FHWA REGION NO	STATE	FED. AID PROJ. NO	SHEET NO.	TOTAL SHEETS
3	MD.	STPG-218-1(7)E	36	66

SOUTH CANNON AVENUE IS ASSUMED TO RUN IN A NORTH-SOUTH DIRECTION.

PHASING DIAGRAM

	1	2	3	4	5	6	7	8
PHASE 2+6	G	G	G	G	R	R	R	R
2+6 CHANGE	Y	Y	Y	Y	R	R	R	R
PHASE 4+8	R	R	R	R	G	G	G	G
4+8 CHANGE	R	R	R	R	Y	Y	Y	Y
PRE-EMPTION A	R	R	R	R	G	G	G	G
A CHANGE	R	R	R	R	Y	Y	Y	Y
PRE-EMPTION B	G	G	G	G	R	R	R	R
B CHANGE	Y	Y	Y	Y	R	R	R	R
FLASHING OPERATION	FL Y	FL Y	FL Y	FL Y	FL R	FL R	FL R	FL R

SIGNALS

1,2,3,4,
5,6,7,8

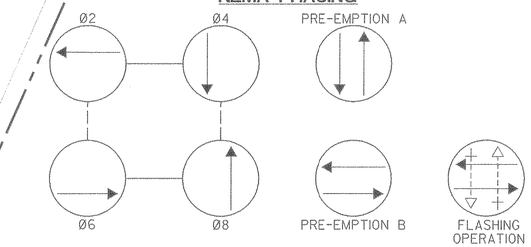
R
Y
G
12"

→ – OPTICAL PRE-EMPTION DETECTOR EYE

SIGNS

9
NO TURN ON RED
R10-11b

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

EQUIPMENT LISTS

A. EQUIPMENT TO BE SUPPLIED BY THE SHA.

QUANTITY	UNIT	SPECIFICATION SECTION	DESCRIPTION
1	EA	SP	BASE MOUNTED LOCAL CABINET (SIZE 5) LESS DETECTION EQUIPMENT WITH 8 PHASE ASC II CONTROLLER WITH TELEMETRY AND OPTICOM PRE-EMPTION MODULE

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

QUANTITY	UNIT	SECTION	DESCRIPTION
1	CY	205	TEST PIT EXCAVATION
3	CY	206	REMOVAL OF EXISTING SIDEWALK
200	SF	610	4 INCH CONCRETE SIDEWALK
1	EA	816	INSTALL CONTROLLER AND CABINET-BASE MOUNT
6	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
1	EA	SP	FURNISH AND INSTALL 12 INCH 2 WAY 3 SECTION (R, Y, G) SIGNAL HEAD HAVING PROPER ADJUSTABLE MAST ARM BRACKET, AND TUNNEL VISORS-PAINTED BLACK
4	EA	SP	FURNISH AND INSTALL OPTICOM DETECTOR EYE-MODEL 521
1	EA	811	FURNISH AND INSTALL ELECTRICAL HANDHOLE
4	CY	801	FURNISH AND INSTALL CONCRETE FOR SIGNAL FOUNDATION
1	EA	805	FURNISH AND INSTALL 2" WEATHERHEAD
40	LF	805	FURNISH AND INSTALL 2" SCHEDULE 80 RIGID PVC CONDUIT-RISER
35	LF	805	FURNISH AND INSTALL 2" SCHEDULE 40 RIGID PVC CONDUIT-TRENCHED
15	LF	805	FURNISH AND INSTALL 4" SCHEDULE 40 RIGID PVC CONDUIT-TRENCHED
1	EA	807	FURNISH AND INSTALL CONTROL AND DISTRIBUTION EQUIPMENT
1	EA	SP	FURNISH AND INSTALL 21-FOOT STEEL POLE WITH A SINGLE 50-FOOT MAST ARM - PAINTED GREEEN
1	EA	SP	CUT, CLEAN AND CAP TRAFFIC SIGNAL STRUCTURE
1	EA	SP	AS-BUILT FOR TRAFFIC SIGNAL
2	EA	804	FURNISH AND INSTALL GROUND ROD-3/4 INCH DIAMETER X 10-FOOT LENGTH
100	LF	810	FURNISH AND INSTALL NO. 6 AWG STRANDED BARE COPPER GROUND WIRE
175	LF	810	FURNISH AND INSTALL ELECTRICAL CABLE-1 CONDUCTOR (NO. 4 AWG - THHN/THWN)
400	LF	810	FURNISH AND INSTALL ELECTRICAL CABLE-5 CONDUCTOR (NO 14 AWG)
300	LF	810	FURNISH AND INSTALL ELECTRICAL CABLE-7 CONDUCTOR (NO 14 AWG)
300	LF	810	FURNISH AND INSTALL OPTICOM M-138 DETECTOR CABLE
3	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
1	EA	PEDESTAL POLE AND BASE

CONSTRUCTION DETAILS

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

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

(C) INSTALL 21' STEEL POLE, 46' MAST ARM, OPTICOM DETECTORS, 2" WEATHERHEAD, SIGNAL HEADS, AND SIGN (NOTE: 1-2", 90-DEGREE P.V.C. BEND).

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

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

(H) REMOVE EXISTING STEEL POLE, MAST ARM, SIGNALS, SIGN AND FOUNDATION.

(M) INSTALL HANDHOLE.

(S) REMOVE AND REPLACE EXISTING SIDEWALK.

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

(U) REMOVE EXISTING CONTROLLER, CABINET, PEDESTAL POLE AND FOUNDATION.

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

(W) REMOVE EXISTING SPAN WIRE AND CABLES.

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

INTERSECTION DESCRIPTION

I. GENERAL

THIS INTERSECTION IS SOUTH CANNON AVENUE AND EAST ANTIETAM STREET. CONSTRUCTION AT THIS INTERSECTION INVOLVES THE REPLACEMENT OF THE EXISTING TRAFFIC SIGNAL CONTROLLER, REPLACEMENT OF BOTH MAST ARM POLES AND INTERCONNECTION WITH THE OTHER SIGNALIZED INTERSECTIONS IN THE NEW CITY-WIDE SYSTEM. IT IS ASSUMED THAT SOUTH CANNON AVENUE RUNS IN A NORTH-SOUTH DIRECTION.

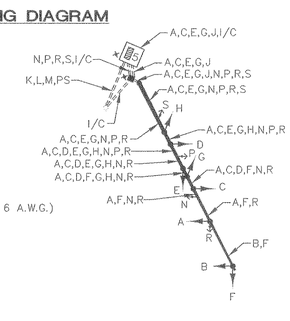
II. INTERSECTION OPERATION

THE INTERSECTION WILL OPERATE IN A NEMA FOUR (4) PHASE PRE-TIMED MODE. SOUTH CANNON AVENUE AND EAST ANTIETAM STREET WILL OPERATE IN SEPARATE PHASES.

PRE-EMPTION ON EASTBOUND OR WESTBOUND EAST ANTIETAM STREET WILL CALL PRE-EMPTION A. PRE-EMPTION ON NORTHBOUND OR SOUTHBOUND SOUTH CANNON AVENUE WILL CALL PRE-EMPTION B.

A NEW EIGHT PHASE FULLY ACTUATED CONTROLLER WITH TELEMETRY MODULE AND PRE-EMPTION HOUSED IN A GROUND MOUNTED CABINET WILL BE INSTALLED.

WIRING DIAGRAM



WIRING LEGEND

A – 7 CONDUCTOR CABLE (NO. 14 A.W.G.)
B – 5 CONDUCTOR CABLE (NO. 14 A.W.G.)
C – 7 CONDUCTOR CABLE (NO .14 A.W.G.)
D – 5 CONDUCTOR CABLE (NO. 14 A.W.G.)
E – 7 CONDUCTOR CABLE (NO. 14 A.W.G.)
F – 5 CONDUCTOR CABLE (NO. 14 A.W.G.)
G – 7 CONDUCTOR CABLE (NO. 14 A.W.G.)
H – 5 CONDUCTOR CABLE (NO. 14 A.W.G.)
J – STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)
K – 1 CONDUCTOR CABLE (NO. 4 A.W.G.)
L – 1 CONDUCTOR CABLE (NO. 4 A.W.G.)
M – 1 CONDUCTOR CABLE (NO. 4 A.W.G.)
N – 3M OPTICOM DETECTOR CABLE, MODEL 138
P – 3M OPTICOM DETECTOR CABLE, MODEL 138
R – 3M OPTICOM DETECTOR CABLE, MODEL 138
S – 3M OPTICOM DETECTOR CABLE, MODEL 138
★ – 3/4"x10' GROUND ROD
PS – PROPOSED ELECTRICAL SERVICE
I/C – INTERCONNECT CABLE

1 ADDENDUM NO. 1
NEW SHEET 8/12/97

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. 96-317

CITY OF HAGERSTOWN, MARYLAND
ENGINEERING DEPARTMENT

LOCATION: South Cannon Ave. at East Antietam St.

TITLE: TRAFFIC SIGNAL UPGRADE

DRAWN BY	A.W. (BASE PLAN)	DATE	8-96
SURVEY BY	A.J.B.	DATE	7-96
SCALES	HORIZONTAL: 1" = 10'	VERTICAL: –	
APPROVED		FILE NUMBER	
DATE / BY / CITY ENGINEER		67-054-01	

MDOT – STATE HIGHWAY ADMINISTRATION
Office of Traffic & Safety
TRAFFIC ENGINEERING DESIGN DIVISION LOG MI. 21MANT00.29

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

South Cannon Ave. at East Antietam St.

COUNTY: WASHINGTON

DATE: 05/30/97
SCALE: 1" = 10'

F.A.P. NO. STPG-218-1(7)E
S.H.A. NO. WA9535185
CITY NO. 07-243-332

TS NO. 3699

SHEET NO. 36 OF 66