

PROJECT DESCRIPTION

GENERAL

THIS PROJECT INVOLVES THE CONVERSION OF AN EXISTING INTERSECTION CONTROL BEACON TO A NEW FULL-TRAFFIC-ACTUATED SIGNAL AT THE INTERSECTION OF MD 28 AND NORBECK BOULEVARD IN MONTGOMERY COUNTY. MD 28 IS ASSUMED TO RUN IN AN EAST-WEST DIRECTION.

INTERSECTION OPERATION

THE INTERSECTION WILL OPERATE IN A NEMA FOUR-PHASE, FULL-TRAFFIC-ACTUATED MODE, WITH THE MD 28 APPROACHES OPERATING CONCURRENTLY AND THE NORBECK BOULEVARD APPROACH RUNNING ALONE. AN EXCLUSIVE/PERMISSIVE LEFT-TURN PHASE WILL BE PROVIDED FOR WESTBOUND MD 28.

CONTROLLER REQUIREMENTS

INSTALL A FULL-TRAFFIC-ACTUATED, EIGHT-PHASE CONTROLLER, L.A.U. AND L.A.U. PANEL, WITH TWO (2) FOUR-CHANNEL, TIME-DELAY-OUTPUT LOOP DETECTOR AMPLIFIERS HOUSED IN THE EXISTING BASE MOUNTED CABINET.

MAINTENANCE OF TRAFFIC

THE FOLLOWING WORK ZONE TRAFFIC CONTROL STANDARDS SHALL BE USED FOR THE PROJECT.

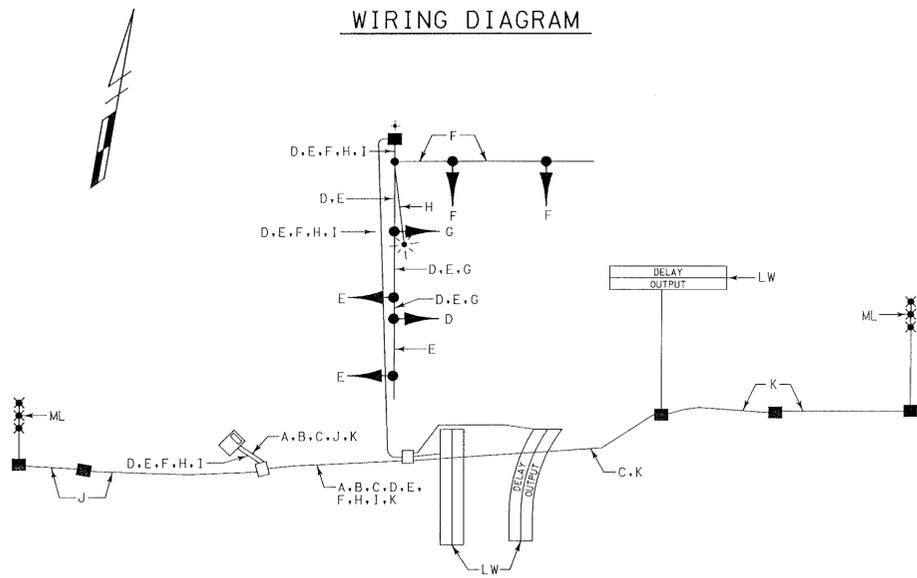
- STANDARD NO. MD-104.00-104.00-12
- STANDARD NO. MD-104.45-01 (RIGHT LANE CLOSURE)
- STANDARD NO. MD-104.31-01 (FLAGGING OPERATION)
- STANDARD NO. MD-104.46-01 (CENTER LANE CLOSURE)
- STANDARD NO. MD-104.49-01 (SHOULDER WORK)
- STANDARD NO. MD-104.44-01 (LEFT LANE CLOSURE)

PROJECT CONTACTS

THE CONTACT PERSONS FOR DISTRICT #3 ARE AS FOLLOWS:

- MR. CHARLES WATKINS
DISTRICT ENGINEER
PHONE: (301) 513-7311
- MR. FRANCIS LAUER
DISTRICT UTILITIES ENGINEER
PHONE: (301) 513-7350
- MR. MAJIB SHAKIB
ASSISTANT DISTRICT ENGINEER - TRAFFIC
PHONE: (301) 513-7358
- MR. RICHARD L. DAFF, SR.
CHIEF, TRAFFIC OPERATIONS DIVISION
PHONE: (410) 787-7630
- MR. CARTER WILSON
ASSISTANT DISTRICT ENGINEER - MAINTENANCE
PHONE: (301) 513-7304

WIRING DIAGRAM



WIRING KEY

- A } 2-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.) ALUMINUM SHIELDED
- B } 7-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
- C } 5-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
- D } 2-CONDUCTOR ELECTRICAL CABLE (NO. 12 A.W.G.)
- J } MICRO-LOOP PROBE LEAD-IN
- K } STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)
- I } STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)
- LW - LOOP WIRE (NO. 14 A.W.G.)
- ML - MICRO-LOOP PROBE SET
- + 3/4 IN. GROUND ROD

EQUIPMENT LIST "A"

A. EQUIPMENT TO BE SUPPLIED BY SHA

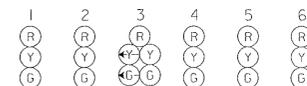
ITEM NO.	QUANTITY	DESCRIPTION
960022	5 EACH	12 IN., ONE-WAY, THREE-SECTION (R,Y,G) TRAFFIC SIGNAL HEAD - MAST ARM MOUNT.
960028	1 EACH	12 IN., ONE-WAY, FIVE-SECTION (R,Y,YA,G,GA) TRAFFIC SIGNAL HEAD - MAST ARM MOUNT.
973023	57 S.F.	SHEET ALUMINUM SIGNS TO CONSIST OF : - 1 EACH D3-2 SIGN "NORBECK BLVD" (VARIABLE X 16 IN.) DUAL FACED - MAST ARM MOUNT. - 2 EACH W3-3 SIGN (48 IN. X 48 IN.) WITH "NEW" PANEL (30 IN. X 30 IN.) AND FLAGS - GROUND MOUNT.
900000	1 EACH	FULL-TRAFFIC-ACTUATED, EIGHT-PHASE CONTROLLER, L.A.U. AND L.A.U. PANEL
900000	1 EACH	FOUR-CHANNEL LOOP DETECTOR AMPLIFIER (DELAY OUTPUT).

EQUIPMENT LIST "B"

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

CATEGORY CODE NO.	QUANTITY	DESCRIPTION
120500	LUMP SUM	MAINTENANCE OF TRAFFIC
120610	5 U.D.	ARROW PANEL
120625	300 S.F.	TEMPORARY TRAFFIC SIGNS
130850	LUMP SUM	MOBILIZATION
203030	1 C.Y.	TEST PIT EXCAVATION
801004	5 C.Y.	FURNISH AND INSTALL CONCRETE FOR SIGNAL FOUNDATION
801104	76 L.F.	FURNISH AND INSTALL WOOD SIGN SUPPORTS 4 IN. X 4 IN.
802501	145 L.F.	FURNISH AND INSTALL NO. 6 A.W.G. STRANDED BARE COPPER GROUND WIRE
805125	660 L.F.	FURNISH AND INSTALL 2 IN. SCHEDULE 40 RIGID PVC CONDUIT - TRENCHED
805145	160 L.F.	FURNISH AND INSTALL 2 IN. SCHEDULE 80 RIGID PVC CONDUIT - SLOTTED
805160	15 L.F.	FURNISH AND INSTALL 1 IN. LIQUID-TIGHT FLEXIBLE NON-METALLIC CONDUIT FOR DETECTOR SLEEVE
811001	6 EACH	FURNISH AND INSTALL ELECTRICAL HANDHOLE
813014	46 S.F.	INSTALL GROUND MOUNTED SIGN
813015	11 S.F.	INSTALL OVERHEAD SIGN
822500	1 EACH	AS-BUILT FOR TRAFFIC SIGNAL
831010	1 EACH	FURNISH AND INSTALL 250 WATT HPS LUMINAIRE WITH PHOTO-CELL
837001	1 EACH	FURNISH AND INSTALL GROUND ROD - 3/4 IN. DIAMETER X 10 FT. LENGTH
860022	5 EACH	INSTALL 12 IN., ONE-WAY, THREE-SECTION (R,Y,G) SIGNAL HEAD - MAST ARM MOUNT
860028	1 EACH	INSTALL 12 IN., ONE-WAY, FIVE-SECTION (R,Y,YA,G,GA) - MAST ARM MOUNT
861104	250 L.F.	FURNISH AND INSTALL ELECTRICAL CABLE - 2 CONDUCTOR ALUMINUM SHIELDED (NO. 14 A.W.G.)
861107	490 L.F.	FURNISH AND INSTALL ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 A.W.G.)
861108	220 L.F.	FURNISH AND INSTALL ELECTRICAL CABLE - 7 CONDUCTOR (NO. 14 A.W.G.)
861116	195 L.F.	FURNISH AND INSTALL ELECTRICAL CABLE - 2 CONDUCTOR (NO. 12 A.W.G.)
862101	1380 L.F.	FURNISH AND INSTALL LOOP WIRE ENCASED IN FLEXIBLE TUBING (NO. 14 A.W.G.)
862102	420 L.F.	FURNISH AND INSTALL SAWCUT FOR SIGNAL (LOOP DETECTOR)
866104	1 EACH	FURNISH AND INSTALL 20 FT. STREET LIGHTING ARM ON SIGNAL STRUCTURE
800000	1 EACH	FURNISH AND INSTALL 3 IN. WEATHERHEAD
800000	1 EACH	FURNISH AND INSTALL CLEVIS
800000	1 EACH	FURNISH AND INSTALL MAST ARM POLE AND TWIN 50 FT./60 FT. MAST ARMS
800000	1 EACH	FURNISH AND INSTALL MICROLOOP PROBE SET WITH 500 FT. LEAD-IN
800000	1 EACH	FURNISH AND INSTALL MICROLOOP PROBE SET WITH 1000 FT. LEAD-IN
800000	LUMP SUM	REMOVE AND DISPOSE OF EXISTING MATERIAL AND EQUIPMENT
800000	LUMP SUM	TRIM TREES
800000	2 EACH	RELOCATE EXISTING SIGN

PHASE CHART



	1	2	3	4	5	6
PHASE 2 + 5	R	R	G	R	R	
2 + 5 CHANGE						
PHASE 2 + 6	G	G	G	R	R	
2 + 6 CHANGE	Y	Y	Y	Y	R	R
PHASE 4	R	R	R	R	G	G
4 CHANGE	R	R	R	R	Y	Y
FLASHING OPERATION	FL/Y	FL/Y	FL/Y	FL/Y	FL/R	FL/R

WR&A
Whitman, Reardon and Associates
Engineers and Planners
2315 Saint Paul Street
Baltimore, Maryland 21218
(410) 235-3450

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

MARYLAND DOT - STATE HIGHWAY ADMINISTRATION
Office of Traffic & Safety
TRAFFIC ENGINEERING DESIGN DIVISION
GENERAL INFORMATION SHEET
MD 28 AND NORBECK BLVD.

DATE: 7-14-97	DRAWN BY: S. BLOSS	F.A.P. NO. _____	PLAN SHEET NO.: _____
SCALE: 1" = 20'	DESIGNED BY: N. LEARY	S.H.A. NO. MD7725176	SHEET NO. _____
APPROVED BY: _____	CHECKED BY: T. HANNAN	COUNTY: MONTGOMERY	2 OF 2