

PROJECT DESCRIPTION

1. GENERAL  
THIS PROJECT INVOLVES THE RECONSTRUCTION OF AN EXISTING TRAFFIC CONTROL SIGNAL AT THE INTERSECTION OF MD 97 (GEORGIA AVENUE) AT ASPEN HILL ROAD/CEMETARY DRIVEWAY IN MONTGOMERY COUNTY. THIS SIGNAL SHALL BE RECONSTRUCTED TO MAST ARM FROM A SPAN WIRE DESIGN.

11. INTERSECTION OPERATION  
1. THE INTERSECTION IS TO OPERATE IN A NEMA 6-PHASE, FULLY-ACTUATED MODE.

NOTES

- FOR FINAL PAVEMENT MARKINGS, REFER TO THE PAVEMENT MARKING PLANS, AS APPLICABLE; OTHER THAN THOSE DETAILED ON THE PLAN. ALL PAVEMENT MARKINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE STATE HIGHWAY ADMINISTRATION STANDARDS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR TERMINATING ALL SIGNAL CABLE TO THE APPROPRIATE TERMINALS AND PROPERLY LABEL EACH CABLE.
- ALL TRAFFIC SIGNAL FOUNDATIONS SHALL BE INSTALLED AT THE FINAL SIDEWALK OR CURB GRADE FOR CLOSED SECTIONS, HIGHEST ROADWAY PROFILE GRADE FOR OPEN SECTIONS, TO MEET CLEARANCES AS SPECIFIED IN THE APPROPRIATE 800 SERIES STANDARD PLATES. THE CONTRACTOR SHALL VERIFY ULTIMATE GRADES PRIOR TO THE INSTALLATION OF ALL SIGNAL EQUIPMENT.
- 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.
- THE CONTRACTOR SHALL MAINTAIN THE CONTINUOUS OPERATION OF ALL INTERCONNECT, VEHICULAR, PEDESTRIAN DETECTORS, AND LIGHTING DEVICES. IF ANY DEVICE IS DAMAGED BY THE CONTRACTOR, IT SHALL BE REPAIRED WITHIN 72 HOURS BY THE CONTRACTOR AT NO COST TO THE ADMINISTRATION AFTER NOTIFICATION BY THE ENGINEER.
- FOR THE EXISTING CONDUITS THAT ARE TO BE USED, THE CONTRACTOR SHALL REMOVE ALL INOPERABLE/UNUSED WIRES/CABLES. IF NECESSARY, THESE WIRES/CABLES SHALL BE REMOVED FROM CONDUITS NOT LABELED "USE EXISTING CONDUIT" IN ORDER TO COMPLETELY REMOVE THEM FROM THE CONDUIT SYSTEM HANDBOXES AND SIGNAL CABINET. NOTE THAT THIS WORK SHALL BE INCIDENTAL TO THE "REMOVE AND DISPOSE OF EXISTING MATERIAL AND EQUIPMENT" ITEM.
- THE CONTRACTOR SHALL CONTACT KEITH LORD (2) TWO WEEKS IN ADVANCE TO ARRANGE FOR PICK-UP OF MONTGOMERY COUNTY SUPPLIED SPLICE BOXES.

CONTACTS

DISTRICT (THREE)

MR. JEFFREY WENTZ  
ASSISTANT DISTRICT ENGINEER - TRAFFIC  
301-513-7318  
MR. KEVIN NOWAK  
ASSISTANT DISTRICT ENGINEER - CONSTRUCTION  
301-513-7336  
MR. WAYNE MOWDY  
ASSISTANT DISTRICT ENGINEER - MAINTENANCE  
301-513-7304  
MR. AUGIE REBISH  
UTILITY ENGINEER  
301-513-7350

OFFICE OF TRAFFIC AND SAFETY

MR. RICHARD DAFF SR.  
CHIEF, TRAFFIC OPERATIONS  
410-787-7630  
MR. ROBERT SNYDER  
ASSISTANT DIVISION CHIEF, TRAFFIC OPERATIONS  
410-787-7630  
MR. ED RODENHIZER  
TEAM LEADER SIGNAL OPERATIONS  
410-787-7650  
MR. EUGENE BAILEY  
TEAM LEADER SIGN OPERATIONS  
410-787-7670  
MS. DARLENE EIDE  
SUPPLY OFFICER IV (SIGNAL SHOP WAREHOUSE)  
410-787-7668

MONTGOMERY COUNTY

MR. KEITH LORD  
MONTGOMERY COUNTY SIGNAL SHOP  
301-279-1971  
MR. KAMAL HAMUD  
TRAFFIC ENGINEER - MCTMC  
240-777-8761  
MR. MIKE KINNEY  
MONTGOMERY COUNTY TRAFFIC ENGINEER  
240-777-8760

EQUIPMENT LIST

A. EQUIPMENT TO BE FURNISHED BY STATE HIGHWAY ADMINISTRATION

CAT CODE NO.	DESCRIPTION	UNITS	QUANTITY
900000	ECONOLITE ASC II CONTROLLER WITH TELEMETRY AND RACK MOUNTED AMPLIFIERS, BASE MOUNTED (SIZE 6) CABINET WITH VIDEO INTERFACE EQUIPMENT	EA	1
973023	FLAT SHEET ALUMINUM SIGNS CONSISTING OF: D-3(1) (VAR X 16") MAST ARM MOUNT R3-5(L) (30" X 36") MAST ARM MOUNT R3-5(R) (30" X 36") MAST ARM MOUNT R3-6(1) (30" X 36") MAST ARM MOUNT SHIELD ASSEMBLY (30" X 51") SHIELD ASSEMBLY (48" X 75") R4-7 (30" X 24") GROUND MOUNTED	SF EA EA EA EA EA EA	88 2 2 1 1 1 1

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

CAT CODE	UNITS	QUANTITY	DESCRIPTION
203030	CY	3	TEST PIT EXCAVATION
585621	LF	550	12 INCH WHITE PERMANENT PREFORMED THERMO. PAVEMENT MARKING
585625	LF	250	24 INCH WHITE PERMANENT PREFORMED THERMO. PAVEMENT MARKING
800000	LS	1	REMOVE AND DISPOSE OF EXISTING MATERIAL AND EQUIPMENT
800000	EA	1	RELOCATE SIGNAL HEAD AND PUSHBUTTON
800000	EA	1	SPECIAL "T" POLE WITH 38 FOOT MAST ARM
800000	LF	550	PULL BACK AND REROUTE EXISTING APS SIGNAL CABLES
800000	EA	1	INSTALL SPLICE CABINET SUPPLIED BY MONTGOMERY COUNTY
800000	LF	75	CABLE - 1 CONDUCTOR 250 KCMIL
800000	EA	1	STEEL POLE WITH TRIPLE MAST ARM WITH 50 FT. AND 38 FT. ARMS * (NOTE: THERE IS NO THIRD MAST ARM)
801004	CY	14	CONCRETE FOR SIGNAL FOUNDATIONS
801104	LF	32	WOOD SIGN SUPPORT 4 INCH X 4 INCH
801106	LF	19	WOOD SIGN SUPPORT 4 INCH X 6 INCH
802145	EA	3	ADJUST EXISTING HANDHOLE
802501	LF	650	NO. 6 AWG STRANDED BARE COPPER GROUND WIRE
805118	LF	90	4 INCH SCHEDULE 80 PVC CONDUIT - BORED
805125	LF	80	2 INCH SCHEDULE 80 PVC CONDUIT - TRENCHED
805140	LF	110	4 INCH SCHEDULE 80 PVC CONDUIT - TRENCHED
805155	LF	430	4 INCH SCHEDULE 80 PVC CONDUIT - SLOTTED (SEE NOTE **)
807202	EA	1	METER SERVICE PEDESTAL
810010	LF	175	CABLE 1-CONDUCTOR, NO. 4 AWG-THHN/THWN
811001	EA	2	FURNISH AND INSTALL ELECTRICAL HANDHOLE
813014	SF	41	INSTALL GROUND MOUNTED SIGNS
813015	SF	47	INSTALL OVERHEAD SIGN
816001	EA	6	VIDEO DETECTION CAMERA
816005	EA	4	CONTROL CABLE - 250 FOOT VIDED DETECTION CAMERA TO CONTROLLER
816010	EA	2	CONTROL CABLE - 500 FOOT VIDED DETECTION CAMERA TO CONTROLLER
818021	EA	1	STEEL POLE WITH TWIN 50 FOOT MAST ARMS
822002	LF	375	12-PAIR COMMUNICATION CABLE, JELLY FILLED (UNDERGROUND)
831010	EA	2	250 WATT HPS LAMP AND LUMINAIRE
837001	EA	6	GROUND ROD - 3/4 INCH DIAMETER X 10 FOOT LENGTH
860284	EA	45	12 INCH LED VEHICULAR TRAFFIC SIGNAL HEAD SECTION
860292	EA	1	CUT, CLEAN, GALVANIZE AND CAP TRAFFIC SIGNAL STRUCTURE
861105	LF	400	ELECTRICAL CABLE - 2 CONDUCTOR (NO. 14 A.W.G.)
861107	LF	1340	ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 A.W.G.)
861108	LF	1750	ELECTRICAL CABLE - 7 CONDUCTOR (NO. 14 A.W.G.)
861116	LF	575	ELECTRICAL CABLE - 2 CONDUCTOR (NO. 12 A.W.G.)
866104	EA	2	20 FOOT LIGHTING ARM ON SIGNAL STRUCTURE
871202	EA	1	INSTALL CONTROLLER AND CABINET - BASE MOUNT

C. SHA FORCES SHALL REMOVE THE CONTROLLER AND ALL AUXILIARY EQUIPMENT FROM THE CONTROLLER CABINET. THE CABINET AND ALL OTHER MATERIALS TO BE REMOVED BY THE CONTRACTOR SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

NOTE: THE CONTRACTOR SHALL CONTACT KEITH LORD FOR LOCATING ALL EXISTING SIGNAL EQUIPMENT 48 HOURS IN ADVANCE. THE CONTRACTOR SHALL ALSO CONTACT KAMAL HAMUD OF MONTGOMERY COUNTY PRIOR TO INSTALLING NEW INTERCONNECT CABLE AND DISCONNECTING THE EXISTING INTERCONNECT.

\* TRIPLE MAST ARM NOTE:  
THERE IS TYPICALLY A LONG LEAD TIME FOR TRIPLE MAST ARM STRUCTURES. THIS STRUCTURE SHOULD BE ORDERED WHEN NTP IS PROVIDED IN ORDER TO MEET THE CONSTRUCTION SCHEDULE.

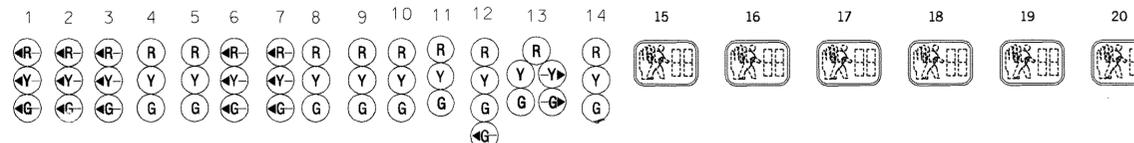
\*\* SLOTTED CONDUIT NOTE:  
FOR TWO CONDUITS IN A TRENCH, ONLY ONE WILL BE PAID AS SLOTTED, THE SECOND WILL BE PAID AS TRENCHED.

INTERCONNECT NOTES

- INSTALLATION OF FIBEROPTIC AND INTERCONNECT AERIAL CABLES SHALL CONFORM TO PROVISIONS OF TECORDIA'S BLUE BOOK MANUAL OF CONSTRUCTION PROCEDURES SR-1421 LATEST ISSUE AND TO THE PROVISIONS OF ANSI NATIONAL ELECTRICAL SAFETY CODE, THE NATIONAL ELECTRICAL CODE, MONTGOMERY COUNTY ELECTRICAL SAFETY CODE, AND OSHA, WHERE CODES CONFLICT, THE MOST STRINGENT REQUIREMENT SHALL APPLY.
- CONTRACTOR SHALL BE RESPONSIBLE FOR REQUESTING A LOCATE OF MONTGOMERY COUNTY'S EQUIPMENT TO INCLUDE BUT NOT LIMITED TO INTERCONNECT CABLE, FIBER OPTIC CABLE, AND SIGNAL EQUIPMENT; EITHER OVERHEAD OR UNDERGROUND, SEVENTY-TWO (72) HOURS IN ADVANCE OF INTENDED WORK. CONTACT MCDPW&T AT 240-777-2100 TO COORDINATE A DATE AND TIME FOR AN ON-SITE LOCATE WITH A DESIGNATED CONTRACTOR REPRESENTATIVE.
- DISCONNECTING AND SPLICING OF INTERCONNECT CABLE SHALL BE PERFORMED BY MONTGOMERY COUNTY FORCES. CONTACT KAMAL HAMUD AT 240-777-8761 SEVENTY-TWO (72) HOURS IN ADVANCE OF ANY INTENDED INTERCONNECT WORK. INTENDED WORK INCLUDES RELOCATING, INSTALLING, OR MOVING ANY INTERCONNECT CABLE.
- THE CONTRACTOR SHALL PROPERLY INSTALL THE INTERCONNECT CABLE OVERHEAD OR UNDERGROUND INTO THE DESIGNATED SPLICE ENCLOSURES AND PROPERLY TAG EACH CABLE.
- MONTGOMERY COUNTY SHALL BE RESPONSIBLE FOR VERIFYING THE PHYSICAL INTEGRITY OF THE INTERCONNECT CABLE AS WELL AS FOR TESTING THE OPERABILITY OF EACH CABLE CONDUCTOR. IF A PROBLEM ARISES WITH THE PHYSICAL INTEGRITY OR OPERABILITY OF THE INTERCONNECT CABLE IT SHALL BE THE RESPONSIBILITY OF THE INSTALLATION CONTRACTOR TO REPLACE OR REPAIR WITH MONTGOMERY COUNTY'S APPROVAL. FINAL (QUALITY CONTROL TESTING) WILL BE APPROVED BY MONTGOMERY COUNTY AND VERIFIED AS ACCEPTED BY KAMAL HAMUD AT 240-777-8761.
- NO ADDITIONAL SPLICES ARE TO BE INTRODUCED INTO EITHER THE INTERCONNECT CABLE OR THE FIBER OPTIC CABLE.
- POLE MOUNTED SPLICE CABINETS SHALL BE INSTALLED AT GROUND WORKING HEIGHT. SPLICE CLOSURE FOR INTERCONNECT CABLE SPLICES SHALL BE WITH 3" RISERS AND WEATHER HEADS. NO STRAND MOUNTED OR AERIAL CLOSURE WILL BE ACCEPTED.

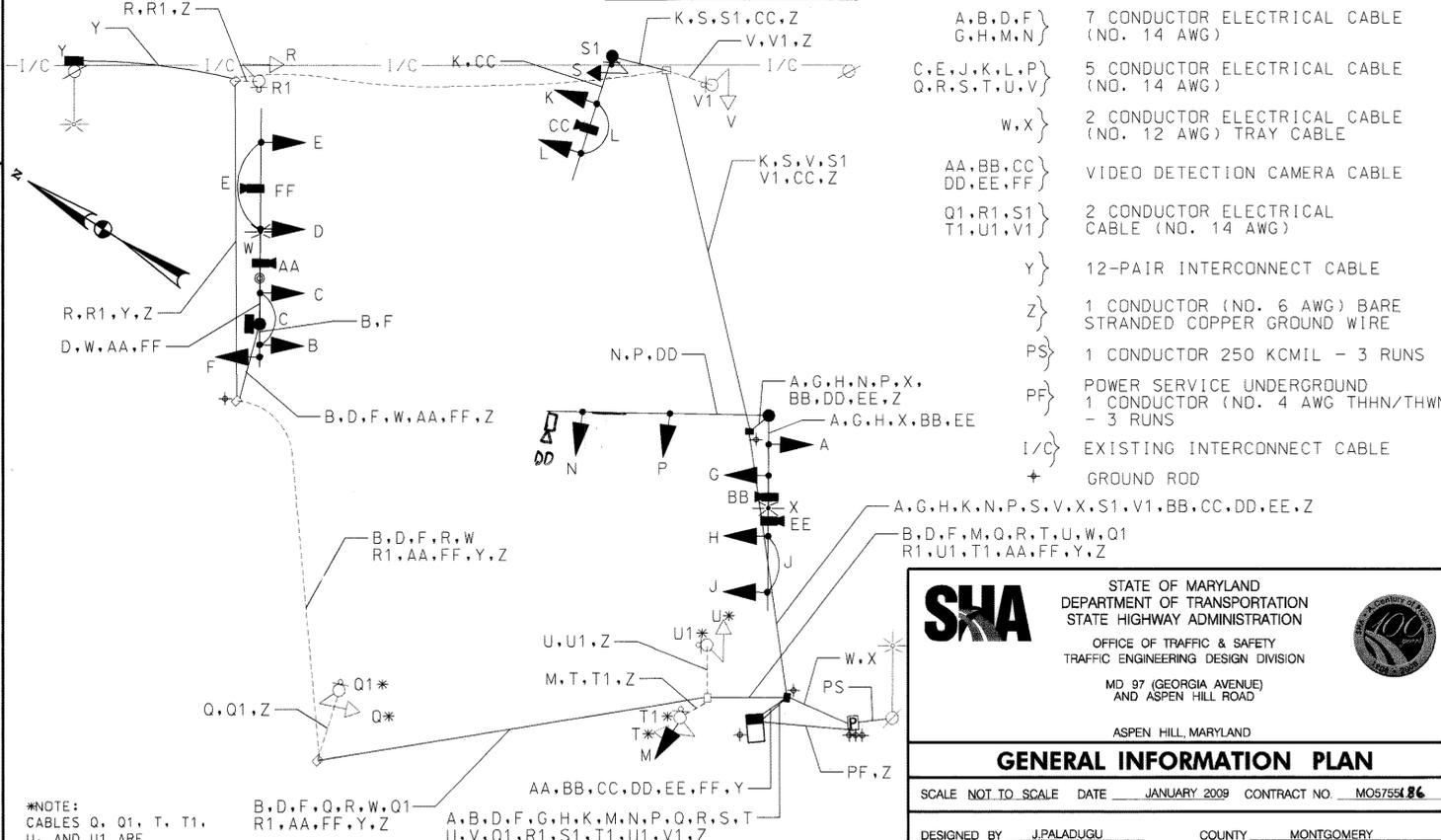
\*NOTE:  
CABLES Q, Q1, T, T1, U, AND U1 ARE EXISTING CABLES TO BE REROUTED.

PHASE CHART



PHASE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
PHASE 1 AND 5	←G	←G	←G	R	R	←G	←G	R	R	R	R	R	R/G	R	DW	DW	DW	DW	DW	DW
1 AND 5 CHANGE	←Y	←Y	←Y	R	R	←Y	←Y	R	R	R	R	R	R/Y	R	DW	DW	DW	DW	DW	DW
PHASE 1 AND 6	←G	←G	←G	G	G	←R	←R	R	R	R	R	R	R/G	R	DW	W	W	DW	DW	DW
1 CHANGE	←Y	←Y	←Y	G	G	←R	←R	R	R	R	R	R	R/Y	R	DW	W	W	DW	DW	DW
PHASE 2 AND 5	←R	←R	←R	R	R	←G	←G	G	G	R	R	R	R	R	W	DW	DW	W	DW	DW
5 CHANGE	←R	←R	←R	R	R	←Y	←Y	G	G	R	R	R	R	R	W	DW	DW	W	DW	DW
PHASE 2 AND 6	←R	←R	←R	G	G	←R	←R	G	G	R	R	R	R	R	W	W	W	W	DW	DW
PED CLEARANCE	←R	←R	←R	G	G	←R	←R	G	G	R	R	R	R	R	FL/DW	FL/DW	FL/DW	FL/DW	DW	DW
2 AND 6 CHANGE	←R	←R	←R	Y	Y	←R	←R	Y	Y	R	R	R	R	R	DW	DW	DW	DW	DW	DW
PHASE 3	←R	←R	←R	R	R	←R	←R	R	R	G	G	R	R	R	DW	DW	DW	DW	DW	DW
3 CHANGE	←R	←R	←R	R	R	←R	←R	R	R	Y	Y	R	R	R	DW	DW	DW	DW	DW	DW
PHASE 4	←R	←R	←R	R	R	←R	←R	R	R	R	R	R	G	G	DW	DW	DW	DW	DW	DW
4 CHANGE	←R	←R	←R	R	R	←R	←R	R	R	R	R	R	Y	Y	DW	DW	DW	DW	DW	DW
PHASE 4 ALT.	←R	←R	←R	R	R	←R	←R	R	R	R	R	R	G	G	DW	DW	DW	DW	W	W
PED. CLEARANCE	←R	←R	←R	R	R	←R	←R	R	R	R	R	R	G	G	DW	DW	DW	DW	FL/DW	FL/DW
4 ALT. CHANGE	←R	←R	←R	R	R	←R	←R	R	R	R	R	R	Y	Y	DW	DW	DW	DW	DW	DW
FLASHING OPERATION	FL/R	FL/R	FL/R	FL/Y	FL/Y	FL/R	FL/R	FL/Y	FL/Y	FL/R	FL/R	FL/R	FL/R	FL/R	DARK	DARK	DARK	DARK	DARK	DARK

WIRING DIAGRAM



- KEY
- A, B, D, F } 7 CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
  - G, H, M, N }
  - C, E, J, K, L, P } 5 CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
  - Q, R, S, T, U, V }
  - W, X } 2 CONDUCTOR ELECTRICAL CABLE (NO. 12 AWG) TRAY CABLE
  - AA, BB, CC } VIDEO DETECTION CAMERA CABLE
  - DD, EE, FF }
  - Q1, R1, S1 } 2 CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
  - T1, U1, V1 }
  - Y } 12-PAIR INTERCONNECT CABLE
  - Z } 1 CONDUCTOR (NO. 6 AWG) BARE STRANDED COPPER GROUND WIRE
  - PS } 1 CONDUCTOR 250 KCMIL - 3 RUNS
  - PF } POWER SERVICE UNDERGROUND 1 CONDUCTOR (NO. 4 AWG THHN/THWN) - 3 RUNS
  - I/C } EXISTING INTERCONNECT CABLE + GROUND ROD

**SHA** STATE OF MARYLAND  
DEPARTMENT OF TRANSPORTATION  
STATE HIGHWAY ADMINISTRATION  
OFFICE OF TRAFFIC & SAFETY  
TRAFFIC ENGINEERING DESIGN DIVISION  
MD 97 (GEORGIA AVENUE)  
AND ASPEN HILL ROAD  
ASPEN HILL, MARYLAND

**GENERAL INFORMATION PLAN**

SCALE NOT TO SCALE DATE JANUARY 2009 CONTRACT NO. MO575486

DESIGNED BY J. PALADUGU COUNTY MONTGOMERY  
DRAWN BY J. PALADUGU LOGMILE 15009706.75  
CHECKED BY K. RINKER T.I.M.S. NO. J203  
F.A.P. NO. TOD NO.

TS NO. 32 H DRAWING p5G OF NO02 SHEET NO. 34D OF 56F

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