I. GENERAL

PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE RECONSTRUCTION OF THE EXISTING TRAFFIC SIGNAL AT THE INTERSECTION OF MD 355 (ROCKVILLE PIKE) AND EDMONSTON DRIVE IN MONTGOMERY COUNTY. AUDIBLE PEDESTRIAN PUSHBUTTON STATIONS, AND COUNTDOWN PEDESTRIAN SIGNAL HEADS SHALL BE INSTALLED FOR ALL FOUR LEGS OF THE INTERSECTION. NEW ADA RAMPS SHALL BE INSTALLED FOR ALL CROSSING OF THE INTERSECTION. A NEW NEMA SIZE SIX BASE MOUNTED CONTROLLER SHALL BE INSTALLED WITH VIDEO INTERFACE EQUIPMENT INSIDE THE CABINET. MD 355 IS ASSUMED TO RUN IN A NORTH/SOUTH DIRECTION.

II. INTERSECTION OPERATION

A PROPOSED NEMA FULL-TRAFFIC-ACTUATED, EIGHT (8) PHASE CONTROLLER WITH VIDEO DETECTION INTERFACE. 2 WIRE CENTRAL CONTROL UNIT, L.A.U. AND ALL NECESSARY EQUIPMENT IN A NEMA SIZE "6" BASE MOUNTED CABINET SHALL BE INSTALLED AT THIS LOCATION. VIDEO DETECTION INTERFACE SHALL BE INSTALLED INTO THE CABINET BY MONTGOMERY COUNTY FORCES.THE INTERSECTION IS TO OPERATE IN A NEMA 7-PHASE, SEMI-ACTUATED MODE, WITH A LAG EXCLUSIVE/PERMISSIVE LEFT TURN PHASE ON THE WESTBOUND EDMONSTON DRIVE APPROACH, AND PROTECTIVE LEFT TURN PHASING ON BOTH MD 355 APPROACHES. LEFT TURNS ARE PROHIBITED ON EASTBOUND W. EDMONSTON DRIVE.

NOTES

1. All pavement markings shall be installed in accordance with MDSHA 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. 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.
5. The contractor shall verify all proposed pole and cabinet locations prior to installation.
6. Video detection location and alignment shall be coordinated with Montgomery County engineer.
7. The Contractor shall deliver APS pushbuttons and central control unit to Mr. Robert Ricketts at Montgomery County Technical Center at 1283 Seven Locks Road, Rockville, MD 20854 at least 3 weeks prior to beginning work. The Contractor shall have the APS messages programmed from the factory and deliver the APS wave files to Mr. Robert Ricketts.
8. The contractor shall notify Mr. Kamal Hamud and Mr. Robert Ricketts 72 hours prior to beginning work.
9. The contractor shall maintain the continuous operation of all interconnect, vehicular and 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.
10. APS will function as follows:
    To cross Rockville Pike at Edmonston Drive and West Edmonston Drive.
    A. When Pedestrian locates and presses pushbutton for an extended time, the message will announce "WAIT to cross Rockville Pike at Edmonston and W. Edmonston WAIT."
    B. When Walk phase begins, the message will be a rapid tick which will last for the duration of the walk phase.
    To cross Edmonston Drive at Rockville Pike.
    A. When Pedestrian locates and presses pushbutton for an extended time, the message will announce "WAIT to cross Edmonston at Rockville Pike.Crosswalk angels right, WAIT."
    B. When Walk phase begins, the message will be a rapid tick which will last for the duration of the walk phase.
    To cross West Edmonston Drive at Rockville Pike.
    A. When Pedestrian locates and presses pushbutton for an extended time, the message will announce "WAIT to cross W.Edmonston at Rockville Pike WAIT."
    B. When Walk phase begins, the message will be a rapid tick which will last for the duration of the walk phase.
11. 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%.
12. The 10' separation between pushbuttons is to be measured from face of pushbutton to face of pushbutton, not center to center of pole.
13. Pushbutton arrows are to be parallel to the crossing for which they are intended.
14. Location of accessible pedestrian signal pushbuttons must meet location requirements of MD MUTCD Sec. 4E.09 and Fig. 4E.2 and the NCHRP publication "Accessible pedestrian signals: Guide to 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.

III. MAINTENANCE OF TRAFFIC

MAINTENANCE OF TRAFFIC WILL BE HANDLED BY THE CONTRACTOR UTILIZING MSHA STANDARD PLATES FOR TRAFFIC CONTROL.

CONTACTS

MONTGOMERY COUNTY

MR. KAMAL HAMUD
CHIEF OF TRAFFIC DIVISION MCDPW&T
240-777-8761

MR. ROBERT RICKETTS
CHIEF OF SIGNAL SHOP MCDPW&T
301-279-1291

DISTRICT

MR. CEDRIC WARD
ASSISTANT DISTRICT ENGINEER - TRAFFIC
301-513-7404

MR. KEVIN NOWAK & MR. DUANE BERNARD
ASSISTANT DISTRICT ENGINEER - CONSTRUCTION
301-513-7336

MR. VERNON STINNETT
ASSISTANT DISTRICT ENGINEER - MAINTENANCE
301-513-7304

MR. VICTOR GRAFTON
UTILITIES 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
CHIEF SIGNAL OPERATIONS
410-787-7650

MR. EUGENE BAILEY
CHIEF SIGN OPERATIONS
410-787-7670

MR. MIKE STOCKER
CHIEF SUPPLY OFFICER IV (SIGNAL SHOP WAREHOUSE)
410-787-7668

EQUIPMENT LIST

A1. EQUIPMENT TO BE SUPPLIED BY THE ADMINISTRATION.

ITEM NO.	DESCRIPTION	UNITS	QUANTITY
9042	CONTROLLER ASC 3 WITH TELEMETRY	EA	1
9044	CONTROLLER CABINET, SIZE 6	EA	1
9087	VIDEO DETECTION INTERFACE EQUIPMENT: 5-8 CAMERAS	EA	1
9570	SHEET ALUMINUM GROUND MOUNTED SIGN CONSISTING OF:	SF	25
	W11-2(30" x 30")	EA	1
	W16-7p(24" x 12")	EA	1
	W13-4(1)(36" x 24")	EA	1
	R4-7(24" x 30")	EA	2
9571	SHEET ALUMINUM MAST ARM / POLE MOUNTED SIGN CONSISTING OF:	SF	102
	M1-5(6) (30" x 48")	EA	1
	M1-5(4)(78" x 36")	EA	1
	D-3(1)(VAR. x 16") DUAL FACE	EA	3
	D-3(1)(VAR. x 16")	EA	1
	R3-5(R) (30" x 36")	EA	1
	R3-2 (30" x 30")	EA	2
	R10-3(1) (9" x 15")	EA	8

A2. EQUIPMENT TO BE SUPPLIED BY THE MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION.

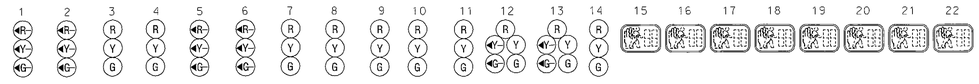
DESCRIPTION	UNITS	QUANTITY
POLE MOUNTED SPLICE CABINET	EA	2

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

ITEM NO.	DESCRIPTION	UNITS	QUANTITY
1001	MAINTENANCE OF TRAFFIC	EA	3
2001	CLASS 2 EXCAVATION	CY	12
2002	TEST PIT EXCAVATION	CY	10
5003	REMOVAL OF EXISTING PERMANENT PAVEMENT LINE MARKINGS	LF	1350
5004	12 INCH WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINES	LF	650
5005	24 INCH WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINES	LF	175
6001	STANDARD TYPE A COMBINATION CURB AND GUTTER 12 INCH GUTTER PAN 8 INCH DEPTH	LF	270
6002	5 INCH CONCRETE SIDEWALK	SF	1550
6003	DETECTABLE WARNING SURFACE FOR CURB RAMPS	SF	110
8001	12 INCH LED VEHICULAR SIGNAL HEAD SECTION	EA	46
8002	2 WIRE CENTRAL CONTROL UNIT	EA	1
8008	AUDIBLE / TACTILE PEDESTRIAN PUSHBUTTON STATION AND SIGN	EA	8
8009	BREAKAWAY PEDESTAL POLE (ANY SIZE)	EA	6
8012	EMBEDDED METERED SERVICE PEDESTAL WITH BYPASS SWITCH	EA	1
8015	LED 16 INCH COUNTDOWN PEDESTRIAN SIGNAL HEADS	EA	8
8018	MAST ARM POLE & 50 FT MAST ARM ANY 'T' DIMENSION	EA	2
8019	MAST ARM POLE & 60 FT MAST ARM ANY 'T' DIMENSION	EA	1
8020	MAST ARM POLE & 70 FT MAST ARM ANY 'T' DIMENSION	EA	1
8023	REMOVE & DISPOSE OF EQUIPMENT (PER ASSIGNMENT)	EA	1
8028	VIDEO DETECTION CAMERA & CABLE UP ANY LENGTH	EA	6
8030	1-CONDUCTOR ELECTRICAL CABLE, NO. 2 AWG/THHN	LF	170
8031	12-PAIR COMMUNICATION CABLE	LF	50
8033	DISCONNECT, PULL-BACK & REROUTE CABLES	LF	350
8038	UP TO 4 INCH SCHEDULE 80 RIGID PVC CONDUIT-SLOTTED	LF	280
8039	UP TO 4 INCH SCHEDULE 80 RIGID PVC CONDUIT-TRENCHED	LF	250
8040	WOOD SIGN SUPPORTS UP TO 4" X 6"	LF	65
8041	INSTALL OVERHEAD OR GROUND MOUNTED SIGN (INCLUDING ALL HARDWARE)	SF	127
8043	NO 6 AWG STRANDED BARE COPPER GROUND WIRE	LF	430
8044	WEATHER HEAD, 3 INCH	EA	2
8046	ELECTRICAL CABLE - 1 CONDUCTOR NO. 8 AWG - THHN/THWN	LF	90
8047	FURNISH AND INSTALL ELECTRICAL HANDHOLE	EA	5
8051	3 INCH DIAMETER POLYVINYL CHLORIDE CONDUIT, SCHEDULE 80, RISER	LF	30
8054	ELECTRICAL CABLE - 2 CONDUCTOR NO. 14 AWG	LF	1100
8056	ELECTRICAL CABLE - 5 CONDUCTOR NO. 14 AWG	LF	1650
8057	ELECTRICAL CABLE - 7 CONDUCTOR NO. 14 AWG	LF	1550
8062	INSTALL CONTROLLER AND CABINET - POLE MOUNT	EA	2
8063	INSTALL CONTROLLER AND CABINET - BASE MOUNT	EA	1
NEG	TURFGRASS ESTABLISHMENT	SY	30
NEG	50-PAIR COMMUNICATION CABLE, SELF-SUPPORTING(OVERHEAD)	LF	135

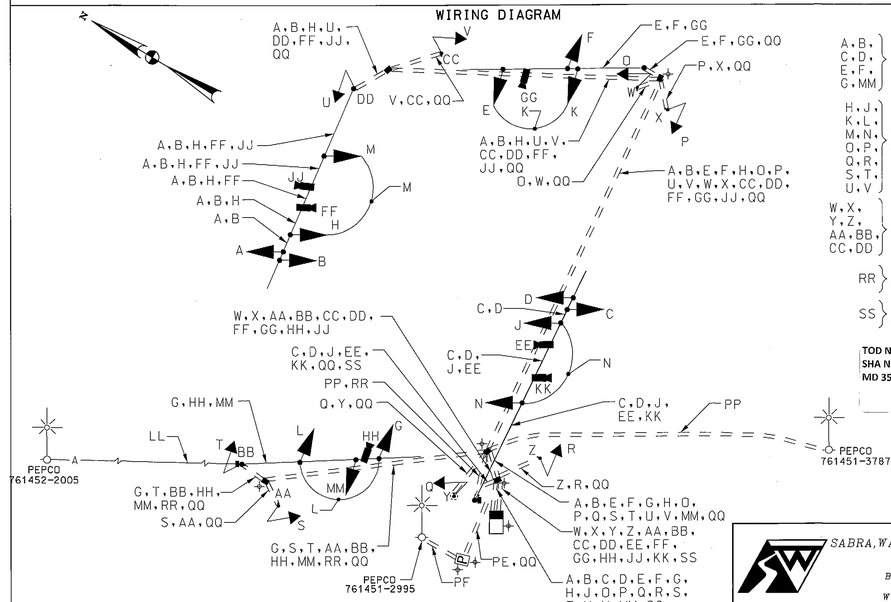
C. IF THE CABINET IS TO BE REMOVED MONTGOMERY COUNTY FORCES SHALL REMOVE THE CONTROLLER AND ALL AUXILIARY EQUIPMENT FROM THE CONTROLLER CABINET. THE CABINET AND ALL OTHER MATERIALS TO BE REMOVED BY THE CONTRACTOR SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

PHASE CHART



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
PHASE 1 + 5	G	G	R	R	G	G	R	R	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW	DW	DW
1 + 5 CHANGE	PHASE 1+5 MAY CHANGE TO PHASE 1 + 6, PHASE 2 + 5 OR PHASE 2 + 6																					
PHASE 1 + 6	G	G	G	G	R	R	R	R	R	R	R	R	R	R	DW	WK	WK	DW	DW	DW	DW	DW
1 CHANGE	Y	Y	G	G	R	R	R	R	R	R	R	R	R	R	DW	WK	WK	DW	DW	DW	DW	DW
PHASE 2 + 5	R	R	R	R	G	G	G	G	R	R	R	R	R	R	WK	DW	DW	WK	DW	DW	DW	DW
5 CHANGE	R	R	R	R	Y	Y	G	G	R	R	R	R	R	R	WK	DW	DW	WK	DW	DW	DW	DW
PHASE 2 + 6	R	R	G	G	R	R	G	G	R	R	R	R	R	R	WK	WK	WK	WK	DW	DW	DW	DW
PED CLEARANCE	R	R	G	G	R	R	G	G	R	R	R	R	R	R	FL/DW	FL/DW	FL/DW	FL/DW	DW	DW	DW	DW
2 + 6 CHANGE	R	R	Y	Y	R	R	Y	Y	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW	DW	DW
PHASE 4 + 8	R	R	R	R	R	R	R	R	G	G	G	G	G	G	DW	DW	DW	DW	DW	DW	DW	DW
4 + 8 CHANGE	R	R	R	R	R	R	R	R	Y	Y	Y	G	G	G	DW	DW	DW	DW	DW	DW	DW	DW
PHASE 4 + 8 ALT	R	R	R	R	R	R	R	R	G	G	G	G	G	G	DW	DW	DW	DW	WK	WK	WK	WK
PED CLEARANCE	R	R	R	R	R	R	R	R	G	G	G	G	G	G	DW	DW	DW	DW	FL/DW	FL/DW	FL/DW	FL/DW
4 + 8 ALT CHANGE	R	R	R	R	R	R	R	R	Y	Y	Y	G	G	G	DW	DW	DW	DW	DW	DW	DW	DW
3 LAG + 8	R	R	R	R	R	R	R	R	R	R	R	G/G	G	G	DW	DW	DW	DW	DW	DW	DW	DW
3 LAG + 8 CHANGE	R	R	R	R	R	R	R	R	R	R	R	Y/Y	Y	Y	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	DARK	DARK	DARK	DARK	DARK	DARK	DARK	DARK

WIRING DIAGRAM



KEY

- A,B,C,D,E,F,G,MM — 7 CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
- H,J,K,L,M,N,O,P,Q,R,S,T,U,V — 5 CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
- W,X,Y,Z,AA,BB,CC,DD — 2 CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
- RR — 50-PAIR COMMUNICATION CABLE
- SS — 12-PAIR COMMUNICATION CABLE
- QQ — 1 CONDUCTOR (NO. 6 AWG) STRANDED BARE COPPER GROUND WIRE
- EE, FF, GG, HH, JJ, KK — VIDEO DETECTION CAMERA CABLE
- LL, PP — EXISTING INTERCONNECT CABLE TO BE REROUTED
- PF — 3 WIRES, 1-CONDUCTOR ELECTRICAL CABLE, NO. 2 AWG/THHN
- PE — 3 WIRES, 1 CONDUCTOR NO. 8 AWG.- THHN/THWN
- GROUND ROD

TOD NO: XX655-11
SHA NO: MO972B57
MD 355 @ Edmonston Drive

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF TRAFFIC & SAFETY
TRAFFIC ENGINEERING DESIGN DIVISION

MD 355 (ROCKVILLE PIKE) AT EDMONSTON DRIVE
SIGNAL RECONSTRUCTION
ROCKVILLE, MARYLAND

GENERAL INFORMATION SHEET

SCALE NTS DATE SEPTEMBER 2011 CONTRACT NO. XX6555185

DESIGNED BY S. SMITH COUNTY MONTGOMERY
DRAWN BY S. SMITH LOGMILE 15035508.44
CHECKED BY S. DU F.A.P. NO. T.I.M.S. NO. J550
TOD NO.

TS NO. 1074B DRAWING OF SHEET NO. 2 OF 4

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By: MFUKUJ