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QC/QA CONTRACT

04-27-2018 LETTING ITEM 184

ENGINEERING DIVISION
CITY OF GALESBURG, ILLINOIS

CALL J.U.L.I.E.
BEFORE DIGGING
800-892-0123

SECTION #	TOTAL SHEETS	SHEET NO
16-01001-46-TL	14	1
CONTRACT NO. 89733		

**PLANS FOR PROPOSED
TRAFFIC SIGNAL MODIFICATIONS
FLASHING YELLOW ARROWS**

SECTION NUMBER 16-01001-46-TL
FEDERAL PROJECT NUMBER: NAG1(733)
JOB NUMBER: C-94-088-17
CATALOG NO. 035511-00
HSIP AND LOCAL FUNDS

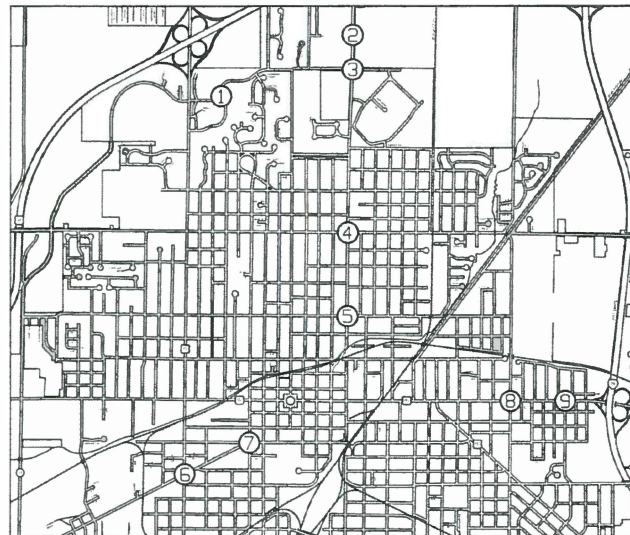


**GENERAL LOCATION MAP
NOT TO SCALE**



HIGHWAY STANDARDS

- 000001-06 STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
- 001001-02 AREAS OF REINFORCEMENT BARS
- 424021-04 DEPRESSED CORNER FOR SIDEWALKS
- 701301-04 LN CLOSURE, 2LSW-SHORT TIME OP
- 701701-10 URBAN LN CLOSURE, MULTILANE INTERSECTION
- 701801-06 SIDEWALK, CORNER OR CROSSWALK CLOSURE
- 701901-07 TRAFFIC CONTROL DEVICES
- 720001-06 SIGN PANEL MOUNTING DETAILS
- 720016-04 MAST ARM MOUNTED STREET NAME SIGNS
- 720021-02 SIGN PANELS EXTRUDED ALUMINUM TYPE
- 805001-01 ELECTRIC SERVICE INSTALLATION DETAILS
- 857001-01 STANDARD PHASE DESIGN & PHASE SEQ
- 873001-02 TRAFFIC SIGNAL GROUNDING & BONDING
- 876001-04 PEDESTRIAN PUSH BUTTON POST
- 877001-07 STL MAST ARM ASSEMBLY AND POLE 16-55
- 878001-10 CONCRETE FOUNDATION DETAILS
- 880006-01 TRAFFIC SIGNAL MOUNTING DETAILS
- 886001-01 DETECTOR LOOP INSTALLATIONS



PROJECT LOCATIONS

- 1: HOME BOULEVARD AND CARL SANDBURG DRIVE
- 2: SEMINARY STREET AND KNOX SQUARE DRIVE
- 3: SEMINARY STREET AND CARL SANDBURG DRIVE
- 4: SEMINARY STREET AND FREMONT STREET
- 5: SEMINARY STREET AND LOSEY STREET
- 6: HENDERSON STREET AND MONMOUTH BOULEVARD
- 7: ACADEMY STREET AND MONMOUTH BOULEVARD
- 8: FARNHAM STREET AND MAIN STREET
- 9: MICHIGAN AVENUE AND MAIN STREET

PROJECT DESCRIPTION:

THIS PROJECT INCLUDES MAST ARMS, FOUNDATIONS, CONDUIT, WIRING, SIGNAL HEADS, CONTROLLER CABINETS, HARDWARE UPGRADES, AND OTHER COLLATERAL WORK FOR THE INSTALLATION AND OPERATION OF FLASHING YELLOW ARROWS AT 9 INTERSECTIONS ON LOCAL ROADS.



William C. Moser
ILLINOIS REGISTERED ENGINEER NO. 062-062625
REGISTRATION EXPIRES NOV. 30, 2019

APPROVED	<i>02/22</i>	2018
	<i>William C. Moser</i>	LOCAL AGENCY OFFICIAL
PASSED	<i>02-27</i>	2018
	<i>[Signature]</i>	DISTRICT FOUR ENGINEER OF LOCAL ROADS & STREETS
RELEASING FOR BID BASED ON LIMITED REVIEW	<i>2-27</i>	2018
	<i>Kenneth A. Hannett</i>	REGION THREE ENGINEER
STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION		

SECTION #	TOTAL SHEETS	SHEET NO.
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CONTROLLER CABINET MODIFICATION AND INSTALLATION - CONSTRUCTION NOTES

1. THE CONTRACTOR SHALL REMOVE THE EXISTING TRAFFIC SIGNAL CABINETS AND DELIVER THE CABINET AND ITS CONTENTS TO THE CITY OF GALESBURG. THE CONTRACTOR SHALL NOTIFY JUSTIN MCNAUGHT, AT (309) 368-7437 A MINIMUM OF FORTY-EIGHT HOURS IN ADVANCE OF EQUIPMENT DELIVERY.
2. THE CONTRACTOR SHALL SCHEDULE THE REPLACEMENT OF THE TRAFFIC SIGNAL CABINET ONLY DURING THE HOURS OF 8:30 AM TO 3:00 PM MONDAY THROUGH FRIDAY.
3. THE CONTRACTOR WILL BE ALLOWED TO PLACE THE INTERSECTION INTO ALL-RED FLASH MODE AND ALL-WAY STOP CONTROL ONLY DURING THE HOURS SPECIFIED ABOVE TO FACILITATE THE INSTALLATION OF THE PROPOSED TRAFFIC SIGNAL CONTROLLER CABINET.
4. THE CONTRACTOR SHALL FURNISH AND INSTALL A MINIMUM OF TWO STOP SIGNS PER APPROACH WHEN THE INTERSECTION IS OPERATING IN ALL-RED FLASH MODE OR ALL-WAY STOP CONTROL.
5. THE CONTRACTOR SHALL GROUND AND SAFETY-BOND THE EXISTING AND PROPOSED CONTROLLER CABINETS IN ACCORDANCE WITH NEC REQUIREMENTS.
6. ALL COSTS (LABOR, MATERIALS, AND EQUIPMENT) ASSOCIATED WITH THESE REQUIREMENTS SHALL BE INCLUDED IN THE CONTRACT BID PRICE FOR THE MODIFY EXISTING CONTROLLER CABINET AND PROPOSED TRAFFIC SIGNAL CABINET PAY ITEMS. THERE WILL BE NO ADDITIONAL COMPENSATION FOR THIS WORK.

CONSTRUCTION NOTES

1. THE LOCATION OF ALL UTILITIES AND PRIVATELY OWNED FACILITIES SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO THE INSTALLATION OF ANY COMPONENTS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING EXISTING CITY OF GALESBURG ELECTRICAL FACILITIES AT HIS/HER OWN EXPENSE IF REQUIRED. THE CONTRACTOR SHALL ALSO BE LIABLE FOR ANY DAMAGE TO IDOT FACILITIES RESULTING FROM INACCURATE LOCATING.
3. ELECTRICAL WORK SHALL CONFORM WITH NATIONAL, STATE, AND LOCAL CODES.
4. ANY MAINTENANCE OF EXISTING ELECTRICAL FACILITIES WILL BE CONSIDERED EXTRA WORK IN ACCORDANCE WITH ARTICLE 109.04 OF THE STANDARD SPECIFICATIONS.
5. THE EXISTING TRAFFIC SIGNALS SHALL REMAIN IN OPERATION DURING THE INSTALLATION OF THE PROPOSED COMPONENTS.
6. THE LOCATIONS FOR PEDESTRIAN PUSHBUTTON POSTS AND MAST ARM FOUNDATIONS ARE PROVIDED FOR REFERENCE ONLY. THE ENGINEER OF TRAFFIC SHALL BE NOTIFIED FOR LOCATION VERIFICATION BEFORE INSTALLATION.
7. ALL TRAFFIC SIGNAL SECTIONS SHALL HAVE 12" SINGLE LED LENSES.
8. THE RED SECTIONS OF THE SIGNAL HEADS SHARING THE SAME MAST ARM SHALL BE LEVEL WITH ONE ANOTHER AND MAINTAIN A 16 FT. MINIMUM CLEARANCE FROM THE HIGHEST POINT OF THE ROADWAY TO BOTTOM OF THE SIGNAL BACKPLATE.
9. ALL TRAFFIC SIGNAL HEAD BRACKETS ARE TO BE GALVANIZED STEEL WITH A NATURAL FINISH.
10. ALL TRAFFIC SIGNAL STRUCTURES SHALL BE BONDED IN ACCORDANCE WITH NEC REQUIREMENTS. THIS WORK SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR "ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6 1C" AND SHALL INCLUDE ALL LABOR, EQUIPMENT, AND MATERIALS (INCLUDING CLAMPS, HARDWARE, ELECTRICAL CABLE, AND ALL OTHER ITEMS REQUIRED TO BOND THE STRUCTURES).
11. THE CONTRACTOR SHALL PROVIDE ELECTRICAL CABLE SLACK IN ACCORDANCE WITH ARTICLE 873.03.

12. ELECTRICAL CABLE WILL BE MEASURED FOR PAYMENT IN ACCORDANCE WITH ARTICLE 873.04.
13. THE #18 3-PAIR TWISTED/SHIELDED CABLE SHALL HAVE THE SAME SLACK AS OTHER SIGNAL CABLE AND WILL BE MEASURED FOR PAYMENT.
14. ALL DETECTOR LOOPS SHALL UTILIZE A SEPARATE PAIR OF TWISTED/SHIELDED LEAD-IN CABLE.
15. LEAD-IN CABLE SHALL BE CONTINUOUS FROM THE TYPE II SPLICE LOCATED IN THE HANDHOLE TO THE CONTROLLER CABINET. NO SPLICES WILL BE ALLOWED.
16. ALL DETECTOR LOOPS SHALL BE INSTALLED IN THE CENTER OF THEIR RESPECTIVE TRAVEL LANES. THE ENGINEER OF TRAFFIC SHALL BE NOTIFIED FOR VERIFICATION OF DETECTOR PLACEMENT BEFORE INSTALLATION.
17. THE PROPOSED DETECTOR LOOPS SHALL BE CUT IN THE EXISTING PAVEMENT.
18. THE COST FOR THE REMOVAL OF EXISTING TRAFFIC SIGNAL COMPONENTS (MAST ARMS, SIGNAL HEADS, ETC.) WILL NOT BE PAID FOR SEPARATELY. THE COST FOR REMOVING AND DELIVERING THESE ITEMS TO THE CITY OF GALESBURG SHALL BE INCLUDED IN THE COST OF THE PROPOSED ITEMS.
19. THE COST OF THE PROPOSED MAST ARMS SHALL INCLUDE 3" DIAMETER PVC CONDUIT AND ALL OTHER ITEMS REQUIRED TO CONNECT THE MAST ARM FOUNDATION TO THE EXISTING CONDUIT SYSTEM.
20. THE COST OF THE PROPOSED PEDESTRIAN PUSHBUTTON POSTS SHALL INCLUDE 2" DIAMETER PVC CONDUIT AND ALL OTHER ITEMS REQUIRED TO CONNECT THE PEDESTRIAN PUSHBUTTON POST TO THE EXISTING CONDUIT SYSTEM.
21. ALL EXISTING SIGNS SHALL BE RELOCATED FROM EXISTING MAST ARMS AND INSTALLED ON THE PROPOSED MAST ARMS AS DIRECTED BY THE ENGINEER. THE COST OF THIS WORK SHALL BE INCLUDED IN THE COST OF THE PROPOSED MAST ARMS.
22. ALL SURPLUS MATERIALS SHALL BE DISPOSED OF IN ACCORDANCE WITH ARTICLE 202.03 OF THE STANDARD SPECIFICATIONS.
23. COILABLE POLYETHYLENE DUCT MAY BE SUBSTITUTED FOR PVC PUSHED OR TRENCHED.
24. THE TRAFFIC SIGNAL CONTROLLER SHALL BE ORIENTED SO THAT THE DOOR IS FACING AWAY FROM TRAFFIC.
25. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR PLACING CONDUIT AT GREATER THAN 2 FT. MINIMUM DEPTH TO AVOID OBSTACLES SUCH AS UNDERGROUND UTILITIES.
26. THE CONTRACTOR IS RESPONSIBLE FOR THE COST OF UNCOVERING OR HAND DIGGING AROUND UTILITIES AS NECESSARY. THIS COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT PRICES FOR THE CONDUITS.
27. THE CONTRACTOR SHALL UTILIZE EXISTING GROUNDING CABLE WHEN EVER POSSIBLE TO GROUND EXISTING HANDHOLES AND TRAFFIC STRUCTURES.
28. THE CONTRACTOR SHALL UTILIZE STAR WASHERS WHEN MAKING GROUNDING CONNECTIONS TO METALLIC COMPONENTS TO ENSURE THE BEST POSSIBLE MECHANICAL CONNECTION.
29. THE CONTRACTOR SHALL VERIFY THAT ALL EXISTING TRAFFIC STRUCTURES (MAST ARMS, TRAFFIC SIGNAL POSTS, METALLIC CONDUITS, HANDHOLE LIDS AND FRAMES, ETC.) ARE CONNECTED TO A GROUNDING CONDUCTOR IN ACCORDANCE WITH NEC REQUIREMENTS. THIS WORK SHALL BE INCLUDED IN THE COST OF THE PROPOSED GROUNDING CABLE.
30. THE CONTRACTOR SHALL COUPLE THE PROPOSED CONDUIT TO THE EXISTING CONDUIT. THE COST OF THIS WORK SHALL BE INCLUDED IN THE COST OF THE PROPOSED MAST ARMS AND PEDESTRIAN PUSHBUTTON POSTS.
31. THE CONTRACTOR SHALL RE-ARRANGE EXISTING TRAFFIC SIGNAL AND PEDESTRIAN SIGNAL HEADS AS NEEDED TO FACILITATE INSTALLATION OF THE PROPOSED BRACKET MOUNTED TRAFFIC SIGNAL HEADS. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL BRACKETING, HARDWARE, AND ALL OTHER ITEMS REQUIRED TO RE-ARRANGE THE SIGNAL HEADS. THE COST OF THIS WORK SHALL BE INCLUDED IN THE COST OF THE PROPOSED TRAFFIC SIGNAL HEADS.

SECTION #	TOTAL SHEETS	SHEET NO.
16-01001-46-TL	14	3

SUMMARY OF QUANTITIES				KNOX COUNTY	
PAY ITEM CODE	ITEM DESCRIPTION	UNIT	TOTAL QTY.	CONST. TYPE CODE	
				0021 (SAFETY) 90% FED 0% STATE 10% (CITY) URBAN (9 LOCATIONS)	
△ 42400100	PORTLAND CEMENT CONCRETE SIDEWALK 4 INCH	SQ FT	139.0	139.0	
△ 42400800	DETECTABLE WARNINGS	SQ FT	16.0	16.0	
△ 44000600	SIDEWALK REMOVAL	SQ FT	139.0	139.0	
67100100	MOBILIZATION	LSUM	1.0	1.0	
△ 72000100	SIGN PANEL - TYPE 1	SQ FT	140.0	140.0	
△ 72000200	SIGN PANEL - TYPE 2	SQ FT	81.0	81.0	
80400100	ELECTRIC SERVICE INSTALLATION	EACH	3.0	3.0	
87301245	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FOOT	6408.5	6408.5	
87301255	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 7C	FOOT	5844.5	5844.5	
87301515	ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO. 18 3 PAIR	FOOT	415.0	415.0	
87301900	ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6 1C	FOOT	2443.0	2443.0	
87601100	PEDESTRIAN PUSH-BUTTON POST, GALVANIZED STEEL, TYPE I	EACH	5.0	5.0	
87700220	STEEL MAST ARM ASSEMBLY AND POLE, 36 FT.	EACH	1.0	1.0	
87700230	STEEL MAST ARM ASSEMBLY AND POLE, 38 FT.	EACH	6.0	6.0	
87800400	CONCRETE FOUNDATION, TYPE E 30-INCH DIAMETER	FOOT	94.5	94.5	
87900200	DRILL EXISTING HANDHOLE	EACH	7.0	7.0	
88040070	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, BRACKET MOUNTED	EACH	14.0	14.0	
88040090	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, MAST ARM MOUNTED	EACH	18.0	18.0	
88040110	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 4-SECTION, BRACKET MOUNTED	EACH	12.0	12.0	
88040120	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 4-SECTION, MAST ARM MOUNTED	EACH	13.0	13.0	
88200510	TRAFFIC SIGNAL BACKPLATE, RETROREFLECTIVE	EACH	55.0	55.0	
88500100	INDUCTIVE LOOP DETECTOR	EACH	40.0	40.0	
88600100	DETECTOR LOOP, TYPE I	FOOT	404.0	404.0	
88800100	PEDESTRIAN PUSH-BUTTON	EACH	8.0	8.0	
89500100	RELOCATE EXISTING SIGNAL HEAD	EACH	2.0	2.0	
89500200	RELOCATE EXISTING PEDESTRIAN SIGNAL HEAD	EACH	13.0	13.0	
89500400	RELOCATE EXISTING PEDESTRIAN PUSH-BUTTON	EACH	3.0	3.0	
89502105	REBUILD EXISTING SIGNAL HEAD, LED	EACH	31.0	31.0	
89502210	MODIFY EXISTING CONTROLLER CABINET	EACH	5.0	5.0	
89502385	REMOVE EXISTING CONCRETE FOUNDATION	EACH	7.0	7.0	
X0323071	SPARE FULL ACTUATED CONTROLLER, SPECIAL	EACH	2.0	2.0	
X0325469	MODIFY EXISTING TRAFFIC SIGNAL BACKPLATE	EACH	36.0	36.0	
X7010216	TRAFFIC CONTROL AND PROTECTION, (SPECIAL)	L SUM	1.0	1.0	
X8570226	FULL-ACTUATED CONTROLLER AND TYPE IV CABINET, SPECIAL	EACH	4.0	4.0	

△ SPECIALTY ITEMS

SUMMARY OF QUANTITIES
FLASHING YELLOW ARROWS
SECTION #: 16-01001-46-TL
JOB NUMBER: C-94-088-17
FEDERAL PROJECT #: NAG1 (733)

SECTION #	TOTAL SHEETS	SHEET NO.
16-01001-46-TL	14	4

SCHEDULE OF QUANTITIES			KNOX COUNTY								
			CITY OF GALESBURG								
			HOME BLVD & CARL SANDBURG DR.	SEMINARY ST. & KNOX SQUARE	SEMINARY ST. & CARL SANDBURG DR.	SEMINARY ST. & FREMONT ST.	SEMINARY ST. & LOSEY ST.	HENDERSON ST. & MONMOUTH BLVD.	ACADEMY ST. & MONMOUTH BLVD.	FARNAM ST. & MAIN ST.	MICHAGAN AVE. & MAIN ST.
ITEM DESCRIPTION	UNIT	TOTAL QTY.									
PORTLAND CEMENT CONCRETE SIDEWALK 4 INCH	SQ FT	139.0				61.0				78.0	
DETECTABLE WARNINGS	SQ FT	16.0								16.0	
SIDEWALK REMOVAL	SQ FT	139.0				61.0				78.0	
SIGN PANEL - TYPE 1	SQ FT	140.0	10.0	20.0	20.0	20.0	20.0	20.0	5.0	20.0	5.0
SIGN PANEL - TYPE 2	SQ FT	81.0				36.0			9.0	36.0	
ELECTRIC SERVICE INSTALLATION	EACH	3.0				1.0			1.0	1.0	
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FOOT	6408.5	336.5	1385.5	145.0	1181.0	492.0	1325.0	170.5	1210.5	162.5
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 7C	FOOT	5844.5				1795.5		1934.0	89.5	2025.5	
ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO. 18 3 PAIR	FOOT	415.0								415.0	
ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6 1C	FOOT	2443.0	364.0	44.0		387.0	317.0	504.0	284.0	301.5	241.5
PEDESTRIAN PUSH-BUTTON POST, GALVANIZED STEEL, TYPE I	EACH	5.0				3.0			1.0	1.0	
STEEL MAST ARM ASSEMBLY AND POLE, 36 FT.	EACH	1.0							1.0		
STEEL MAST ARM ASSEMBLY AND POLE, 38 FT.	EACH	6.0				4.0				2.0	
CONCRETE FOUNDATION, TYPE E 30-INCH DIAMETER	FOOT	94.5				54.0			13.5	27.0	
DRILL EXISTING HANDHOLE	EACH	7.0				4.0			2.0	1.0	
SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, BRACKET MOUNTED	EACH	14.0		2.0	1.0	3.0	4.0	2.0		2.0	
SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, MAST ARM MOUNTED	EACH	18.0				5.0		6.0	1.0	6.0	
SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 4-SECTION, BRACKET MOUNTED	EACH	12.0				4.0		4.0		4.0	
SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 4-SECTION, MAST ARM MOUNTED	EACH	13.0				4.0		4.0	1.0	4.0	
TRAFFIC SIGNAL BACKPLATE, RETROREFLECTIVE	EACH	55.0				12.0	4.0	16.0	9.0	14.0	
INDUCTIVE LOOP DETECTOR	EACH	40.0				12.0		10.0	8.0	10.0	
DETECTOR LOOP, TYPE I	FOOT	404.0								404.0	
PEDESTRIAN PUSH-BUTTON	EACH	8.0				8.0					
RELOCATE EXISTING SIGNAL HEAD	EACH	2.0							2.0		
RELOCATE EXISTING PEDESTRIAN SIGNAL HEAD	EACH	13.0				8.0			1.0	4.0	
RELOCATE EXISTING PEDESTRIAN PUSH-BUTTON	EACH	3.0							1.0	2.0	
REBUILD EXISTING SIGNAL HEAD, LED	EACH	31.0	4.0	8.0	8.0		8.0		1.0		2.0
MODIFY EXISTING CONTROLLER CABINET	EACH	5.0	1.0	1.0	1.0		1.0				1.0
REMOVE EXISTING CONCRETE FOUNDATION	EACH	7.0				4.0			1.0	2.0	
MODIFY EXISTING TRAFFIC SIGNAL BACKPLATE	EACH	36.0	7.0	10.0	11.0		8.0				
FULL-ACTUATED CONTROLLER AND TYPE IV CABINET, SPECIAL	EACH	4.0				1.0		1.0	1.0	1.0	

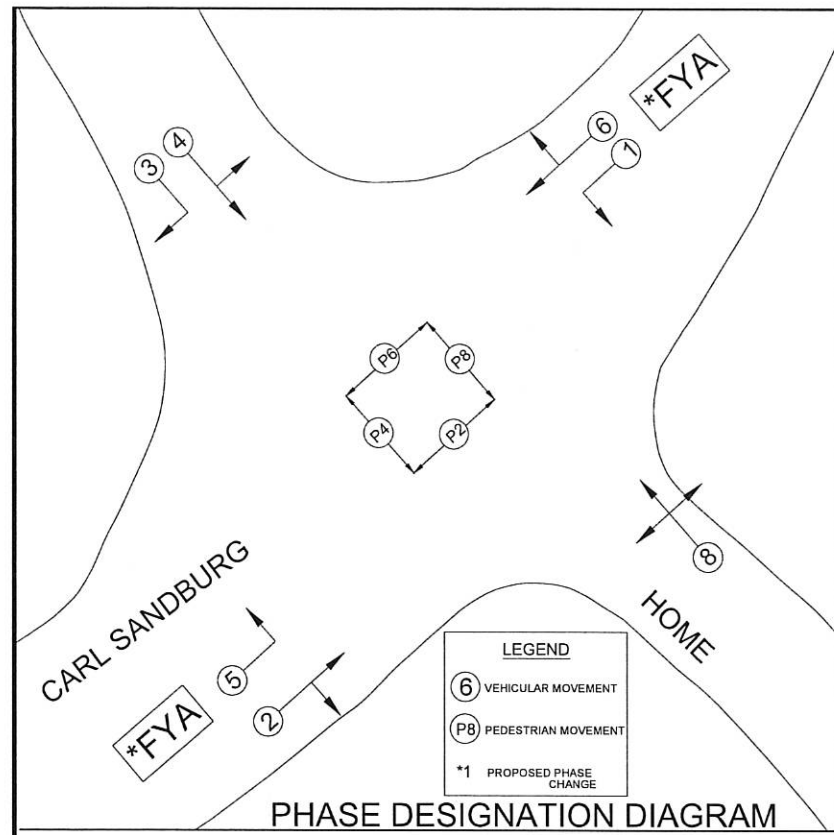
SCHEDULE OF QUANTITIES
 FLASHING YELLOW ARROWS
 SECTION #: 16-01001-46-TL
 JOB NUMBER: C-94-088-17
 FEDERAL PROJECT #: NAG1 (733)

1) HOME AND CARL SANDBURG

SECTION #
16-01001-46-TL

TOTAL SHEETS
14

SHEET NO.
5

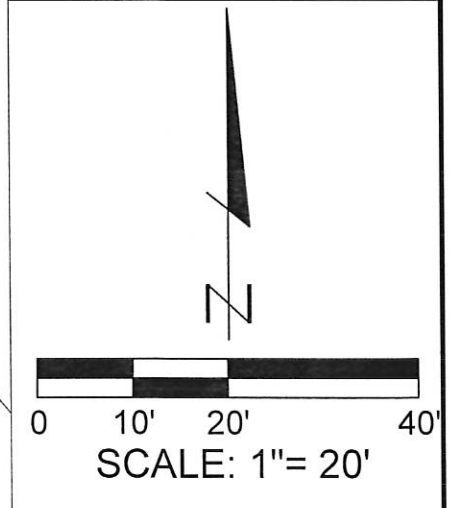
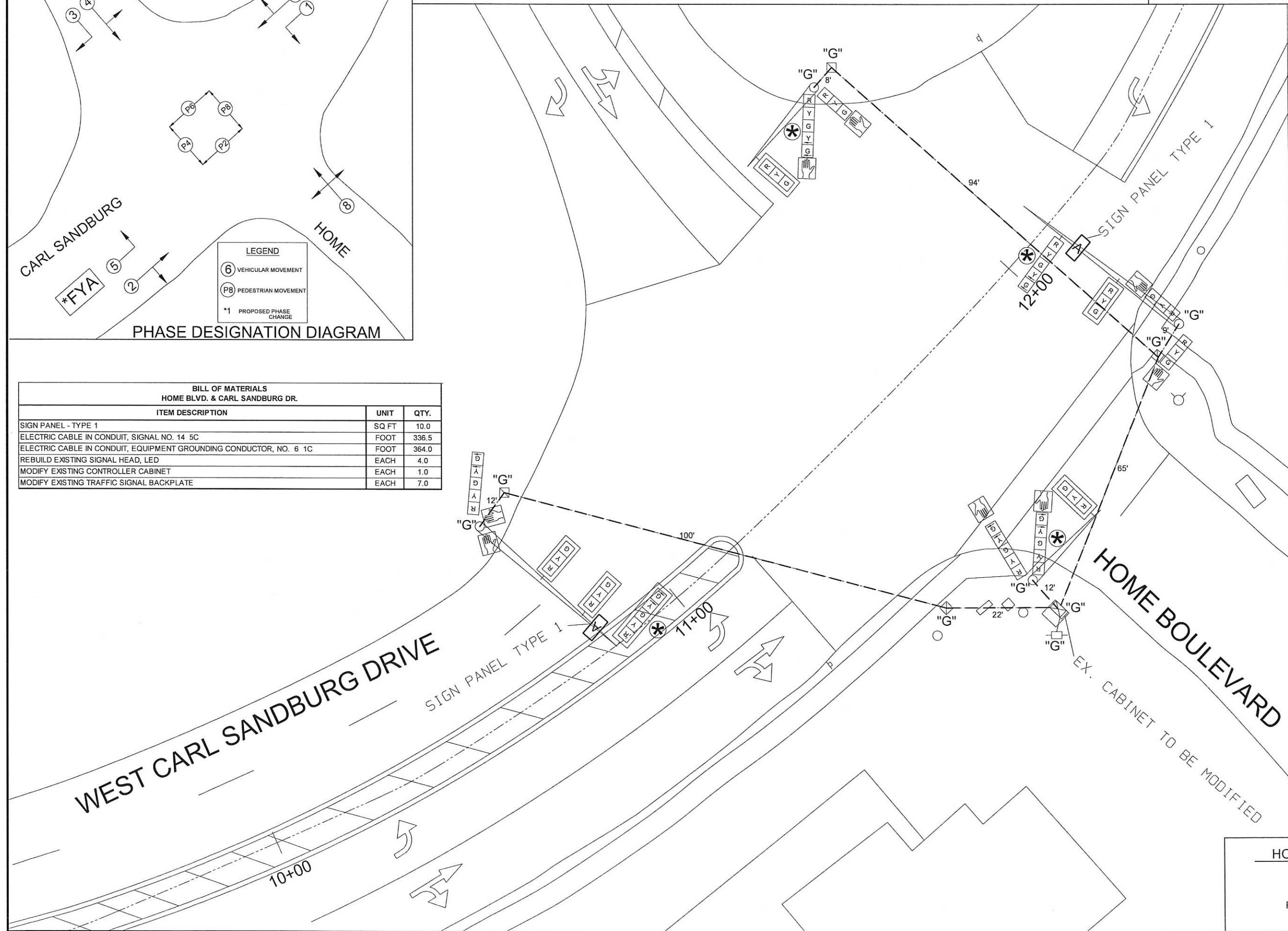


BILL OF MATERIALS
HOME BLVD. & CARL SANDBURG DR.

ITEM DESCRIPTION	UNIT	QTY.
SIGN PANEL - TYPE 1	SQ FT	10.0
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FOOT	336.5
ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6 1C	FOOT	364.0
REBUILD EXISTING SIGNAL HEAD, LED	EACH	4.0
MODIFY EXISTING CONTROLLER CABINET	EACH	1.0
MODIFY EXISTING TRAFFIC SIGNAL BACKPLATE	EACH	7.0

TRAFFIC SIGNAL WIRING DIAGRAM LEGEND

- EX. SIGNAL FACE WITH BACKPLATE
 - EX. SIGNAL FACE WITHOUT BACKPLATE
 - EX. WALK/DON'T WALK SECTION AND COUNTDOWN
 - EX. ELECTRIC SERVICE
 - EX. CONTROLLER
 - EX. SIGNAL HEAD TO BE REBUILT
 - "G"** INDICATES EX STRUCTURE OR HANDHOLE TO BE GROUNDED
 - EX. SIGNAL POST
-
- EXISTING CABLE
 - PROPOSED CABLE
 - BASELINE



HOME AND CARL SANDBURG
FLASHING YELLOW ARROWS
SECTION #: 16-01001-46-TL
JOB NUMBER: C-94-088-17
FEDERAL PROJECT #: NAG1 (733)

2) SEMINARY AND KNOX SQUARE

SECTION #

16-01001-46-TL

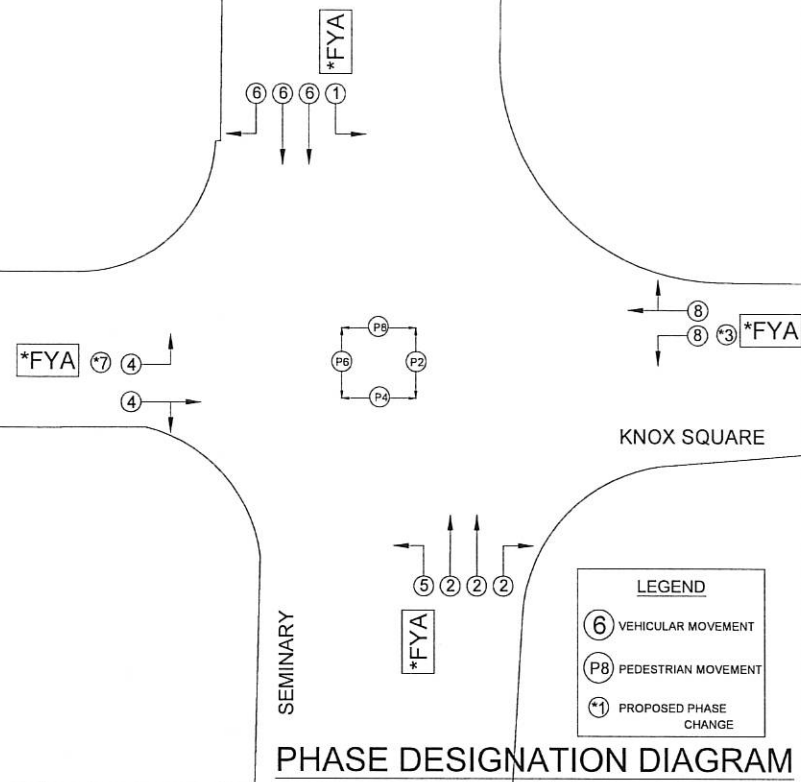
TOTAL SHEETS

14

SHEET NO.

6

PHASE DESIGNATION DIAGRAM

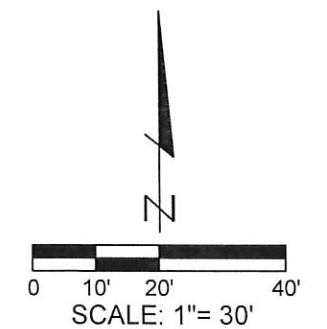


NOTE: ALL MAST ARMS ARE COMBINATION UNITS. THE CONTRACTOR SHALL VERIFY THAT ALL EX. COMBINATION MAST ARMS ARE GROUNDED/SAFETY BONDED IN ACCORDANCE WITH NEC REQUIREMENTS

TRAFFIC SIGNAL WIRING DIAGRAM LEGEND

- ⑦ ELECTRIC CABLE DENOTING NUMBER OF CONNECTORS
- ◻>◻ EX. SIGNAL FACE WITH BACKPLATE
- ◻>◻ EX. SIGNAL FACE WITHOUT BACKPLATE
- ⊞ EX. WALK/DON'T WALK SECTION AND COUNTDOWN
- EX. ELECTRIC SERVICE
- ⊞ EX. CONTROLLER
- ⊛ EX. SIGNAL HEAD TO BE REBUILT
- "G" INDICATES EX STRUCTURE OR HANDHOLE TO BE GROUNDED
- "R" INDICATES EX SIGNAL HEAD TO BE RELOCATED
- EX. SIGNAL POST
- ⊙ EX. PEDESTRIAN PUSH BUTTON POST
- ⊞ EX. HEAVY DUTY HANDHOLE
- ◻>◻ NEW PROPOSED SIGNAL FACE WITH BACKPLATE
- ◻>◻ NEW PROPOSED SIGNAL FACE WITHOUT BACKPLATE
- EXISTING CABLE
- - - PROPOSED CABLE
- BASELINE

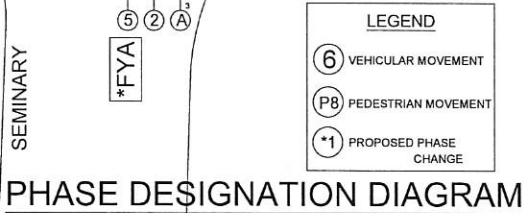
BILL OF MATERIALS SEMINARY ST. & KNOX SQUARE		
ITEM DESCRIPTION	UNIT	QTY.
SIGN PANEL - TYPE 1	SQ FT	20.0
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FOOT	1385.5
ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6 1C	FOOT	44.0
SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, BRACKET MOUNTED	EACH	2.0
REBUILD EXISTING SIGNAL HEAD, LED	EACH	8.0
MODIFY EXISTING CONTROLLER CABINET	EACH	1.0
MODIFY EXISTING TRAFFIC SIGNAL BACKPLATE	EACH	10.0



SEMINARY AND KNOX SQUARE
 FLASHING YELLOW ARROWS
 SECTION #: 16-01001-46-TL
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3) SEMINARY AND CARL SANDBURG

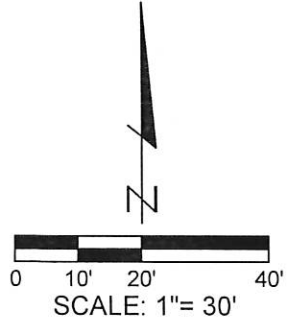
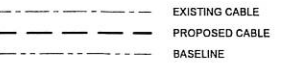
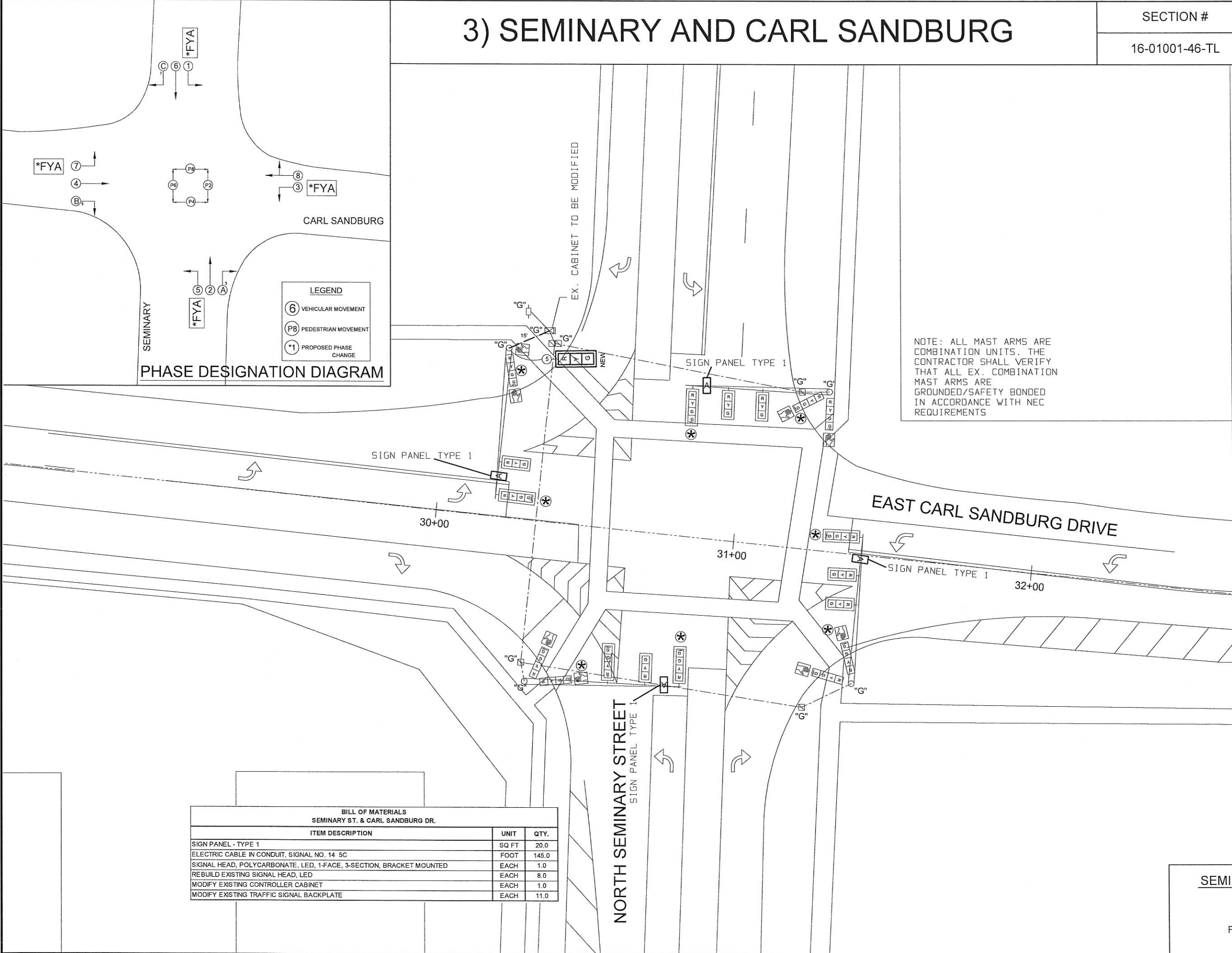
SECTION #	TOTAL SHEETS	SHEET NO.
16-01001-46-TL	14	7



TRAFFIC SIGNAL WIRING DIAGRAM LEGEND

- ELECTRIC CABLE DENOTING NUMBER OF CONNECTORS
- EX. SIGNAL FACE WITH BACKPLATE
- EX. SIGNAL FACE WITHOUT BACKPLATE
- EX. WALK/DON'T WALK SECTION AND COUNTDOWN
- EX. ELECTRIC SERVICE
- EX. CONTROLLER
- EX. SIGNAL HEAD TO BE REBUILT
- "G"** INDICATES EX STRUCTURE OR HANDHOLE TO BE GROUNDED
- EX. SIGNAL POST
- EX. PEDESTRIAN PUSH BUTTON POST
- EX. HEAVY DUTY HANDHOLE
- PROPOSED SIGNAL FACE WITH BACKPLATE

NOTE: ALL MAST ARMS ARE COMBINATION UNITS. THE CONTRACTOR SHALL VERIFY THAT ALL EX. COMBINATION MAST ARMS ARE GROUNDED/SAFETY BONDED IN ACCORDANCE WITH NEC REQUIREMENTS



**BILL OF MATERIALS
SEMINARY ST. & CARL SANDBURG DR.**

ITEM DESCRIPTION	UNIT	QTY.
SIGN PANEL - TYPE 1	SQ FT	20.0
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FOOT	145.0
SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, BRACKET MOUNTED	EACH	1.0
REBUILD EXISTING SIGNAL HEAD, LED	EACH	8.0
MODIFY EXISTING CONTROLLER CABINET	EACH	1.0
MODIFY EXISTING TRAFFIC SIGNAL BACKPLATE	EACH	11.0

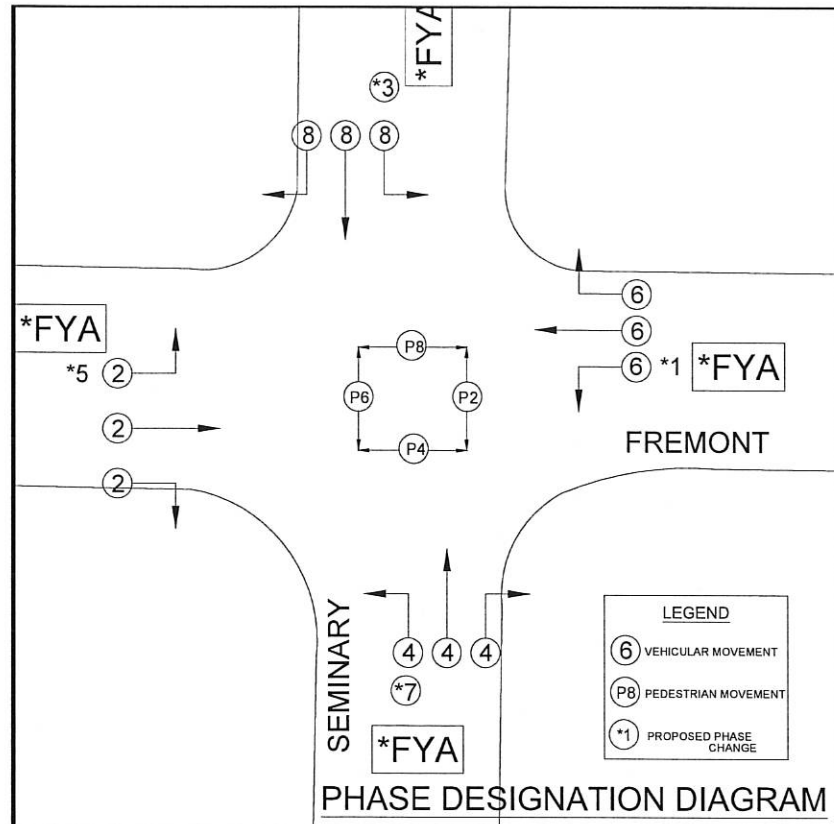
SEMINARY AND CARL SANDBURG
 FLASHING YELLOW ARROWS
 SECTION #: 16-01001-46-TL
 JOB NUMBER: C-94-088-17
 FEDERAL PROJECT #: NAG1 (733)

4) SEMINARY AND FREMONT

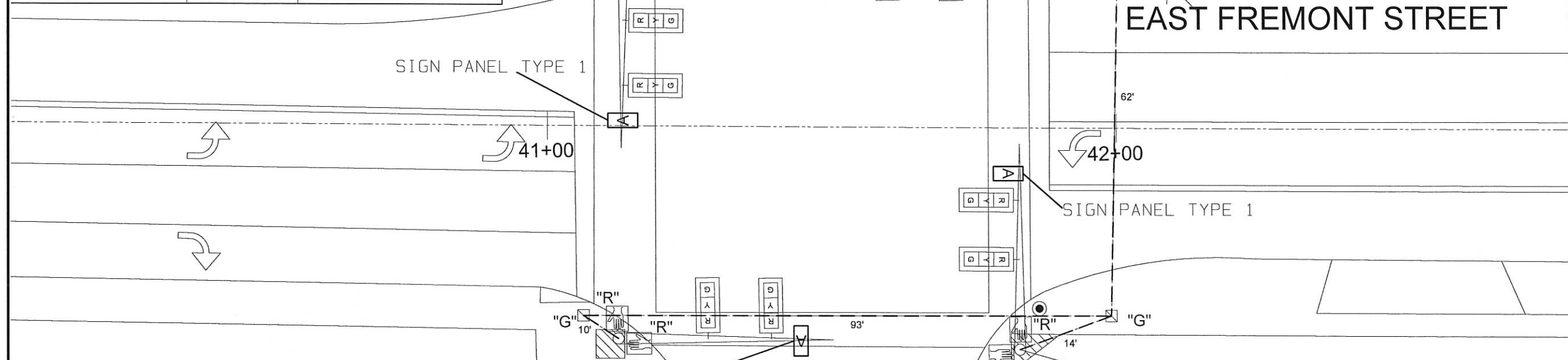
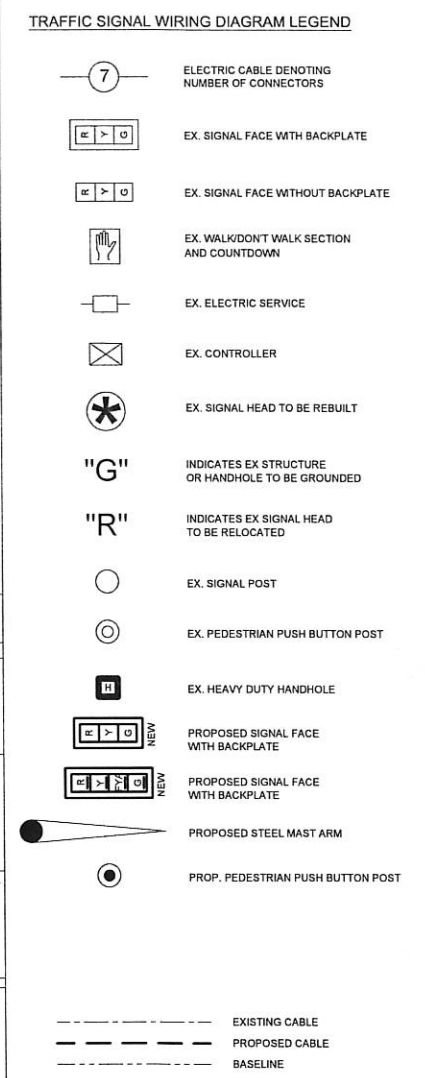
SECTION #
16-01001-46-TL

TOTAL SHEETS
14

SHEET NO.
8

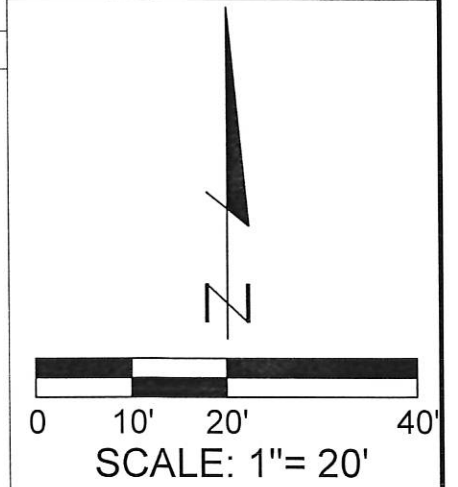
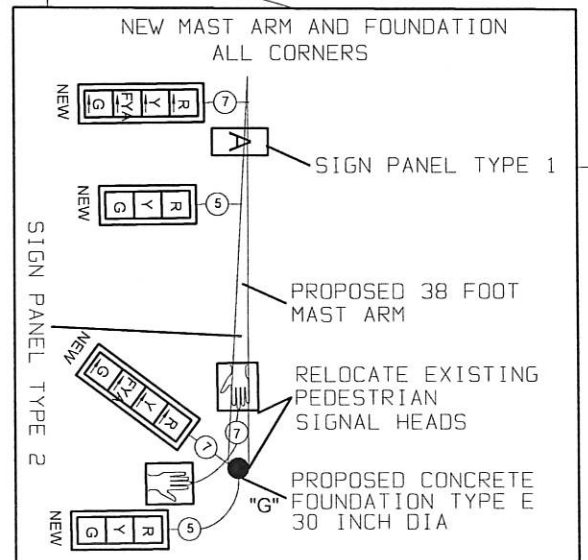


NOTE: THE COST OF INSTALLING THE NEW CONDUIT FROM THE HANDHOLE TO THE PROPOSED MAST ARM FOUNDATION AND PEDESTRIAN PUSH BUTTON POST SHALL BE INCLUDED IN THE COST OF THE PROPOSED MAST ARM OR POST



BILL OF MATERIALS
SEMINARY ST. & FREMONT ST.

ITEM DESCRIPTION	UNIT	QTY.
PORTLAND CEMENT CONCRETE SIDEWALK 4 INCH	SQ FT	61.0
SIDEWALK REMOVAL	SQ FT	61.0
SIGN PANEL - TYPE 1	SQ FT	20.0
SIGN PANEL - TYPE 2	SQ FT	36.0
ELECTRIC SERVICE INSTALLATION	EACH	1.0
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FOOT	1181.0
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 7C	FOOT	1795.5
ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6 1C	FOOT	387.0
PEDESTRIAN PUSH-BUTTON POST, GALVANIZED STEEL, TYPE I	EACH	3.0
STEEL MAST ARM ASSEMBLY AND POLE, 38 FT.	EACH	4.0
CONCRETE FOUNDATION, TYPE E 30-INCH DIAMETER	FOOT	54.0
DRILL EXISTING HANDHOLE	EACH	4.0
SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, BRACKET MOUNTED	EACH	3.0
SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, MAST ARM MOUNTED	EACH	5.0
SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 4-SECTION, BRACKET MOUNTED	EACH	4.0
SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 4-SECTION, MAST ARM MOUNTED	EACH	4.0
TRAFFIC SIGNAL BACKPLATE, RETROREFLECTIVE	EACH	12.0
PEDESTRIAN PUSH-BUTTON	EACH	8.0
INDUCTIVE LOOP DETECTOR	EACH	12.0
RELOCATE EXISTING PEDESTRIAN SIGNAL HEAD	EACH	8.0
REMOVE EXISTING CONCRETE FOUNDATION	EACH	4.0
FULL-ACTUATED CONTROLLER AND TYPE IV CABINET, SPECIAL	EACH	1.0



SEMINARY AND FREMONT
FLASHING YELLOW ARROWS
SECTION #: 16-01001-46-TL
JOB NUMBER: C-94-088-17
FEDERAL PROJECT #: NAG1 (733)

5) SEMINARY AND LOSEY

SECTION #

16-01001-46-TL












TOTAL SHEETS

14

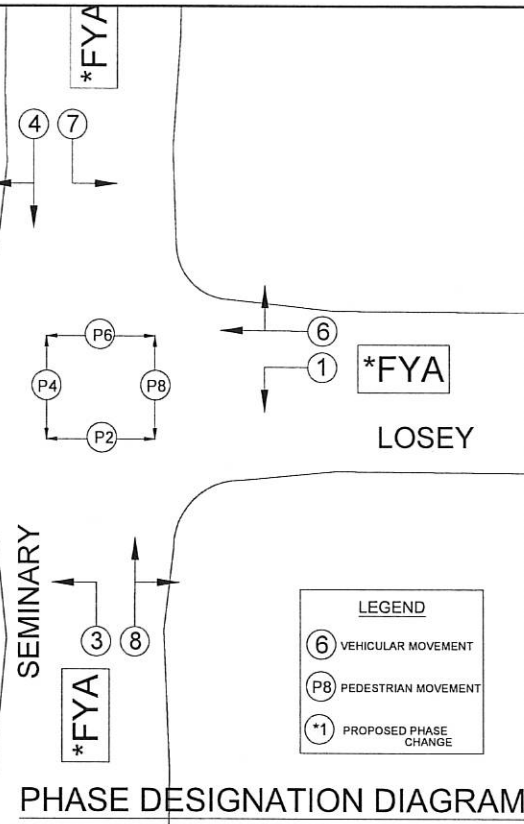
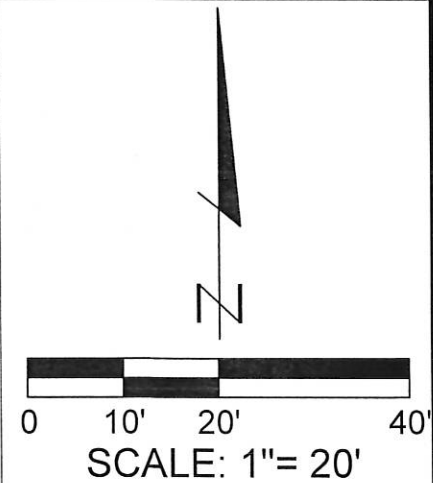
SHEET NO.

9

TRAFFIC SIGNAL WIRING DIAGRAM LEGEND

-  ELECTRIC CABLE DENOTING NUMBER OF CONNECTORS
-  EX. SIGNAL FACE WITH BACKPLATE
-  EX. SIGNAL FACE WITHOUT BACKPLATE
-  EX. WALK/DON'T WALK SECTION AND COUNTDOWN
-  EX. ELECTRIC SERVICE
-  EX. CONTROLLER
-  EX. SIGNAL HEAD TO BE REBUILT
- "G"** INDICATES EX STRUCTURE OR HANDHOLE TO BE GROUNDED
-  EX. SIGNAL POST
-  EX. PEDESTRIAN PUSH BUTTON POST
-  EX. HEAVY DUTY HANDHOLE
-  PROPOSED SIGNAL FACE WITH BACKPLATE

-  EXISTING CABLE
-  PROPOSED CABLE
-  BASELINE



SIGN PANEL TYPE 1

SIGN PANEL TYPE 1
NORTH SEMINARY STREET

EAST LOSEY STREET

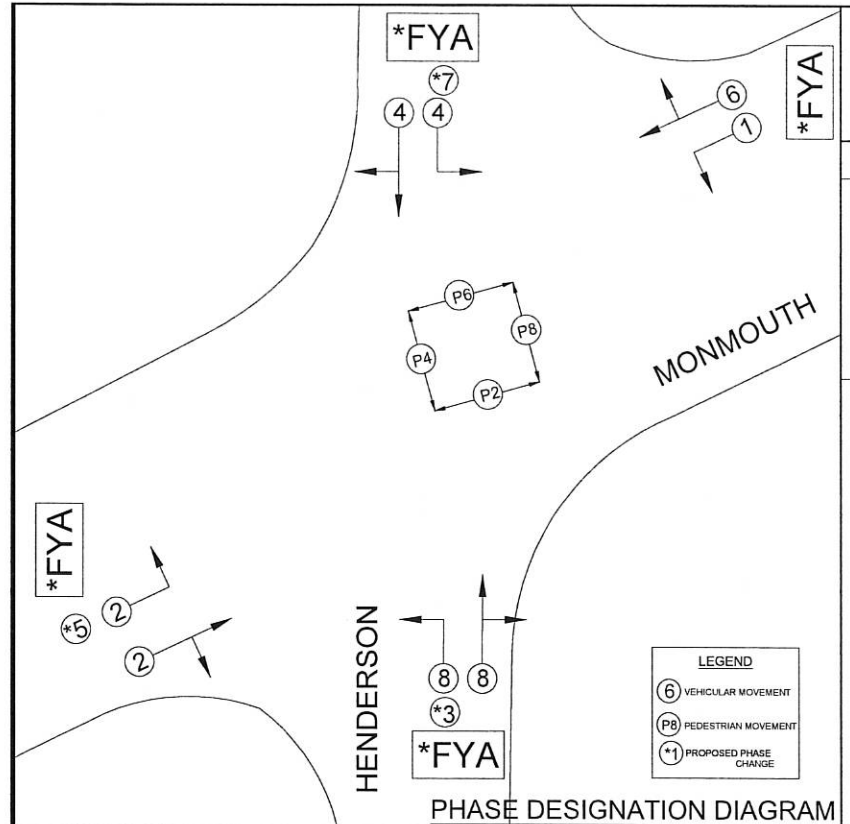
SIGN PANEL TYPE 1

BILL OF MATERIALS SEMINARY ST. & LOSEY ST.		
ITEM DESCRIPTION	UNIT	QTY.
SIGN PANEL - TYPE 1	SQ FT	20.0
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FOOT	492.0
ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6 1C	FOOT	317.0
SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, BRACKET MOUNTED	EACH	4.0
TRAFFIC SIGNAL BACKPLATE, RETROREFLECTIVE	EACH	4.0
REBUILD EXISTING SIGNAL HEAD, LED	EACH	8.0
MODIFY EXISTING CONTROLLER CABINET	EACH	1.0
MODIFY EXISTING TRAFFIC SIGNAL BACKPLATE	EACH	8.0

SEMINARY AND LOSEY
FLASHING YELLOW ARROWS
SECTION #: 16-01001-46-TL
JOB NUMBER: C-94-088-17
FEDERAL PROJECT #: NAG1 (733)

6) HENDERSON AND MONMOUTH

SECTION #	TOTAL SHEETS	SHEET NO.
16-01001-46-TL	14	10

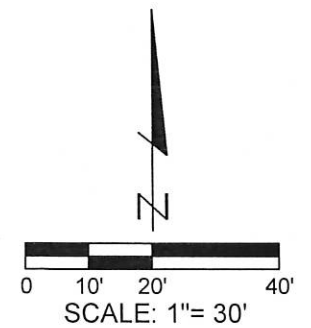
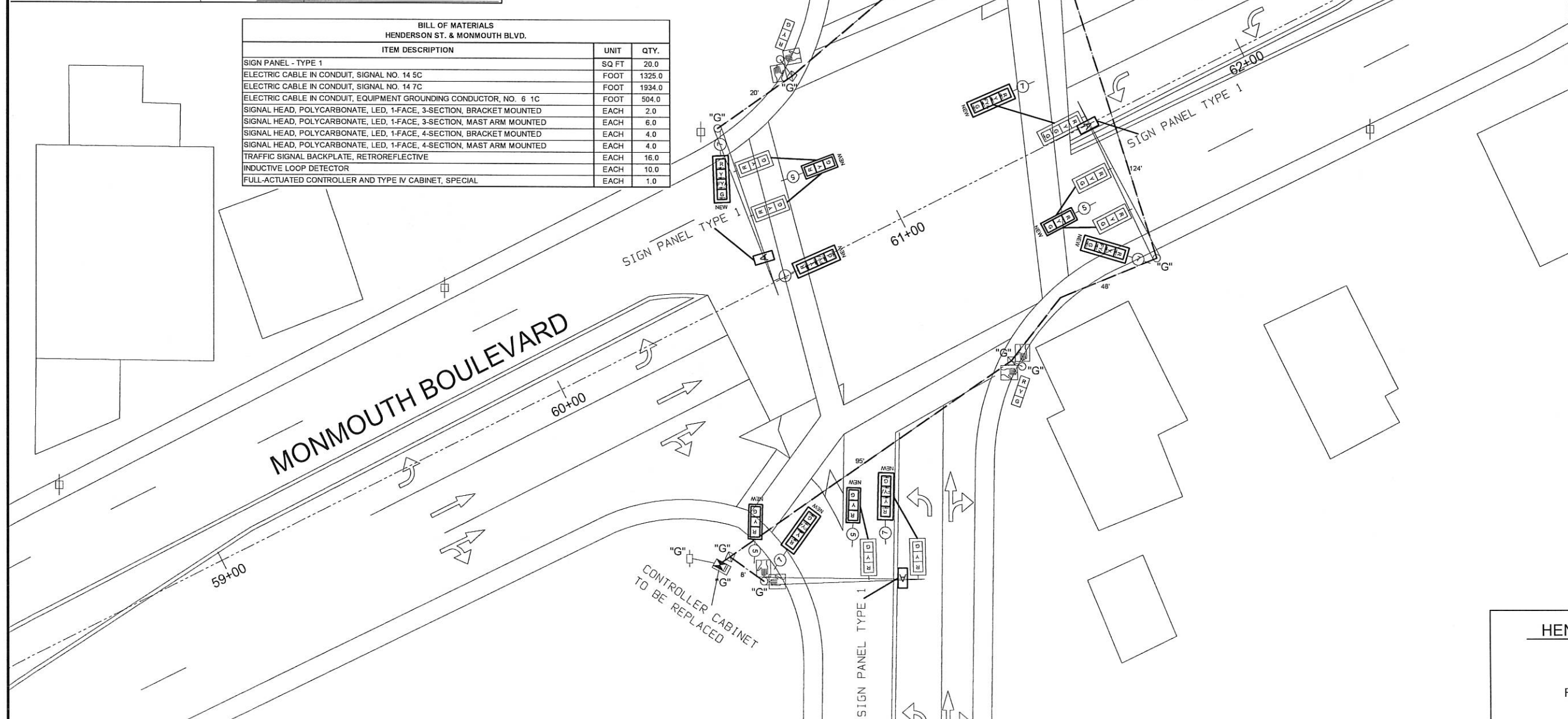


BILL OF MATERIALS
HENDERSON ST. & MONMOUTH BLVD.

ITEM DESCRIPTION	UNIT	QTY.
SIGN PANEL - TYPE 1	SQ FT	20.0
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FOOT	1325.0
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 7C	FOOT	1934.0
ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6 1C	FOOT	504.0
SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, BRACKET MOUNTED	EACH	2.0
SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, MAST ARM MOUNTED	EACH	6.0
SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 4-SECTION, BRACKET MOUNTED	EACH	4.0
SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 4-SECTION, MAST ARM MOUNTED	EACH	4.0
TRAFFIC SIGNAL BACKPLATE, RETROREFLECTIVE	EACH	16.0
INDUCTIVE LOOP DETECTOR	EACH	10.0
FULL-ACTUATED CONTROLLER AND TYPE IV CABINET, SPECIAL	EACH	1.0

TRAFFIC SIGNAL WIRING DIAGRAM LEGEND

- ELECTRIC CABLE DENOTING NUMBER OF CONNECTORS
- EX. SIGNAL FACE WITH BACKPLATE
- EX. SIGNAL FACE WITHOUT BACKPLATE
- EX. WALK/DON'T WALK SECTION AND COUNTDOWN
- EX. ELECTRIC SERVICE
- EX. CONTROLLER
- EX. SIGNAL HEAD TO BE REBUILT
- "G"** INDICATES EX STRUCTURE OR HANDHOLE TO BE GROUNDED
- EX. SIGNAL POST
- EX. PEDESTRIAN PUSH BUTTON POST
- EX. HEAVY DUTY HANDHOLE
- PROPOSED SIGNAL FACE WITH BACKPLATE
- PROPOSED SIGNAL FACE WITH BACKPLATE
- EXISTING CABLE
- PROPOSED CABLE
- BASELINE



HENDERSON AND MONMOUTH
FLASHING YELLOW ARROWS
SECTION #: 16-01001-46-TL
JOB NUMBER: C-94-088-17
FEDERAL PROJECT #: NAG1 (733)

7) ACADEMY AND MONMOUTH

SECTION #

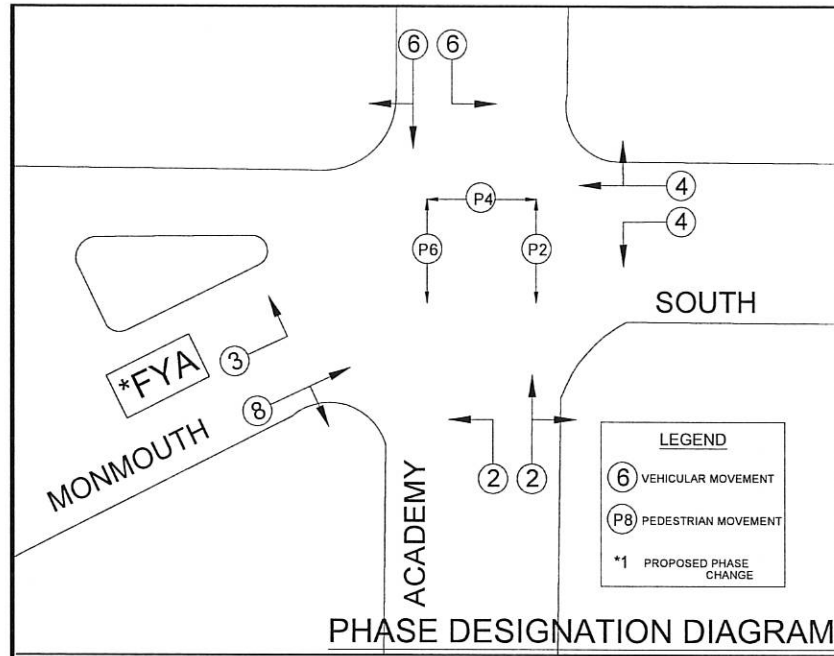
TOTAL SHEETS

SHEET NO.

16-01001-46-TL

14

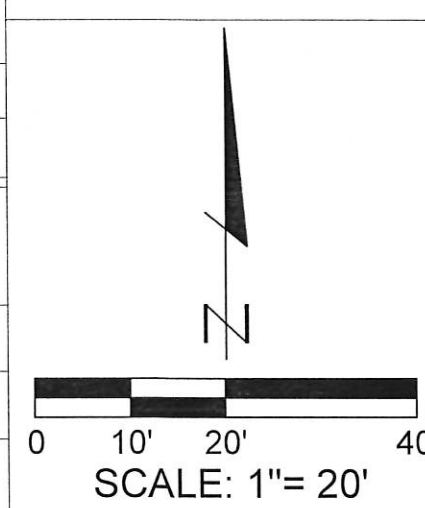
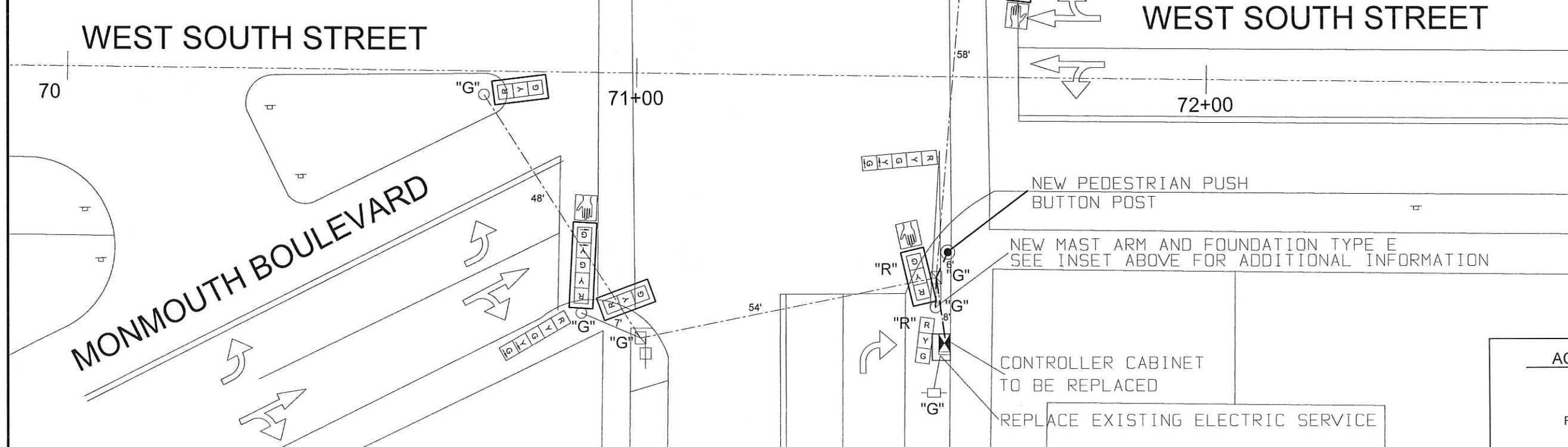
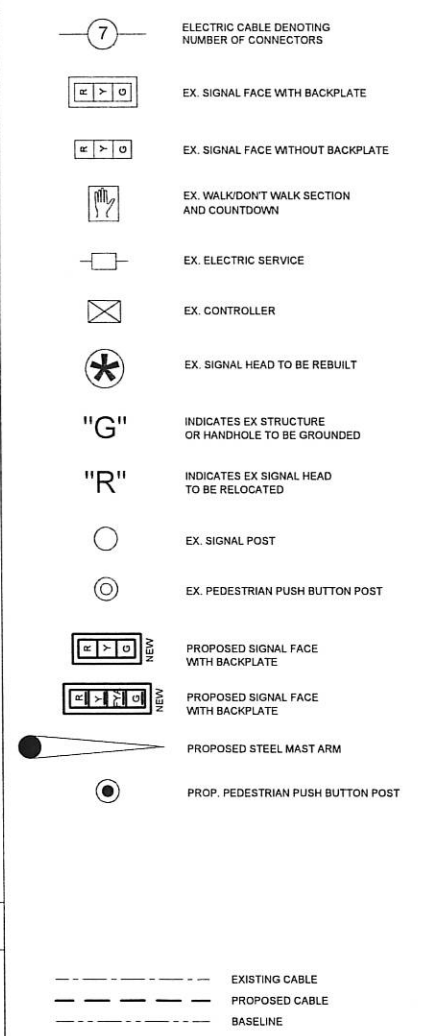
11



BILL OF MATERIALS
ACADEMY ST. & MONMOUTH BLVD.

ITEM DESCRIPTION	UNIT	QTY.
SIGN PANEL - TYPE 1	SQ FT	5.0
SIGN PANEL - TYPE 2	SQ FT	9.0
ELECTRIC SERVICE INSTALLATION	EACH	1.0
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FOOT	170.5
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 7C	FOOT	89.5
ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6 1C	FOOT	284.0
PEDESTRIAN PUSH-BUTTON POST, GALVANIZED STEEL, TYPE I	EACH	1.0
STEEL MAST ARM ASSEMBLY AND POLE, 36 FT.	EACH	1.0
CONCRETE FOUNDATION, TYPE E 30-INCH DIAMETER	FOOT	13.5
DRILL EXISTING HANDHOLE	EACH	2.0
SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, MAST ARM MOUNTED	EACH	1.0
SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 4-SECTION, MAST ARM MOUNTED	EACH	1.0
TRAFFIC SIGNAL BACKPLATE, RETROREFLECTIVE	EACH	9.0
REBUILD EXISTING SIGNAL HEAD, LED	EACH	1.0
INDUCTIVE LOOP DETECTOR	EACH	8.0
RELOCATE EXISTING SIGNAL HEAD	EACH	2.0
RELOCATE EXISTING PEDESTRIAN SIGNAL HEAD	EACH	1.0
RELOCATE EXISTING PEDESTRIAN PUSH-BUTTON	EACH	1.0
REMOVE EXISTING CONCRETE FOUNDATION	EACH	1.0
FULL-ACTUATED CONTROLLER AND TYPE IV CABINET, SPECIAL	EACH	1.0

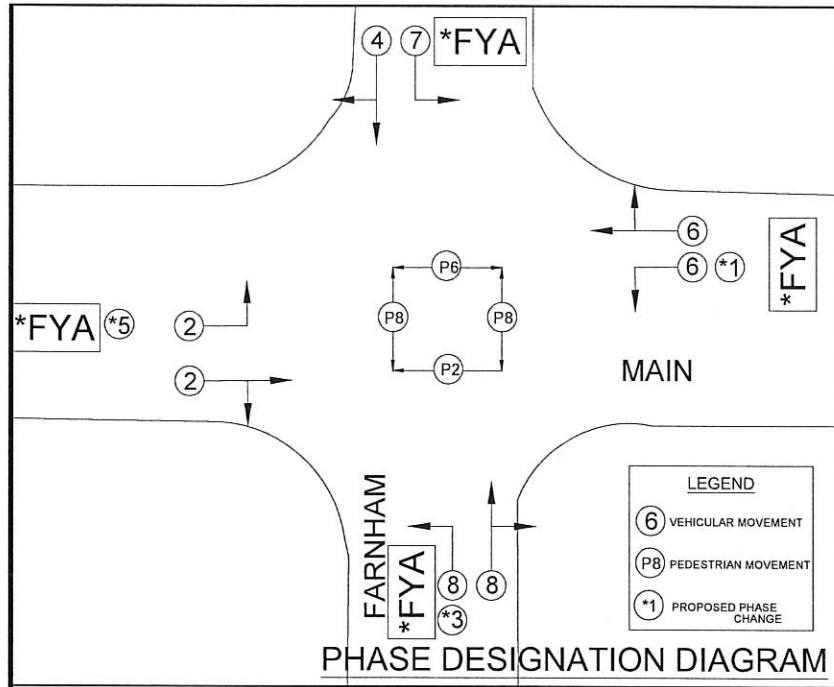
TRAFFIC SIGNAL WIRING DIAGRAM LEGEND



ACADEMY AND MONMOUTH
FLASHING YELLOW ARROWS
SECTION #: 16-01001-46-TL
JOB NUMBER: C-94-088-17
FEDERAL PROJECT #: NAG1 (733)

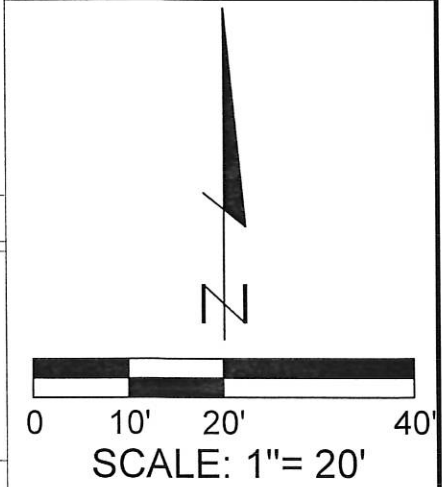
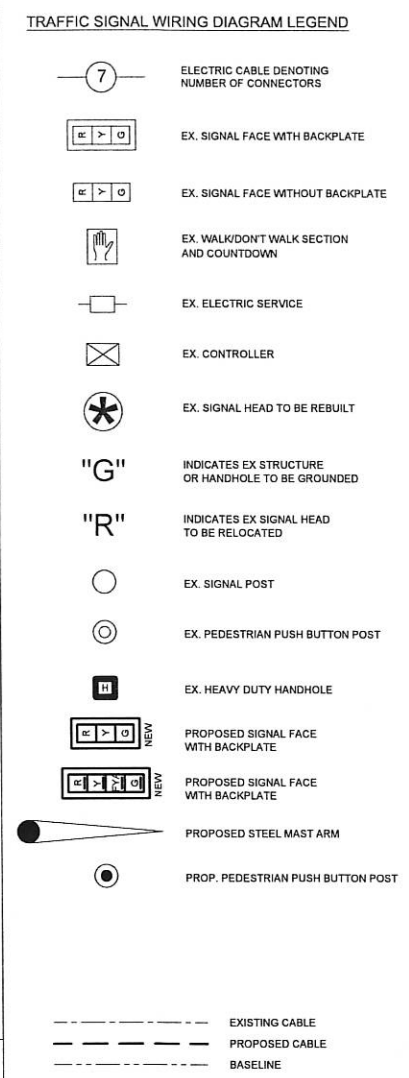
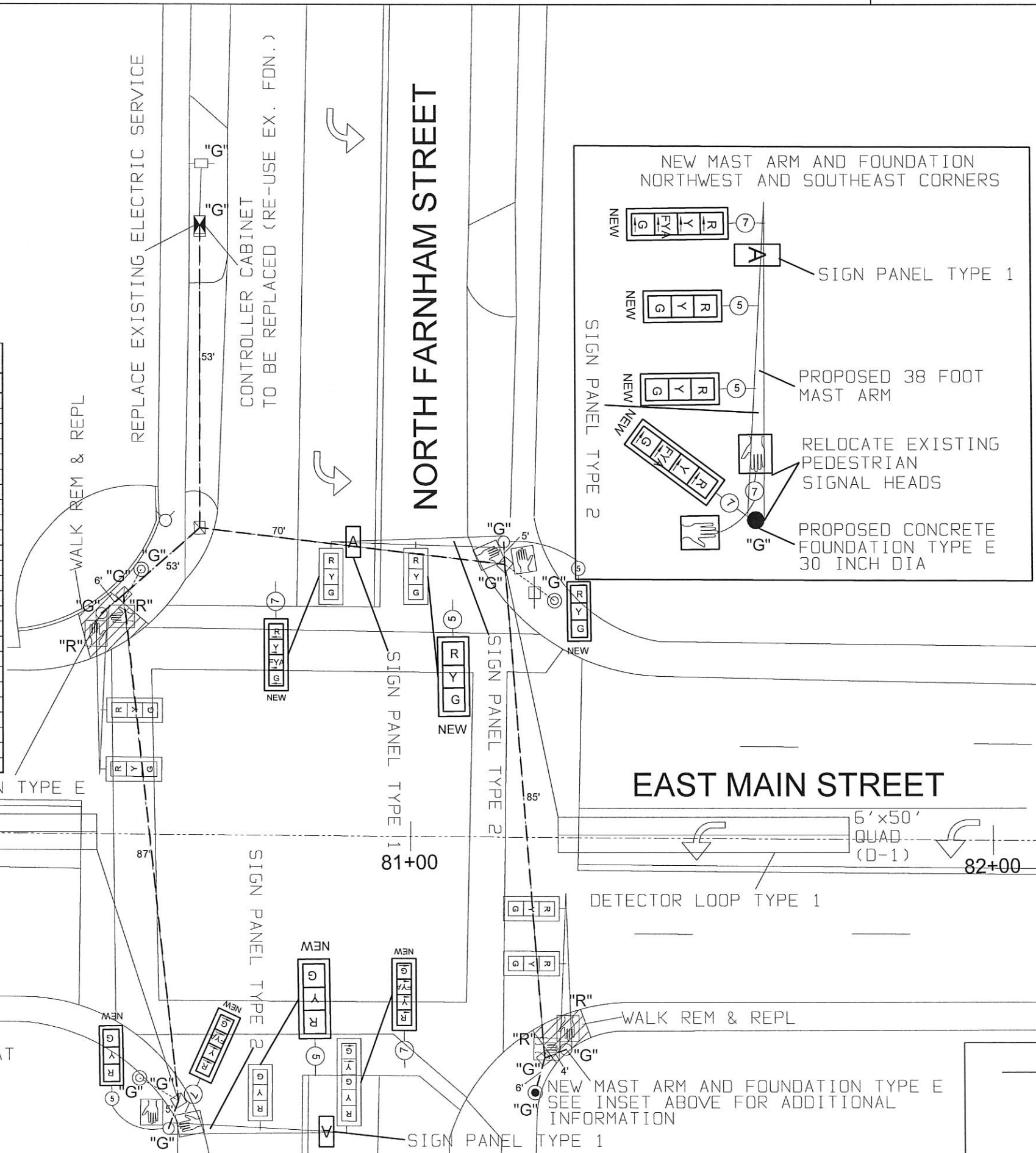
8) FARNHAM AND MAIN

SECTION #	TOTAL SHEETS	SHEET NO.
16-01001-46-TL	14	12



BILL OF MATERIALS
FARNHAM ST. & MAIN ST.

ITEM DESCRIPTION	UNIT	QTY.
PORTLAND CEMENT CONCRETE SIDEWALK 4 INCH	SQ FT	78.0
DETECTABLE WARNINGS	SQ FT	16.0
SIDEWALK REMOVAL	SQ FT	78.0
SIGN PANEL - TYPE 1	SQ FT	20.0
SIGN PANEL - TYPE 2	SQ FT	36.0
ELECTRIC SERVICE INSTALLATION	EACH	1.0
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FOOT	1210.5
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 7C	FOOT	2025.5
ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO. 18 3 PAIR	FOOT	415.0
ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6 1C	FOOT	301.5
PEDESTRIAN PUSH-BUTTON POST, GALVANIZED STEEL, TYPE I	EACH	1.0
STEEL MAST ARM ASSEMBLY AND POLE, 38 FT.	EACH	2.0
CONCRETE FOUNDATION, TYPE E 30-INCH DIAMETER	FOOT	27.0
DRILL EXISTING HANDHOLE	EACH	1.0
SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, BRACKET MOUNTED	EACH	2.0
SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, MAST ARM MOUNTED	EACH	6.0
SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 4-SECTION, BRACKET MOUNTED	EACH	4.0
SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 4-SECTION, MAST ARM MOUNTED	EACH	4.0
TRAFFIC SIGNAL BACKPLATE, RETROREFLECTIVE	EACH	14.0
INDUCTIVE LOOP DETECTOR	EACH	10.0
DETECTOR LOOP, TYPE I	FOOT	404.0
RELOCATE EXISTING PEDESTRIAN SIGNAL HEAD	EACH	4.0
RELOCATE EXISTING PEDESTRIAN PUSH-BUTTON	EACH	2.0
REMOVE EXISTING CONCRETE FOUNDATION	EACH	2.0
FULL-ACTUATED CONTROLLER AND TYPE IV CABINET, SPECIAL	EACH	1.0



NOTE: ALL MAST ARMS ARE COMBINATION UNITS. THE CONTRACTOR SHALL VERIFY THAT ALL EX. COMBINATION MAST ARMS ARE GROUNDED/SAFETY BONDED IN ACCORDANCE WITH NEC REQUIREMENTS

FARNHAM AND MAIN
FLASHING YELLOW ARROWS
SECTION #: 16-01001-46-TL
JOB NUMBER: C-94-088-17
FEDERAL PROJECT #: NAG1 (733)

9) MICHIGAN AND MAIN

SECTION #

TOTAL SHEETS

SHEET NO.

16-01001-46-TL

14

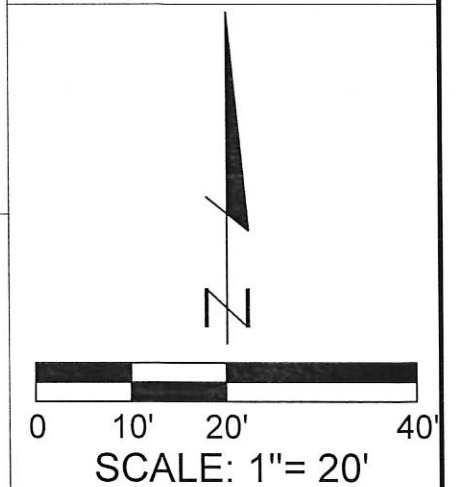
13

BILL OF MATERIALS MICHIGAN AVE. & MAIN ST.		
ITEM DESCRIPTION	UNIT	QTY.
SIGN PANEL - TYPE 1	SQ FT	5.0
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FOOT	162.5
ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6 1C	FOOT	241.5
REBUILD EXISTING SIGNAL HEAD, LED	EACH	2.0
MODIFY EXISTING CONTROLLER CABINET	EACH	1.0

TRAFFIC SIGNAL WIRING DIAGRAM LEGEND

- ELECTRIC CABLE DENOTING NUMBER OF CONNECTORS
- EX. SIGNAL FACE WITH BACKPLATE
- EX. SIGNAL FACE WITHOUT BACKPLATE
- EX. WALK/DON'T WALK SECTION AND COUNTDOWN
- EX. ELECTRIC SERVICE
- EX. CONTROLLER
- EX. SIGNAL HEAD TO BE REBUILT
- "G"** INDICATES EX STRUCTURE OR HANDHOLE TO BE GROUNDED
- EX. SIGNAL POST
- EX. PEDESTRIAN PUSH BUTTON POST
- PROPOSED SIGNAL FACE WITH BACKPLATE
- PROPOSED SIGNAL FACE WITH BACKPLATE

- EXISTING CABLE
- PROPOSED CABLE
- BASELINE



EAST MAIN STREET

SIGN PANEL TYPE I

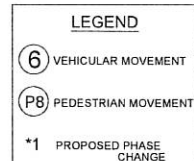
90+00

91+00

EX. CABINET TO BE MODIFIED

MICHIGAN AVENUE

MAIN



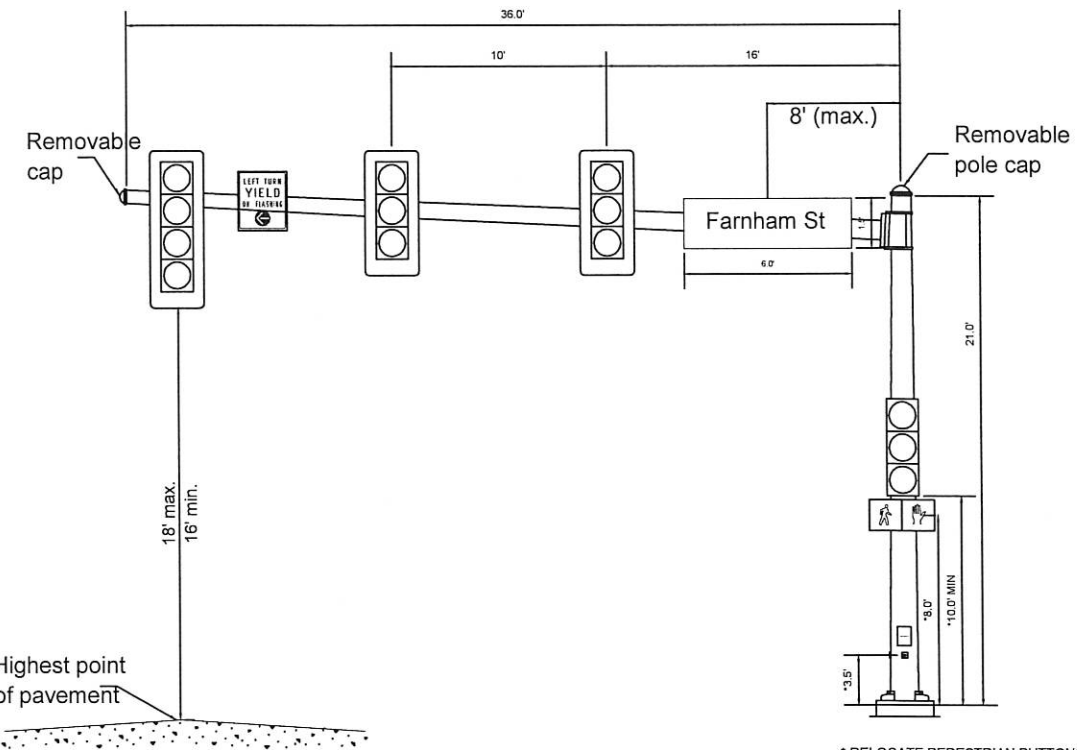
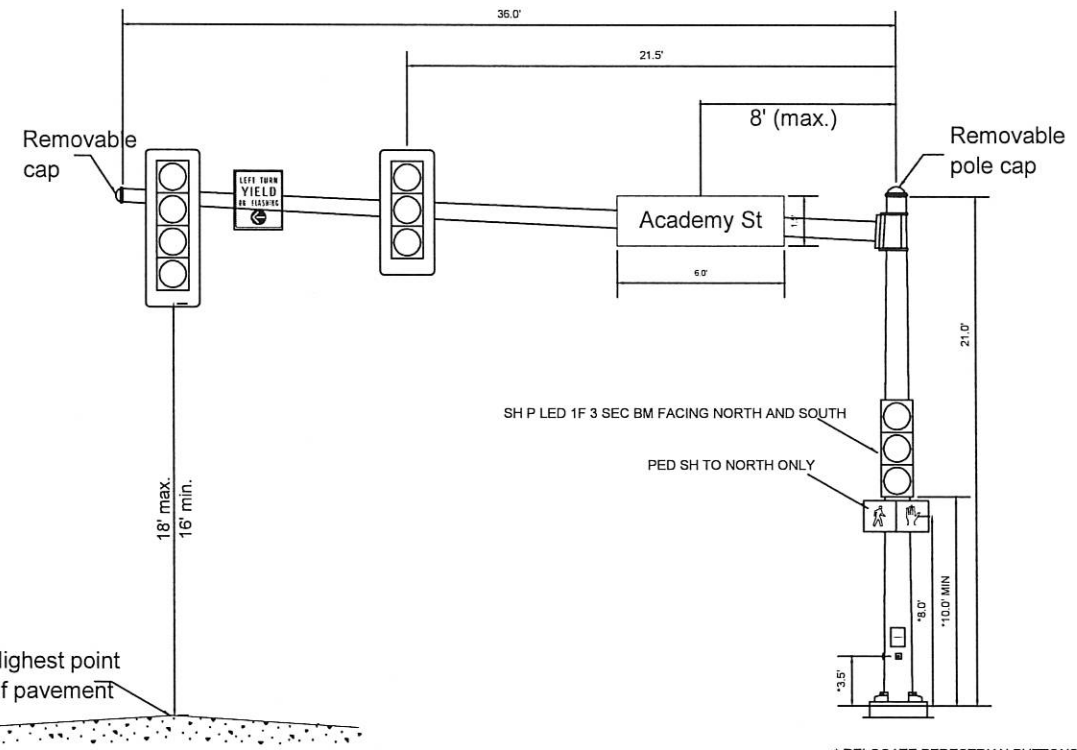
MICHIGAN

PHASE DESIGNATION DIAGRAM

MICHIGAN AND MAIN
FLASHING YELLOW ARROWS
SECTION #: 16-01001-46-TL
JOB NUMBER: C-94-088-17
FEDERAL PROJECT #: NAG1 (733)

MAST ARM LOADING DIAGRAM

SECTION #	TOTAL SHEETS	SHEET NO.
16-01001-46-TL	14	14



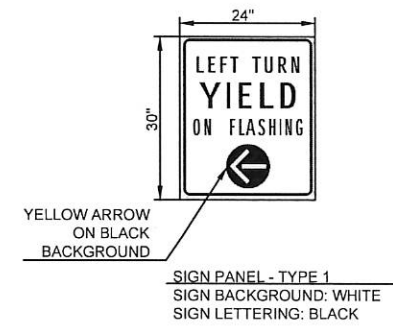
**ACADEMY AND MONMOUTH
NTS**

**FARNHAM AND MAIN
NTS**

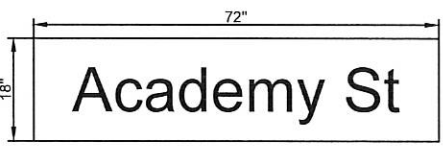
NOTE: BACKPLATES SHALL BE PLACED ON EACH SIGNAL HEAD MOUNTED ON MAST ARM



PEDESTRIAN PUSH BUTTON SIGN
TYPE R10-3 (L OR R)
9' X 12'
**PEDESTRIAN CROSSING
SIGN DETAIL
(NOT TO SCALE)**
TYPE B SHEETING REQUIRED-
MOUNT ONE SIGN WITH EACH
PEDESTRIAN PUSH-BUTTON

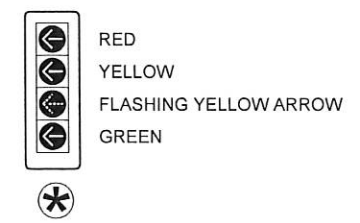


YELLOW ARROW
ON BLACK
BACKGROUND
SIGN PANEL - TYPE 1
SIGN BACKGROUND: WHITE
SIGN LETTERING: BLACK



SIGN PANEL - TYPE 2
SIGN BACKGROUND: GREEN
SIGN LETTERING: BLACK
STANDARD 720016-04: STYLE (f)
REPLACE 'ACADEMY' WITH MAIN AND
FARNHAM AS NEEDED

MODIFIED SIGNAL HEAD



MAST ARM LOADING DIAGRAM
FLASHING YELLOW ARROWS
SECTION #: 16-01001-46-TL
JOB NUMBER: C-94-088-17
FEDERAL PROJECT #: NAG1 (733)