F5b

City of Hiawatha

Engineering Department

101 Emmons St., Hiawatha Iowa, 52233-1697
PHONE (319) 393-1515 ext. 511 FAX (319) 393-1516

To: **Mayor and City Council** **Date:** **March 14, 2019**

From: **John C Bender PE, City Engineer**

Re: **2019 Willman Street Signal Project**

Description: **Quote Package for the Signal Poles and Mast arms**

Report:

Hiawatha has contracted with Shive Hattery Engineers to prepare the plans and specifications for the 2019 Willman Street Signal Project. This includes new semi-actuated traffic signals at Willman Street and Center Point Road. The staff review of the design has determined that the new signal layout should utilize the "2 signal pole" concept, with mast arms located on only northeast corner and the southwest corner of the intersection. This design will have less impact on any utilities in the area.

Traffic signal poles and mast arms can take up to 20 weeks for manufacturing and delivery. For that reason, staff wants to proceed with the order of this equipment so we can get ahead of the normal bidding process for the signal installation and intersection work. The bidding set will then just require "install only" of the signal equipment we have already purchased.

Staff requests authorization to take quotes for the signal equipment from several suppliers. The cost for these poles and mast arms is estimated to be approximately $50,000. These will be built according to the attached drawings and will be painted the standard color we have been using on the Center Point Road signals and lights.

Engineering recommends we proceed with ordering the signal poles and mast arms. We will prepare a quote package to have the suppliers provide us a price to manufacture the poles. We will bring the quotes back to Council for approval. This cost is included in the current budget.

Engineering recommends approval of this contract amendment.

Any further questions please let me know.

SHIVEHATTERY
ARCHITECTURE + ENGINEERING

City of Hiawatha Willman Traffic Signal
Opinion of Probable Construction Costs
Quantities - Revised 03/13/2019

ITEM NO.	ITEM	UNIT	UNIT PRICE	TOTAL QUANTITY	TOTAL PRICE
1	Combination Signal Pole /Luminair Arm with Dual Mast Arms, 40 ft, 70 ft, Decorativ	EA	$ 15,000	2.0	$ 30,000
	Pedestal Pole, 10 ft, Decorative	EA	$ 2,000	7.0	$ 14,000
	Pedestal Pole, 18 ft, Decorative	EA	$ 2,500	1.0	$ 2,500
					$ -
					$ -

CONSTRUCTION SUBTOTAL	$47,000
TOTAL	**$47,000**

*The Architect/Engineer, as a design professional familiar with the construction industry, has prepared this opinion of the Probable Cost of Construction. It is recognized, however, that neither the Architect/Engineer nor the Owner has control over the cost of labor, materials, or equipment, over the Contractor's method of determining bid prices, or over competitive bidding, market, or negotiating conditions. Accordingly, the Architect/Engineer cannot and does not warrant or represent which bids or negotiated prices will not vary from the Probable Cost of Construction.

PLANS OF PROPOSED IMPROVEMENTS FOR

CITY OF HIAWATHA

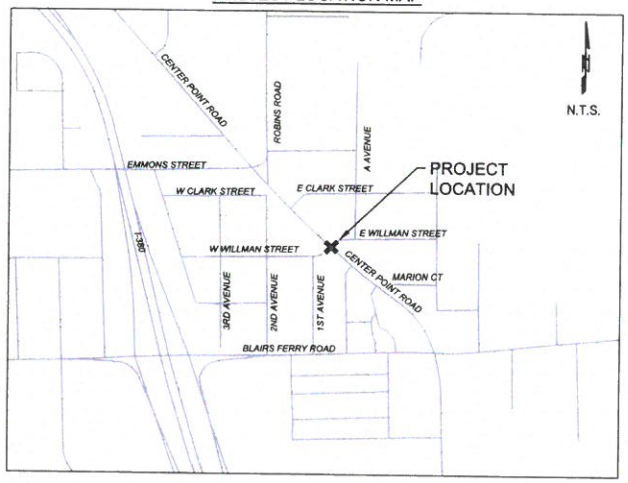
LINN COUNTY, IOWA

WILLMAN STREET/ CENTER POINT ROAD

TRAFFIC SIGNAL - POLE PACKAGE

THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT STATEWIDE URBAN DESIGN AND SPECIFICATIONS (SUDAS)

PROJECT LOCATION MAP



TOTAL SHEETS: 5

Index of Sheets

SHEET NO.	SHEET TITLE
A.01	COVER SHEET
N.01	TRAFFIC SIGNAL NOTES AND QUANTITIES
N.02	TRAFFIC SIGNAL PLAN
N.03	TRAFFIC SIGNAL QUANTITIES
N.04	TRAFFIC SIGNAL DETAILS

Mayor And City Council

Bill Bennett (Mayor) Aime Wichtendahl
Denny Norton Dick Olson
Rob Archibald Steve Dodson

LICENSED PROFESSIONAL ENGINEER
BARRETT HUBBARD
23274
IOWA

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT DESCRIBED BELOW WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

SIGNATURE: _____
NAME: BARRETT HUBBARD
DATE: 02/25/2019 LICENSE NUMBER: 23274
MY LICENSE RENEWAL DATE IS: DECEMBER 31, 2019
PAGES, SHEETS OR DIVISIONS COVERED BY THIS SEAL: A.01 N.01-N.04

SHIVEHATTERY
ARCHITECTURE + ENGINEERING
316 Second Street SE Suite 500 | Cedar Rapids, Iowa 52401
319.364.0227 | www.shive-hattery.com
Iowa | Illinois | Indiana

WILLMAN STREET & CENTER POINT ROAD
TRAFFIC SIGNAL - POLE PACKAGE

CITY OF HIAWATHA
HIAWATHA, IOWA

02-25-2019
CONSTRUCTION
PROJECT NO: 2183880
CLIENT NO:

A.01

GENERAL NOTES

1. THE LOCATION OF ALL UTILITIES ON THE PLANS ARE TAKEN FROM EXISTING PUBLIC RECORDS. THE EXACT LOCATION AND ELEVATION OF ALL PUBLIC UTILITIES MUST BE DETERMINED BY THE CONTRACTOR. IT SHALL BE THE DUTY OF THE CONTRACTOR TO ASCERTAIN WHETHER ANY ADDITIONAL FACILITIES OTHER THAN THOSE SHOWN ON THE PLANS MAY BE PRESENT. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL UNDERGROUND UTILITIES AND SHALL NOT BE SEPARATELY COMPENSATED FOR DELAYS OR EXTRA COST.
2. THE MEANS OF THE WORK AND THE SAFETY OF THE CONTRACTOR'S EMPLOYEES ARE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.
3. IOWA CODE 480, UNDERGROUND FACILITIES INFORMATION, REQUIRES VERBAL NOTICE TO IOWA ONE CALL, 1-800-292-8989, NOT LESS THAN 48 HOURS BEFORE EXCAVATING, EXCLUDING WEEKENDS AND LEGAL HOLIDAYS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING FACILITIES OUTSIDE THE CONSTRUCTION LIMITS RESULTING FROM NEGLIGENCE.
5. CONTRACTOR SHALL COORDINATE TEMPORARY DISRUPTION OF UTILITY SERVICES WITH THE CITY OF HIAWATHA AND/OR AFFECTED UTILITY COMPANIES WHEN RELOCATING EXISTING FACILITIES OR CONNECTING TO THE EXISTING FACILITIES.
6. CONTRACTOR IS RESPONSIBLE FOR COORDINATING POWER SERVICE LOCATION WITH POWER SERVICE PROVIDER PRIOR TO CONDUIT/CURCUIT INSTALLATION. SERVICE SHALL BE UNDER GROUND INSTALLATION. INSTALL BATTERY BACK-UP SYSTEM WITH POWER METER NEAR PROPOSED CABINET.
7. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES AT CRITICAL LOCATIONS TO VERIFY EXACT HORIZONTAL LOCATION AND ELEVATION.
8. IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS AND SPECIAL PROVISION "TRAFFIC SIGNALIZATION" SHALL APPLY TO THIS PROJECT, UNLESS OTHERWISE AS NOTED ON THE PLANS.
9. CONTROLLER AND CABINET SHALL CONFORM TO NEMA TS-2 STANDARDS.
10. THE LATEST MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES ARE PART OF THE CITY SPECIFICATIONS AND SHALL APPLY TO THIS PROJECT.
11. ALL QUANTITIES SHOWN IN THE PLANS AND SPECIFICATIONS ARE FOR INFORMATIONAL AND ESTIMATING PURPOSES ONLY. THE CONTRACTORS BID FOR THIS PROJECT SHALL INCLUDE ALL LABOR AND MATERIALS NECESSARY TO PROVIDE A COMPLETE AND FUNCTIONAL TRAFFIC SIGNAL INSTALLATION.
12. CONTRACTOR SHALL INSTALL ONE SIGNAL CABLE FROM EACH SIGNAL HEAD TO SIGNAL BASE. A 5-CONDUCTOR CABLE SHALL BE USED FOR 3-SECTION OR PEDESTRIAN HEADS AND 7-CONDUCTOR FOR 4- OR 5-SECTION HEADS.
13. ALL PVC CONDUIT SHALL BE SCHEDULE 80 OR DIRECTIONAL BORED HDPE CONDUIT.
14. ALL SIGNAL INDICATIONS SHALL BE LED IN ACCORDANCE WITH MOST RECENT ITE SPECIFICATIONS.
15. CONTRACTOR MAY SUBSTITUTE HDPE INNERDUCT CONDUIT FOR PVC ON LONG, STRAIGHT, CONTINUOUS CONDUIT RUNS TO BE INSTALLED WITH DIRECTIONAL BORING EQUIPMENT. LOCATION TO BE APPROVED BY THE ENGINEER.
16. THE CONTRACTOR HAS THE OPTION TO TRENCH OR BORE CONDUIT, HOWEVER, PAVEMENT SHALL NOT BE DISTURBED DURING CONSTRUCTION UNLESS NOTED ON THE PLANS. AREAS DISTURBED BY CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
17. DELIVERIES AND PICK-UPS SHALL OCCUR AT THE PUBLIC WORKS DEPARTMENT AT 1410 ROBINS ROAD IN HIAWATHA DURING NORMAL WORKING HOURS, MON-FRI 7:00 A.M. TO 3:30 P.M.
18. REFER TO STANDARD DETAILS NOTED ON J SHEETS FOR TRAFFIC CONTROL AND STAGING DETAILS FOR THE PROJECT.
19. REFER TO CHAPTER 13 TRAFFIC SIGNALS IN THE SUDAS DESIGN MANUAL FOR SIGNALIZATION CONSTRUCTION DETAILS.
20. HANDHOLE LOCATIONS ARE APPROXIMATE ONLY AND THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER PRIOR TO ANY MODIFICATIONS.
21. INSTALL A GROUND ROD IN EACH HANDHOLE WITH TRAFFIC SIGNAL CIRCUITS AND GROUND WIRE. INSTALL A #6 A.W.G. BARE COPPER WIRE BETWEEN THE GROUND RODS IN THE SIGNAL FOOTINGS AND HANDHOLES TO FORM A CONTINUOUSLY GROUNDED SYSTEM. TERMINATE THE GROUNDING CIRCUIT AT THE HANDHOLE NEAREST THE CONTROLLER. GROUND THE CABINET SEPARATELY WITH AN ADDITIONAL GROUND ROD IN THE HANDHOLE NEAREST TO THE CONTROLLER CABINET.
22. CONTRACTOR SHALL FURNISH A SCHEDULE OF UNIT PRICES FOR ESTIMATED TRAFFIC SIGNAL QUANTITIES. MEASUREMENT AND PAYMENT WILL BE BASED ON CITY STANDARD SPECIFICATIONS.

TRAFFIC SIGNALIZATION LUMP SUM ITEM QUANTITIES

	ITEM	UNIT	QUANTITY	AS-BUILT QUANTITY
TRAFFIC SIGNAL STRUCTURES	DUAL COMBINATION SIGNAL POLE/LUMINAIRE ARM W/40' & 70' MAST ARMS	EA	2	
	PEDESTRIAN PEDESTAL WITH SIGNAL FACE & PUSHBUTTON	EA	1	
	PEDESTRIAN PUSHBUTTON POLE	EA	7	
MISC	LED LUMINAIRE LIGHT FIXTURES	EA	2	

LEGEND

TRAFFIC SIGNAL

PLAN MARK	DESCRIPTION
	TRAFFIC SIGNAL W/ BACKPLATE
	PEDESTRIAN SIGNAL
(XX)	MAST ARM (LENGTH)
	LUMINAIRE
	HANDHOLE
	CONTROLLER
	SIGNAL BASE
	PEDESTAL BASE
	VIDEO DETECTION ZONE
	WIRELESS DETECTOR
	INDUCTIVE LOOP DETECTOR
	VIDEO DETECTION
	OBSERVATION CAMERA
	MAST ARM / POST MOUNTED SIGN
	GROUND MOUNTED SIGN
	SIGNAL POLE LABEL
	HANDHOLE LABEL
	SIGNAL HEAD LABEL
	PEDESTRIAN HEAD LABEL
	CONDUIT
	BOLLARD
	PUSHBUTTON

SHIVEHATTERY
ARCHITECTURE + ENGINEERING
316 Second Street SE Suite 500 | Cedar Rapids, Iowa 52401
319 364-0227 | www.shivehattery.com
Iowa | Illinois | Indiana

WILLMAN STREET & CENTER POINT ROAD
TRAFFIC SIGNAL - POLE PACKAGE

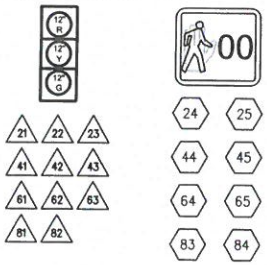
CITY OF HIAWATHA
HIAWATHA, IOWA

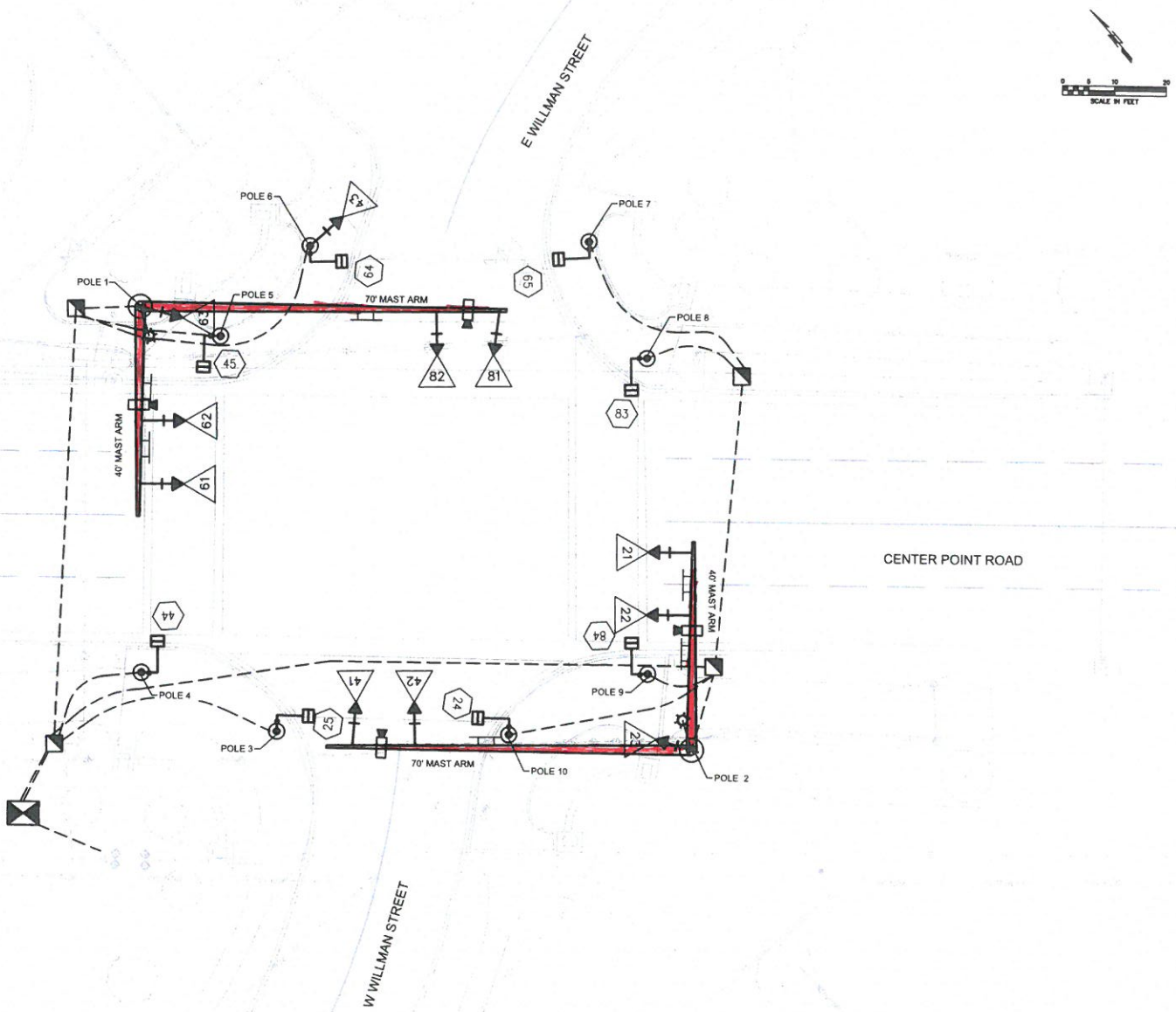
DRAWN: EAV
APPROVED: BH
ISSUED FOR: CONSTRUCTION
DATE: 02-25-2019
PROJECT NO: 218086
FIELD BOOK:
CLIENT NO:

TRAFFIC SIGNAL NOTES AND QUANTITIES

N.01

TRAFFIC SIGNAL FACES





SHIVEHATTERY
ARCHITECTURE + ENGINEERING
318 Second Street SE Suite 500 | Cedar Rapids, Iowa 52401
319 364 0227 | www.shive-hattery.com
Iowa | Illinois | Indiana

WILLMAN STREET & CENTER POINT ROAD
TRAFFIC SIGNAL - POLE PACKAGE

CITY OF HIAWATHA
HIAWATHA, IOWA

DRAWN: EAV
APPROVED: BH
ISSUED FOR: CONSTRUCTION
DATE: 02-25-2019
PROJECT NO: 2180080
FIELD BOOK:
CLIENT NO:

TRAFFIC SIGNAL PLAN

N.02

POLES AND MAST ARMS SCHEDULE

POLE NO.	DETAILS													LUMINAIRE								
	POLE TYPE	MAST ARM LENGTH	SIGNAL HEAD SPACING					TRAFFIC SIGNS ON ARMS		CONNECTION DETAIL	POLE HEIGHT			MOUNTING HEIGHT	ARM LENGTH	ROTATION	NOTE	FOOTING			REMARKS
			A	B	C	CAM	P	QTY.	LOCATION ON ARM (FT)		10'	18'	31'					DIAMETER	DEPTH PER SCHEDULE	TOP OF FOOTING	
P1	DUAL SIGNAL/LIGHTING COMBINATION	40.0'	33.9'	21.9'		19.0'		2	14.7, 25.8				1	30.0'	6.0'	0		4.0'	22.0'		
		70.0'	68.6'	56.6'		62.5'		1	41.6'												
P2	DUAL SIGNAL/LIGHTING COMBINATION	40.0'	38.0'	26.0'		23.0'		2	17.2, 30.5				1	30.0'	6.0'	0		4.0'	22.0'		
		70.0'	65.0'	53.0'		59.5'		1	38												
P3	PED PUSH BUTTON										1										
P4	PED PUSH BUTTON										1							1.0'	4.0'		
P5	PED PUSH BUTTON										1							1.0'	4.0'		
P6	PEDESTAL		0.0'								1							1.0'	4.0'		
P7	PED PUSH BUTTON											1						1.0'	4.0'		
P8	PED PUSH BUTTON										1							1.0'	4.0'		
P9	PED PUSH BUTTON										1							1.0'	4.0'		
P10	PED PUSH BUTTON										1							1.0'	4.0'		

Notes:
1) Location is distance from center of pole measured out to the end of the mast arm.
2) Orientation of luminaire arm is clockwise measured from the centerline of the signal mast arm.
3) 0° is set perpendicular to Center Point Road. Dual Mast Arms shall be oriented at 0° and 270°.
4) Pole height does not include spire (2'-6")
5) On combination poles, a minimum of 4"x6" handhole and cover shall be located in the shaft opposite the signal mast arm.
6) Video detection camera shall be mounted on the mast arm on a riser.
7) Top of footing shall be a minimum of 3" above finished ground. Depth of footing is to finished ground elevation.

POLE AND MAST ARM SIGNS SCHEDULE

SIGN NUMBER	LEGEND	QUANTITY	SIZE
D3-1	Center Point Rd	2	90"x18"
D3-1	E Willman St	2	90" x18"
D3-1	W Willman St	2	90" x18"

Notes:
1) Signs shall be placed as shown on Sheet N.02
2) Signs shall be attached using universal brackets.

SHIVEHATTERY
ARCHITECTURE + ENGINEERING
318 Second Street SE Suite 500 | Cedar Rapids, Iowa 52401
319 364 0227 | www.shive-hattery.com
Iowa | Illinois | Indiana

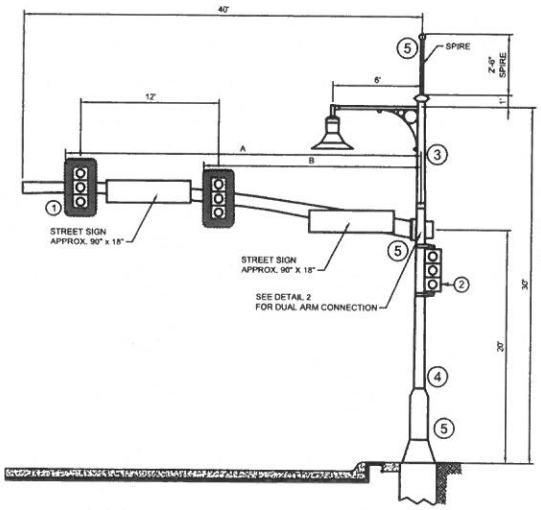
WILLMAN STREET & CENTER POINT ROAD
TRAFFIC SIGNAL - POLE PACKAGE

CITY OF HIAWATHA
HIAWATHA, IOWA

DRAWN: EAV
APPROVED: BM
ISSUED FOR: CONSTRUCTION
DATE: 02-25-2019
PROJECT NO: 218080
FIELD BOOK:
CLIENT NO:

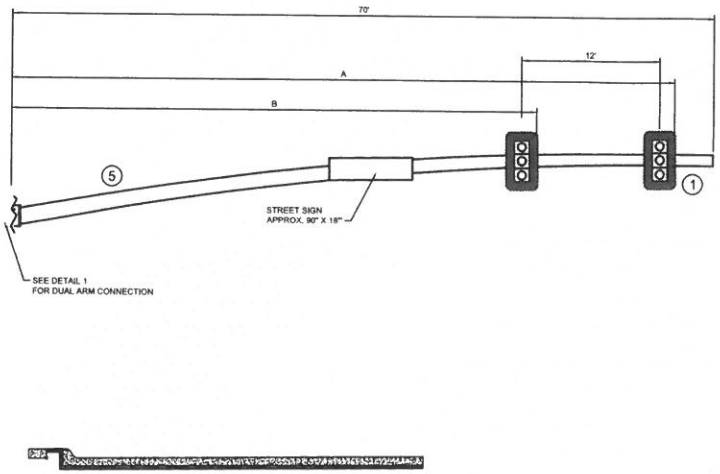
TRAFFIC SIGNAL QUANTITIES

N.03

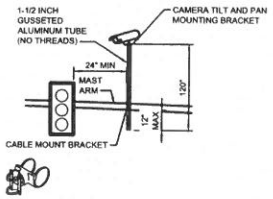


1. Ensure the top of the signal housing is no more than 25.6 feet above the pavement. Ensure the bottom of the signal housing and related attachments are at least 15 feet above the pavement.
2. Ensure the bottom of the signal housing (including brackets) that is not located over a roadway is a minimum of 8 feet and a maximum of 19 feet above the sidewalk or, if there is no sidewalk, above the pavement grade at the center of the roadway.
3. Add wreath brackets and 15 AMP GFI receptacle with water proof cover
4. Pole shall be continuously tapered from bottom to top with 16 sharp flutes.
5. Spire shall be powder coated, color RAL 9006 Gray. Pole and mast arm shall be powder coated , color RAL 3005 Red. Decorative base shall be powder coated color RAL 9006 Gray.

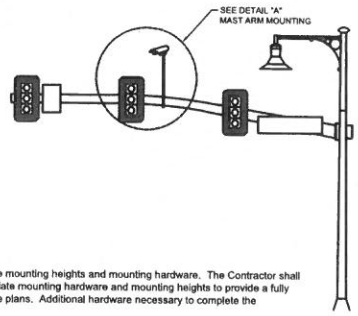
1 TYPICAL SIGNAL DETAIL
NO SCALE



2 TYPICAL SIGNAL DETAIL
NO SCALE

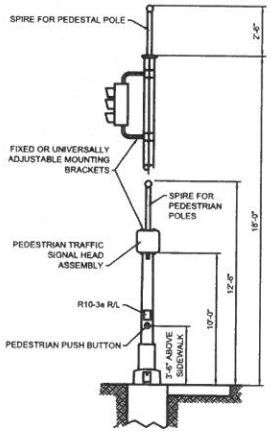


DETAIL "A"
MAST ARM MOUNTING DETAIL



NOTES:
1. The Video Detector Mounting Detail is for reference only and shows desirable mounting heights and mounting hardware. The Contractor shall coordinate with the Video Detection System vendor to determine the appropriate mounting hardware and mounting heights to provide a fully functional Video Detection System with cameras at the locations shown in the plans. Additional hardware necessary to complete the installation but not shown should also be provided as part of this item.
2. The Contractor shall submit shop drawings for all mounting hardware used to install the Video Detection System for approval by the Engineer.
3. The Contractor will be required to coordinate the installation of video detection cameras for the Video Detection System with the overhead Utility companies to ensure that it does not affect the operation of the Video Detection System due to utility lines located in the view of the video detection cameras. The Contractor should also make sure that any required clearances from overhead utilities are provided.
4. Preferred location of video detector is the mast arm mounting located over the center of the approach.

3 VIDEO DETECTION MOUNT
NO SCALE



PEDESTAL POLE

4 PEDESTAL POLE AND PEDESTRIAN POST DETAILS
NO SCALE

SHIVEHATTERY
ARCHITECTURE + ENGINEERING
318 Second Street SE Suite 500 | Cedar Rapids, Iowa 52401
319.364.0227 | www.shive-hattery.com
Iowa | Illinois | Indiana

WILLMAN STREET & CENTER POINT ROAD
TRAFFIC SIGNAL - POLE PACKAGE

CITY OF HIAWATHA
HIAWATHA, IOWA

DRAWN: EW
APPROVED: BH
ISSUED FOR: CONSTRUCTION
DATE: 02-26-2019
PROJECT NO: 2145860
FIELD BOOK:
CLIENT NO:

TRAFFIC SIGNAL DETAILS

N.04

RESOLUTION NO. 19-
City Council

RESOLUTION AUTHORIZING PURCHASE OF TRAFFIC SIGNAL MAST ARMS AND POLES IN CONNECTION WITH THE 2019 WILLMAN STREET SIGNAL PROJECT

WHEREAS, City Council authorized Shive Hattery Engineers, Inc. to move forward with developing plans and specifications for the 2019 Willman Street Signal Project included in the Professional Services Agreement approved by Resolution #18-247, and

WHEREAS, the construction of the 2019 Willman Street Signal Project, will also include the new mast arms and poles, with the contractor responsible for install only as part of the contract, and

WHEREAS, the City Engineer's cost estimate for the mast arms and poles is $50,000.00, and

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF HIAWATHA, IOWA, to authorize city staff to move forward with ordering and purchasing the necessary the traffic signal mast arms and poles at a total estimated cost of $50,000.00, for the 2019 Willman Street Signal Project.

AYES:
NAYS:
ABSENT:

PASSED AND APPROVED this 20th day of March, 2019.

_____
Bill Bennett, Mayor

ATTEST:

_____
Kari Graber, City Clerk