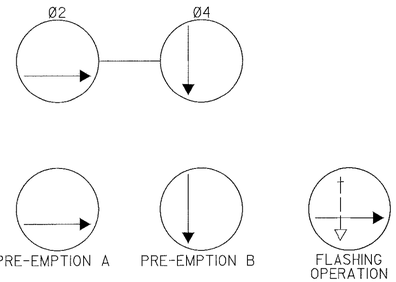
FHWA REGION NO	STATE	FED. AID PROJ. NO	SHEET NO.	TOTAL SHEETS
3	MD.	STPG-218-1(7)E	33	66

PHASING DIAGRAM

	1	2	3	4
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

1,2,3,4

R
Y
G

12"

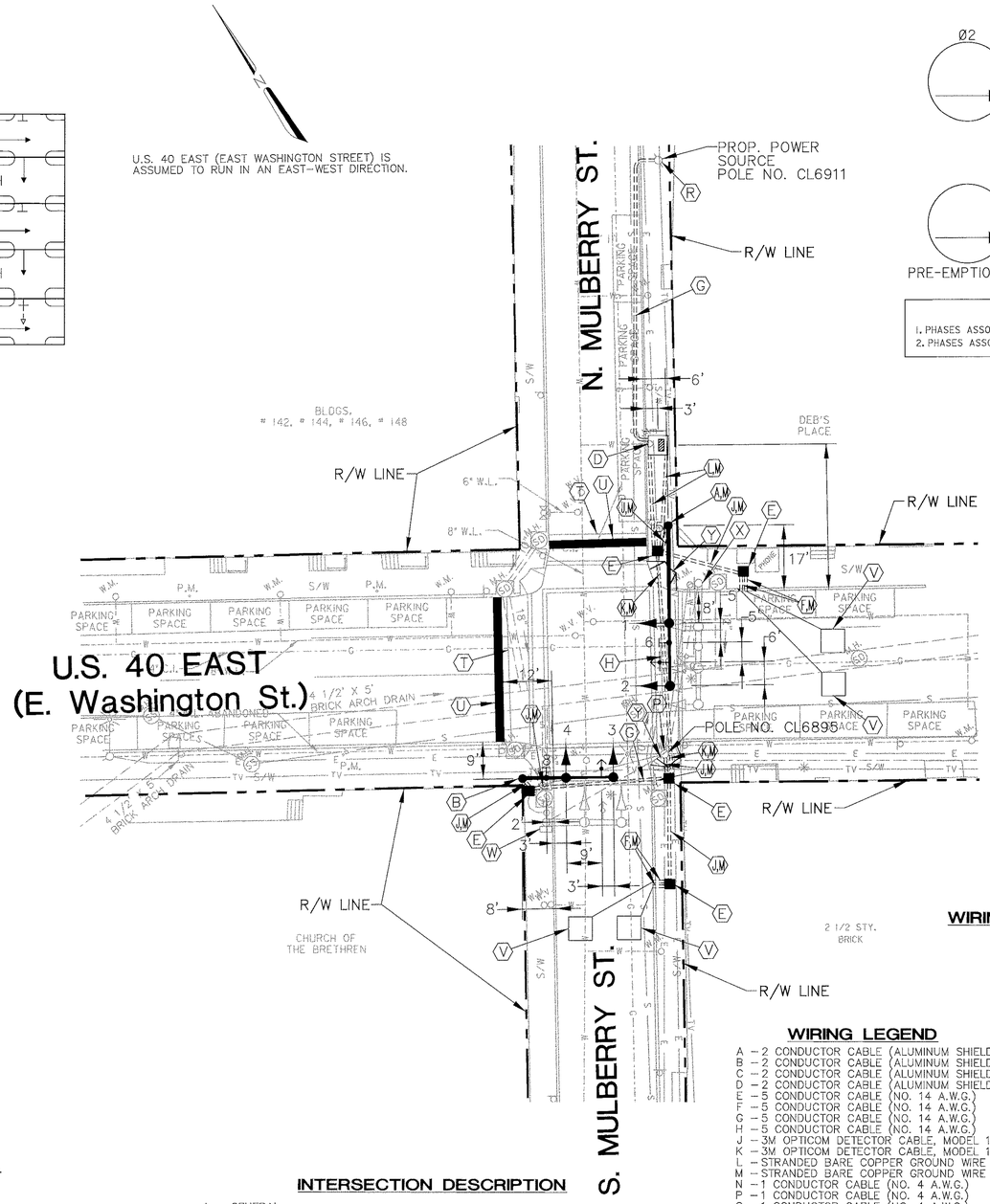
PTICAL PRE-EMPTION
ETECTOR EYE

SIGNS

5
ONE WAY
R6-1(R)
36" x 12"

6
S. Mulberry St
D3-2
Var. x 16"

7
E. Washington St
D3-2
Var. x 16"



EQUIPMENT LISTS

A. EQUIPMENT TO BE SUPPLIED BY THE SHA.

ITEM NO.	QUANTITY	UNIT	SPECIFICATION SECTION	DESCRIPTION
9002	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
9006/9007	25	SF	813	FLAT SHEET ALUMINUM SIGNS CONSISTING OF: – 1 EACH R6-1R (36" X 12")-POLE MOUNT – 1 EACH D3-2 (E. Washington St) (VAR." X 16")-MAST ARM MOUNT – 1 EACH D3-2 (S. Mulberry St) (VAR." X 16")-MAST ARM MOUNT

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

QUANTITY	UNIT	SPECIFICATION SECTION	DESCRIPTION
3	CY	205	TEST PIT EXCAVATION
12	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
900	SF	610	4 INCH CONCRETE SIDEWALK
1	EA	816	INSTALL CONTROLLER AND CABINET–BASE MOUNT
25	SF	813	INSTALL OVERHEAD SIGN
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
9	CY	801	FURNISH AND INSTALL CONCRETE FOR SIGNAL FOUNDATION
40	LF	805	FURNISH AND INSTALL 2" SCHEDULE 80 RIGID PVC CONDUIT–RISER
25	LF	805	FURNISH AND INSTALL 1" LIQUID TIGHT FLEXIBLE NON–METALLIC CONDUIT FOR DETECTOR SLEEVE
80	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
75	LF	805	FURNISH AND INSTALL 4" SCHEDULE 40 RIGID PVC CONDUIT–TRENCHED
30	LF	805	FURNISH AND INSTALL 2" SCHEDULE 80 RIGID PVC CONDUIT–SLOTTED
50	LF	805	FURNISH AND INSTALL 3" SCHEDULE 80 RIGID PVC CONDUIT–SLOTTED
1	EA	807	FURNISH AND INSTALL CONTROL AND DISTRIBUTION EQUIPMENT
1	EA	SP	FURNISH AND INSTALL 21–FOOT STEEL POLE WITH A SINGLE 38–FOOT MAST ARM–PAINTED GREEN
1	EA	SP	FURNISH AND INSTALL 21–FOOT STEEL POLE WITH A SINGLE 50–FOOT MAST ARM–PAINTED GREEN
2	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
175	LF	810	FURNISH AND INSTALL NO. 6 AWG STRANDED BARE COPPER GROUND WIRE
375	LF	810	FURNISH AND INSTALL ELECTRICAL CABLE–1 CONDUCTOR (NO. 4 AWG – THHN/THWN)
400	LF	810	FURNISH AND INSTALL ELECTRICAL CABLE–2 CONDUCTOR (ALUMINUM SHIELDED)
350	LF	810	FURNISH AND INSTALL ELECTRICAL CABLE–5 CONDUCTOR (NO 14 AWG)
600	LF	810	FURNISH AND INSTALL LOOP WIRE ENCASED IN FLEXIBLE TUBING (NO 14 AWG)
200	LF	815	FURNISH AND INSTALL SAWCUT FOR SIGNAL (LOOP DETECTOR)
325	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

CONSTRUCTION DETAILS

1' STEEL POLE, 42' MAST ARM, SIGNAL HEADS, OPTICOM DETECTOR
S (NOTE: 1–2", 90–DEGREE P.V.C BEND).

1' STEEL POLE, 24' MAST ARM, SIGNAL HEADS, OPTICOM DETECTOR
S (NOTE: 1–2", 90 DEGREE P.V.C. BEND).

ASE MOUNTED CABINET, SIZE#5, AND CONTROLLER WITH ALL NECESSARY
T AS SHOWN (NOTE: 2–4", 90–DEGREE P.V.C. BENDS; AND, 2–2"
E P.V.C. BENDS).

ANDHOLE.

" LIQUID TIGHT FLEXIBLE NON–METALLIC CONDUIT FOR DETECTOR SLEEVE.

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

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

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

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

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

ND REPLACE EXISTING SIDEWALK.

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

0' OF 2" P.V.C. (SCHEDULE 80) ELECTRICAL CONDUIT – RISER AND COIL 25'
ONAL CABLE.

XISTING STOP BAR.

4" SOLID WHITE LINE.

' X 6' SAMPLING LOOP DETECTOR ENCASED 1/4" FLEXIBLE TUBING
).

XISTING STEEL POLE, MAST ARM, SIGNALS, SIGNS, OPTICOM
, CABINET, CONTROLLER AND FOUNDATION.

XISTING STEEL POLE, MAST ARM, SIGNALS, SIGNS, OPTICOM
AND FOUNDATION.

CT SIDEWALK RAMP.

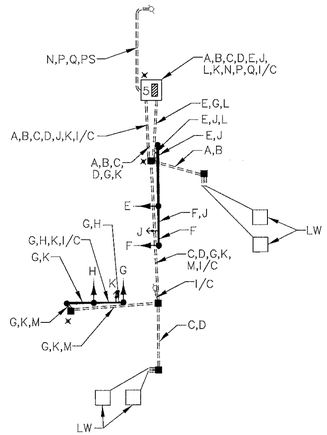
TILITY LEGEND

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

WIRING LEGEND

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

WIRING DIAGRAM



INTERSECTION DESCRIPTION

I. GENERAL

THIS INTERSECTION IS U.S. 40 EAST (EAST WASHINGTON STREET) AND NORTH/SOUTH MULBERRY 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 EAST (EAST WASHINGTON STREET) RUNS IN AN EAST–WEST DIRECTION.

II. INTERSECTION OPERATION

THE INTERSECTION WILL OPERATE IN A NEMA TWO (2) PHASE PRE–TIMED MODE. EASTBOUND U.S. 40 EAST (EAST WASHINGTON STREET) AND SOUTHBOUND NORTH MULBERRY STREET WILL OPERATE IN SEPARATE PHASES. THE SOUTHBOUND NORTH MULBERRY STREET PHASE WILL OPERATE UPON VEHICULAR ACTUATION.

PRE–EMPTION ON EASTBOUND U.S. 40 EAST (EAST WASHINGTON STREET) WILL CALL PRE–EMPTION A. PRE–EMPTION ON SOUTHBOUND NORTH MULBERRY 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.

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

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

REVISIONS

APPROVALS

CHIEF, SIGNAL DESIGN SECTION

ASST. DISTRICT ENGINEER, TRAFFIC

CHIEF, TRAFFIC ENGINEERING DESIGN DIVISION

DIRECTOR, OFFICE OF TRAFFIC & SAFETY

MDOT – STATE HIGHWAY ADMINISTRATION
Office of Traffic & Safety
TRAFFIC ENGINEERING DESIGN DIVISION LOG MI. 2IE04036.33

DRAWN BY: T. COURVILLE
DES. BY: J. LAWRENCE
CHK. BY:

US 40 East (East Washington St.) at North/South Mulberry 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. 3693

SHEET NO. 33 OF 66