PROJECT DESCRIPTION

I. GENERAL

THIS PORTION OF THE PROJECT IS LOCATED AT THE INTERSECTION OF MD 632 AND HALFWAY BLVD. IN WASHINGTON COUNTY MARYLAND AND INVOLVES GEOMETRIC IMPROVEMENTS AND THE RECONSTRUCTION OF A SIGNAL. MD 632 IS ASSUMED TO RUN IN A NORTH SOUTH DIRECTION.

II. INTERSECTION OPERATION

THE PROPOSED TRAFFIC SIGNAL WILL OPERATE IN A NEMA EIGHT (8) PHASE, FULLY TRAFFIC ACTUATED MODE. THE MD 632 APPROACHES WILL OPERATE CONCURENTLY WITH THE LEFT TURNS OPERATING IN AN EXCLUSIVE/ PERMISSIVE PHASE. THE HALFWAY BLVD. / I-70 OFF RAMP APPROACHES WILL OPERATE CONCURRENTLY WITH THE LEFT TURNS OPERATING IN AN EXCLUSIVE PHASE.

AN EXISTING EIGHT PHASE FULLY TRAFFIC ACTUATED CONTROLLER WILL BE MODIFIED WITH FOUR (4) FOUR CHANNEL RACK MOUNTED LOOP DETECTOR AMPLIFIERS, TELEMERY MODULE, INTERSECTION MONITOR WITH BATTERY BACK UP AND TWO CIRCUIT FLASHER UNIT WITH RELAY PACKAGE HOUSED IN A NEMA SIZE SIX (6)BASE MOUNTED CABINET.

III. SPECIAL NOTES

1. IT IS THE RESPONSIBLITY OF THE CONTRACTOR TO CONFIRM GEOMETRICS PRIOR TO PLACING SIGNAL EQUIPMENT.
2. THE SIGNAL SHOP WILL BE NOTIFIED TO PERFORM INTERNAL WIRING OF THE CABINET AT MD 632 @ HALFWAY BLVD. ALL CABLE SHALL BE IDENTIFIED AND BROUGHT INTO THE CONTROLLER BY THE CONTRACTOR. THE CONTRACTOR SHALL NOTIFY MR. EDWARD RODENHIZER, SHA SIGNAL SHOP AT (410) 787-7650 SEVENTY-TWO (72) HOURS IN ADVANCE OF THIS WORK.
3. MOT PLATES FOR THIS PROJECT WILL BE AS FOLLOWS: 104.00 TO 104.00-12, 104.02-01, 104.03-01

CONSTRUCTION DETAILS

- (A) INSTALL 27' STEEL POLE WITH TWIN MAST ARMS 50 FOOT BY 70 FOOT, SIGNAL HEADS, PEDESTRAIN SIGNAL HEAD, PEDESTRAIN PUSH BUTTON, 20 FOOT LIGHTING ARM, LUMINAIRE, PHOTO CELL, (NOTE: ONE TWO INCH 90 DEGREE PVC SCHEDULE 80 BEND.)
- (B) INSTALL 27' STEEL POLE WITH SINGLE 60 FOOT MAST ARM, SIGNAL HEADS, PEDESTRAIN SIGNAL HEAD, PEDESTRAIN PUSH BUTTON. (NOTE: ONE TWO INCH 90 DEGREE PVC SCHEDULE 80 BEND.)
- (C) INSTALL 27' STEEL POLE WITH SINGLE 60 FOOT MAST ARM SIGNAL HEADS, 20 FOOT LIGHTING ARM, LUMINAIRE, PHOTO CELL, METER SOCKET AND DISCONNECT SWITCH. (NOTE: TWO THREE INCH 90 DEGREE PVC SCHEDULE 80 BEND.
- (D) INSTALL 10 FOOT PEDESTAL POLE WITH PEDESTRIAN SIGNAL HEAD AND PEDESTRIAN BUTTON.
- (E) EXISTING CONTROLLER AND CABINET TO REMAIN.
- (F) INSTALL HANDHOLE.
- (G) INSTALL 6' X 30' LOOP DETECTOR IN 1/4 INCH FLEXABLE TUBING (3-6-3 TURNS).
- (H) INSTALL MICROLOOP PROBE SET 500 FOOT LEAD-IN.
- (I) INSTALL 2" SCHEDULE 80 PVC CONDUIT-TRENCHED.
- (J) INSTALL 2" SCHEDULE 80 PVC CONDUIT-BORED.
- (K) INSTALL 3" SCHEDULE 80 PVC CONDUIT-TRENCHED.
- (L) INSTALL 3" SCHEDULE 80 PVC CONDUIT - BORED.
- (M) INSTALL 4" SCHEDULE 80 PVC CONDUIT - TRENCHED.
- (N) INSTALL 1" LIQUID TIGHT FLEXABLE NON-METALIC CONDUIT AND FITTING (DETECTOR WIRE SLEEVE).
- (O) INSTALL 24" PREFORMED PAVEMENT MARKING TAPE FOR STOP LINE.
- (P) INSTALL 12" PREFORMED PAVEMENT MARKING TAPE FOR CROSSWALK.
- (Q) ABANDON HANDHOLE.
- (R) EXISTING SIGNAL POLE TO BE REMOVED, INCLUDEDING SIGNAL HEADS, MAST ARM AND SIGNS.
- (S) EXISTING LOOP DETECTOR TO BE ABANDONED.
- (T) EXISTING STOP BAR TO BE REMOVED.
- (U) INSTALL PREFORMED PAVEMENT MARKING ARROWS.
- (V) INSTALL GROUND MOUNT SIGN.
- (W) INSTALL 1 INCH GALVANIZED CONDUIT SLEEVE.
- (X) INSTALL MICROLOOP PROBE SET-1000 FOOT LEAD-IN.
- (Y) INSTALL 2 4" 90 DEGREE PVC BENDS.
- [3] (Z) INSTALL OPTCOM DETECTOR EYE

EQUIPMENT LIST

A. EQUIPMENT TO BE SUPPLIED BY SHA AND INSTALLED BY THE CONTRACTOR

	ITEM NO.	QUANTITY	DESCRIPTION
	900001	5 EA	12" 1-WAY, 3 SECTION SIGNAL HEAD (RA, YA, GA) - MAST ARM MOUNT
	900002	8 EA	12" 1-WAY 3 SECTION SIGNAL HEAD (R, Y, G) - MAST ARM MOUNT
	900003	2 EA	12" 1-WAY 5 SECTION SIGNAL HEAD (R, Y, YA, G, GA) - MAST ARM MOUNT
	900004	2 EA	8"/12" 1-WAY 5 SECTION SIGNAL HEAD (R, Y, YA, G, GA) - MAST ARM MOUNT
	900005	2 EA	DETECTOR AMPLIFIER 4 CHANNEL RACK MOUNTED
	900006	220.50 S.F.	SHEET ALUMINUM SIGN TWO (2) R10-12, (36"x42"); FOUR (4) R3-5L, (30"x36"; FOUR (4) D3-2, 18"x96"; ASSOC. SHIELD ASSEMBLY, ONE (1) M3-1, 24"x30"; ONE (1) M3-3, 24"x30"; TWO (2) M1-6, 45"x36"; TWO (2) M6-1, 24"x30"; TWO (2) M3-1, 12"x24"; TWO (2) M3-3, 12"x24"; FOUR (4) M1-6, 30"x24"; FOUR (4) M6-1, 21"x15"; TWO (2) W11-2, 30"x30"; TWO (2) M6-2, 21"x15"; ONE (1) W11-2, 36"x36"; ONE (1) W25-1, 24"x36"
	900007	4 EA	12" 1-WAY 2 SECTION SIGNAL ALUMINUM (PED)
	900008	4 EA	PUSHBUTTON AND SIGN R10-3C SIGN TO READ "PUSH BUTTON TO CROSS DOWNSVILLE PIKE"
[3]	900009	1 EA	OPTICOM DETECTOR EYE
[3]	900010	1 EA	OPTICOM DETECTOR RACK
[3]	900011	1 EA	OPTICOM DETECTOR MODULE

B. EQUIPMENT TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR:

	ITEM NO.	QUANTITY	DESCRIPTION
	120500	LS	MAINTENANCE OF TRAFFIC
	203030	3 CY	TEST PIT EXCAVATION
	585443	800 LF	FURNISH AND INSTALL 12" WHITE PAVEMENT MARKING TAPE
	585445	120 LF	FURNISH AND INSTALL 24" WHITE PAVEMENT MARKING TAPE
	585446	8 EA	FURNISH AND INSTALL PAVEMENT MARKING TAPE - LETTER
	585448	4 EA	FURNISH AND INSTALL PAVEMENT MARKING TAPE - ARROW
	800001	4 EA	FURNISH AND INSTALL MICROLOOP PROBE SET 500 FT. LEAD IN
	800002	3 EA	FURNISH AND INSTALL MICROLOOP PROBE SET 1000 FT LEAD IN
	801004	15.35 CY	FURNISH AND INSTALL CONCRETE FOUNDATION
	805105	75 LF	FURNISH AND INSTALL 2" SCHEDULE 80 PVC CONDUIT BORED
	805115	150 LF	FURNISH AND INSTALL 3" SCHEDULE 80 PVC CONDUIT BORED
	805125	1200 LF	FURNISH AND INSTALL 2" SCHEDULE 80 PVC CONDUIT TRANCHED
	805135	250 LF	FURNISH AND INSTALL 3" SCHEDULE 80 PVC CONDUIT TRENCHED
	805140	30 LF	FURNISH AND INSTALL 4" SCHEDULE 80 PVC CONDUIT TRENCHED
	805160	140 LF	FURNISH AND INSTALL 1" NON-METALLIC SLEEVE
	805010	30 LF	FURNISH AND INSTALL 1" GALVANIZED ELECTRICAL CONDUIT RISER
	811001	18 EA	FURNISH AND INSTALL HANDHOLE
	832020	115 LF	FURNISH AND INSTALL BARE COPPER GROUND WIRE - NO. 6 AWG
	837001	5 EA	FURNISH AND INSTALL GROUND ROD
	860220	21 EA	INSTALL SIGNAL HEAD (ANY TYPE)
	861104	1000 LF	FURNISH AND INSTALL ELECTRICAL CABLE - 2 CONDUCTOR ALUMINUM SHIELDED
	861105	700 LF	FURNISH AND INSTALL ELECTRICAL CABLE - 2 CONDUCTOR NO 14 AWG
	861106	700 LF	FURNISH AND INSTALL ELECTRICAL CABLE - 3 CONDUCTOR NO. 14 AWG
	861107	2200 LF	FURNISH AND INSTALL ELECTRICAL CABLE - 5 CONDUCTOR NO. 14 AWG
	861108	950 LF	FURNISH AND INSTALL ELECTRICAL CABLE - 7 CONDUCTOR NO. 14 AWG
	861116	375 LF	FURNISH AND INSTALL ELECTRICAL CABLE - 2 CONDUCTOR NO. 12 AWG
	862101	5030 LF	FURNISH AND INSTALL LOOP WIRE
	862102	1450 LF	FURNISH AND INSTALL SAW CUT
	861117	60 LF	FURNISH AND INSTALL ELECTRICAL CABLE - 1 CONDUCTOR NO. 4 AWG
	807303	1 EA	FURNISH AND INSTALL DISCONNECT 60 AMP 1PH
	838003	1 EA	FURNISH AND INSTALL CTR DIST EQPT (120.240V, 1PH, 3W)
	865201	4 EA	INSTALL PED. PUSHBUTTON AND SIGN
[3]	800000	1 EA	INSTALL OPTICOM DETECTOR EYE
[3]	800000	220 LF	FURNISH AND INSTALL 4 CONDUCTOR OPTICOM DETECTOR CABLE NO. 20 A.W.G.

EQUIPMENT LIST (CONT'D)

ITEM NO.	QUANTITY	DESCRIPTION
801104	32 LF	FURNISH AND INSTALL WOOD SIGN SUPPORTS 4"x4"
801106	153 LF	FURNISH AND INSTALL WOOD SIGN SUPPORTS 4"x6"
813014	124.50 SF	INSTALL GROUND MOUNT SIGN
813015	96 SF	INSTALL OVERHEAD SIGN
866104	2 EA	FURNISH AND INSTALL 20' LIGHTING ARM ON SIGNAL STRUCTURE
831010	2 EA	FURNISH AND INSTALL 250 WATT LUMINAIRE WITH PHOTOCELL
805011	87 LF	FURNISH AND INSTALL 1 INCH GALVANIZED CONDUIT SLEEVE
800003	LS	REMOVE AND DISPOSE OF EXISTING MATERIAL AND EQUIPMENT
818041	2 EA	FURNISH AND INSTALL STEEL POLE WITH 60' MAST ARM
800004	1 EA	FURNISH AND INSTALL STEEL POLE WITH TWIN 50'-70' MAST ARMS
868003	2 EA	FURNISH AND INSTALL 10 FOOT BREAKAWAY PEDESTRAIN POLE
810011	4 EA	FURNISH AND INSTALL LOOP DETECTOR SPLICED TO EXISTING 2 CONDUCTOR (AL. SHIELD)
805028	2 EA	FURNISH AND INSTALL 4 INCH ELECT. CONDUIT PVC ELBOW

EQUIPMENT LIST

C. EQUIPMENT TO BE REMOVED BY THE CONTRACTOR AND DELIVERED TO THE MARYLAND STATE HIGHWAY ADMINISTRATION TRAFFIC SIGNAL SHOP -7491 CONNELLEY DRIVE, HANOVER, MARYLAND 21076. CONTACT MR. EDWARD RODENHIZER (301) 787-7650 72 HOURS IN ADVANCE PRIOR TO DELIVERY.

QUANTITY	DESCRIPTION
2 EA	EX. SIGNAL POLES WITH MAST ARMS SIGNAL HEADS AND SIGNS.

NOTE:
ALL EQUIPMENT AND MATERIAL NOT LISTED ABOVE WILL BECOME THE PROPERTY OF THE COTRACTOR

THE FOLLOWING CONTACT PERSONS FOR DISTRICT # 6 ARE AS FOLLOWS:

Mr. Fred Crozier
District Engineer
Phone: (301) 729-8485

Mr. George Small
Assistant District Engineer-Traffic
Phone: (301) 729-8440

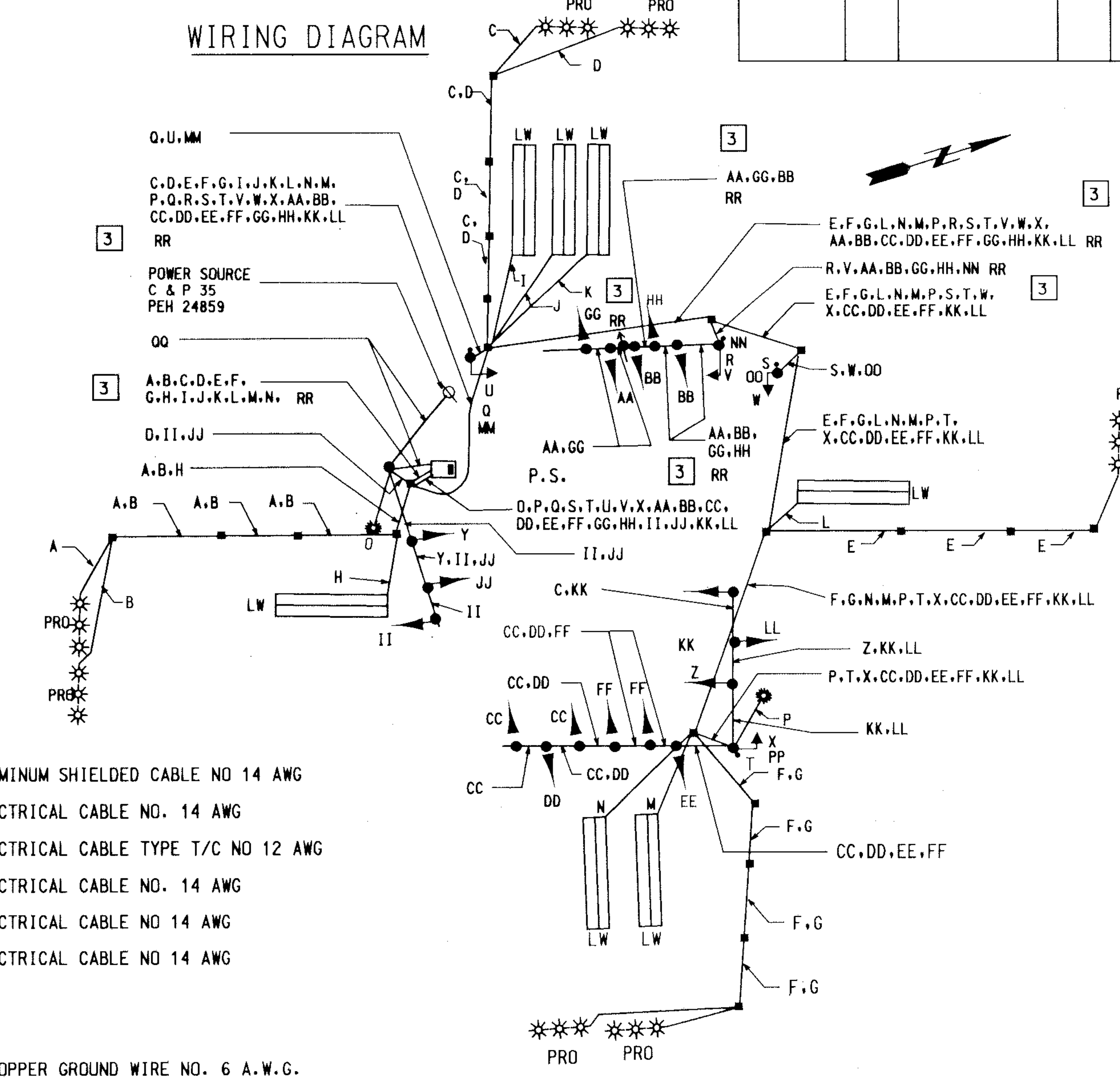
Ms. Barb Linaburg
Assistant District Engineer-Maintenance
Phone: (301) 729-8420

Mr. Larry Humbertson
Assistant District Engineer-Utility
Phone: (301) 729-8420

The Power Company Representative is:

ALLEGANY POWER
MR. Gary Gouker
10802 Bower Ave.
Williamsport Maryland 21795
(301) 582-5271

WIRING DIAGRAM



WIRING KEY

A-G	PROBE CABLE
H-N	2 CONDUCTOR ALUMINUM SHIELDED CABLE NO 14 AWG
Q-T	2 CONDUCTOR ELECTRICAL CABLE NO. 14 AWG
O-P	2 CONDUCTOR ELECTRICAL CABLE TYPE T/C NO 12 AWG
U-X	3 CONDUCTOR ELECTRICAL CABLE NO. 14 AWG
Y-HH	5 CONDUCTOR ELECTRICAL CABLE NO 14 AWG
II-LL	7 CONDUCTOR ELECTRICAL CABLE NO 14 AWG
PRO	PROBES
L W	LOOP WIRE
MM-PP	STRANDED BARE COPPER GROUND WIRE NO. 6 A.W.G.
QQ	1 CONDUCTOR ELECTRICAL CABLE NO. 4 AWG
P.S.	POWER SOURCE
[3] RR	4 CONDUCTOR OPTICOM DETECTOR CABLE NO. 20 A.W.G.

PHASE CHART

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

REVISIONS

[3] 3/4/99 ADD OPTICOM DETECTOR EYE TO SIGNAL HALWAY BLD APPROACH

(B) 10/97 C. G. M. REDESIGN SIGNAL DUE TO GEOMETRIC IMPROVEMENTS WA533A21

(A) 12/84 LOOPS RECUT AND ADD E/P LEFT TURNS

APPROVALS

ORIGINAL ON FILE

DESIGN SECTION

ASST. DISTRICT ENGINEER, TRAFFIC

CHIEF, TRAFFIC ENGINEERING DESIGN DIVISION

DIRECTOR, TRAFFIC & SAFETY

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

MD. 632 & HALFWAY BLVD./I-70 RAMP

GENERAL INFORMATION

LOG MILE: 21063205.17

DRAWN BY:	NEM	F.A.P. NO.		TS NO.	SHEET NO.
CHK. BY:		S.H.A. NO.		1599 B	82 OF 109
SCALE:	1" = 20'	COUNTY	WASHINGTON		
DATE:	10/97				

FILE: m:\md_sigs\m632_gen.dgn
DATE: 2-Oct-97 10:48