F H W A REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	MD	SEE TITLE SHEET	43	60

PROJECT DESCRIPTION

I. General

This portion of the project involves the reconstruction of an existing traffic control signal with advanced hazard identification beacons at the intersection of MD 90 in Worcester County, Maryland. The reconstruction of the existing traffic control signal will be conducted in conjunction with intersection geometric improvements along MD 90. MD 90 is assumed to run in an east/west direction.

II. Intersection Operation

This intersection is proposed to operate in a fully actuated mode with the eastbound MD 90 left turn lane operating as an exclusive/permissive phase. The westbound MD 90 left turn lane will operate as permissive phase. Northbound and Southbound MD 90 will operate concurrently.

A NEMA eight (8) phase, full traffic actuated solid state controller with five (5), two-channel loop detector amplifiers with time delay output and a NEMA traffic responsive master controller with modem housed in a base mounted cabinet (size 6) are to be installed at the intersection of MD 90 at Saint Martins Neck Rd.

III. Special Notes

1. The following are the contact persons as specified in special provision 822:

Mr. Donnie Drewer
District Engineer
Phone # (410)543-6720

Mr. Al Budnichuk
Asst. District Engineer-Traffic
Phone # (410) 543-6715

Mr. Jimmy Wright
Asst. District Engineer-Maint
Phone # (410) 543-6715

Mr. Bruce Poole
District Utility Engineer
Phone # (410) 543-6715

Mr. Richard L. Daff, Sr.
Chief, Traffic Operations Division
Phone # (410) 787-7630

Robert DeBlaze
Signal operations section
Phone # (410) 787-7650

A. Equipment to be supplied by the Administration.

ITEM NO.	QUANTITY	UNIT	SPECIFICATION SECTION	DESCRIPTION
	8	EA	806	12 one-way, three section (R,Y,G) signal head - mast arm mount.
	2	EA	806	12 in. one-way, three section (R,Y,G,YA,GA) signal head - span mount.
	86	SF	813	Sheet aluminum signs:
	2	EA		D3-2 (96 in. x 16 in.) 'St. Martins Neck Rd.' Dual face sign-mast arm mounted.
	2	EA		R4-7A, (30 in. x 24 in.) 'Keep Left' sign-ground mount.
	2	EA		(24 in. x 51 in.) State Route Marker Assembly shield-pole mount.
	2	EA		(36 in. x 75 in.) State Route Marker Assembly shield-pole mount.
	1	EA	816	Eight-phase (fully actuated) controller and cabinet - base mount.
	1	EA	816	Traffic responsive master controller with modem - base mount.
	4	EA	817	Two channel loop detector amplifier (delay output).

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

ITEM NO.	QUANTITY	UNIT	SPECIFICATION SECTION	DESCRIPTION
	5	CY	205	Test pit excavation.
	1870	LB	829	Pounds of - Furnish and install steel pole and mast arm. TNEMEC Painted 27 ft steel pole with a single 44 ft mast arm (Note: 4-2 in. x 90 in. anchor bolts.
	1720	LB	829	Pounds of - Furnish and install steel pole and mast arm. TNEMEC Painted 21 ft steel pole with a single 44 ft mast arm (Note: 4-2 in. x 90 in. anchor bolts).
	4005	LB	829	Pounds of - Furnish and install steel pole and mast arm. TNEMEC Painted 27 ft steel pole with a twin 64 ft and 54 ft, mast arm (Note: 4-2 in. x 90 in. anchor bolts).
	10	EA	814	Install signal heads - mast arm mount.
	76	SF	813	Install overhead signs.
	10	SF	813	Install ground mounted signs.
	1	EA	816	Install eight-phase, (fully actuated) controller, traffic responsive master controller, and cabinet - base mounted

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

ITEM NO.	QUANTITY	UNIT	SPECIFICATION SECTION	DESCRIPTION
	11	EA	811	Furnish and install traffic handhole.
	1	EA	811	Furnish and install traffic handhole alternate bricked.
	100	LF	810	Furnish and install electrical cable - 1 conductor No. 4 AWG-THHN/THWN.
	400	LF	810	Furnish and install electrical cable - 3 conductor cable No. 12 AWG copper type T/C.
	1750	LF	810	Furnish and install loop wire encased in flexible tubing (No. 14 AWG).
	1700	LF	810	Furnish and install 12-pair communication cable, jelly filled (underground).
	2370	LF	810	Furnish and install electrical cable - 2 conductor (aluminum shielded).
	150	LF	810	Furnish and install electrical cable - 5 conductor (No. 14 AWG).
	1480	LF	810	Furnish and install electrical cable - 7 conductor (No. 14 AWG).
	600	LF	810	Furnish and install No. 6 AWG bare copper ground wire.
	100	LF	805	Furnish and install 1 in. liquid-tight flexible non-metallic -conduit for detector sleeve.
	20	LF	805	Furnish and install 1 in. electrical conduit - galvanized sleeve.
	1400	LF	805	Furnish and install 2 in. schedule 40 rigid PVC electrical conduit - trenched.
	400	LF	805	Furnish and install 3 in. schedule 80 rigid PVC electrical conduit - slotted.
	80	LF	805	Furnish and install 3 in. schedule 80 rigid electrical conduit - trenched (Power service).
	40	LF	805	Furnish and install 4 in. schedule 40 rigid PVC electrical conduit - trenched.
	540	LF	815	Furnish and install sawcut for signal (loop detector).
	1	EA	807	Furnish and install control and distribution equipment.
	4	EA	804	Furnish and install ground rod - 3/4 in. diameter x 10 ft length.
	60	LF	812	Furnish and install wood sign supports 4 in. x 4 in.
	2	EA	818	Furnish and install 20 ft lighting arm on signal structure.
	15	CY	801	Furnish and install concrete for signal foundation.
	2	EA	806	Furnish and install 250 WATT high pressure sodium lamp and luminaire.
	1	LS	xxx	Removal and disposal of existing materials.
	1	LS	xxx	Removal of existing equipment to be salvaged consisting of:
	8	EA	---	12 in. 1-way 3 section (R,Y,G) signal head.
	2	EA	---	Combination 1-way 3 section (12 in. YA, GA, 8 in. R, Y, G,) signal head.
	1	EA	---	NEMA 8 phase fully actuated controller and pole mounted cabinet.
	1	EA	---	Traffic responsive master controller & pole mount cabinet.
	2	EA	---	Lighting arm.
	2	EA	---	250 WATT HPS lamp & luminaire.
	1	EA	---	R10-12 sign.
	1	EA	---	D3-2 sign.
	1	LS	xxx	Delivery of salvaged materials and equipment.
	1	LS	xxx	Use exisitng disk and asbuilt traffic control device.

DCL
DANIEL CONSULTANTS, INC.
CONSULTING ENGINEERS
COLUMBIA, MARYLAND

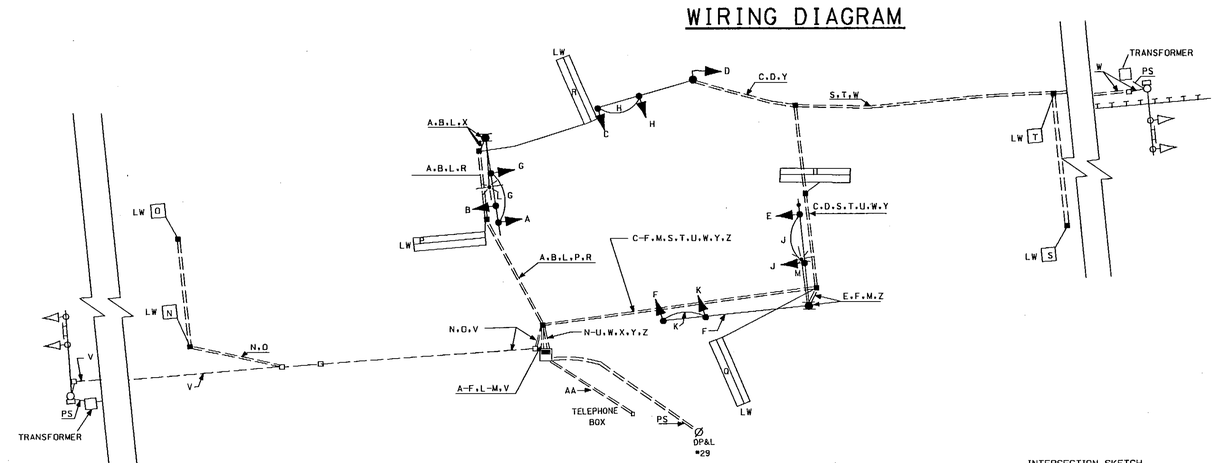
PHASE SEQUENCE CHART

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	R, YA, G	R, YA, 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	Y	Y	Y	Y
PHASE 1 & 6	G/G	G/G	G	R	R	R	R	R	R	R	FL/Y	FL/Y	FL/Y	FL/Y
1 & 6 CHANGE	Y/G	Y/G	G	R	R	R	R	R	R	R	FL/Y	FL/Y	FL/Y	FL/Y
PHASE 2 & 6	G	G	G	G	G	G	R	R	R	R	FL/Y	FL/Y	FL/Y	FL/Y
2 & 6 CHANGE	Y	Y	Y	Y	Y	Y	R	R	R	R	FL/Y	FL/Y	FL/Y	FL/Y
PHASE 4 & 8	R	R	R	R	R	R	G	G	G	G	FL/Y	FL/Y	FL/Y	FL/Y
4 & 8 CHANGE	R	R	R	R	R	R	Y	Y	Y	Y	FL/Y	FL/Y	FL/Y	FL/Y
FLASHING OPERATION	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/R	FL/R	FL/R	FL/R	DARK	DARK	DARK	DARK

NOTE:

R = RED INDICATION
Y = YELLOW INDICATION
G = GREEN INDICATION
YA = YELLOW ARROW INDICATION
GA = GREEN ARROW INDICATION
FL = FLASHING INDICATION

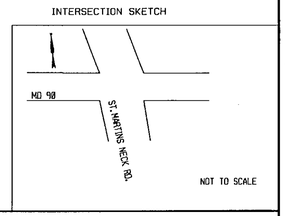
WIRING DIAGRAM



WIRING KEY

A-F = 7 CONDUCTOR (NO. 14 AWG)
G.H.J.K = 5 CONDUCTOR (NO. 14 AWG)
L.M = 2 CONDUCTOR TRAY CABLE (NO. 12 AWG)
N-T = 2 CONDUCTOR (ALUMINUM SHEILDED) CABLE
V= EXISTING 12 PAIR JELLY FILLED CABLE (NO. 19 AWG) ROUTED INTO PROPOSED CABINET
W= PROPOSED 12 PAIR JELLY FILLED CABLE (NO. 19 AWG)
X-Z= 1 CONDUCTOR NO.6 STRANDED BARE COPPER WIRE.
LW = LOOP WIRE (NO. 14 AWG)
AA = PROPOSED TELEPHONE LINE
PS = PROPOSED POWER SERVICE

INTERSECTION SKETCH



REVISIONS	APPROVALS
	CHIEF, SIGNAL DESIGN SECTION
	ASST. DISTRICT ENGINEER, TRAFFIC
	CHIEF, TRAFFIC ENGINEERING DIVISION
	DIRECTOR, OFFICE OF TRAFFIC AND SAFETY

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

ORIGINAL DRAWN BY: B.KENT
DES. BY: D.PETERS
CHK. BY:

MD 90 AT ST. MARTINS NECK RD.
GENERAL INFORMATION SHEET

COUNTY: WORCESTER

DATE: 2/3/95
SCALE: 1"=20'
F.A.P. NO. SEE TITLE SHEET
S.H.A. NO. WO-692-501-177
TS/FILE NO. 1377B-GI
SHEET NO. 43 OF 60