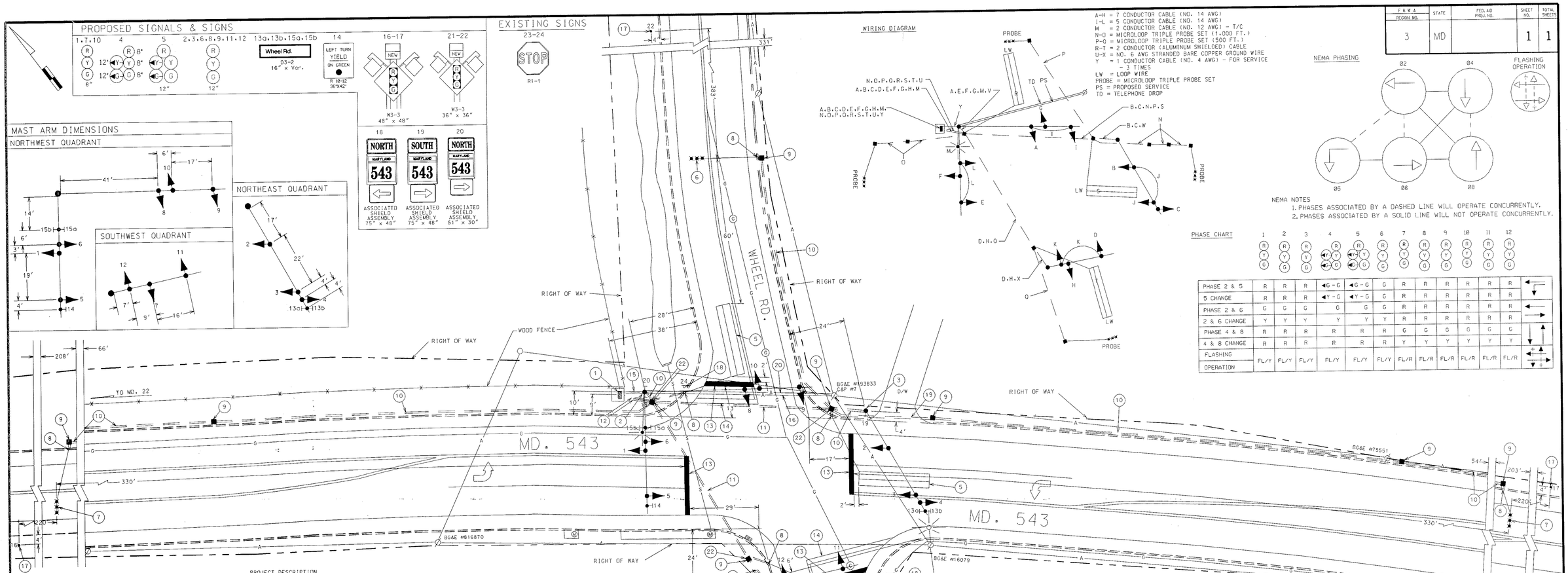
F.H.W.A. REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	MD		1	1



A-H = 7 CONDUCTOR CABLE (NO. 14 AWG)
I-L = 5 CONDUCTOR CABLE (NO. 14 AWG)
M = 2 CONDUCTOR CABLE (NO. 12 AWG) - T/C
N-Q = MICROLOOP TRIPLE PROBE SET (1,000 FT.)
P-Q = MICROLOOP TRIPLE PROBE SET (500 FT.)
R-T = 2 CONDUCTOR (ALUMINUM SHIELDED) CABLE
U-X = NO. 6 AWG STRANDED BARE COPPER GROUND WIRE
Y = 1 CONDUCTOR CABLE (NO. 4 AWG) - FOR SERVICE - 3 TIMES
LW = LOOP WIRE
PROBE = MICROLOOP TRIPLE PROBE SET
PS = PROPOSED SERVICE
TD = TELEPHONE DROP

NEMA NOTES
1. PHASES ASSOCIATED BY A DASHED LINE WILL OPERATE CONCURRENTLY.
2. PHASES ASSOCIATED BY A SOLID LINE WILL NOT OPERATE CONCURRENTLY.

	1	2	3	4	5	6	7	8	9	10	11	12
PHASE 2 & 5	R	R	R	◄G-G	◄G-G	G	R	R	R	R	R	R
5 CHANGE	R	R	R	◄Y-G	◄Y-G	G	R	R	R	R	R	R
PHASE 2 & 6	G	G	G	G	G	G	R	R	R	R	R	R
2 & 6 CHANGE	Y	Y	Y	Y	Y	Y	R	R	R	R	R	R
PHASE 4 & 8	R	R	R	R	R	R	G	G	G	G	G	G
4 & 8 CHANGE	R	R	R	R	R	R	Y	Y	Y	Y	Y	Y
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

PROJECT DESCRIPTION

I. GENERAL
THIS PROJECT INVOLVES THE INSTALLATION OF A NEW TRAFFIC SIGNAL FOR THE INTERSECTION OF MD 543 AND WHEEL RD.
MD 543 RUNS IN A NORTH-SOUTH DIRECTION.

II. INTERSECTION OPERATION
THIS INTERSECTION IS EQUIPPED WITH AN EIGHT PHASE FULLY ACTUATED CONTROLLER HOUSED IN A BASE MOUNTED CABINET. THE CONTROLLER WILL USE FIVE PHASES OUT OF EIGHT WITH AN EXCLUSIVE/ PERMISSIVE LEFT TURN PHASE FOR NORTHBOUND MD 543.

A. EQUIPMENT TO BE SUPPLIED BY THE ADMINISTRATION

ITEM NO.	QUANTITY	DESCRIPTION
	1 EACH	COMBINATION 8"/ 12" ONE WAY, FIVE SECTION (12" YA, GA, 8" R,Y,G) SIGNAL HEAD, MAST ARM MOUNTED HARDWARE
	1 EACH	12" ONE WAY, FIVE SECTION (R,YA,GA,Y,G) SIGNAL HEAD, MAST ARM MOUNTED HARDWARE
	7 EACH	12" ONE WAY, THREE SECTION (R,Y,G) SIGNAL HEAD, MAST ARM MOUNTED HARDWARE
	3 EACH	8" ONE WAY, THREE SECTION (R,Y,G) SIGNAL HEAD, MAST ARM MOUNTED HARDWARE
	163.8 S.F.	1 EACH R10-12 SIGN, "LEFT TURN YIELD ON GREEN (BALL)", 36" x 42", MAST ARM MOUNTED HARDWARE
		4 EACH D3-2 SIGN, "Wheel Rd.", 16" x Var., MAST ARM MOUNTED HARDWARE
		2 EACH W3-3 SIGN, "NEW SIGNAL AHEAD" W/ FLAGS, 36" x 36", WOOD POLE MOUNTED HARDWARE
		2 EACH W3-3 SIGN, "NEW SIGNAL AHEAD" W/ FLAGS, 48" x 48", WOOD POLE MOUNTED HARDWARE
		1 EACH ASSOCIATED SHIELD ASSEMBLY SIGN, "NORTH, MARYLAND 543, (LEFT ARROW)", 75" x 48", POLE MOUNTED HARDWARE
		1 EACH ASSOCIATED SHIELD ASSEMBLY SIGN, "NORTH, MARYLAND 543, (RIGHT ARROW)", 51" x 30", POLE MOUNTED HARDWARE
		1 EACH ASSOCIATED SHIELD ASSEMBLY SIGN, "SOUTH, MARYLAND 543, (RIGHT ARROW)", 75" x 48", POLE MOUNTED HARDWARE
	2 EACH	4 CHANNEL LOOP DETECTOR AMPLIFIER W/ HARNESS
	1 EACH	EIGHT PHASE FULLY ACTUATED CONTROLLER HOUSED IN A BASE MOUNTED CABINET WITH INTERSECTION CONTROL MONITOR, & BATTERY BACKUP

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

ITEM NO.	QUANTITY	DESCRIPTION
1001	1 EACH	MAINTENANCE OF TRAFFIC
2001	1 C.Y.	TEST PIT EXCAVATION
5002	180 L.F.	F & I 6" WHITE PERMANENT PREFORMED PAVEMENT MARKING TAPE
5004	140 L.F.	F & I 24" WHITE PERMANENT PREFORMED PAVEMENT MARKING TAPE
5013	90 L.F.	REMOVE EXISTING PAVEMENT MARKINGS - ANY WIDTH
8001	12 C.Y.	F & I CONCRETE FOR SIGNAL FOUNDATION
8006	1 EACH	CUT, CLEAN, GALVANIZE AND CAP SIGNAL POLE FROM A 27' HEIGHT TO 21' HEIGHT
8008	2 EACH	F & I 3" WEATHERHEAD
8011	12 EACH	INSTALL SIGNAL HEAD (ANY TYPE)
8016	2 EACH	F & I MICROLOOP TRIPLE PROBE SET W/ 500 FT. LEAD-IN
8017	2 EACH	F & I MICROLOOP TRIPLE PROBE SET W/ 1,000 FT. LEAD-IN
8020	1 EACH	INSTALL CONTROLLER AND CABINET - BASE MOUNT
8021	570 L.F.	F & I SAWCUT FOR SIGNAL (LOOP DETECTOR)
8023	100 L.F.	F & I 1" LIQUID TIGHT FLEXIBLE NON-METALLIC CONDUIT FOR DETECTOR SLEEVE
8024	1,000 L.F.	F & I 2" SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED
8026	60 L.F.	F & I 2" SCHEDULE 80 RIGID PVC CONDUIT - BORED
8029	190 L.F.	F & I 3" SCHEDULE 80 RIGID PVC CONDUIT - BORED
8030	50 L.F.	F & I 4" SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED
8033	10 EACH	F & I ELECTRICAL HANDHOLE
8034	4 EACH	F & I GROUND ROD- ¾" DIA. x 10' LENGTH
8040	1,500 L.F.	F & I LOOP WIRE ENCASED IN FLEXIBLE TUBING (NO. 14 AWG)
8041	260 L.F.	F & I ELECTRICAL CABLE - 2 CONDUCTOR (ALUMINUM SHIELDED)
8044	150 L.F.	F & I ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 AWG)
8045	1,260 L.F.	F & I ELECTRICAL CABLE - 7 CONDUCTOR (NO. 14 AWG)
8046	90 L.F.	F & I ELECTRICAL CABLE - 2 CONDUCTOR (NO. 12 AWG) - T/C
8049	50 L.F.	F & I NO. 6 AWG STRANDED BARE COPPER GROUND WIRE
8050	30 L.F.	F & I ELECTRICAL CABLE - 1 CONDUCTOR (NO. 4 AWG)
8051	180 L.F.	F & I WOOD SIGN SUPPORTS 4" x 4"
8053	110.6 S.F.	INSTALL GROUND MOUNTED SIGN
8054	53.2 S.F.	INSTALL OVERHEAD SIGN
8056	1 EACH	F & I 250 WATT HPS LUMINAIRE WITH PHOTOCELL
8057	1 EACH	F & I 15' LIGHTING BRACKET ARM FOR TRAFFIC SIGNAL PURPOSES
8067	60 L.F.	F & I 3" ELECTRICAL CONDUIT - PVC RISER
8070	1 EACH	F & I CONTROL AND DISTRIBUTION OF EQUIPMENT (120/ 240 V, 1 PHASE 3 WIRE SYST)
8082	2 EACH	F & I 27' MAST ARM POLE AND 50 FT. MAST ARM
8086	1 EACH	F & I 27' MAST ARM POLE AND TWIN (50 FT.& 70 FT.) MAST ARMS

CONSTRUCTION DETAILS

1. INSTALL BASE MOUNTED CABINET WITH CONTROLLER, FOUNDATION, TWO (2) 4" PVC SCHEDULE 80 BENDS, TWO (2) 2" PVC SCHEDULE 80 BENDS, METER SOCKET, AND DISCONNECT SWITCH.
2. INSTALL 27' STEEL MAST POLE WITH TWIN MAST ARMS (50' & 70' RESPECTIVELY), FOUNDATION, 2" PVC SCHEDULE 80 BEND, SIX (6) SIGNAL HEADS, 250 WATT HPS LUMINAIRE WITH PHOTOCELL, FOUR (4) SIGNS, 20' LIGHTING BRACKET ARM, TWO (2) 3" WEATHERHEADS, TWO (2) 3" PVC RISERS, AND GROUT.
3. INSTALL 21' (CUT DOWN FROM A 27') STEEL MAST POLE WITH SINGLE 50' MAST ARM, FOUNDATION, GROUT, THREE (3) SIGNS, 2" PVC SCHEDULE 80 BEND, AND THREE (3) SIGNAL HEADS.
4. INSTALL 27' STEEL MAST POLE WITH SINGLE 50' MAST ARM, FOUNDATION, GROUT, 2" PVC SCHEDULE 80 BEND, AND THREE (3) SIGNAL HEADS.
5. INSTALL 6' x 30' LOOP DETECTOR (3-6-3) TURNS.
6. INSTALL MICROLOOP TRIPLE PROBE SET (500 FT.).
7. INSTALL MICROLOOP TRIPLE PROBE SET (1,000 FT.).
8. INSTALL 1" LIQUID TIGHT FLEXIBLE NON-METALLIC CONDUIT SLEEVE.
9. INSTALL HANDHOLE.
10. INSTALL 2" PVC SCHEDULE 80 CONDUIT - TRENCHED.
11. INSTALL 3" PVC SCHEDULE 80 CONDUIT - PUSHED.
12. INSTALL 4" PVC SCHEDULE 80 CONDUIT - TRENCHED.
13. INSTALL 24" WHITE PREFORMED PAVEMENT MARKING TAPE - STOP LINE.
14. REMOVE EXISTING PAVEMENT MARKING TAPE.
15. INSTALL 2" PVC SCHEDULE 80 CONDUIT - TRENCHED.
16. PROPOSED SERVICE FEED BY BG&E.
17. INSTALL PROPOSED W3-3 SIGN.
18. REMOVE EXISTING STOP SIGN.
19. INSTALL 2" PVC SCHEDULE 80 CONDUIT - PUSHED.
20. PROPOSED TELEPHONE DROP.
21. INSTALL 6" WHITE PREFORMED PAVEMENT MARKING TAPE.
22. INSTALL GROUND ROD.

UTILITY LEGEND
—G—G— GAS MAIN
—W—W— WATER MAIN
—S—S— SEWER MAIN
—E—E— ELECTRIC CABLES
—A—A— AERIAL CABLES
—T—T— TELEPHONE CABLES

REVISIONS	APPROVALS
	ASST. DIVISION CHIEF, TEDD 11/12/97
	ASST. DISTRICT ENGINEER, TRAFFIC 11/12/97
	CHIEF, TRAFFIC ENGINEERING DESIGN DIVISION
	DIRECTOR, OFFICE OF TRAFFIC & SAFETY

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

MD. 543 AND WHEEL RD.

SIGNAL NO. 12054383.76 DATE 12/96

DRAWN BY:	F.A.P. NO.	PLAN SHEET NO.:	SHEET NO.
DES. BY:	S.H.A. NO. AW-103-501-485	TS-3639	1 OF 1
CHECK BY:	COUNTY HARFORD		
SCALE: 1" = 20'			

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