PROJECT DESCRIPTION

GENERAL

This project involves the modification of an existing traffic signal at the intersection of MD 24 (Vietnam Veterans Memorial Highway) at West MacPhail Road in Harford County, Maryland. MD 24 is considered to run in a north/south direction.

Modifications include adding video detection cameras, and APS audible pedestrian equipment. Lane configuration changes include a double left turn from eastbound West MacPhail Road to northbound MD 24. Westbound West MacPhail Rd. changes from 2 lanes (left, thru-right) to 3 lanes (left, thru, right). [1]

INTERSECTION OPERATION

The intersection is to operate in a NEMA 8 phase, full-traffic-actuated mode. There will be an exclusive left turn phase for both the north and southbound movements of MD 24 (Vietnam Veterans Memorial Highway). The through movements will operate concurrently with a concurrent pedestrian movement across the west leg of the intersection. There will be an exclusive left turn phase for both the east and westbound movements of W. MacPhail Road. The through movements will operate concurrently with an actuated pedestrian movement across the north leg of the intersection. Utilize existing cabinet and controller. Video interface and APS 2-wire central control unit to be installed in cabinet.

EQUIPMENT LIST

A. Equipment to be supplied by the administration.
None.

B. Equipment to be furnished and/or installed by the contractor.

Quantity	Units	Description
Lump Sum	LS	Mobilization
Lump Sum	LS	Maintenance of traffic
2	EA	10 ft. steel pedestal pole with breakaway base
1	EA	Rack mounted video detection retrofit (SHA installed)
1	EA	Video detector retro-pack w/power
1	EA	Video detector interface panel (1 for every 4 cameras)
[1] 4 ~~2~~	EA	Video detector camera and cble: [1] (2-100 LF., 2-400 LF)
10	EA	12 in. 3-section signal head - span
2	EA	16 in. 1-section, 1-way LED countdown ped signal head - pole
2	EA	16 in. 1-section, 1-way LED countdown ped signal head - post
4	EA	9 in.x 15 in. R 10-3e pedestrian education sign - pole
[1] 2 ~~1~~	EA	30 in.x 36 in. R3-5(L) sign - span
[1] 2 ~~1~~	EA	30 in.x 36 in. R3-5(R) sign - span
4	EA	Audible Pedestrian pushbutton assembly
1	EA	Central control unit for audible pedestrian pushbutton
3	CY	Test pit excavation
2	EA	Handhole
[1] 375 ~~360~~	LF	2-conductor tray cable (No.12 AWG)
915	LF	2-conductor cable (No. 14 AWG)
1800	LF	5-conductor cable (No. 14 AWG)
[1] 1960 ~~1600~~	LF	7-conductor cable (No. 14 AWG)
300	LF	1/4 in. steel tether wire
300	LF	3/8 in. steel span wire
220	LF	Bare copper ground wire (No. 6 AWG)
[1] 115 ~~85~~	LF	2 in. PVC conduit [Schedule 80] - trenched
[1] 50 ~~165~~	LF	3 in. PVC conduit [Schedule 80] - trenched
30	LF	4 in. PVC conduit [Schedule 80] - trenched
[1] 210 ~~345~~	LF	4 in. PVC conduit [Schedule 80] - bored
8	CY	Concrete foundation for traffic signal equipment
5	EA	Ground rod - 3/4 in. x 10 ft. length
[1] ~~320~~	~~LF~~	~~5 in. white pavement marking thermoplastic - lane line~~
[1] ~~400~~	~~LF~~	~~5 in. yellow pavement marking thermoplastic - lane line~~
[1] ~~3~~	~~EA~~	~~Thermoplastic pavement marking symbol - white (L or R Arrow)~~
[1] 3 ~~2~~	EA	Relocate existing sign - span
2	EA	Back guy
[1] 55 ~~150~~	LF	Removal of existing pavement markings
[1] 530 ~~100~~	LF	Relocate existing signal cable (aluminum shielded)
Lump Sum	LS	Relocated existing underground interconnect cable (2.50 /LF) [1] (Approximately 530 LF).
1	EA	Rewire existing controller
9	EA	12 in. 3-section signal head (RA, YA, GA) - span
[1] 410 ~~400~~	LF	12 in. white thermoplastic pavement marking - crosswalk HAPPTPM
[1] 124 ~~100~~	LF	24 in. white thermoplastic pavement marking - stop line HAPPTPM
1	EA	12 in. x 32 ft. 2-ply steel strain pole
2	EA	5 ft. steel pedestal pole with breakaway base
[1] 4	EA	Remove existing handhole.

These plans are approved for construction for a period of 1 year from the date of approval. Should construction not begin within this time frame these plans shall be null and void without a review from the Traffic Engineering Design Division.

PROJECT CONTACTS:

1. The following contact persons for this project are as follows:
Erin Kuhn, Assistant District Engineer - Traffic
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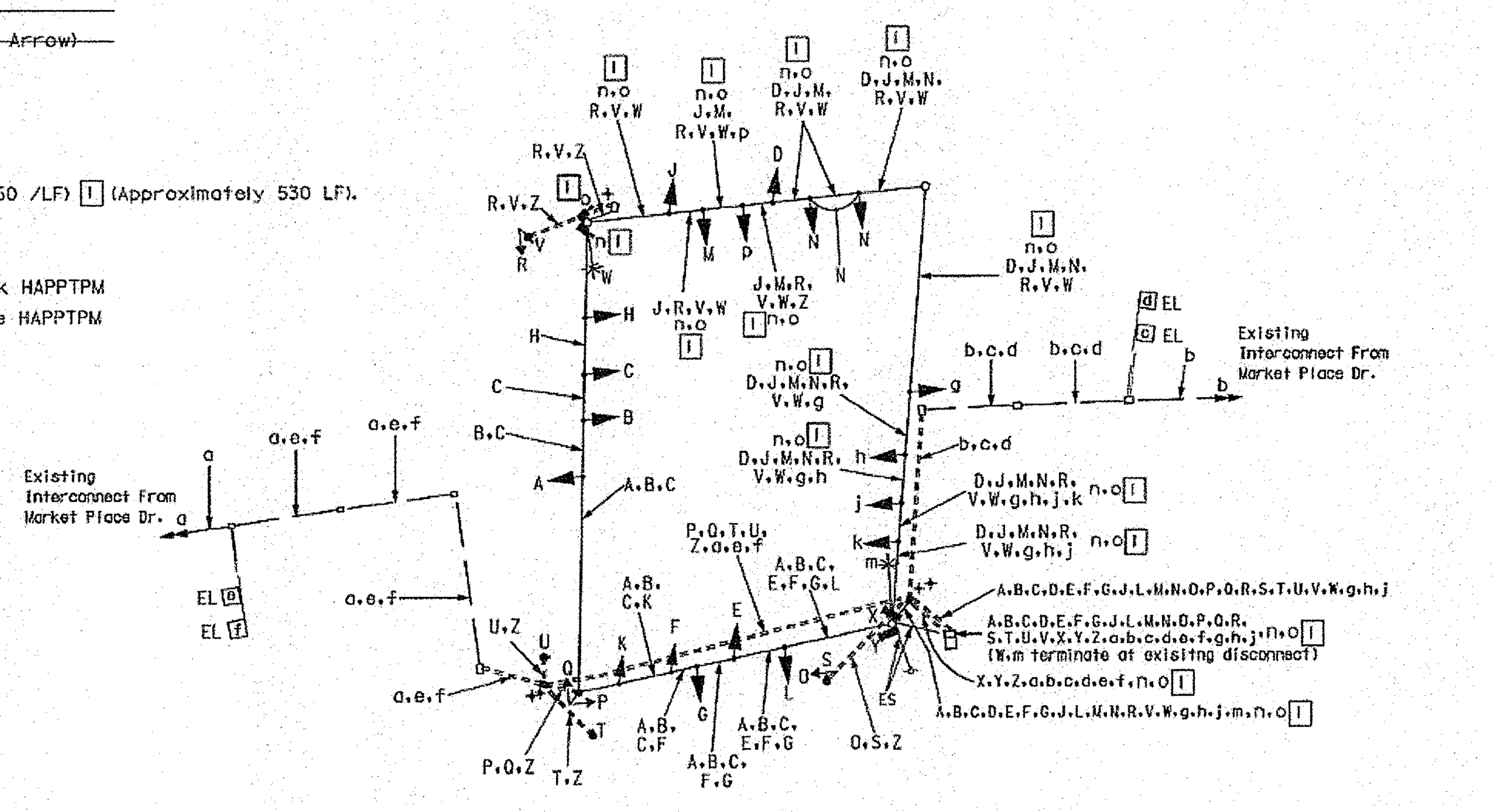
Phase Chart

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
PHASE 1 AND 5	←G	←G	R	R	←G	←G	R	R	←R	R	←R	R	R	←R	R	←R	←R	R	R	DW	DW	DW	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	←R	R	←R	←R	R	R	DW	DW	DW	DW
1 CHANGE	←Y	←Y	G	G	←R	←R	R	R	←R	R	←R	R	R	←R	R	←R	←R	R	R	DW	DW	DW	DW
PHASE 2 AND 5	←R	←R	R	R	←G	←G	G	G	←R	R	←R	R	R	←R	R	←R	←R	R	R	DW	DW	DW	DW
5 CHANGE	←R	←R	R	R	←Y	←Y	G	G	←R	R	←R	R	R	←R	R	←R	←R	R	R	DW	DW	DW	DW
PHASE 2 AND 6	←R	←R	G	G	←R	←R	G	G	←R	R	←R	R	R	←R	R	←R	←R	R	R	WK	WK	DW	DW
PED CLEARANCE	←R	←R	G	G	←R	←R	G	G	←R	R	←R	R	R	←R	R	←R	←R	R	R	FL/DW	FL/DW	DW	DW
2 AND 6 CHANGE	←R	←R	Y	Y	←R	←R	Y	Y	←R	R	←R	R	R	←R	R	←R	←R	R	R	DW	DW	DW	DW
PHASE 3 AND 7	←R	←R	R	R	←R	←R	R	R	←G	R	←G	R	R	←G	R	←G	←G	R	R	DW	DW	DW	DW
3 AND 7 CHANGE TO 3 AND 8, 4 AND 7, OR 4 AND 8																							
PHASE 3 AND 8	←R	←R	R	R	←R	←R	R	R	←R	R	←R	R	R	←G	G	←G	←G	G	G	DW	DW	DW	DW
3 CHANGE	←R	←R	R	R	←R	←R	R	R	←R	R	←R	R	R	←Y	G	←Y	←Y	G	G	DW	DW	DW	DW
PHASE 4 AND 7	←R	←R	R	R	←R	←R	R	R	←G	G	←G	G	G	←R	R	←R	←R	R	R	DW	DW	DW	DW
7 CHANGE	←R	←R	R	R	←R	←R	R	R	←Y	G	←Y	G	G	←R	R	←R	←R	R	R	DW	DW	DW	DW
PHASE 4 AND 8	←R	←R	R	R	←R	←R	R	R	←R	G	←R	G	G	←R	G	←R	←R	G	G	DW	DW	DW	DW
4 AND 8 CHANGE	←R	←R	R	R	←R	←R	R	R	←R	Y	←R	Y	Y	←R	G	←R	←R	Y	Y	DW	DW	DW	DW
PHASE ALT 4 AND 8	←R	←R	R	R	←R	←R	R	R	←R	G	←R	G	G	←R	G	←R	←R	G	G	DW	DW	WK	WK
PED CLEARANCE	←R	←R	R	R	←R	←R	R	R	←R	G	←R	G	G	←R	G	←R	←R	G	G	DW	DW	FL/DW	FL/DW
ALT 4 AND 8 CHANGE	←R	←R	R	R	←R	←R	R	R	←R	Y	←R	Y	Y	←R	Y	←R	←R	Y	Y	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	DARK	DARK	DARK	DARK

[1] GENERAL NOTES CONTINUED FROM SHEET 1 OF 2

6. PUSHBUTTONS ARE TO BE LOCATED SO THAT THEY CAN BE ACTIVATED BY A PERSON IN A WHEELCHAIR REACHING LESS THAN 18 IN. FROM A 60 IN. x 60 IN. LEVEL LANDING AREA WITH A CROSS SLOPE OF LESS THAN OR EQUAL TO 2%.
7. THE 10 FT. SEPARATION BETWEEN PUSHBUTTONS IS TO BE MEASURED FROM FACE OF PUSHBUTTON TO FACE OF PUSHBUTTON, NOT CENTER TO CENTER OF POLE.
8. PUSHBUTTON ARROWS ARE TO BE PARALLEL TO THE CROSSING FOR WHICH THEY ARE INTENDED.
9. THE LOCATION OF ACCESSIBLE PEDESTRIAN SIGNAL PUSHBUTTONS MUST MEET LOCATION REQUIREMENTS OF MUTCD SEC. 4E.09 & 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 AND SAFETY.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DELIVERING APS EQUIPMENT FOR PROGRAMING TO MD-SHA SIGNAL SHOP.
11. ALL UNUSED CABLE SHALL BE REMOVED.

Wiring Diagram



A E B F C G D M — 7-Conductor Electrical Cable (No. 14 A.W.G.)

H O J P K Q L R N p — 5-Conductor Electrical Cable (No. 14 A.W.G.)

S T U V — 2-Conductor Electrical Cable (No. 14 A.W.G.)

W — 2-Conductor Tray Cable (No. 12 A.W.G.)

[1] n o X Y — VIDEO DETECTION CABLE

Z — Bare Copper Ground Wire (No. 6 A.W.G.)

a b — Existing Interconnect Cable

c d e f — EL - Existing Loop Detector Wire

g h j k — Existing signal cable

m — Existing Tray Cable

ES — Existing overhead Electrical Service

⌖ — Grounding Rod

[1] Redline Revision Dated October 14, 2008

SHA MDOT - SHA O.O.T.S.
S.H.A. Approval 10-16-08 Date
T.S. # 3333D T.I.M.S. # H-984

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

MD 24 (Vietnam Veterans Highway) at W. MacPhail Road

GENERAL INFORMATION SHEET

SCALE N/A DATE September 21, 2007 CONTRACT NO. BW-573-802-412

DESIGNED BY F. Brownley/ J.S. COUNTY Harford
DRAWN BY F. Brownley LOGMILE 12002408.53
CHECKED BY TIMS NO. H984
FAP NO. N/A TOD NO. -

TS NO. 3333D DRAWING - OF SHEET NO. 2 OF 2

PLOTTED: Wednesday, October 15, 2008 AT 03:17 PM
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