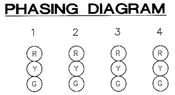
FHWA REGION NO	STATE	FED. AID PROJ. NO	SHEET NO.	TOTAL SHEETS
3	MD.	STPG-218-1(7)E	6	66

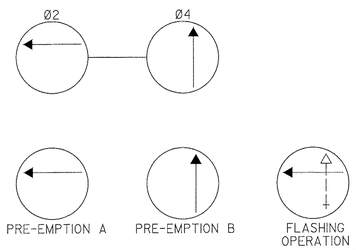
U.S. 40 WEST (EAST FRANKLIN STREET) IS ASSUMED TO RUN IN AN EAST-WEST DIRECTION.

PHASING DIAGRAM



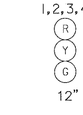
PHASE 2	G	G	R	R
2 CHANGE	Y	Y	R	R
PHASE 4	R	R	G	G
4 CHANGE	R	R	Y	Y
PRE-EMPTION A	G	G	R	R
A CHANGE	Y	Y	R	R
PRE-EMPTION B	R	R	G	G
B CHANGE	R	R	Y	Y
FLASHING OPERATION	FL/Y	FL/Y	FL/R	FL/R

NEMA PHASING



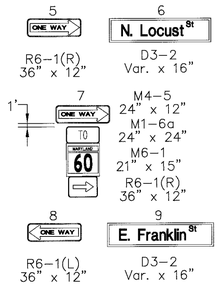
PHASING NOTES:
1. PHASES ASSOCIATED BY A SOLID LINE WILL NOT OPERATE CONCURRENTLY
2. PHASES ASSOCIATED BY A DASHED LINE WILL OPERATE CONCURRENTLY

SIGNALS



→ – OPTICAL PRE-EMPTION DETECTOR EYE

SIGNS



CONSTRUCTION DETAILS

(A) INSTALL 21' STEEL POLE, 32' MAST ARM, SIGNAL HEADS, OPTICOM DETECTOR, AND SIGNS. (NOTE: 1-2", 90-DEGREE P.V.C. BEND).

(B) INSTALL 21' STEEL POLE, 38' MAST ARM, SIGNAL HEADS, OPTICOM DETECTOR, AND SIGNS. (NOTE: 1-2", 90-DEGREE P.V.C. BEND).

(C) INSTALL GROUND MOUNTED SIGN.

(D) INSTALL BASE MOUNTED CABINET, SIZE #5, AND CONTROLLER WITH ALL NECESSARY EQUIPMENT AS SHOWN (NOTE: 2-2", 90-DEGREE P.V.C. BENDS; AND, 2-4" 90-DEGREE P.V.C. BENDS).

(E) INSTALL HANDHOLE.

(F) INSTALL 1" LIQUID TIGHT FLEXIBLE NON-METALLIC CONDUIT SLEEVE FOR DETECTOR WIRING.

(G) INSTALL 2" P.V.C. (SCHEDULE 40) ELECTRICAL CONDUIT (TRENCHED).

(H) INSTALL 2" P.V.C. (SCHEDULE 80) ELECTRICAL CONDUIT (SLOTTED).

(J) INSTALL 3" P.V.C. (SCHEDULE 80) ELECTRICAL CONDUIT (SLOTTED).

(K) INSTALL 4" P.V.C. (SCHEDULE 40) ELECTRICAL CONDUIT (TRENCHED).

(L) INSTALL 6' X 6' SAMPLING LOOP DETECTOR ENCASED IN 1/4" FLEXIBLE TUBING (4 TURNS).

(M) REMOVE AND REPLACE EXISTING SIDEWALK.

(N) INSTALL 2" P.V.C. (SCHEDULE 80) ELECTRICAL CONDUIT – RISER AND 2" WEATHERHEAD.

(P) INSTALL 3" P.V.C. (SCHEDULE 40) ELECTRICAL CONDUIT (TRENCHED).

(R) INSTALL 10' OF 2" P.V.C. (SCHEDULE 80) ELECTRICAL CONDUIT – RISER AND COIL 25' OF ADDITIONAL CABLE.

(T) REMOVE EXISTING STOP BAR.

(U) INSTALL 24" SOLID WHITE LINE.

(V) REMOVE EXISTING OPTICOM DETECTOR.

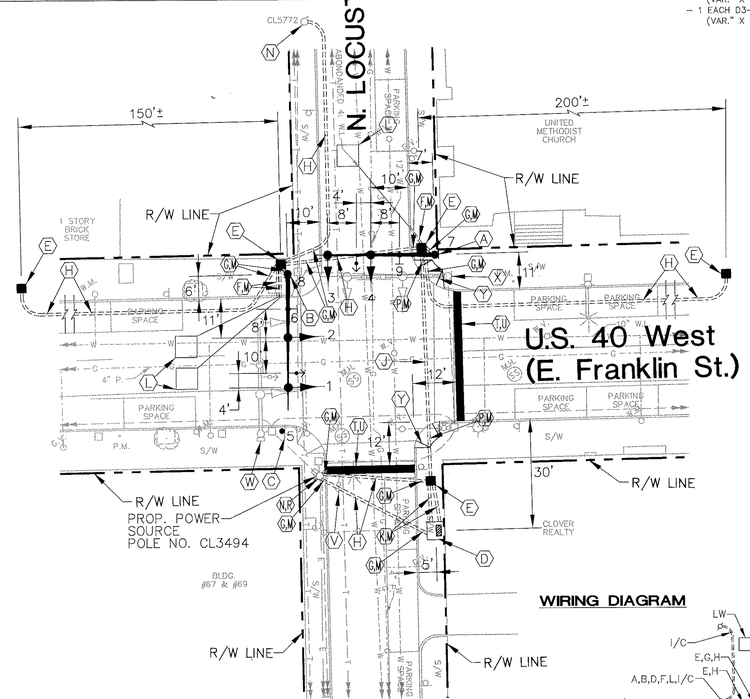
(W) REMOVE EXISTING STEEL POLE, MAST ARM, SIGNALS, SIGNS, OPTICOM DETECTOR, CONTROLLER, CABINET AND FOUNDATION.

(X) REMOVE EXISTING STEEL POLE, MAST ARM, SIGNALS, SIGNS, AND FOUNDATION.

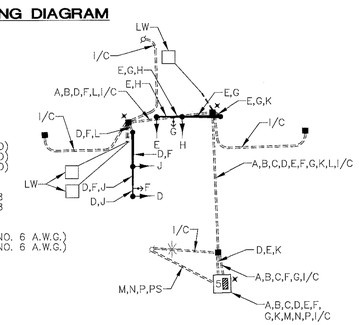
(Y) CONSTRUCT SIDEWALK RAMP.

UTILITY LEGEND

—— G —— G ——	GAS MAIN
—— W —— W ——	WATER MAIN
—— S —— S ——	SEWER MAIN
==========	STORM DRAIN
—— TV —— TV ——	CABLE TELEVISION
—— E —— E ——	ELECTRIC CABLES
—— T —— T ——	TELEPHONE CABLES
—— A —— A ——	AERIAL CABLES



WIRING DIAGRAM



WIRING LEGEND

A – 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
B – 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
C – 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
D – 5 CONDUCTOR CABLE (NO. 14 A.W.G.)
E – 5 CONDUCTOR CABLE (NO. 14 A.W.G.)
F – 3M OPTICOM DETECTOR CABLE, MODEL 138
G – 3M OPTICOM DETECTOR CABLE, MODEL 138
H – 5 CONDUCTOR CABLE (NO. 14 A.W.G.)
J – 5 CONDUCTOR CABLE (NO. 14 A.W.G.)
K – STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)
L – STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)
M – 1 CONDUCTOR CABLE (NO. 4 A.W.G.)
N – 1 CONDUCTOR CABLE (NO. 4 A.W.G.)
P – 1 CONDUCTOR CABLE (NO. 4 A.W.G.)
× – 3/4"x10' GROUND ROD
PS – PROPOSED ELECTRICAL SERVICE
I/C – INTERCONNECT CABLE
LW – LOOP WIRE

INTERSECTION DESCRIPTION

I. GENERAL

THIS INTERSECTION IS U.S. 40 WEST (EAST FRANKLIN STREET) AND NORTH LOCUST STREET CONSTRUCTION AT THIS INTERSECTION INVOLVES THE RECONSTRUCTION OF THE EXISTING TRAFFIC SIGNAL AND INTERCONNECTION WITH THE OTHER SIGNALIZED INTERSECTIONS IN THE NEW CITY-WIDE SYSTEM. IT IS ASSUMED THAT U.S. 40 WEST (EAST FRANKLIN STREET) RUNS IN AN EAST-WEST DIRECTION.

II. INTERSECTION OPERATION

THE INTERSECTION WILL OPERATE IN A NEMA TWO (2) PHASE PRE-TIMED MODE. WESTBOUND U.S. 40 WEST (EAST FRANKLIN STREET) AND NORTHBOUND NORTH LOCUST STREET WILL OPERATE IN SEPARATE PHASES.

PRE-EMPTION ON WESTBOUND U.S. 40 WEST (EAST FRANKLIN STREET) WILL CALL PRE-EMPTION A. PRE-EMPTION ON NORTHBOUND NORTH LOCUST STREET WILL CALL PRE-EMPTION B.

A NEW EIGHT PHASE FULLY ACTUATED CONTROLLER WITH ONE (1) FOUR-CHANNEL TIME DELAY OUTPUT LOOP DETECTOR AMPLIFIER, TELEMETRY MODULE, AND PRE-EMPTION HOUSED IN A GROUND MOUNTED CABINET WILL BE INSTALLED.

EQUIPMENT LISTS

A. EQUIPMENT TO BE SUPPLIED BY THE SHA.

QUANTITY	UNIT	SPECIFICATION SECTION	DESCRIPTION
1	EA	SP	BASE MOUNTED LOCAL CABINET (SIZE 5) WITH DETECTION EQUIPMENT WITH 8 PHASE ASC II CONTROLLER WITH TELEMETRY AND OPTICOM PRE-EMPTION MODULE
40	SF	813	FLAT SHEET ALUMINUM SIGNS CONSISTING OF: – 1 EACH R6-1L (36" X 12")–POLE MOUNT – 1 EACH R6-1R (36" X 12")–POLE MOUNT – 1 EACH R6-1R (36" X 12")–GROUND MOUNT – 1 EACH M1-6a(60) (24" X 24")–POLE MOUNT – 1 EACH M4-5 (24" X 12")–POLE MOUNT – 1 EACH M6-1 (21" X 15")–POLE MOUNT – 1 EACH D3-2 (E. Franklin St) (VAR." X 16")–MAST ARM MOUNT – 1 EACH D3-2 (N. Locust St) (VAR." X 16")–MAST ARM MOUNT

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

QUANTITY	UNIT	SPECIFICATION SECTION	DESCRIPTION
5	CY	205	TEST PIT EXCAVATION
9	CY	206	REMOVAL OF EXISTING SIDEWALK
70	LF	SP 555	24 INCH WHITE PERMANENT PREFORMED PAVEMENT MARKING TAPE
70	LF	SP	REMOVE EXISTING PAVEMENT MARKINGS–ANY WIDTH
750	SF	610	4 INCH CONCRETE SIDEWALK
1	EA	816	INSTALL CONTROLLER AND CABINET–BASE MOUNT
37	SF	813	INSTALL OVERHEAD SIGN
3	SF	813	INSTALL GROUND MOUNTED SIGN
20	LF	812	FURNISH AND INSTALL WOOD SIGN SUPPORTS 4 INCH X 4 INCH
4	EA	SP	FURNISH AND INSTALL 12 INCH 1 WAY 3 SECTION (R, Y, G) SIGNAL HEAD HAVING PROPER ADJUSTABLE MAST ARM BRACKET, AND TUNNEL VISORS–PAINTED BLACK
2	EA	SP	FURNISH AND INSTALL OPTICOM DETECTOR EYE–MODEL 521
5	EA	811	FURNISH AND INSTALL ELECTRICAL HANDHOLE
7	CY	801	FURNISH AND INSTALL CONCRETE FOR SIGNAL FOUNDATION
70	LF	805	FURNISH AND INSTALL 2" SCHEDULE 80 RIGID PVC CONDUIT–RISER
30	LF	805	FURNISH AND INSTALL 1" LIQUID TIGHT FLEXIBLE NON–METALLIC CONDUIT FOR DETECTOR SLEEVE
75	LF	805	FURNISH AND INSTALL 2" SCHEDULE 40 RIGID PVC CONDUIT–TRENCHED
25	LF	805	FURNISH AND INSTALL 3" SCHEDULE 40 RIGID PVC CONDUIT–TRENCHED
35	LF	805	FURNISH AND INSTALL 4" SCHEDULE 40 RIGID PVC CONDUIT–TRENCHED
625	LF	805	FURNISH AND INSTALL 2" SCHEDULE 80 RIGID PVC CONDUIT–SLOTTED
45	LF	805	FURNISH AND INSTALL 3" SCHEDULE 80 RIGID PVC CONDUIT–SLOTTED
1	EA	807	FURNISH AND INSTALL CONTROL AND DISTRIBUTION EQUIPMENT
2	EA	SP	FURNISH AND INSTALL 21–FOOT STEEL POLE WITH A SINGLE 38–FOOT MAST ARM–PAINTED GREEN
1	EA	SP	CUT, CLEAN AND CAP TRAFFIC SIGNAL STRUCTURE
1	EA	SP	AS–BUILT FOR TRAFFIC SIGNAL
3	EA	804	FURNISH AND INSTALL GROUND ROD–3/4 INCH DIAMETER X 10–FOOT LENGTH
250	LF	810	FURNISH AND INSTALL NO. 6 AWG STRANDED BARE COPPER GROUND WIRE
275	LF	810	FURNISH AND INSTALL ELECTRICAL CABLE–1 CONDUCTOR (NO. 4 AWG – THHN/THWN)
375	LF	810	FURNISH AND INSTALL ELECTRICAL CABLE–2 CONDUCTOR (ALUMINUM SHIELDED)
400	LF	810	FURNISH AND INSTALL ELECTRICAL CABLE–5 CONDUCTOR (NO 14 AWG)
500	LF	810	FURNISH AND INSTALL LOOP WIRE ENCASED IN FLEXIBLE TUBING (NO 14 AWG)
175	LF	815	FURNISH AND INSTALL SAWCUT FOR SIGNAL (LOOP DETECTOR)
350	LF	810	FURNISH AND INSTALL OPTICOM M–138 DETECTOR CABLE
2	EA	SP	REMOVE AND DISPOSE OF EXISTING FOUNDATION 12" BELOW GRADE
1	LS	SP	DELIVERY OF SALVAGED EQUIPMENT
1	LS	SP	REMOVE AND DISPOSE OF EXISTING EQUIPMENT
1	LS	SP	REMOVAL OF EXISTING SIGNAL EQUIPMENT TO BE SALVAGED

NOTE: ALL EQUIPMENT AND/OR MATERIALS TO BE REMOVED BY THE CONTRACTOR, BUT NOT LISTED BELOW, SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

QUANTITY	UNIT	DESCRIPTION
1	EA	CONTROLLER AND CABINET
2	EA	OPTICOM DETECTOR EYE

NOTE: EXISTING RIGHT–OF–WAY BASED ON INFORMATION PROVIDED BY THE CITY OF HAGERSTOWN.

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

A/E GROUP, INC.
ENGINEERS • PLANNERS
181 E. Main Street
Westminster, Maryland 21158
A/E Job No. 95–289

MDOT – STATE HIGHWAY ADMINISTRATION
Office of Traffic & Safety
TRAFFIC ENGINEERING DESIGN DIVISION LOG MI. 21W04036.23

DRAWN BY: M. GESELL
DES. BY: J. LAWRENCE
CHK. BY:

US 40 West (East Franklin St.) at North Locust St.

COUNTY: WASHINGTON

DATE: 05/30/97
SCALE: 1" = 20'
F.A.P. NO. STPG–218–1(7)E
S.H.A. NO. WA9535185
TS. NO. 3680
SHEET NO. 6 OF 66