOURS PRIOR TO INITIATING ANY CONSTRUCTION WORK

PHASE CHART AND PHASING DIAGRAM

	1,2	3,4	5-7	8,9	10-12	13,14	15-17	18,19	20,23	21,22	25,26	24,27
Phase 1 & 5	◀G-	R	◀G-	R	◀R-	R	◀R-	R	DW	DW	DW	DW
1 & 5 Change	THE CONTROLLER MAY SKIP TO PHASES 1 & 6 OR 2 & 5 OR 2 & 6											
Phase 1 & 6	◀G-	G	◀R-	R	◀R-	R	◀R-	R	DW	W	DW	DW
1 Change	◀Y-	G	◀R-	R	◀R-	R	◀R-	R	DW	W	DW	DW
Phase 2 & 5	◀R-	R	◀G-	G	◀R-	R	◀R-	R	W	DW	DW	DW
5 Change	◀R-	R	◀Y-	G	◀R-	R	◀R-	R	W	DW	DW	DW
Phase 2 & 6	◀R-	G	◀R-	G	◀R-	R	◀R-	R	W	W	DW	DW
Ped. Clear	◀R-	G	◀R-	G	◀R-	R	◀R-	R	FL/DW	FL/DW	DW	DW
2 & 6 Change	◀R-	Y	◀R-	Y	◀R-	R	◀R-	R	DW	DW	DW	DW
Phase 3 & 7	◀R-	R	◀R-	R	◀G-	R	◀G-	R	DW	DW	DW	DW
3 & 7 Change	THE CONTROLLER MAY SKIP TO PHASES 3 & 8 OR 4 & 7 OR 4 & 8											
Phase 3 & 8	◀R-	R	◀R-	R	◀G-	G	◀R-	R	DW	DW	DW	DW
3 Change	◀R-	R	◀R-	R	◀Y-	G	◀R-	R	DW	DW	DW	DW
Phase 4 & 7	◀R-	R	◀R-	R	◀R-	R	◀G-	G	DW	DW	DW	DW
7 Change	◀R-	R	◀R-	R	◀R-	R	◀Y-	G	DW	DW	DW	DW
Phase 4 & 8	◀R-	R	◀R-	R	◀R-	G	G	G	DW	DW	DW	DW
4 & 8 Change	◀R-	R	◀R-	R	◀R-	Y	Y	Y	DW	DW	DW	DW
4 & 8 Alt.	◀R-	R	◀R-	R	◀R-	G	G	G	DW	DW	W	W
Ped. Clear	◀R-	R	◀R-	R	◀R-	G	G	G	DW	DW	FL/DW	FL/DW
4 & 8 Change	◀R-	R	◀R-	R	◀R-	Y	Y	Y	DW	DW	DW	DW
Flashing Operation	FL/Y	FL/Y	FL/Y	FL/Y	FL/R	FL/R	FL/R	FL/R	Dark	Dark	Dark	Dark



WIRING DIAGRAM



WIRING LEGEND

U,W,Y,AA	2-COND. ELECTRICAL CABLE (#14 AWG) (PUSH BUTTONS)
GG,HH II,JJ,KK, LL	2-COND. ALUMINUM SHIELDED CABLE (#12 AWG)
FF	2-COND. ELECTRICAL TRAY CABLE (#12 AWG)
C,D,G,H, I,L,M,N, O,R,S,T, V,X,Z	5-COND. ELECTRICAL CABLE (#14 AWG)
A,B,E,F, J,K,O,P	7-COND. ELECTRICAL CABLE (#14 AWG)
I/C	EXISTING INTERCONNECT CABLE
MM	12 PAIR JELLYFILLED COMMUNICATIONS CABLE
BB,CC, DD,EE	VIDEO CABLE (VIDEO DETECTOR)
EC	EXISTING CABLE
LW	LOOP WIRE
GW	GROUND WIRE (#6 AWG)
⏚	GROUND ROD (IN HANDHOLE)
PS	POWER SOURCE

EQUIPMENT LIST "A"

A. EQUIPMENT TO BE FURNISHED BY THE STATE HIGHWAY ADMINISTRATION

QUANTITY	UNITS	SPECIFICATION SECTION	DESRCRIPTION

EQUIPMENT LIST "B"

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

QUANTITY	UNITS	SPECIFICATION SECTION	DESRCRIPTION
1	LS	120500	Maintenance of Traffic
1	LS	130850	Mobilization
2	CY	203030	Test pit excavation
5	CY	801	Concrete for signal pole foundation
30	LF	812	Wood sign supports 4" X 4"
90	SF	813	Furnish sheet aluminum signs consisting of:
			3 EA R4-7 (24"x30")
			5 EA R3-5L (30"x36")
			2 EA R3-5R (30"x36")
			1 EA R10-3C (9"x12")
			2 EA ROUTE ASSEMBLY (30"x51")
70	LF	805	4" schedule 80 PVC conduit (bored)
20	LF	805	2" schedule 80 PVC conduit (trenched)
140	LF	805	3" schedule 80 PVC conduit (trenched)
50	LF	805	4" schedule 80 PVC conduit (trenched)
100	LF	810	Electrical cable 2-conductor no. 12 AWG copper type tray cable
6	EA	811	Remove electrical handhole
2	EA	811	Furnish and install electrical handhole
2	EA	813	Relocate existing sign from overhead structure
3	EA	813	Install ground mounted sign
7	EA	813	Install overhead sign
2	EA	816	Control cable, 250', video detection camera to controller
2	EA	816	Control cable, 500', video detection camera to controller
1	EA	816	Video interface equipment
200	LF	810	12-Pair communication cable (overhead)
1	EA	806	250 watt HPS lamp & luminaire
400	LF	810	Bare copper ground wire, No. 6 AWG
2	EA	804	Ground rod -3/4in diameter X 10 ft.
42	EA	814	12 in. vehicular traffic signal head section
4	EA	814	12 in., pedestrian signal head section (pole mount)
2200	LF	810	Electrical cable - 2 conductor (Aluminum Shielded)
1000	LF	810	Electrical cable - 2 conductor (No. 14 AWG)
3000	LF	810	Electrical cable - 5 conductor (No. 14 AWG)
1800	LF	810	Electrical cable - 7 conductor (No. 14 AWG)
1	EA	817	Pushbutton and sign
1	EA	818	15 foot lighting arm on signal structure
2	EA	818	20 foot lighting arm on signal structure
1	EA	818	12" X 32' strain pole
350	LF	819	Steed span wire - 1/4inch diameter
350	LF	819	Steel span wire - 3/8inch diameter
1	EA	816	Eight phase, fully actuated controller and cabinet - base mount
4	EA	816	Video Detection Camera

EQUIPMENT LIST "C"

C. EXISTING EQUIPMENT TO BE REMOVED BY THE CONTRACTOR AND DELIVERED TO THE STATE HIGHWAY ADMINISTRATION. 7491 CONNELLEY DRIVE, HANOVER, MARYLAND 21076.

QUANTITY	UNITS	SPECIFICATION SECTION	DESCRIPTION

PROJECT CONTACTS

THE CONTACT PERSONS FOR SHA ARE AS FOLLOWS:

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District Engineer - Traffic
Phone # (301) 513-7358

Mr. Robert Gonzales
Engineer III (Montgomery County)
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Mr. Ed Rodenhizer
Signal Shop Supervisor
Phone # (410) 787-7652

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Annapolis, MD 21401
Phone: (301) 970-2402 Fax: (410) 266-9189

REVISIONS

D	MAY 28 04. GEOM. IMP. TO INCLUDE ADDITIONAL WB LT. REMOVE CHANNELIZED WB RIGHT TURN LANE.	WTB
C	APRIL, 1993 EB RT LANE, POLE RELOCATION LOOPS AND SB LANE	
B	4-3-93 AS BUILT	
A	4-22-88 SHA NO. M-969-451-371 RELOCATE SIGNAL EQUIP. DUE TO GEO. IMP. W/B DOUBLE LT	

MARYLAND DOT - STATE HIGHWAY ADMINISTRATION
Office of Traffic & Safety
TRAFFIC ENGINEERING DESIGN DIVISION
TRAFFIC SIGNAL MODIFICATION PLAN
GERMANTOWN ROAD (MD 118)
AT MIDDLEBROOK ROAD

DRAWN BY: McDOT	F.A.P. NO.	TS NO. 2003D-GI	SHEET NO.
CHECKED BY: McDOT	S.H.A. NO.		
SCALE: NTS	COUNTY: MONTGOMERY	T.I.M.S. NO. G056	2 OF 2
DATE: AUG 1986	LOG MILE: 15011805.57		