PROJECT DESCRIPTION

I. GENERAL

This project involves the installation of a new traffic signal at the intersection of MD 650 (New Hampshire Avenue) and the MD 200 On- and Off-Ramps in Montgomery County.

II. INTERSECTION OPERATION

1. The intersection is to operate in a NEMA 6-phase, semi-actuated mode. The left turn phases along MD 650 shall operate concurrently with exclusive left turn phasing and eastbound Ramp H right turns shall overlap with the northbound left turn phase. Video detection and APS will be installed at this location.

NOTES

1. For 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 Administration standards.
2. The contractor shall be responsible for terminating all signal cable to the appropriate terminals and properly labeling each cable.
3. 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.
4. The contractor shall be responsible for delivering the video interface equipment to the Montgomery County Signal Shop. County forces will complete the retrofit of all signal equipment.
5. Disconnecting and splicing of interconnect cable shall be performed by Montgomery County Forces. The contractor shall run the interconnect cable into the base of each cabinet and properly tag the cable. Contact Mr. Kamal Hamud of Montgomery County's Transportation Management Center at (240) 777-8761 seventy-two hours in advance of intended work.
6. 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.
7. Controller, cabinet, and APS equipment shall be purchased from Econolite and delivered to the Montgomery County Signal Shop for wiring and testing prior to installation.
8. The Contractor shall maintain interconnect throughout all construction phases.
9. APS will function as follows:
   a. When pedestrian located and presses pushbutton for extended time, the audible message will be "Wait to cross Ramp at New Hampshire."
   b. When Walk phase begins, the message will be a rapid tick which will last for the duration of the Walk phase.
10. Pushbuttons are to be located so that they can be activated by a person in a wheelchair reaching less than 18" from a 60" x 60" level landing area with a cross slope of less than or equal to 2%.
11. The 10' separation between pushbuttons is to be measured from face of pushbutton to face of pushbutton, not center of pole to center of pole. Pedestrian pushbutton pole shall be installed so as to maintain a minimum 5' wide clear pedestrian pathway.
12. Pushbutton arrows are to be parallel to the crossing for which they are intended.
13. Location of accessible pedestrian signal pushbuttons must meet location requirements of the MD MUTCD Sec. 4E.09 and Fig. 4E.2 and the NCHRP publication "Accessible pedestrian signals: Guide to the best practice." If not met, the contractor is to stop work on pushbutton locations until a design waiver is obtained, approved by the Director, Office of Traffic & Safety.

CONTACTS

DISTRICT
MS. ANYESHA MOOKHERJEE
ASSISTANT DISTRICT ENGINEER - TRAFFIC
301-513-7318
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ASSISTANT DISTRICT ENGINEER - CONSTRUCTION
301-513-7336
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301-279-1971
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OFFICE OF TRAFFIC AND SAFETY
MR. RICHARD DAFF SR.
CHIEF, TRAFFIC OPERATIONS
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ASSISTANT DIVISION CHIEF, TRAFFIC OPERATIONS
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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

EQUIPMENT LIST

A. EQUIPMENT TO BE FURNISHED BY STATE HIGHWAY ADMINISTRATION

CAT CODE	DESCRIPTION	UNITS	QUANTITY
	NONE		

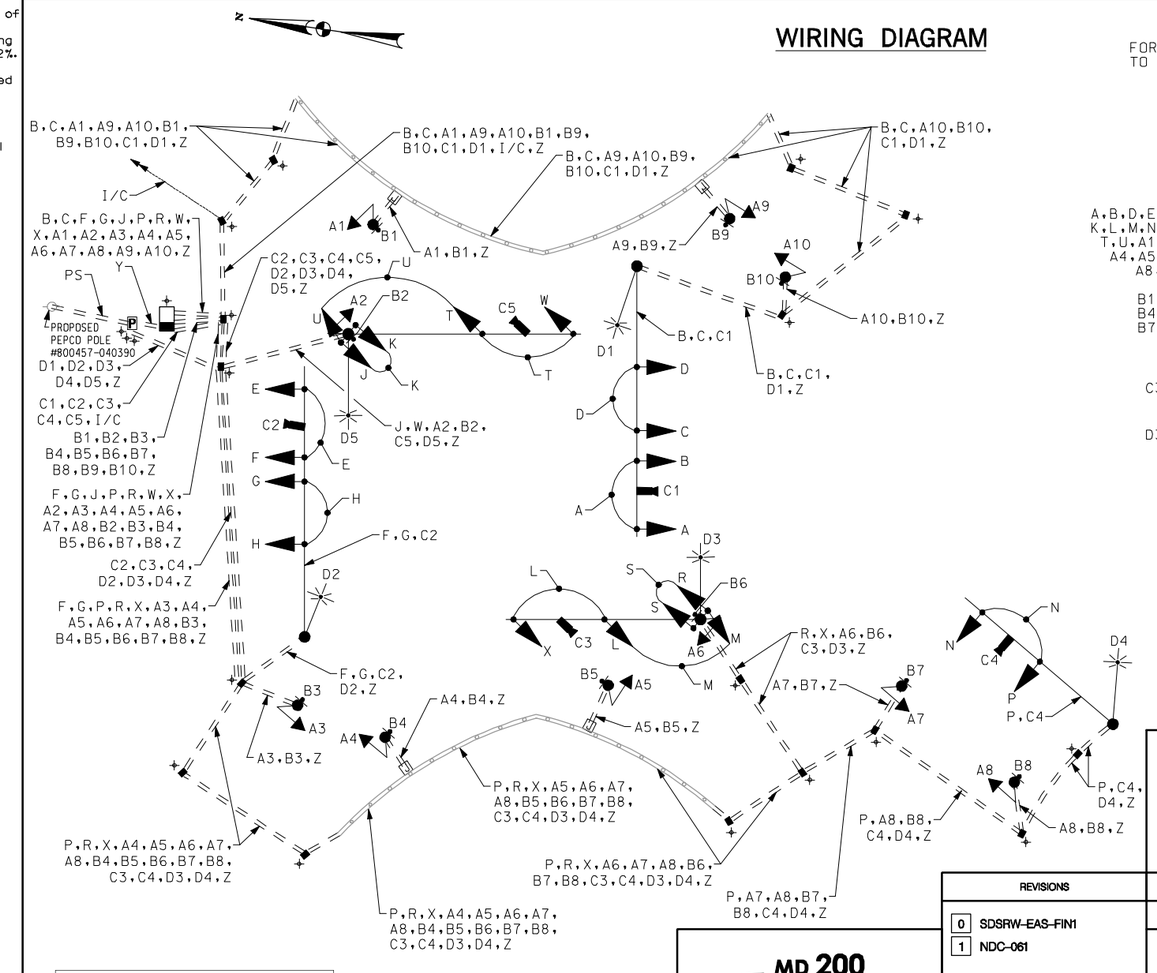
B. EQUIPMENT TO BE FURNISHED AND/OR INSTALLED BY CONTRACTOR

CAT CODE	DESCRIPTION	UNITS	QUANTITY
203030	TEST PIT EXCAVATION	CY	4
585621	12 INCH WHITE PERMANENT PREFORMED THERMO. PAVEMENT MARKING	LF	1280
585625	24 INCH WHITE PERMANENT PREFORMED THERMO. PAVEMENT MARKING	LF	225
800000	16 INCH LED COUNTDOWN PEDESTRIAN SIGNAL HEAD SECTION POLE MOUNT	EA	10
800000	AUDIBLE TACTILE PEDESTRIAN PUSH BUTTON BASE UNIT	EA	1
800000	AUDIBLE TACTILE PEDESTRIAN PUSH BUTTON STATION	EA	10
800000	CONTROL CABLE 200 FOOT VIDEO DETECTION CAMERA TO CONTROLLER	EA	1
800000	CONTROL CABLE 300 FOOT VIDEO DETECTION CAMERA TO CONTROLLER	EA	1
800000	CONTROL CABLE 1000 FOOT VIDEO DETECTION CAMERA TO CONTROLLER	EA	3
800000	ECONOLITE NEMA 6 BASE-MOUNTED CABINET AND CONTROLLER WITH VIDEO INTERFACE	EA	1
800000	40 FOOT STEEL POLE WITH A SINGLE 60 FOOT MAST ARM	EA	2
800000	40 FOOT STEEL POLE WITH A SINGLE 70 FOOT MAST ARM	EA	2
801106	WOOD SIGN SUPPORTS 4 INCH X 6 INCH	LF	35
801605	SHEET ALUMINUM SIGNS	SF	116
802501	NO. 6 AWG STRANDED BARE COPPER GROUND WIRE	LF	1950
805125	2 INCH SCHEDULE 80 PVC CONDUIT - TRENCHED	LF	60
805135	3 INCH SCHEDULE 80 PVC CONDUIT - TRENCHED	LF	60
805140	4 INCH SCHEDULE 80 PVC CONDUIT - TRENCHED	LF	1260
807202	METERED SERVICE PEDESTAL	EA	1
811001	FURNISH AND INSTALL ELECTRICAL HANDHOLE	EA	16
813015	INSTALL OVERHEAD SIGN	SF	81
816001	VIDEO DETECTION CAMERA	EA	5
818004	10 FOOT BREAKAWAY PEDESTAL POLE	EA	8
818036	STEEL POLE WITH A SINGLE 50 FOOT MAST ARM	EA	1
821003	BREAKAWAY BASE SUPPORT SYSTEM FOR SIGNAL STRUCTURE	EA	5
831010	250 WATT HIGH PRESSURE SODIUM LAMP AND LUMINAIRE	EA	1
831012	400 WATT HIGH PRESSURE SODIUM LAMP AND LUMINAIRE	EA	4
837001	GROUND ROD - 3/4 INCH DIA. X 10 FOOT LENGTH	EA	20
860284	12 INCH LED VEHICULAR TRAFFIC SIGNAL HEAD SECTION	EA	60
861105	ELECTRICAL CABLE - 2 CONDUCTOR (NO. 14 AWG)	LF	4810
861107	ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 AWG)	LF	8700
861108	ELECTRICAL CABLE - 7 CONDUCTOR (NO. 14 AWG)	LF	1050
861116	ELECTRICAL CABLE - 2 CONDUCTOR (NO. 12 AWG)	LF	2820
861117	ELECTRICAL CABLE - 3 WIRE (NO. 4 AWG)	LF	30
866101	10 FOOT LIGHTING ARM ON SIGNAL STRUCTURE	EA	1
866103	15 FOOT LIGHTING ARM ON SIGNAL STRUCTURE	EA	3
866104	20 FOOT LIGHTING ARM ON SIGNAL STRUCTURE	EA	1

PHASE CHART

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	30	31	32	33	34	35	36	37	38	39	
	◀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	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											
PHASE 1 AND 5	◀G–	◀G–	R	R	◀G–	◀G–	R	R	R	R	R	R	R	G	G	R	R	R	R	R	DW	WALK	DW	WALK	DW	DW	WALK	DW	WALK	DW	
1 AND 5 CHANGE TO 1 AND 6, 2 AND 5, OR 2 AND 6																															
PHASE 1 AND 6	◀G–	◀G–	G	G	◀R–	◀R–	R	R	R	R	R	R	R	G	G	R	R	R	R	R	DW	WALK	DW	WALK	WALK	WALK	WALK	DW	WALK	DW	
1 AND 6 CHANGE	◀Y–	◀Y–	G	G	◀R–	◀R–	R	R	R	R	R	R	R	Y	Y	R	R	R	R	R	DW	WALK	DW	WALK	WALK	WALK	WALK	DW	WALK	DW	
PHASE 2 AND 5	◀R–	◀R–	R	R	◀G–	◀G–	G	G	R	R	R	R	R	R	R	R	R	R	R	R	WALK	WALK	WALK	WALK	DW	DW	WALK	WALK	WALK	WALK	
2 AND 5 CHANGE	◀R–	◀R–	R	R	◀Y–	◀Y–	G	G	R	R	R	R	R	R	R	R	R	R	R	R	WALK	WALK	WALK	WALK	DW	DW	WALK	WALK	WALK	WALK	
PHASE 2 AND 6	◀R–	◀R–	G	G	◀R–	◀R–	G	G	R	R	R	R	R	R	R	R	R	R	R	R	WALK	WALK	WALK	WALK	WALK	WALK	WALK	WALK	WALK	WALK	
PED CLEARANCE	◀R–	◀R–	G	G	◀R–	◀R–	G	G	R	R	R	R	R	R	R	R	R	R	R	R	WALK	FL/DW	WALK	FL/DW	WALK	WALK	FL/DW	WALK	FL/DW	WALK	
2 AND 6 CHANGE	◀R–	◀R–	Y	Y	◀R–	◀R–	Y	Y	R	R	R	R	R	R	R	R	R	R	R	R	WALK	DW	WALK	DW	WALK	WALK	DW	WALK	DW	WALK	
PHASE 4 AND 8	◀R–	◀R–	R	R	◀R–	◀R–	R	R	G	G	G	G	G	R	R	G	G	G	G	G	WALK	DW	WALK	DW	WALK	WALK	DW	WALK	DW	WALK	
PED CLEARANCE	◀R–	◀R–	R	R	◀R–	◀R–	R	R	G	G	G	G	G	R	R	G	G	G	G	G	FL/DW	DW	FL/DW	DW	FL/DW	FL/DW	DW	FL/DW	DW	FL/DW	
4 AND 8 CHANGE	◀R–	◀R–	R	R	◀R–	◀R–	R	R	Y	Y	Y	Y	Y	R	R	Y	Y	Y	Y	Y	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	
FLASHING OPERATION	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	FL/R	FL/R	FL/R	FL/R	FL/R	FL/R	FL/R	DARK	DARK	DARK	DARK	DARK	DARK	DARK	DARK	DARK	DARK	

WIRING DIAGRAM



FOR DETAILS ON INTERCONNECT, REFER TO INTERCONNECT PLAN (pSG OF C005).

KEY

- C,G,W,X — 7 CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
- A,B,D,E,F,H,J,K,L,M,N,P,R,S,T,U,A1,A2,A3,A4,A5,A6,A7,A8,A9,A10 — 5 CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
- B1,B2,B3,B4,B5,B6,B7,B8,B9,B10 — 2 CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
- C1,C2,C3,C4,C5 — VIDEO DETECTION CABLE
- D1,D2,D3,D4,D5 — 2 CONDUCTOR ELECTRICAL CABLE (NO. 12 AWG) TRAY CABLE
- Y — 3 WIRE 1 CONDUCTOR (NO. 4 AWG THHN/THWN)
- Z — 1 CONDUCTOR (NO. 6 AWG) STRANDED COPPER GROUND WIRE
- PS — 3 WIRE 250 KCMIL TYPE USE
- I/C — INTERCONNECT CABLE
- ⏚ — GROUND ROD

SUBMITTAL
SDSRW-EAS-FIN1

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF TRAFFIC & SAFETY
TRAFFIC ENGINEERING DESIGN DIVISION
MD 650 (NEW HAMPSHIRE AVENUE) AT MD 200 RAMPS
COLESVILLE, MARYLAND

GENERAL INFORMATION SHEET

REVISIONS
0 SDSRW-EAS-FIN1
1 NDC-061

SCALE NOT TO SCALE DATE JANUARY 2009 CONTRACT NO. AT3765B60

DESIGNED BY A. GRIFFIN — COUNTY MONTGOMERY
DRAWN BY A. GRIFFIN — LOGMILE 15065008.40
CHECKED BY K. RINIKER — TIMS NO. J928
F.A.P. NO. AC-NH-ICC-1(1)N — TOD NO.

TS NO. 4875 | DRAWING pSG OF N004 | SHEET NO. | OF

EAS-FIN 174/215

ISSUED FOR CONSTRUCTION
Date: 6/24/10 Initials: JM

MD 200 Constructors, a Joint Venture
11710 BELTSVILLE DRIVE * BELTSVILLE, MARYLAND 20705
301-755-2200

PLOTTED: 7:15:22 PM 6/3/2010
FILE: C:\PW_WORKING\.XM\PTG\P0096930\DMS19696\PSG-N004_ICC-B_MD650.DGN

FILE: C:\PW_WORKING\.XM\PTG\P0096930\DMS19696\PSG-N004_ICC-B_MD650.DGN
BY: p0096930