MD 650 RUNS IN A
NORTH-SOUTH DIRECTION.

PROJECT DESCRIPTION

A. GENERAL

THE PROJECT IS TO REBUILD THE EXISTING SIGNAL AT MD 650 AND CHALMERS ROAD/ ENTRANCE TO HILLENDALE VOLUNTEER FIRE DEPARTMENT IN MONTGOMERY COUNTY. IT ALSO INVOLVES INSTALLING ADDITIONAL PUSH BUTTONS (2) IN THE BOTTOM PORTION OF THE FIRE DEPARTMENT FOR AMBULANCES. ALL SIGNAL HEAD FACES WILL BE CHANGED TO BLACK FACED. A THIRD SIGNAL WILL BE ADDED FOR SOUTHBOUND MD 650.
MD 650 RUNS IN A NORTH-SOUTH DIRECTION.

B. INTERSECTION OPERATION

THIS INTERSECTION IS EQUIPPED WITH A EIGHT PHASE FULLY ACTUATED CONTROLLER HOUSED IN A BASE MOUNTED CABINET. IT IS TO USE FIVE PHASES OUT OF EIGHT. THE INTERSECTION WILL NORMALLY OPERATE AS A FOUR PHASE OPERATION. IT WILL ALSO HAVE TWO PRE-EMPTION PHASES FOR THE FIRE DEPARTMENT. ONE PHASE (PHASE 03) WILL BE USED FOR THE FIRE TRUCKS COMING OUT OF THE TOP PORTION OF THE FIRE HOUSE. WHILE THE SECOND PHASE (PHASE 04 & 07) WILL BE USED FOR THE AMBULANCES COMING OUT OF THE BOTTOM PORTION. ACCORDING TO CHIEF LOU SCHAUB OF THE MONTGOMERY COUNTY FIRE DEPARTMENT (1-301-434-2400). THE AMBULANCE SHALL HAVE PRIORITY OVER THE FIRE TRUCKS WHEN A CALL GOES IN FOR BOTH APPARATUS. THE FIRE TRUCKS SHALL USE CAUTION WHEN LEAVING THE FIRE HOUSE WITH AN AMBULANCE SINCE THE FIRE TRUCKS WILL NOT SHOW A PRIORITY SIGNAL FOR THIS PORTION OF THE PRE-EMPTION PHASE OF THE SIGNAL (PHASE 04 & 07).

EQUIPMENT LISTS

A. EQUIPMENT TO BE FURNISHED BY THE SHA

ITEM NO.	QUANTITY	DESCRIPTION
	1 EACH	EIGHT PHASE FULLY ACTUATED CONTROLLER HOUSED IN A SIZE "6" BASE MOUNTED CABINET W/ FOUR (4) FOUR CHANNEL LOOP DETECTOR AMPLIFIER
	113.9 S.F.	1 EACH ASSOCIATED SHIELD ASSEMBLY SIGN. "NORTH. MARYLAND 650. (RIGHT ARROW)". 30" x 51". POLE MOUNTED HARDWARE
		1 EACH ASSOCIATED SHIELD ASSEMBLY SIGN. "SOUTH. MARYLAND 650. (LEFT ARROW)". 48" x 75". POLE MOUNTED HARDWARE
		1 EACH ASSOCIATED SHIELD ASSEMBLY SIGN. "SOUTH. MARYLAND 650. (RIGHT ARROW)". 30" x 51". POLE MOUNTED HARDWARE
		1 EACH ASSOCIATED SHIELD ASSEMBLY SIGN. "NORTH. MARYLAND 650. (LEFT ARROW)". 48" x 75". POLE MOUNTED HARDWARE
		2 EACH D3-2 SIGN. "Chalmers RD (RIGHT ARROW)". 16" x Var.. MAST ARM MOUNTED HARDWARE
		2 EACH D3-2 SIGN. "(LEFT ARROW) Chalmers RD". 16" x Var.. MAST ARM MOUNTED HARDWARE
	* 1 EACH	POLE MOUNTED SPLICE CABINET

* - TO BE FURNISHED BY THE MONTGOMERY COUNTY SIGNAL SHOP (SEE NOTE 5 UNDER THE CONTRACTOR'S NOTES)

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

ITEM NO.	QUANTITY	DESCRIPTION
1001	1 EACH	MAINTENANCE OF TRAFFIC
2002	3 C.Y.	TEST PIT EXCAVATION
5005	35 L.F.	F & I 24" WHITE HEAT APPLIED PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKINGS
5007	130 L.F.	F & I 5" YELLOW HEAT APPLIED PERMANENT PREFORMED THEROPLASTIC PAVEMENT MARKINGS
5008	25 L.F.	REMOVAL OF EXISTING PAVEMENT MARKINGS - ANY WIDTH
6004	18 S.F.	F & I 4" CONCRETE SIDEWALK
8001	2 EACH	F & I 250' VIDEO CABLE TO CONTROLLER
8003	2 EACH	F & I 500' VIDEO CABLE TO CONTROLLER
8006	2 EACH	CUT. CLEAN. & CAP TRAFFIC SIGNAL STRUCTURE
8010	2 EACH	F & I 12" PEDESTRIAN SIGNAL HEAD SECTION
8011	44 EACH	F & I 12" VECHICULAR BLACK FACED TRAFFIC SIGNAL HEAD SECTION
8019	5 EACH	F & I 8" VECHICULAR BLACK FACED TRAFFIC SIGNAL HEAD SECTION
8020	1 EACH	F & I CONTROL AND DISTRIBUTION EQUIPMENT (120/240 V. 1 PHASE 3 WIRE SYST)
8032	1 EACH	F & I PUSHBUTTON AND SIGN - R10-4(1) - "PUSH BUTTON TO CROSS NEW HAMPSHIRE AVENUE..."
8032	2 EACH	F & I PUSHBUTTON
8036	2 EACH	F & I TWIN MAST ARM POLE (15' T) & 50'/ 50' MAST ARMS
8038	1 EACH	F & I TWIN MAST ARM POLE (15' T) & 50'/ 70' MAST ARMS
8042	1 EACH	INSTALL 2" CONDUIT BEND IN THE EXISTING FOUNDATION
8047	5 EACH	REMOVE AND DISPOSE OF EXISTING FOUNDATION 12" BELOW GRADE
8048	1 EACH	REMOVE AND DISPOSE OF EXISTING MATERIAL AND EQUIPMENT PER ASSIGNMENT
8049	4 EACH	F & I VIDEO DETECTION CAMERA
8050	1 EACH	F & I VIDEO INTERFACE EQUIPMENT
8051	200 L.F.	F & I 3" SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED
8053	75 L.F.	F & I 4" SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED
8059	13 C.Y.	F & I CONCRETE FOR SIGNAL FOUNDATION
8062	410 L.F.	F & I NO. 6 AWG STRANDED BARE COPPER GROUND WIRE
8065	60 L.F.	F & I 2" SCHEDULE 80 RIGID PVC CONDUIT - BORED
8069	250 L.F.	F & I 4" SCHEDULE 80 RIGID PVC CONDUIT - SLOTTED
8072	285 L.F.	F & I ELECTRICAL CABLE - 1-CONDUCTOR NO. 4 AWG - THHN/THWN
8074	11 EACH	F & I ELECTRICAL HANDHOLE
8076	71.3 S.F.	INSTALL GROUND MOUNTED SIGN
8077	42.6 S.F.	INSTALL OVERHEAD MOUNTED SIGN
8082	5 EACH	F & I GROUND ROD - 3/4" x 10'
8084	420 L.F.	F & I ELECTRICAL CABLE - 2-CONDUCTOR (NO. 14 AWG)
8085	1,450 L.F.	F & I ELECTRICAL CABLE - 3-CONDUCTOR (NO. 14 AWG)
8086	210 L.F.	F & I ELECTRICAL CABLE - 5-CONDUCTOR (NO. 14 AWG)
8087	2,130 L.F.	F & I ELECTRICAL CABLE - 7-CONDUCTOR (NO. 14 AWG)
8093	190 L.F.	F & I 2" SCHEDULE 80 CONDUIT - TRENCHED
8094	1 EACH	INSTALL CONTROLLER AND CABINET - POLE MOUNT
8095	1 EACH	INSTALL CONTROLLER AND CABINET - BASE MOUNT
NEG.	L.S.	F & I MISC. EQUIPMENT FOR INSTALLING FIRE PRE-EMPTION INSIDE AND OUTSIDE THE FIREHOUSE

C. EQUIPMENT TO BE REMOVED AND RETURNED TO THE MONTGOMERY COUNTY SIGNAL SHOP:

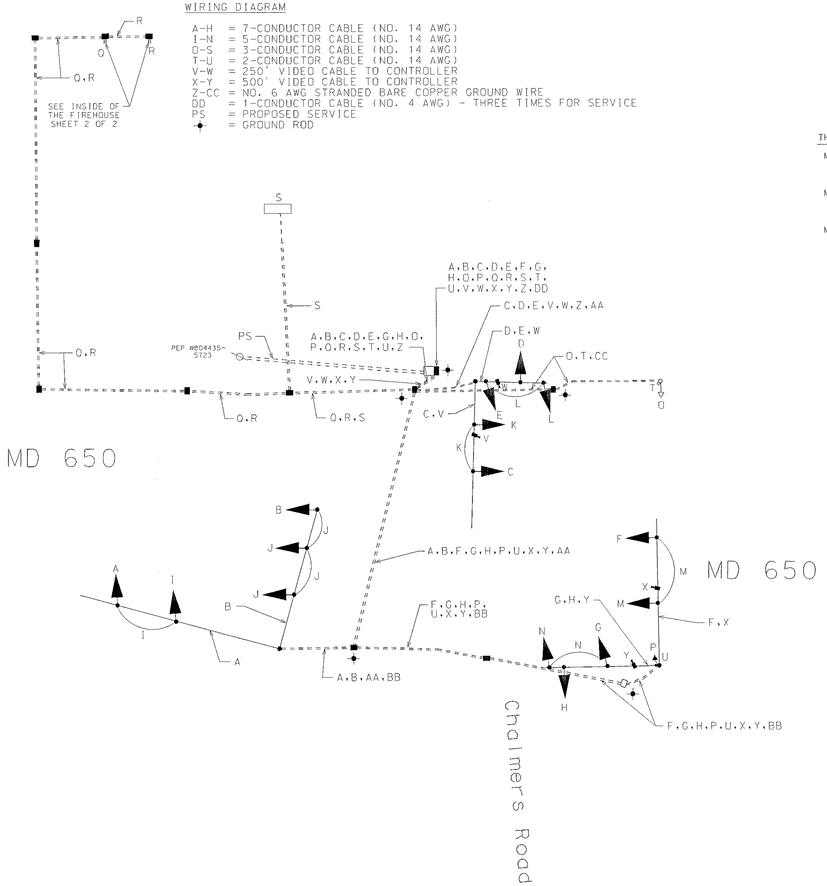
ITEM NO.	QUANTITY	DESCRIPTION
*	1 EACH	POLE MOUNTED CABINET (YELLOW)

ALL OTHER REMOVED SIGNAL MATERIALS ARE TO BECOME THE PROPERTY OF THE CONTRACTOR

* READ NOTE 5 UNDER CONTRACTOR'S NOTES

WIRING DIAGRAM

A-H = 7-CONDUCTOR CABLE (NO. 14 AWG)
I-N = 5-CONDUCTOR CABLE (NO. 14 AWG)
O-S = 3-CONDUCTOR CABLE (NO. 14 AWG)
T-U = 2-CONDUCTOR CABLE (NO. 14 AWG)
V-W = 250' VIDEO CABLE TO CONTROLLER
X-Y = 500' VIDEO CABLE TO CONTROLLER
Z-CC = NO. 6 AWG STRANDED BARE COPPER GROUND WIRE
DD = 1-CONDUCTOR CABLE (NO. 4 AWG) - THREE TIMES FOR SERVICE
PS = PROPOSED SERVICE
✦ = GROUND ROD



PROJECT CONTACTS

THE PROJECT CONTACTS ARE AS FOLLOWS:

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ASSISTANT DISTRICT ENGINEER - MAINTENANCE
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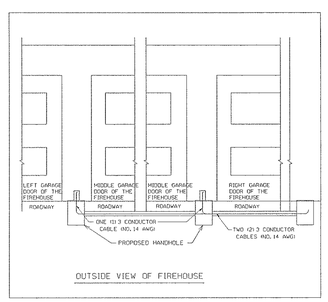
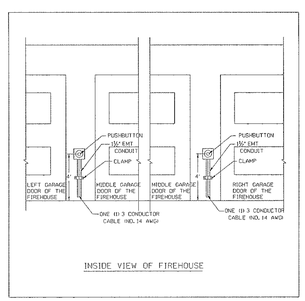


OUTSIDE VIEW OF FIREHOUSE



INSIDE VIEW OF FIREHOUSE

PHASE CHART

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16-17
	R Y G	R Y G	R Y G	R Y G	R Y G	R Y G	R Y G	R Y G	R Y G	R Y G	R Y G (RG-G)	R Y G (RG-G)	R Y G	R Y Y	R Y Y	
PHASE 2 & 6	G	G	G	G	G	G	G	R	R	R	R	R	R	FL/R	FL/R	DW
2 & 6 CLEARANCE	Y	Y	Y	G	G	G	G	R	R	R	R	R	R	FL/R	FL/R	DW
2 & 6 CHANGE	R	R	R	R	Y	Y	Y	R	R	R	R	R	R	FL/R	FL/R	DW
PHASE 4 & 8	R	R	R	R	R	R	R	G	G	G	G	G	G	FL/R	FL/R	DW
4 & 8 CHANGE	R	R	R	R	R	R	R	Y	Y	Y	Y	Y	Y	FL/R	FL/R	DW
4 & 8 ALT.	R	R	R	R	R	R	R	G	G	G	G	G	G	FL/R	FL/R	WK
PED. CLEAR	R	R	R	R	R	R	R	G	G	G	G	G	G	FL/R	FL/R	FL/DW
4 & 8 ALT. CHANGE	R	R	R	R	R	R	R	Y	Y	Y	Y	Y	Y	FL/R	FL/R	DW
FLASHING OPERATION	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/R	FL/R	FL/R	FL/R	FL/R	FL/R	FL/R	FL/R	DARK

FIREHOUSE PRE-EMPTION - PHASE 03 (FIRE TRUCKS)

FIREHOUSE PRE-EMPTION PHASE 03	R	R	R	G	G	R	R	R	R	R	R	R	R	FL/Y	FL/Y	DW
PRE-EMPTION CLEARANCE	R	R	R	G	G	R	R	R	R	R	R	R	R	Y	Y	DW
PHASE 2 & 6 NORMAL OPERATION	G	G	G	G	G	G	G	R	R	R	R	R	R	FL/R	FL/R	DW

FIREHOUSE PRE-EMPTION - PHASE 04 (AMBULANCE)

FIREHOUSE PRE-EMPTION PHASE 04 + 07	R	R	R	R	R	R	R	R	R	R	<G-G	<G-G	G	R	R	DW
PRE-EMPTION CLEARANCE	R	R	R	R	R	R	R	R	R	R	Y	Y	Y	R	R	DW
PHASE 2 & 6 NORMAL OPERATION	G	G	G	G	G	G	G	R	R	R	R	R	R	FL/R	FL/R	DW

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

MD 650 (New Hampshire Avenue) and Chalmers Road/ Entrance to Hillendale Volunteer Fire Department
Hillendale, MARYLAND

DRAWN BY: W. Malcolm	F.A.P. NO.	T.S. NO. TS-1326 E	SHEET NO.
CHECKED BY: W. Malcolm	S.H.A. NO. XX1265285		
SCALE: 1" = 20'	COUNTY MONTGOMERY	T.I.M.S. NO. E903	2 OF 2
DATE: 02/ 2002	LOG MILE 15065001.74		