

**PROJECT DESCRIPTION**

**GENERAL**

THIS PROJECT INVOLVES MODIFICATION OF THE EXISTING TRAFFIC CONTROL SIGNAL AT U.S. 219 AND MEMORIAL DRIVE IN GARRETT COUNTY. FOR THIS PROJECT THE WESTERN APPROACH WILL BE ADDED TO THE INTERSECTION. U.S. 219 IS ASSUMED TO RUN IN A NORTH-SOUTH DIRECTION.

**INTERSECTION OPERATION**

THE INTERSECTION IS TO OPERATE IN A NEMA SIX PHASE, FULL TRAFFIC-ACTUATED MODE WITH THE U.S. 219 APPROACHES RUNNING CONCURRENTLY. THE MEMORIAL DRIVE AND DRIVEWAY APPROACHES WILL ALSO RUN CONCURRENTLY. EXCLUSIVE-PERMISSIVE LEFT TURN PHASING WILL BE PROVIDED FOR U.S. 219 NORTHBOUND AND SOUTHBOUND. AN ALTERNATE PEDESTRIAN PHASE WILL BE PROVIDED ACROSS THE NORTHERN LEG.

**CONTROLLER REQUIREMENTS**

EIGHT PHASE FULL-TRAFFIC-ACTUATED, SOLID STATE DIGITAL CONTROLLER WITH INTERSECTION MONITOR WITH BATTERY BACK-UP, RACK MOUNTED 4 CHANNEL TIME DELAY OUTPUT LOOP DETECTOR AMPLIFIERS, HOUSED IN A POLE-MOUNTED CABINET USING A MARYLAND STANDARD P-5 UTILITY CONNECTION.

**SPECIAL NOTES**

UPON COMPLETION OF THIS PROJECT, THE CONTRACTOR SHALL NOTIFY MR. ROBERT SNYDER OF 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.

**MAINTENANCE OF TRAFFIC**

THE FOLLOWING TRAFFIC CONTROL STANDARDS SHALL BE REFERENCED FOR THE PROJECT.  
 STANDARD NO. MD-104.00 - 104.00-12 STANDARD NO. MD-104.35-01 (LANE SHIFT)  
 STANDARD NO. MD-104.31-01 (FLAGGING OPERATION) STANDARD NO. MD-104.33-02 (SHOULDER WORK)  
 STANDARD NO. MD-104.49-01 (SHOULDER WORK) STANDARD NO. MD-104.32-02 (INTERSECTION FLAGGING OPERATION)  
 STANDARD NO. MD-104.44-01 (LEFT-LANE CLOSURE) FLAGGING OPERATION  
 STANDARD NO. MD-104.45-01 (RIGHT-LANE CLOSURE)

**PROJECT CONTACTS**

THE CONTACT PERSONS FOR SHA ARE AS FOLLOWS:

MR. FRED CROZIER  
DISTRICT #6 ENGINEER  
PHONE: (310) 729-8486

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

MR. GEORGE H. SMALL  
ASSISTANT DISTRICT ENGINEER TRAFFIC  
PHONE: (310) 729-8444

POWER COMPANY REPRESENTATIVE:

MR. GEORGE FRANKENBERRY  
ASSISTANT DISTRICT ENGINEER MAINTENANCE  
PHONE: (310) 729-8457

MR. EDWARDS CASTLE  
ALLEGANY POWER  
700 FOURTH STREET  
CUMBERLAND, MD 21502

MR. LARRY HUMBERTON  
DISTRICT #6 UTILITIES ENGINEER  
PHONE: (310)729-8439

**PHASE CHART**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
PHASE 1+5	R-G	R-G	R	R-G	R-G	R	R	R	R	R	DW	DW	DW	DW	
1+5 CHANGE	R-Y	R-Y	R	R-Y	R-Y	R	R	R	R	R	DW	DW	DW	DW	
PHASE 1+6	G-G	G-G	G	R	R	R	R	R	R	R	W	W	DW	DW	
1+6 CHANGE	G-Y	G-Y	G	R	R	R	R	R	R	R	FD	FD	DW	DW	
PHASE 2+5	R	R	R	R-G	R-G	G	R	R	R	R	DW	DW	DW	DW	
2+5 CHANGE	R	R	R	R-G	R-G	G	R	R	R	R	DW	DW	DW	DW	
PHASE 2+6	G	G	G	G	G	G	R	R	R	R	W	W	DW	DW	
PED CLEAR	G	G	G	G	G	G	R	R	R	R	FD	FD	DW	DW	
2+6 CHANGE	Y	Y	Y	Y	Y	Y	R	R	R	R	DW	DW	DW	DW	
PHASE 4+8	R	R	R	R	R	R	G	G	G	G	DW	DW	DW	DW	
4+8 CHANGE	R	R	R	R	R	R	Y	Y	Y	Y	DW	DW	DW	DW	
4+8 ALT	R	R	R	R	R	R	G	G	G	G	DW	DW	W	W	
PED CLEAR	R	R	R	R	R	R	G	G	G	G	DW	DW	FD	FD	
4+8 CHANGE	R	R	R	R	R	R	Y	Y	Y	Y	DW	DW	DW	DW	
FLASHING OPERATION	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/R	FL/R	FL/R	FL/R	DARK	DARK	DARK	DARK	

**EQUIPMENT LIST "A"**

APPROVED SHA EQUIPMENT TO BE PURCHASED BY THE DEVELOPER AND INSTALLED BY THE CONTRACTOR. ALL EQUIPMENT IN THIS LIST SHALL HAVE CATALOG CUTS SUBMITTED TO OOTS FOR APPROVAL PRIOR TO INSTALLATION.

ITEM NO.	QUANTITY	DESCRIPTION
800000	2 EACH	FURNISH AND INSTALL MICROLOOP PROBE SET WITH 500 FT. LEAD-IN CABLE.
803017	35 S.F.	FURNISH AND INSTALL OVERHEAD SIGNS
812855	4 EACH	FURNISH AND INSTALL 12 INCH PEDESTRIAN SIGNAL HEAD SECTION, POLE MOUNT
860135	6 EACH	FURNISH AND INSTALL 12 INCH, 1-WAY, 3-SECTION (R,Y,G) ADJUSTABLE BLACK POLYCARBONATE SIGNAL HEAD - MAST ARM MOUNT
860140	2 EACH	FURNISH AND INSTALL 12 INCH, 1-WAY, 5-SECTION (R,Y,YA,G,GA) ADJUSTABLE BLACK POLYCARBONATE SIGNAL HEAD - MAST ARM MOUNT
865001	2 EACH	FURNISH AND INSTALL PUSHBUTTON AND SIGN
900000	2 EACH	FOUR CHANNEL LOOP DETECTOR AMPLIFIER (DELAY OUTPUT)
900000	2 EACH	FURNISH AND INSTALL 12 INCH/8 INCH, 1-WAY, 5-SECTION (12 INCH YA, GA; 8 INCH R,Y,G) ADJUSTABLE BLACK POLYCARBONATE SIGNAL HEAD - MAST ARM MOUNT
971016	1 EACH	EIGHT PHASE FULLY ACTUATED CONTROLLER AND CABINET POLE MOUNT
974018	4 EACH	27 FOOT STEEL POLE WITH A SINGLE 38' MAST ARM (FOUNDATION TO INCLUDE FOUR 1-3/4 IN. X 90 IN. ANCHOR BOLTS)

**EQUIPMENT LIST "B"**

EQUIPMENT TO BE FURNISHED AND/OR INSTALLED BY THE CONTRACTOR. ALL EQUIPMENT IN THIS LIST SHALL HAVE CATALOG CUTS SUBMITTED TO OOTS FOR APPROVAL PRIOR TO INSTALLATION.

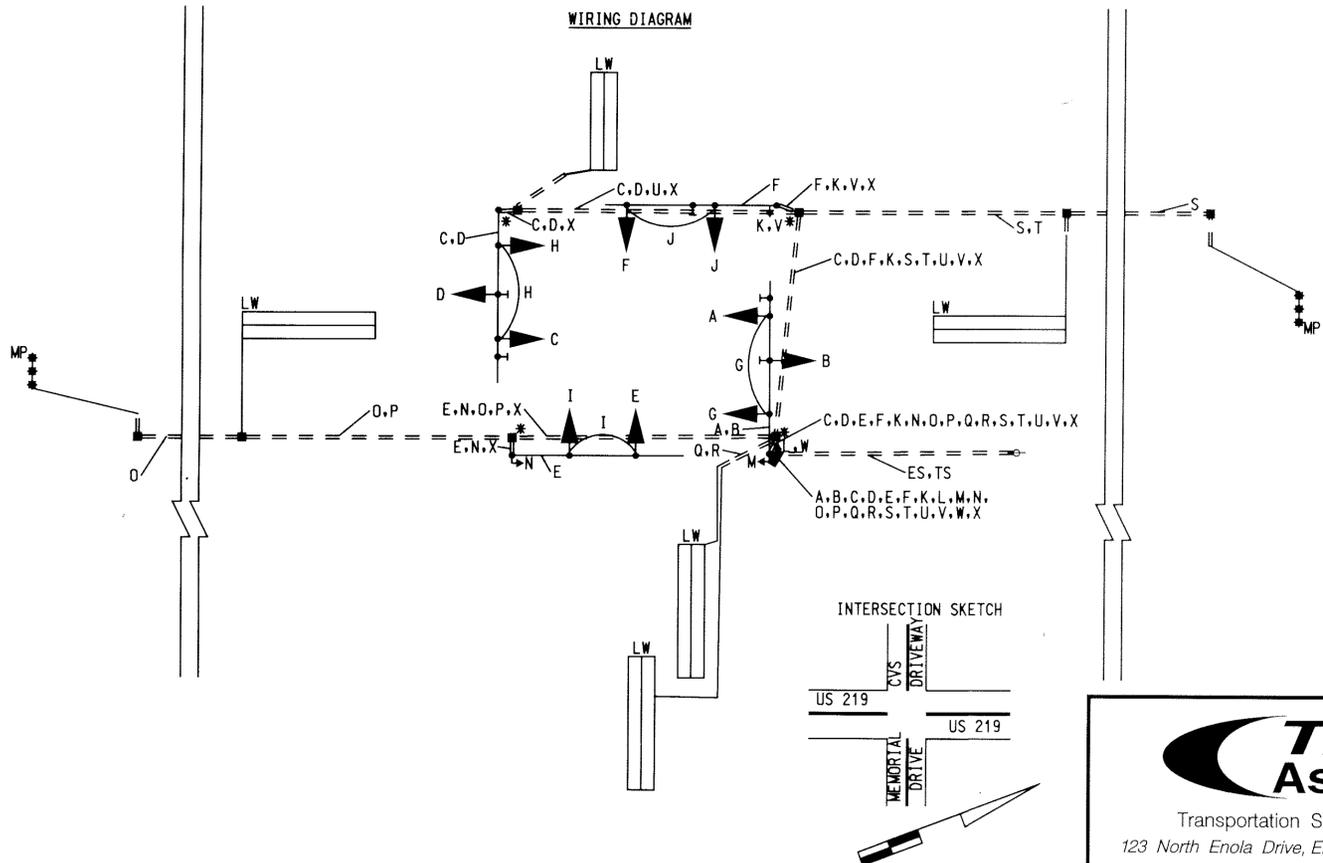
ITEM NO.	QUANTITY	DESCRIPTION
120500	LUMP SUM	MAINTENANCE OF TRAFFIC
130850	LUMP SUM	MOBILIZATION
203030	2 C.Y.	TEST PIT EXCAVATION
585407	400 L.F.	5 INCH WHITE LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKINGS
585409	400 L.F.	5 INCH YELLOW LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKINGS
585414	200 L.F.	12 INCH WHITE LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKINGS
585416	70 L.F.	24 INCH WHITE LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKINGS
585450	750 L.F.	REMOVAL OF EXISTING PAVEMENT LINE MARKINGS, ANY WIDTH
801004	11 C.Y.	FURNISH AND INSTALL CONCRETE FOR SIGNAL FOUNDATION
802501	220 L.F.	FURNISH AND INSTALL NO. 6 AWG STRANDED BARE COPPER GROUND WIRE
805011	44 L.F.	FURNISH AND INSTALL 1 INCH ELECTRICAL CONDUIT, GALVANIZED SLEEVE
807205	1 EACH	FURNISH AND INSTALL CONTROL AND DISTRIBUTION EQUIPMENT
811001	8 EACH	FURNISH AND INSTALL ELECTRICAL HANDHOLE
837001	4 EACH	FURNISH AND INSTALL GROUND ROD - 3/4 INCH DIAMETER X 10 FOOT LENGTH
861104	1262 L.F.	FURNISH AND INSTALL ELECTRICAL CABLE - 2 CONDUCTOR (ALUMINUM SHIELDED)
861105	92 L.F.	FURNISH AND INSTALL ELECTRICAL CABLE - 2 CONDUCTOR (NO 14 AWG)
861106	180 L.F.	FURNISH AND INSTALL ELECTRICAL CABLE - 3 CONDUCTOR (NO 14 AWG)
861107	94 L.F.	FURNISH AND INSTALL ELECTRICAL CABLE - 5 CONDUCTOR (NO 14 AWG)
861108	770 L.F.	FURNISH AND INSTALL ELECTRICAL CABLE - 7 CONDUCTOR (NO 14 AWG)
862101	2300 L.F.	FURNISH AND INSTALL LOOP WIRE ENCASED IN FLEXIBLE TUBING (NO 14 AWG)
862102	707 L.F.	FURNISH AND INSTALL SAW CUT FOR SIGNAL (LOOP DETECTOR)
870160	520 L.F.	FURNISH AND INSTALL TWO INCH DIAMETER POLYVINYL CHLORIDE ELECTRICAL CONDUIT, SCHEDULE 80, TRENCHED
870163	62 L.F.	FURNISH AND INSTALL THREE INCH DIAMETER POLYVINYL CHLORIDE ELECTRICAL CONDUIT, SCHEDULE 80, TRENCHED
870168	169 L.F.	FURNISH AND INSTALL FOUR INCH DIAMETER POLYVINYL CHLORIDE ELECTRICAL CONDUIT, SCHEDULE 80, SLOTTED
873001	LUMP SUM	REMOVE AND SALVAGE EXISTING EQUIPMENT

**EQUIPMENT LIST "C"**

EXISTING EQUIPMENT TO BE REMOVED BY THE CONTRACTOR AND DELIVERED TO THE STATE HIGHWAY ADMINISTRATION AT 7491 CONNELLY DRIVE, HANOVER, MARYLAND 21076. THE CONTRACTOR SHALL NOTIFY THE SHA AT 410-787-7652 AT LEAST THREE (3) DAYS IN ADVANCE OF DELIVERY

ITEM NO.	QUANTITY	DESCRIPTION
873001	LUMP SUM	REMOVE AND SALVAGE EXISTING EQUIPMENT (CABINET AND CONTROLLER)

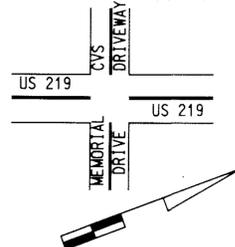
**WIRING DIAGRAM**



**WIRING KEY**

- A } 7-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
- B } 1-CONDUCTOR BARE COPPER GROUND WIRE (NO. 6 AWG)
- C } \* GROUND ROD
- D } LW LOOP WIRE
- E } ES ELECTRICAL SERVICE
- F } TS TELEPHONE SERVICE
- G } 5-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
- H } MP MICROLOOP PROBE SET
- I } 3-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
- J } O P Q R S T U
- K } 2-CONDUCTOR ELECTRICAL CABLE (ALUMINUM SHIELDED)
- L } V
- M } W
- N } 2-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
- O } P
- P } Q
- Q } R
- R } S
- S } T
- T } U
- U } V
- V } W

**INTERSECTION SKETCH**



Transportation Solutions for Today and Tomorrow  
 123 North Enola Drive, Enola, Pennsylvania 17023 (717) 732-7066

REVISIONS	APPROVALS
05-08-2001 SHA NO. 01989-1 MODIFY SIGNAL FOR FOURTH INTERSECTION LEG. TA	DIMITRIOS ZAFIRIS 10/2/91 TEAM LEADER, TRAFFIC ENGINEERING DESIGN DIVISION EDWARD Y. RADLIS 10/7/91 CHIEF, TRAFFIC ENGINEERING DESIGN DIVISION THOMAS RICKS 10/8/91 DIRECTOR, TRAFFIC & SAFETY

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

US 219 AND MEMORIAL DRIVE

DRAWN BY: W. MALCOLM	F.A.P. NO.	TS NO.
CHECKED BY:	S.H.A. NO.	TS-3154B
SCALE: 1" = 20'	COUNTY: GARRETT	T.I.M.S. NO.
DATE: 09/91	LOG MILE: 11021912.99	F-471

SHEET NO. 2 OF 2