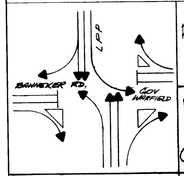
PHASE & SEQUENCE DIAGRAM



	TRAFFIC SIGNAL HEADS 1,2,3,4	TRAFFIC SIGNAL HEADS 5,6,7,8
PHASE A	G	R
PHASE A CLEARANCE	Δ	R
PHASE B	R	G
PHASE B CLEARANCE	R	Δ

GENERAL NOTES

1. The Contractor shall not be responsible for highway markings
2. The timing of the traffic signal system shall be furnished by the Traffic Engineer (Ref 403g, General Specifications)
3. The Contractor shall comply with the General Specifications for Installation of and Equipment for Traffic Signals, prepared by Howard County, Department of Public Works, Bureau of Engineering, Division of Traffic Engineering and Highway Safety.
4. The Contractor shall locate all underground utilities prior to construction by contacting Miss Utility at 559-0100.
5. All disturbed areas shall be properly restored as per specifications
6. The Contractor shall schedule the work such that the time between the total shut down of the existing signal heads and the turn on of the new signal system shall be not more than 14 calendar days. All signal heads shall be securely wrapped and/or bagged in burlap, when not in use
7. The extension of the center median islands shall not be considered a part of this contract

SYMBOLS

- Signal Head with Identification
- #2 Proposed Vehicular Loop Detectors
- Existing Vehicul Loop Detectors
- C Control Cabinet
- Meter box
- Exist Lumenaire & Support
- Mast Arm
- Proposed Steel Pole with Identification
- Exist Steel pole
- s——s Exist. underground signal wiring
- H Proposed Hand Box

EQUIPMENT LIST

CONTROLLER

The existing controller shall be modified as follows:
1. Set up existing controller (Crouse-Hinds SLT2-10 with four (4) M4-A modules) to operate as two (2) phases fully actuated.
2. Replace all existing signal load relays with solid state load switches.
3. Furnish and install conflict monitor capable of monitoring six (6) phases
4. Cabinet
   a. Secure and seal cabinet to foundation.
   b. Install filtered vents on the lower half of the control cabinet.
   c. Furnish and install standard lock for cabinet door.
   d. Install concrete pad 3'x4'x5", in front of cabinet.

SIGNAL HEADS

The existing signal heads shall be removed and shall be delivered to a location designated by the Traffic Engineer. The Contractor shall provide 3 new signal heads with yellow enamel finish which shall be vertically mounted with clevis hangers. All signal heads shall consist of 12" red indications with 8" amber and green indications.

LUMENAIRES

Two (2) 400 watt Mercury Vapor lumenaires shall be furnished and installed.
1. The luminaires shall be compatible with standard BALTIMORE GAS AND ELECTRIC Co. hardware.
2. The finish shall be bronze.
3. The luminaires shall be supplied by an unmetered power source, The Contractor shall therefore provide and install separate conduit for power source in each foundation.
4. The existing lumenaire support poles (two) shall be removed and delivered to a Location designated by the Traffic Engineer.
5. The existing foundations shall be removed to a depth of one (1) foot below existing grade, backfilled, and sodded.

UNDERGROUND WIRING

1. The existing underground wiring consists of P.V.C. conduit under the road surface, and direct burial cable within grass areas
2. All existing conduit shall be utilized where possible
3. All direct burial cable shall be abandoned and removed. New cable shall be placed within conduit.
4. Provisions shall be made for future left turn detectors on Little Patuxent Pkwy by installing hand boxes within the median as indicated on the plan
5. The Contractor shall furnish an "as-built" drawing as per "GENERAL - SPECIFICATIONS - 4.02 b"
6. Hand boxes shall be installed at conduit junctions.

LOOPS AND DETECTORS

LOOPS - The existing loops, as indicated on the contract drawings, shall be abandoned.
The following new loops shall be installed:

No.	Dimensions	Phase
1, 4	6'×20'	A
3, 6	6'×20'	B
2, 5	6'×6'	A

Loops 2 & 5 shall be cabled separately to hand box and shall be wired in Parallel to loops 1 & 4 respectively.

DETECTORS - The existing Sentry II Loop Amplifier shall be abandoned.
Four (4) standard detectors, Sarasota 215B/MS or approved equal, shall be provided by the Contractor

POLES

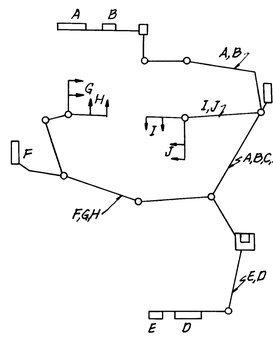
PROPOSED POLES:
Two (2) combination twin arm and lumenaire support Poles
1. Style and appearance equivalent to Union Metal Design # 52300.
2. Signal support arms shall be saporated by 90°.
3. Mounting height of the lumenaire shall be 35'. The support arm for the lumenaire shall be 5'.
4. Finish shall be bronze paint

Pole No	Description
	DESCRIPTION
1,	2 - 38' spans - each supporting 2 signal heads
2 *	1-28', 1-38' span - each

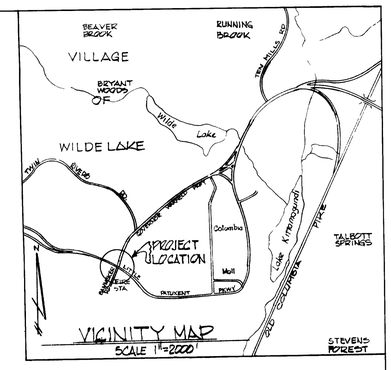
* Pole #2 shall be designed such that the 28' span may be replaced by a 38' span of a future time without modification of the support pole.

Note: Both 38' spans over Little Patuxent Parkway shall be designed for a loading of 3 - 12" 3 section signal heads in order to accomodate future left turn signal heads.

EXISTING POLES
The existing traffic signal support poles shall be removed and delivered to a location designated by the traffic Engineer. The existing foundations are to be removed to a depth of 1' below grade and backfilled and sodded.



A,B,C,D,E,F - 2/C SHIELDED LOOP LEAD IN CABLE
G,H,I,J - 7/C SIGNAL CABLE IMSA 19-1 SPEC



Rev No	Rev Date	Revision Description

Owner and Developer
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Project Area
LITTLE PATUXENT PARKWAY @ GOVERNOR WARFIELD PARKWAY AND BANNEKER ROAD

Project Title
PLAN "RECONSTRUCTION OF TRAFFIC SIGNAL", & EQUIPMENT LIST
CAPITAL PROJECT No. T-6-7003

Designed K Parezo	Scale As Noted
Drawn M Wilhelm	Date July 7, 1977
Checked J Krenker	Sheet 1 of 1.

Approved
Chief Bureau of Highways — 8/9/77 Date

Approved
Chief Div of Traffic Engineering & Highway Safety — 8/23/77 Date

Approved DEPARTMENT OF PUBLIC WORKS
THOMAS J REGAN JR P.E. No 9844 Director of Public Works — 8-25-77 Date

Prepared By
DEPARTMENT OF PUBLIC WORKS
BUREAU OF ENGINEERING
DIVISION OF INSPECTION AND SURVEY
8950 ROUTE 108
COLUMBIA, MARYLAND 21045

Approved
William O Filbert — 8-25-77 Date
Chief Bureau of Engineering

P.E. No 8021

#1746

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