PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE RECONSTRUCTION OF THE EXISTING TRAFFIC SIGNAL AT THE INTERSECTION OF MD 140 AND MD 91 IN CARROLL COUNTY. MD 140 IS ASSUMED TO RUN IN AN EAST-WEST DIRECTION.

△1 CONTROLLER OPERATION

AN EIGHT-PHASE, FULLY ACTUATED NEMA CONTROLLER WITH INTERSECTION MONITOR, BATTERY BACKUP, HOLD RELAY AND THREE 4-CHANNEL TIME-DELAY-OUTPUT LOOP DETECTOR AMPLIFIERS HOUSED IN A BASE MOUNTED CABINET WILL BE INSTALLED AT THE INTERSECTION. THE CONTROLLER WILL OPERATE AS A SEVEN-PHASE FULL-TRAFFIC-ACTUATED CONTROLLER WITH EXCLUSIVE-PERMISSIVE LEFT TURN PHASES FOR WESTBOUND MD 140, NORTHBOUND MD 91 AND SOUTHBOUND MD 91.

THIS SIGNAL WILL BE HARDWIRE INTERCONNECTED TO THE EXISTING TRAFFIC SIGNAL AT MD 140 AND DEDE ROAD APPROXIMATELY 2000 FT. TO THE EAST. INSTALL A RELAY PACKAGE IN THIS EXISTING CONTROLLER.

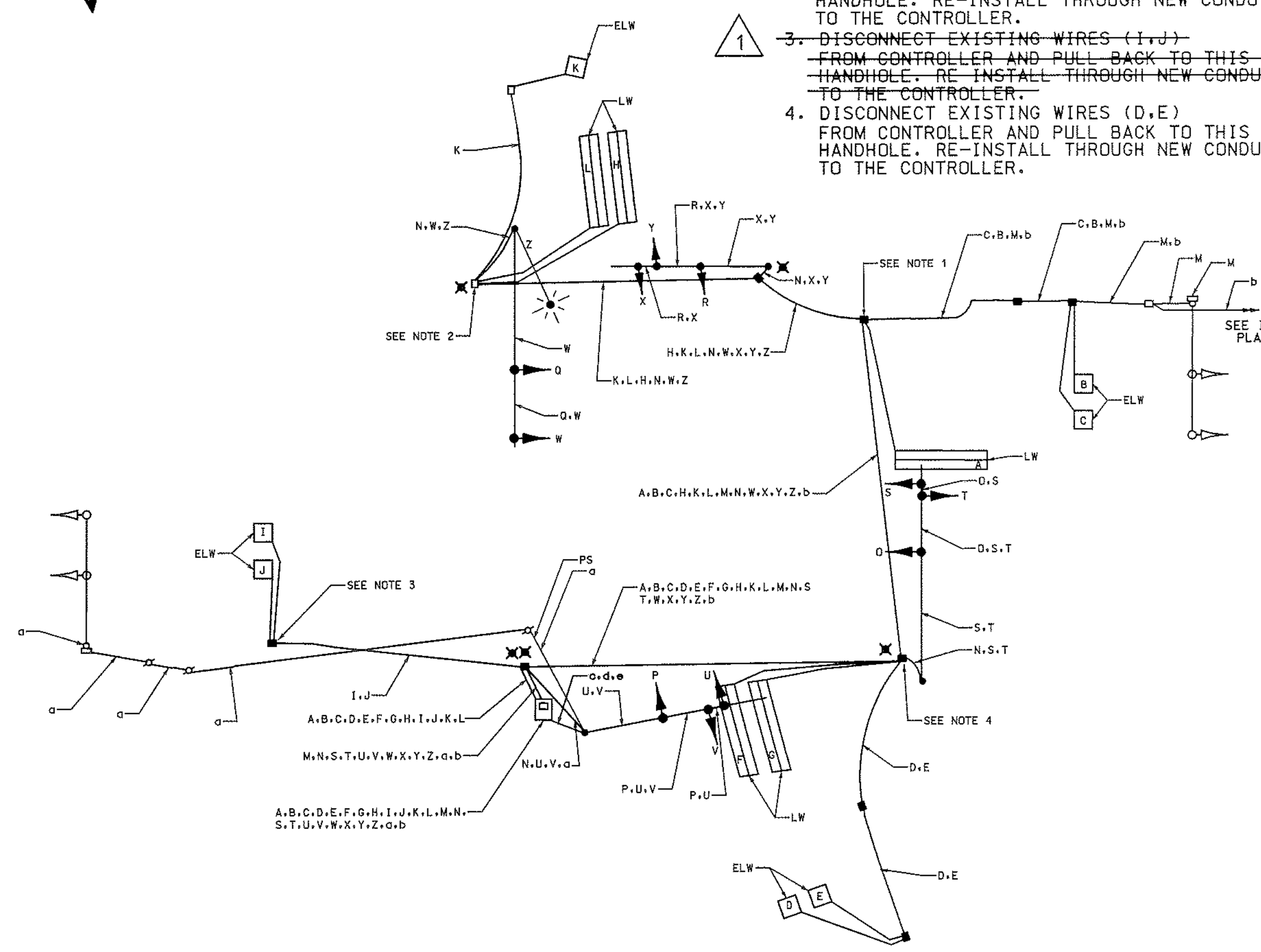
△1 SPECIAL NOTE

UPON COMPLETION OF THIS PROJECT THE CONTRACTOR SHALL NOTIFY MR. ROBERT SNYDER OF THE SHA AT (410) 787-7635 TO ARRANGE FOR THE PHONE LINE INSTALLATION. THE CONTRACTOR IS TO PROVIDE MR. SNYDER WITH THE NEAREST STREET ADDRESS, ZIP CODE, AND PHONE NUMBER.

WIRING DIAGRAM

NOTES:

1. DISCONNECT EXISTING WIRES (B,C,M) FROM CONTROLLER AND PULL BACK TO THIS EXISTING HANDHOLE. RE-INSTALL THROUGH NEW CONDUIT TO THE CONTROLLER.
2. DISCONNECT EXISTING WIRE (K) FROM CONTROLLER AND PULL BACK TO THIS EXISTING HANDHOLE. RE-INSTALL THROUGH NEW CONDUIT TO THE CONTROLLER.
3. △1 ~~DISCONNECT EXISTING WIRES (I,J) FROM CONTROLLER AND PULL BACK TO THIS EXISTING HANDHOLE. RE-INSTALL THROUGH NEW CONDUIT TO THE CONTROLLER.~~
4. DISCONNECT EXISTING WIRES (D,E) FROM CONTROLLER AND PULL BACK TO THIS EXISTING HANDHOLE. RE-INSTALL THROUGH NEW CONDUIT TO THE CONTROLLER.



WIRING KEY

△1 A,F-~~H~~ J,L	2-CONDUCTOR ELECTRICAL CABLE ALUMINUM SHIELDED (NO. 14 A.W.G.)
△1 B-E,~~I~~-K	EXISTING 2-CONDUCTOR ELECTRICAL CABLE ALUMINUM SHIELDED (NO. 14 A.W.G.)
M	EXISTING 12-PAIR VOICE GRADE CABLE
N	STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)
O-R	5-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
S-Y	7-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
Z	2-CONDUCTOR ELECTRICAL CABLE (NO. 12 A.W.G.)
a	12-PAIR VOICE GRADE INTERCONNECT CABLE
△1 b	12-PAIR VOICE GRADE INTERCONNECT CABLE
△1 c-e	1-CONDUCTOR ELECTRICAL CABLE (NO. 4 A.W.G.)
ELW	EXISTING LOOP WIRE
LW	LOOP WIRE (NO. 14 A.W.G.)
⊠	GROUND ROD
PS	PROPOSED ELECTRIC SERVICE

PHASE CHART

	1	2	3	4	5	6	7	8	9	10	11
PHASE 1 + 6	R	R	G ◁G	G ◁G	G	R	R	R	R	R	R
1 + 6 CHANGE	R	R	G ◁Y	G ◁Y	G	R	R	R	R	R	R
PHASE 2 + 6	G	G	G	G	G	R	R	R	R	R	R
2 + 6 CHANGE	Y	Y	Y	Y	Y	R	R	R	R	R	R
PHASE 3 + 7	R	R	R	R	R	R ◁G	R ◁G	R	R ◁G	R ◁G	R
3 + 7 CHANGE	PHASE 3+7 MAY CHANGE TO PHASE 3+8, 4+7, OR 4+8										
PHASE 3 + 8	R	R	R	R	R	R	R	R	G ◁G	G ◁G	G
3 + 8 CHANGE	R	R	R	R	R	R	R	R	G ◁Y	G ◁Y	G
PHASE 4 + 7	R	R	R	R	R	G ◁G	G ◁G	G	R	R	R
4 + 7 CHANGE	R	R	R	R	R	G ◁Y	G ◁Y	G	R	R	R
PHASE 4 & 8	R	R	R	R	R	G	G	G	G	G	G
4 & 8 CHANGE	R	R	R	R	R	Y	Y	Y	Y	Y	Y
FLASHING OPERATION	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/R	FL/R	FL/R	FL/R	FL/R	FL/R

EQUIPMENT LIST "A"

A. EQUIPMENT TO BE FURNISHED BY SHA AND INSTALLED BY CONTRACTOR

ITEM NO.	QUANTITY	DESCRIPTION
---	2 EA	R3-2 SIGN (30" X 30") MAST ARM MOUNT
---	3 EA	R10-12 SIGN (36" X 42") MAST ARM MOUNT
---	1 EA	D3-2 DUAL FACE SIGN "BALTIMORE BLVD." (VAR X 16") MAST ARM MOUNT
---	1 EA	D3-2 DUAL FACE SIGN "GAMBER RD." (VAR X 16") MAST ARM MOUNT
---	1 EA	D3-2 DUAL FACE SIGN "EMORY RD." (VAR X 16") MAST ARM MOUNT
---	1 EA	SHIELD ASSEMBLY "EAST/MD 140/RT ARROW" (30" X 51") POLE MOUNT
---	1 EA	SHIELD ASSEMBLY "EAST/MD 140/LT ARROW" (48" X 75") POLE MOUNT
---	1 EA	SHIELD ASSEMBLY "WEST/MD 140/LT ARROW" (30" X 51") POLE MOUNT
---	1 EA	SHIELD ASSEMBLY "WEST/MD 140/RT ARROW" (48" X 75") POLE MOUNT
---	2 EA	W3-3(2) "SIGNAL AHEAD-PREPARE TO STOP WHEN FLASHING" SIGN (120 IN. X 60 IN.) MAST ARM MOUNT
---	1 EA	R3-5R SIGN (30 IN. X 36 IN.) MAST ARM MOUNT
---	3 EA	R1-2 SIGN (36 IN. X 36 IN.) GROUND MOUNT
△1 ---	1 EA	EIGHT-PHASE BASE MOUNTED CABINET AND CONTROLLER WITH INTERSECTION MONITOR, BATTERY BACKUP AND HOLD RELAY
△1 ---	3 EA	FOUR-CHANNEL-TIME-DELAY OUTPUT LOOP DETECTOR AMPLIFIER
△1 ---	1 EA	RELAY PACKAGE (TO BE INSTALLED BY SHA PERSONNEL AT MD 140 AND DEDE ROAD)

CONTACT PERSONS FOR DISTRICT 7 ARE AS FOLLOWS:

MR. JOHN CONCANNON
ASSISTANT DISTRICT ENGINEER - TRAFFIC
(301) 624-8141

MR. JIM BUCKALEW
ASSISTANT DISTRICT ENGINEER - UTILITIES
(301) 624-8110

MR. DAVID COYNE
ASSISTANT DISTRICT ENGINEER - MAINTENANCE
(301) 624-8106

CONTACTS FOR OFFICE OF TRAFFIC AND SAFETY

MR. RICHARD DAFF SR.
CHIEF, TRAFFIC OPERATIONS
(410) 787-7630

MR. EUGENE BAILEY
TEAM LEADER SIGN OPERATIONS
(410) 787-7676

MR. ROBERT SNYDER
ASSISTANT DIVISION CHIEF,
TRAFFIC OPERATIONS
(410) 787-7631

MR. DAVID SCHWARTZ
SUPPLY OFFICE IV (SIGNAL SHOP WAREHOUSE)
(410) 787-7668

MR. ED RODENHIZER
TEAM LEADER SIGNAL OPERATIONS
(410) 787-7652

EQUIPMENT LIST "B"

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

ITEM NO.	QUANTITY	DESCRIPTION
1001	1 EA	MAINTENANCE OF TRAFFIC
2001	4 EA	TEST PIT EXCAVATION
5001	120 LF	FURNISH AND INSTALL 5 IN. YELLOW HEAT APPLIED PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKING
5002	620 LF	FURNISH AND INSTALL 5 IN. WHITE HEAT APPLIED PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKING
△1 ---	660 ~~600~~ LF	FURNISH AND INSTALL 10 IN. WHITE HEAT APPLIED PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKING
5004	120 LF	FURNISH AND INSTALL 24 IN. WHITE HEAT APPLIED PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKING
5005	4 EA	FURNISH AND INSTALL HEAT APPLIED PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKING LETTER
5006	2 EA	FURNISH AND INSTALL HEAT APPLIED PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKING ARROW
5007	770 LF	REMOVE EXISTING PAVEMENT MARKINGS
△1 8001	22 ~~20~~ CY	FURNISH AND INSTALL CONCRETE FOR SIGNAL FOUNDATION
8021	730 LF	FURNISH AND INSTALL SAW CUT FOR SIGNAL (LOOP DETECTOR)
8023	50 LF	FURNISH AND INSTALL 1 IN. LIQUID TIGHT FLEXIBLE NON-METALLIC CONDUIT FOR DETECTOR SLEEVE
8030	150 LF	FURNISH AND INSTALL 4 IN. SCHEDULE 80 RIGID ELECTRICAL PVC CONDUIT- TRENCHED
8031	330 LF	FURNISH AND INSTALL 4 IN. SCHEDULE 80 RIGID ELECTRICAL PVC CONDUIT-SLOTTED
△2 8033	15 ~~4~~ EA	FURNISH AND INSTALL ELECTRICAL HANDHOLE
8034	5 EA	FURNISH AND INSTALL GROUND ROD - 3/4" X 10'
8038	1500 LF	FURNISH AND INSTALL 12-PAIR COMMUNICATION CABLE, JELLYFILLED (OVERHEAD)
8040	2530 LF	FURNISH AND INSTALL LOOP WIRE ENCASED IN 1/4 IN. FLEXIBLE TUBING (NO. 14 A.W.G.)
△1 8041	2250 ~~1430~~ LF	FURNISH AND INSTALL ELECTRICAL CABLE - 2 CONDUCTOR (ALUMINUM SHEILDED)
8044	110 LF	FURNISH AND INSTALL ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 A.W.G.)
8045	2080 LF	FURNISH AND INSTALL ELECTRICAL CABLE - 7 CONDUCTOR (NO. 14 A.W.G.)
8046	500 LF	FURNISH AND INSTALL ELECTRICAL CABLE - 2 CONDUCTOR (NO. 12 A.W.G.)
8048	530 LF	FURNISH AND INSTALL NO. 6 A.W.G. STRANDED BARE COPPER GROUND WIRE
8049	50 LF	FURNISH AND INSTALL ELECTRICAL CABLE - 1 CONDUCTOR (NO. 4 A.W.G.)
8052	99 SF	INSTALL GROUND MOUNTED SIGN
8053	210 SF	INSTALL OVERHEAD SIGN
8055	1 EA	FURNISH AND INSTALL 250 WATT HPSV LUMINIARE WITH PHOTOCELL
8056	1 EA	FURNISH AND INSTALL 20 FT. LIGHTING BRACKET ARM FOR TRAFFIC SIGNAL STRUCTURE
8060	1 EA	REMOVE AND DISPOSE OF EXISTING MATERIAL AND EQUIPMENT
△1 ~~8061~~	~~2 EA~~	~~INSTALL CONDUIT BEND IN EXISTING BASE~~
8066	1 EA	FURNISH AND INSTALL CONTROL AND DISTRIBUTION EQUIPMENT
8077	1 EA	FURNISH AND INSTALL 27 FT. MAST ARM POLE AND 50 FT. MAST ARM
8078	1 EA	FURNISH AND INSTALL 27 FT. MAST ARM POLE AND 60 FT. MAST ARM
8079	2 EA	FURNISH AND INSTALL 27 FT. MAST ARM POLE AND 70 FT. MAST ARM
8084	36 EA	FURNISH AND INSTALL 12 IN. VEHICULAR TRAFFIC SIGNAL HEAD SECTION
8085	9 EA	FURNISH AND INSTALL 8 IN. VEHICULAR TRAFFIC SIGNAL HEAD SECTION
△1 ---	3330 ~~4100~~ LF	PULL BACK AND RE-INSTALL EXISTING CABLE
△2 ---	5 EA	REPLACE HANDHOLE FRAME AND COVER
△1 8024	10 LF	FURNISH AND INSTALL 2 IN. SCHEDULE 80 RIGID ELECTRICAL PVC CONDUIT- TRENCHED
△1 8020	1 EA	INSTALL CONTROLLER AND CABINET - BASE MOUNT
△1 8039	3500 LF	FURNISH AND INSTALL 12-PAIR COMMUNICATION CABLE JELLYFILLED (UNDERGROUND)
△1 ---	5 EA	FURNISH AND INSTALL WHITE HEAT APPLIED PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKING YIELD LINE (24 W X 36 H)
△1 8058	1 EA	REMOVAL OF EXISTING CONTROLLER AND CABINET
△1 8059	1 EA	DELIVERY OF REMOVED CONTROLLER AND CABINET
△1 8065	30 LF	FURNISH AND INSTALL 1 IN. GALVANIZED CONDUIT RIZER
△2 8027	580 LF	FURNISH AND INSTALL 3 IN. SCHEDULE 80 RIGID ELECTRICAL PVC CONDUIT - TRENCHED
△1 8028	760 LF	FURNISH AND INSTALL 3 IN. SCHEDULE 80 RIGID ELECTRICAL PVC CONDUIT - SLOTTED
△2 8026	150 LF	FURNISH AND INSTALL 3 IN. SCHEDULE 80 RIGID ELECTRICAL PVC CONDUIT - BORED

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. THE CONTRACTOR SHALL NOTIFY THE SHA AT (410) 787-7652 AT LEAST THREE DAYS IN ADVANCE OF DELIVERY.

QUANTITY	DESCRIPTION
1 EA	BASE MOUNTED CABINET AND CONTROLLER

NOTE: EXCEPT AS NOTED, ALL REMOVED SIGNAL EQUIPMENT AND MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR

△1 RED LINE REVISION

△2 RED LINE REVISION 11-02-01

MARYLAND DOT - STATE HIGHWAY ADMINISTRATION
Office of Traffic & Safety
TRAFFIC ENGINEERING DESIGN DIVISION
GENERAL INFORMATION SHEET
MD 140 AND MD 91

DRAWN BY:	T. ZAYDEL	F.A.P. NO.		TS NO. 1677C GI	SHEET NO.
CHECKED BY:	K. SCHMID	S.H.A. NO.			
SCALE:	NONE	COUNTY:	CARROLL	T.I.M.S. NO. E620	
DATE:	6-21-01	LOG MILE:			2 OF 2

20