

INVITATION FOR SEALED BID

TAC #440

Description: Traffic Signal Poles

Department: PUBLIC WORKS DEPARTMENT

NIGP Commodity Code(s): 550-85-00-00-000-0

Total pages including this page is 25

NOTE: FAXING OF BIDS WILL NOT BE ACCEPTED

Important Instruction – Read Carefully:

If you have obtained these bid specifications from either of:

City of Tulsa's Fax-on-Demand (918-596-1171) or

City of Tulsa's Web-site : www.cityoftulsapurchasing.org

you must notify the buyer Darlene Donica of your intent to bid by e-mail ddonica@ci.tulsa.ok.us in order to receive addenda. The buyer will always acknowledge your e-mail for your records. All addenda will be posted on fax-on-demand and the web-site.

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Pay special attention to those pages with a reference to the following notes:

Note #1: Signature of authorized agent required

Note #2: Signature of an authorized agent and notarized required

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Your bid response should follow the same format listed above plus any additional format requested in the body of the bid invitation.

**INVITATION FOR SEALED BIDS
TO
City of Tulsa**

200 CIVIC CENTER, ROOM 109, TULSA, OKLAHOMA 74103

Bid number and date of bid opening must appear on the lower
left outside corner of bid envelopes and all related containers.

DATE OF OPENING: July 19, 2001

BID NUMBER: TAC 440

BID MUST BE IN THE CITY CLERK'S OFFICE AT THE ABOVE ADDRESS BY 5:00 P.M. THE DAY PRECEDING THE "DATE OF OPENING" SHOWN ABOVE.

BIDS WILL BE OPENED AT 8:30 A.M. IN THE CITY COUNCIL ROOM ON THE DAY SPECIFIED UNDER "DATE OF OPENING."

PUBLISHED IN THE TULSA DAILY COMMERCE AND LEGAL NEWS: July 9, 10, 11,12, 13, 2001

Bid must be accompanied by bidder's bond, cashier's check or certified check in the amount of: NONE

PLEASE READ TERMS AND CONDITIONS ON THE NEXT PAGE BEFORE COMPLETING BID DOCUMENTS

DARLENE DONICA 918-596-7558

THE FOLLOWING SECTION MUST BE COMPLETED BY BIDDER

Delivery will be made in not more than _____ days after receipt of order.

Payment terms _____ % _____ days.

City of Tulsa may increase quantity of order at the unit price bid for _____ days. (Bidder to Specify Days)
I have examined the terms and specifications and the instructions to bidders herein and agree, provided I am awarded a contract, to provide the above described items for the sum shown in accordance with the terms and specifications stated herein. All deviations are in writing and attached hereto.

Enclosed is a BID BOND ; CASHIER'S CHECK; Certified Check in the amount of \$ _____, which I agree the City of Tulsa may retain as liquidated damages in the event of my failure to comply with the terms of this bid.

MUST BE SIGNED BY AUTHORIZED AGENT TO BE VALID

FIRM NAME _____ by _____
Signature

STREET _____ TITLE _____

CITY STATE _____ ZIP CODE _____ PHONE NUMBER _____ DATE _____

GENERAL TERMS AND CONDITIONS OF BIDS

THESE ITEMS APPLY TO AND BECOME A PART OF THE BID.

NO EXCEPTIONS TO THESE TERMS & CONDITIONS WILL BE CONSIDERED.

1. **BIDS MUST BE SUBMITTED ON THIS FORM ONLY INCLUDING A SIGNATURE OF AN AUTHORIZED AGENT.** Each bid shall be placed in a separate envelope. Be sure envelope is completely and properly identified and sealed, showing the bid number and date in the lower left hand corner. Bids must be time stamped in the office of the City Clerk by 5:00 P.M. on the day before date of opening.
2. No bidder may withdraw his proposal for a period of thirty (30) days after the date and hour set for the opening of bids.
3. All prices shall be quoted F.O.B. Tulsa, Oklahoma, and delivery to City of Tulsa location shall be without additional charge.
4. The bidder shall attach the manufacturer's name of the equipment or material to be furnished, type, model numbers, manufacturer's descriptive bulletins and specifications. All guarantees and warranties should be clearly stated. This data shall be in sufficient detail to describe accurately the equipment or material to be furnished. Manufacturer's specifications, in respect to the successful bidder, shall be considered as part of his contract with the City of Tulsa.
5. The bidder shall show in the proposal both the unit prices and total amount, where required, of each item listed. In the event of error or discrepancy in the mathematics, the unit prices shall prevail.
6. Any exceptions or deviations from written specifications shall be shown in writing and attached to the bid form.
7. Each bidder agrees to comply with the terms of Title 5, Chapter 1, of Tulsa, Oklahoma Charter and revised ordinances relating to equal employment opportunity.
8. **THE ENCLOSED FORMS REGARDING NON-COLLUSION AND FINANCIAL INTEREST MUST BE SIGNED, NOTARIZED, AND RETURNED WITH THE BID.**
9. The City of Tulsa reserves the right to reject any and all bids, to waive any technicalities in the bidding, and to award each item to different bidders or all items to a single bidder.
10. All bids must be accompanied by bidders bond, cash, certified or cashier's check in the amount shown on the face of the bid form. This amount shall be retained by the City of Tulsa as liquidated damages in the event the successful bidder (or bidders) fails to execute a contract, if required. The bidder agrees that said amount is presumed to be the damages sustained by the City due to the impracticability and extreme difficulty in fixing the actual damages. The office of the City Clerk will return the bid deposits to the unsuccessful bidders, after a contract has been awarded or all bids have been rejected.
11. In the event cash discounts are offered by the bidder, the discount date shall begin with the date of invoice, the date of receipt of all material covered by the purchase order, or the date of receipt by the City of Tulsa of the original copy of the purchase order with properly executed Affidavit of Claimant, whichever is the later date.
12. Direct purchase of certain items of equipment or material by the City of Tulsa are exempt from Federal Excise Tax and Oklahoma Sales Tax. In such cases the bidder shall quote prices which do not include Federal Excise Tax and Oklahoma Sales Tax. The City of Tulsa will furnish executed exemption certificates upon presentation by the bidder at the time of purchase.
13. Bid must show number of days required for delivery under normal conditions. Failure to state delivery time obligates bidder to complete delivery in fourteen (14) calendar days. Unrealistically short or long delivery promises may cause bid to be disregarded. Contractor must keep Purchasing Department advised at all times of status of order. Default in promised delivery or failure to meet specifications authorizes the Purchasing Agent to purchase supplies elsewhere and charge full increase of cost and handling to defaulting contractor. Consistent failure to meet delivery promises without valid reason may cause removal from bid list.
14. Bidder agrees to defend and save City of Tulsa from and against all demands, claims, suits, costs, expenses, damages and judgments based upon infringement of any patent relating to goods specified in this order or the ordinary use or operation of such goods by City or use or operation of such goods in accordance with bidders direction.
15. If the bid requires a written contract, the successful bidder shall execute a written contract with the City of Tulsa and return the required bonds and insurance certificates within ten (10) days after submission of contracts to said bidder by the City.

BIDDER AFFIDAVIT - TITLE 74 O.S. (1974 SUPP.) 85.22-85.25

STATE OF _____ COUNTY OF _____

_____, of lawful age, being first duly sworn on oath says
Authorized Agent

1. (s)he is the duly authorized agent of _____, the bidder submitting the competitive bid which is attached to this statement, for the purpose of certifying the facts pertaining to the existence of collusion among bidders and between bidders and municipal officials or employees, as well as facts pertaining to the giving or offering of things of value to government personnel in return for special consideration in the letting of any contract pursuant to the bid to which this statement is attached.
2. (s)he is fully aware of the facts and circumstances surrounding the making of the bid to which this statement is attached and has been personally and directly involved in the proceedings leading to the submission of such bid; and
3. neither the bidder nor anyone subject to the bidder's direction or control has been a party;
 - a. to any collusion among bidders in restraint of freedom of competition by agreement to bid at a fixed price or to refrain from bidding,
 - b. to any collusion with any municipal official or employee as to quantity, quality or price in the prospective contract, or as to any other terms of such prospective contract, nor
 - c. in any discussions between bidders and any municipal official concerning exchange of money or other thing of value for special consideration in the letting of a contract.

SIGNATURE OF AUTHORIZED AGENT

Subscribed and sworn to before me this _____ day of _____, 19_____.

Signature of Notary Public

MY COMMISSION EXPIRES

The Bidder Affidavit must be completed, signed by an authorized agent, and notarized.

CONTRACTOR/BIDDER INFORMATION SHEET

**To be completed by all Bidders
For Contracts with the City of Tulsa
(Please print or type)**

Project No. or Description _____

Full Name of Bidder _____

Legal Identity
(Corporation, Partnership,
Individual, etc.) _____

Address _____

Telephone No. _____

FAX No. _____

Taxpayer Identification Number _____

Contact Person _____

Phone No. _____

Fax No. _____

E-mail address _____

Webpage Address _____

Price Sheet Summary

Vendor Name: _____ Signature: _____
 Date: _____

You will be able to obtain a copy of the Bid Summary on the City of Tulsa's Purchase-Net Fax-on-Demand and Website shortly after bid opening.

TAC 440

<u>QTY.</u>	<u>ITEM#</u>	<u>DESCRIPTION</u>	<u>UNIT COST</u>	<u>TOTAL COST</u>
6	Pole #1R	For 18' & 24' Arms	\$ _____	\$ _____
10	Pole #2B	For 30' & 36' Arms	\$ _____	\$ _____
30	Pole #3G	For 42', 46' & 50' Arms	\$ _____	\$ _____
4	Pole #4Y	For 54' & 58' Arms	\$ _____	\$ _____
3	Arm #1R18	18' Arm	\$ _____	\$ _____
3	Arm #1R24	24' Arm	\$ _____	\$ _____
5	Arm #2B30	30' Arm	\$ _____	\$ _____
5	Arm #2B36	36' Arm	\$ _____	\$ _____
10	Arm #3G42	42' Arm	\$ _____	\$ _____
10	Arm #3G46	46' Arm	\$ _____	\$ _____
10	Arm #3G50	50' Arm	\$ _____	\$ _____
2	Arm #4Y54	54' Arm	\$ _____	\$ _____
2	Arm #4Y58	58' Arm	\$ _____	\$ _____
4	Ext.#1 RE	Luminaire Extension For Pole #1R with Luminaire Arm	\$ _____	\$ _____
6	Ext.#2BE	Luminaire Extension For Pole #2B with Luminaire Arm	\$ _____	\$ _____
16	Ext.#3GE	Luminaire Extension for Pole #3G with Luminaire Arm	\$ _____	\$ _____
2	Ext. #4YE	Luminaire Extension for Pole #4Y with Luminaire Arm	\$ _____	\$ _____
1	Arm #JTL-10	Extra Luminaire Arm with attachment bolts	\$ _____	\$ _____
1	#JTAB-1.50	Extra Set of Four Anchor Bolts (1.50 inch diameter)	\$ _____	\$ _____
1	#JTAB-1.75	Extra Set of Four Anchor Bolts (1.75 inch diameter)	\$ _____	\$ _____
10	#V1084	Vibration Damper	\$ _____	\$ _____
GRAND TOTAL:				\$ _____

Quantities are estimated for bid evaluation purposes only. The estimates are believed to be reasonable projections of future annual usage, but actual quantities may vary significantly from the estimates. No definite amount of quantity on any item is guaranteed to be purchased.

For questions please contact: Mark Brown @ 918-596-9749

TAC #440
TRAFFIC SIGNAL POLES AND MAST ARMS
PUBLIC WORKS DEPARTMENT

INTENT:

It is the intent of this bid to secure, on a competitive basis, a source of supply for furnishing **Traffic Signal Poles and Mast Arms** for the City of Tulsa, Public Works Department.

GENERAL:

The intent of these specifications is to set minimum requirements, not to otherwise limit bidding. Inasmuch as some designs of equipment vary among different manufacturers, the City may accept bids on equipment with minor deviations to the written specifications. General, a minor deviation is defined as a deviation which does not: (A) materially affect the ability of the product to achieve or accomplish a necessary function or task in the manner required by the specifications; (B) compromise the safety of the user thereof; and (C) produce higher latent or patent costs to the City in any of a multiplicity of ways. The City of Tulsa specifically reserves the right to make the final judgement concerning what is or is not a minor deviation and to award the bidder(s) whose bid(s) best suit the City's need for the product being purchased.

ALTERING BIDS:

Bids cannot be altered or amended after submission deadline. Any interlineation, alteration, or erasure made before opening time and date must be initialed by the signer of the bid, guaranteeing authenticity. Bids must be submitted in ink or typewritten. Penciling will not be accepted.

PRICING:

Bid prices, unless otherwise specified, must be net, including transportation and handling charges fully prepaid by vendor to destination and subject only to cash discount for prompt payment of invoice.

DELIVERY:

Delivery time must be stated in days in the appropriate spaces of the cover sheet. Indefinite terms such as "promptly", "without delay", etc., will not be given consideration. Failure to indicate delivery time shall be cause for rejection of the bid.

BIDDER'S NOTE:

Each bidder shall submit with their bid all documentation requirements requested within the specifications. **Failure to do so may result in the rejection of your bid.**

PAYMENT:

Payment for work done under this contract shall be made in one lump sum for all labor, material, equipment and expendable items necessary to do the work as described in these specifications.

BIDDER AFFIDAVITS:

Each bidder shall accompany his bid with a fully executed and notarized copy of the attached Non-Collusion Affidavit and the Interest Affidavit. Failure to do so shall be cause for rejection of the bid.

CONTRACT:

The terms of the contract shall be for a period of one (1) year beginning August 13, 2001 to and including August 12, 2002 when current contract expires. The contract shall be renewable, with the consent of both parties, for two (2) successive one (1) year periods.

PRICE ADJUSTMENT OPTION:

The price paid for a commodity under this contract shall not change during the term of this contract. However, if the bidder anticipates that it will not be able to maintain firm prices for any renewal periods, a change in price may be allowed in a renewal of this contract if the following criteria are met:

The bidder includes a formula, to be used to calculate a change in price at the time of renewal, in the bid for the initial contract. Such formula shall be reasonable, objective and capable of measurement.

The contractor notifies the city, in writing, no later than 60 days prior to the expiration of the initial contract period, or any renewal period, of its intent to exercise the right to escalate or de-escalate prices under the contract. The notice shall include a calculation of the price increase or decrease requested including the formula used.

ADDENDA AND INTERPRETATIONS:

If it becomes necessary to revise any part of this bid, a written addendum will be provided to all the bidders. The City of Tulsa is not bound by any oral representations, clarifications, or changes made in the written specifications by City of Tulsa employees unless such clarification or change is provided to bidders in written addendum form from the Purchasing Division.

AWARD OF BID:

The bid shall be awarded to the firm whose proposal is responsive to the bid and is most advantageous to the City, considering the factors identified in the bid and Section 406E of Title 6, The Purchasing Ordinance set forth below:

406E. AWARD OF CONTRACT

1. Authority in the Mayor. The Mayor shall have the authority to award Contracts within the purview of this chapter.
2. Lowest Secure Bidder. Contracts shall be awarded to the lowest secure Bidder meeting specifications. Bid Specifications may include a point System for evaluating the lowest secure bid. In determining “lowest Secure bidder”, in addition to price, the following factors shall be considered:
 - a. the ability, capacity and skill of the bidder to perform the contract Or provide the service required;
 - b. whether the bidder can perform the contract or provide the service promptly or within the time specified, without delay or interference;
 - c. the character, integrity, reputation, judgment, experience and efficiency of the bidder;
 - d. the quality of performance of previous contracts or services;
 - e. the previous and existing compliance by the bidder with laws and ordinances relating to the contract or service;
 - f. the sufficiency of the financial resources and ability of the bidder to perform the contract or provide the service;
 - g. the quality, availability and adaptability of the supplies or contractual services to the particular use required;
 - h. the ability of the bidder to provide future maintenance and service for the use of the subject of the contract;
 - i. where an earlier delivery date would be of great benefit to the requisitioning agency, the date and terms of delivery may be considered in the bid award, and
 - j. the number and scope of conditions attached to the bid.
 - k. If a point system has been utilized in the bid specifications, the number of points earned by the bidder.

**SPECIFICATIONS
GALVANIZED STEEL MAST ARM ASSEMBLIES
FOR TRAFFIC SIGNALS**

1.0 GENERAL:

- 1.1** This specification describes the minimum standards for design and fabrication of multi-sided or round tapered steel monotube traffic signal mast arms and poles.
- 1.2** Mast arm assemblies shall be designed to support signals and signs of the weight and area as indicated on the attached drawing. Mast arms and poles shall be designed for a minimum of 80 mph wind velocity and shall meet all other design requirements of the AASHTO Stand Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals.
- 1.3** The pole schedule, mast arm attachment details, and luminaire extension details are intended to standardize mast arms, poles, and foundations for the City of Tulsa and to decrease the amount of inventory that the City must maintain for construction and maintenance.
- 1.4** Each bidder shall furnish design drawings and a detailed pole schedule covering all pole and arm sizes requested in the bid. Details shall be sufficient to provide evidence that the proposed poles and mast arms are fully interchangeable with the City's existing foundations, baseplates, arm attachments, and luminaire arm attachment.
- 1.5** Material will be accepted only from United States manufacturers who have provided material of the nature required on this bid for a period of five years with a record of quality and on-time performance. Certification on origination of all raw steel product shall be required and submitted before fabrication on a timely basis.
- 1.6** All welding must be performed at the manufacturer's place of business by AWS certified welders. All welds shall conform to the latest AWS D1.1 requirements.
- 1.7** All structural design of galvanized steel mast arm assemblies shall be designed under the supervision of a licensed professional engineer employed full time by the manufacturer and registered in the state where the assemblies will be manufactured and delivered.
- 1.8** A minimum one year warranty for materials and workmanship must be supplied with the product.
- 1.9** Upon delivery to the City of Tulsa all materials shall be inspected by an authorized agent of the City to insure compliance with the specifications. In the event that the material does not meet all of the requirements of the specification the delivery will not be accepted and the material will be returned to the supplier at no cost to the City of Tulsa.

- 1.10** The intent of the Public Works Department is to award this bid to only one supplier. Splitting items among vendors would defeat the intent of paragraph 1.3 and the requirements of paragraphs 2.1 and 2.3

2.0 **INVENTORY AND DELIVERY:**

- 2.1** The successful bidder must maintain a quick delivery inventory of certain assemblies designated by the City in paragraph 9.1 of these specifications for delivery to the City within seven calendar days after receipt of release from the City of Tulsa. When this inventory is partially or fully depleted due to City of Tulsa purchases the bidder shall fully restore the required inventory within thirty days. At the end of this contract the City will purchase and take delivery of the designated quick delivery inventory.
- 2.2** The successful bidder must be able to delivery any item which is not part of the required inventory described in paragraph 2.1 within thirty calendar days after receipt of release from the City of Tulsa.
- 2.3** The minimum order size under paragraph 2.2 shall not be less than eight pole and arm assemblies. The minimum order size under paragraph 2.1 shall be as small as one pole or one arm

3.0 **POLE SHAFT:**

- 3.1** Pole shafts shall be manufactured from ASTM A-570 grade 50 steel with a minimum yield of 50,000 psi. Cold working the material will not be allowed.
- 3.2** No more than two longitudinal welds shall be permitted in fabrication of the shaft. Transverse welds other than base plate welds will not be allowed. The shaft shall form a multi-sided or round uniformly tapered tube with a minimum taper of .1457.
- 3.3** The pole shaft shall be capable of handling the additional load of an upright extension that would be slipped over the upright with a slip distance of 18". The extension would be of the same grade of material as the upright. This extension would provide for a single member luminaire arm and a fixture mounting height of 30'. The luminaire arm shall attach to the upright by the use of a three bolt attachment plate as noted on the bid attachment drawing. Each luminaire arm would be provided with a six inch long tenon manufactured from two-inch schedule 40 pipe. The extension shall be provided with a J-hook welded near the top of the extension to facilitate wiring of the luminaire arm. A J-hook shall also be welded 9 degrees from the flange plate on the upright. Each luminaire extension shall be furnished with a luminaire arm and required attachment bolts.
- 3.4** A hand hole that measures 5" x 11", complete with reinforcing frame shall be welded into the pole shaft at approximately ten inches above the base to facilitate wiring. The hand hole shall be supplied with cover, cover chain or cable and attachment hardware. The location of the hand hole shall be opposite the side of the shaft from the mast arm connection.

- 3.5 An appropriate sized flange plate shall be welded to the shaft near the top and supported with side plates tangent to the shaft and gusse plates on both top and bottom. The flange plate shall have a deburred 2.5 inch O.D. wiring hole with rounded edges and four holes for high strength bolts. The center of the wiring hole shall be located approximately twenty feet above the base plate.
- 3.6 A pole cap of appropriate size shall be furnished with attachment hardware.
- 3.7 A deburred 1.25 inch O.D. hole with rounded edges shall be provided in the shaft 10 feet above the base plate. The hole shall be located as shown on the attached drawing.
- 3.8 A kenalloy ground bolt shall be supplied at 180 degrees from the center of the hand hole that is located 10 inches from the bottom of the base plate.
- 3.9 A one piece steel anchor base manufactured from A-36 steel with a minimum yield of 36,000 psi shall be attached to the lower end of the pole shaft. The base shall telescope the shaft and be welded by two continuous electric arc welds. One weld shall be on the inside of the base plate and the other weld shall be at the top of the base on the outside of the shaft. The base and the welds shall be such as to develop the full strength of the adjacent section. The base shall be provided with four holes of adequate size to receive the anchor bolts which are required to support the pole and mast arm.

4.0 MAST ARM:

- 4.1 The mast arm shall be fabricated from ASTM A-570 grade 50 steel with a minimum yield of 50,000 psi. Cold working the material will not be allowed.
- 4.2 No more than two longitudinal welds shall be permitted in the fabrication of the mast arm. Transverse welds with the exception of the flange plate welds will not be permitted in the fabrication of the mast arm. The shaft shall form a multi-sided or round uniformly tapered tube.
- 4.3 A perpendicular flange plate shall telescope the large end of the mast arm and shall be welded by two continuous electric arc reclusion welds. One shall be on the outside of the plate adjacent to the shaft and the other weld shall be on the inside at the end of the tubular cross section. The flange plate shall have four holes for high strength tensile bolts which match the four holes in the mounting plate I the shaft. Four high strength A325 bolts with nuts and washers shall be provided to secure the mast arm to the shaft.
- 4.4 A flat end cap shall be secured to the small end of the mast arm by the utilization of a self-tapping hex head screw and strain bar.

5.0 FINISH:

5.1 The pole shaft, mast arm, anchor base and all associated steel fittings and parts shall be cleaned and hot dip galvanized, both interior and exterior surfaces, after fabrication. The galvanizing shall meet the requirements of ASTM A123 and A153. Minor blemishes in the galvanizing may be repaired by hot stick galvanizing method.

6.0 ANCHOR BOLTS:

6.1 Anchor bolts shall be ASTM M314 Grade 55 materials with a minimum yield of 55,000 psi. Each bolt shall be supplied with two hex nuts and two flat washers and one lock washer per bolt. Only the top 16 inches of the bolt shall be galvanized.

6.2 Every pole shall be delivered with a set of four anchor bolts included in the cost of the pole. Additional anchor bolt sets may be purchased separately as shown in the bid price list.

7.0 IDENTIFICATION SYSTEM:

7.1 For the convenience of the City and to allow for itemized bidding of all required uprights, mast arms, luminaire extensions, anchor bolts and luminaire arms, the following identification system will be utilized in the bid:

<u>Poles</u>	<u>Arms</u>	<u>Extensions</u>	<u>Luminaire Arms</u>	<u>Anchor Bolts</u>
1-R	1R-18	1-RE	JTL-10	JTAB-1.50
2-B	1R-24	2-BE		JTAB-1.75
3-G	2B-30	3-GE		
4-Y	2B-36	4-YE		
	3G-42			
	3G-50			
	4Y-54			
	4Y-58			

7.2 All poles, mast arms and luminaire extensions shall be permanently marked with the proper identification number as listed in paragraph 7.1. Poles shall be marked on the back edge of the base plate. Arms shall be marked on the top edge of the arm flange plate. Luminaire extensions shall be marked near the lower back edge of the extension. (See pole assembly drawing details and notes.)

7.3 Red, blue, green or yellow paint shall be used after galvanizing to color the contact surfaces of the pole flange plate, the arm flange plate, and the luminaire extension flange plate for easy identification and matching of poles to various arm choices. The item numbering system in paragraph 7.1 and the marking legend detail on the pole drawing indicates the required color scheme.

8.0 VIBRATION DAMPER:

8.1 The City of Tulsa has found it useful to use the vibration damper shown on the pole drawing as part #V1084 on certain lengths of arms. An alternate design

may be offered if documentation is furnished that the alternate has proven effective in counteracting wind induced harmonic vibration in long mast arms

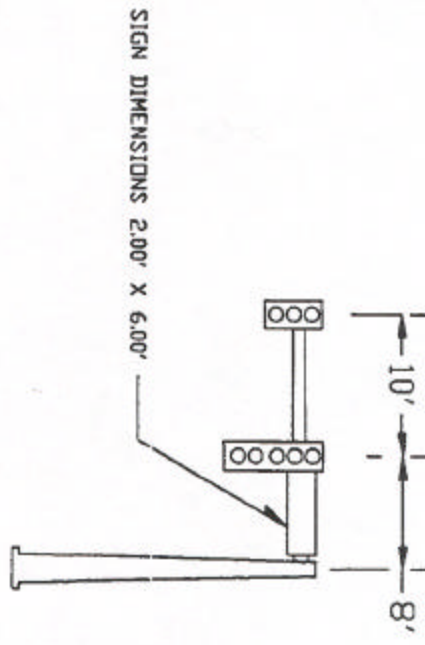
- 8.2 The entire vibration damper shall be fabricated from aluminum and/or stainless steel materials such that corrosion and durability will not be a problem.
- 8.3 The vibration damper shall be shipped fully assembled so no field assembly other than banding to the mast arm is necessary.

9.0 QUICK DELIVERY INVENTORY:

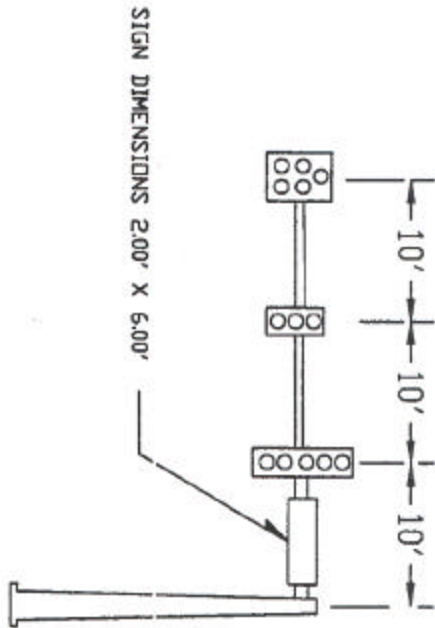
- 9.1 The required quick delivery inventory described in paragraph 2.1 shall consist of the following items and quantities. This inventory may be stored at the manufacturer's site or some other site available to the manufacturer but shall not be delivered to the City's Traffic Operations Shop until a purchase is authorized.

<u>Qty.</u>	<u>Item No.</u>	<u>Description</u>
1	4Y58	58' Mast Arm
1	4Y54	54' Mast Arm
2	4Y	Pole (54' to 58')
2	3G50	50' Mast Arm
2	3G46	46' Mast Arm
2	3G42	42' Mast Arm
6	3G	Pole (42' to 50')
2	2B36	36' Mast Arm
2	2B	Pole (30' to 36')

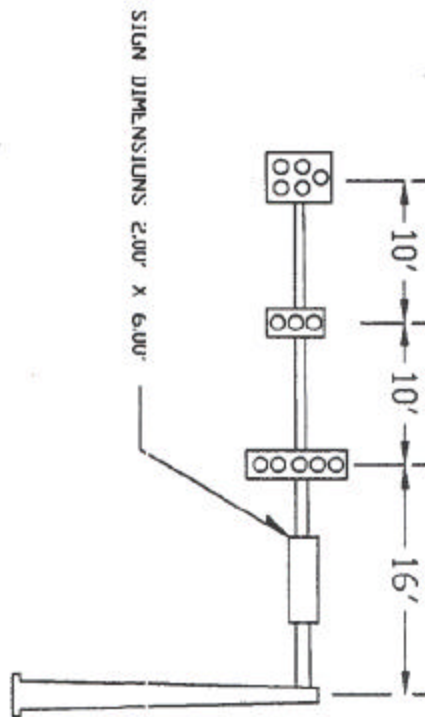
- 9.2 Every pole, including the quick delivery poles, shall be delivered with a set of four anchor bolts included in the cost of the pole.
- 9.3 Quick delivery items are to be priced the same as normal delivery items. No add on cost or special fee will be paid for these items.



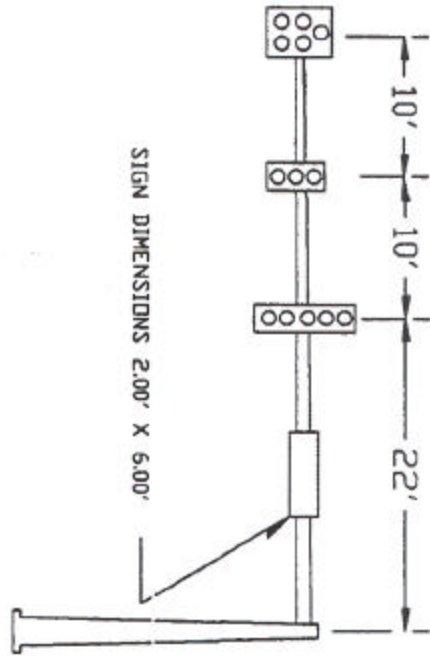
REVISION	CITY OF TULSA, OKLAHOMA
DATE	PUBLIC WORKS DEPARTMENT TRAFFIC ENGINEERING SECTION
	18' MAST ARM LOADING
	SCALE 1" = 10'
	DRAWN J.B.G.
	DIRECTED
	RECHECKED
	TRAFFIC ENGINEER
	DATE 4-22-98
	ASTEC. TRAFFIC ENGINEER
	DRAWING NO.



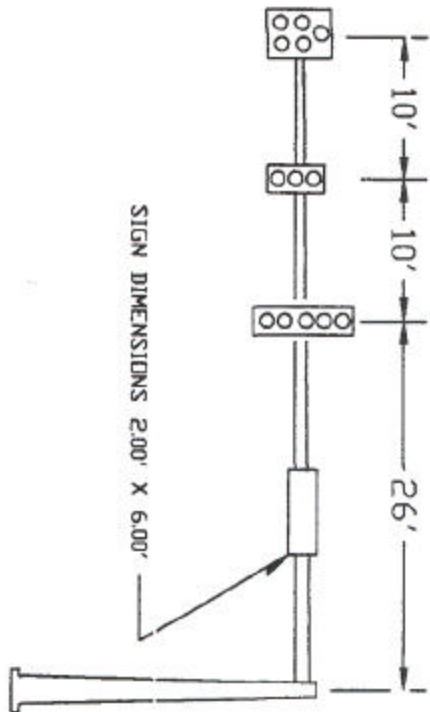
REVISION	DATE	BY	CITY OF TULSA, OKLAHOMA
			PUBLIC WORKS DEPARTMENT
			TRAFFIC ENGINEERING SECTION
			30' MAST ARM LOADING
SCALE	1" = 10'		APPROVED
DRAWN	J.B.C.		
CHECKED			TRAFFIC ENGINEER
RECOMMENDED			DATE 4-22-98
ASSOC. TRAFFIC ENGINEER			DRAWING NO.



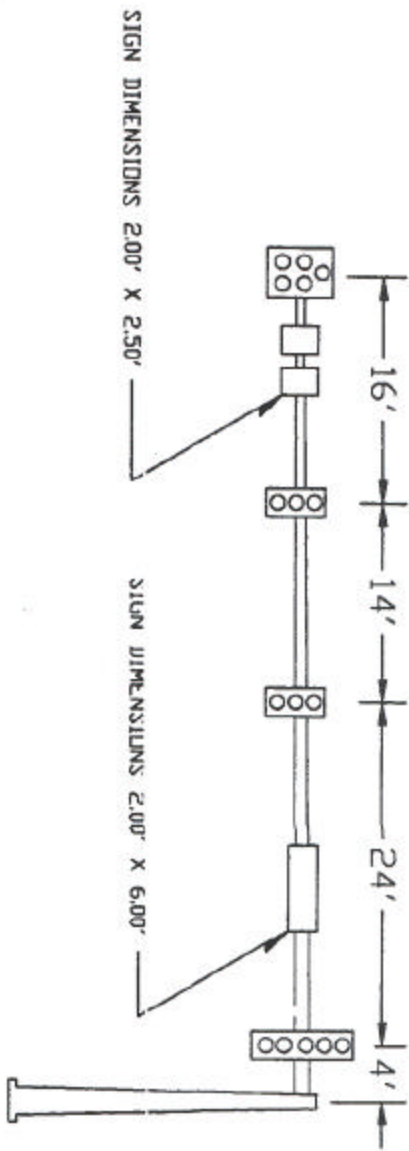
REVISION		CITY OF TULSA, OKLAHOMA	
DATE	BY	PUBLIC WORKS DEPARTMENT TRAFFIC ENGINEERING SECTION	
		36' MAST ARM LOADING	
		SCALE	1" = 10'
		DRAWN	J.B.G.
		CHECKED	
		RECORDED	
		ASSOC. TRAFFIC ENGINEER	TRAFFIC ENGINEER
			DATE 4-22-98
			DRAWING NO.



REVISION	CITY OF TULSA, OKLAHOMA	
DATE	PUBLIC WORKS DEPARTMENT TRAFFIC ENGINEERING SECTION	
BY	42' MAST ARM LOADING	
	SCALE	1' = 10'
	DRAWN	J.S.G.
	CHECKED	
	REVISIONS	
	APPROVED	
	TRAFFIC ENGINEER	
	DATE	4-22-98
	ASST. TRAFFIC ENGINEER	DRAWING NO.



REVISION		CITY OF TULSA, OKLAHOMA	
DATE	BY	PUBLIC WORKS DEPARTMENT TRAFFIC ENGINEERING SECTION	
		46' MAST ARM LOADING	
SCALE 1" = 10'		APPROVED	
DRAWN J.B.G.		TRAFFIC ENGINEER	
CHECKED			
RECOMMENDED			
ASSOC. TRAFFIC ENGINEER		DATE 4-22-98	
		DRAWING NO.	



REVISION	CITY OF TULSA, OKLAHOMA
DATE	PUBLIC WORKS DEPARTMENT
BY	TRAFFIC ENGINEERING SECTION
	58' MAST ARM LOADING
	SCALE 1" = 10'
	DRAWN J.B.G.
	CHECKED
	RECOMMENDED
	TRAFFIC ENGINEER
	DATE 4-22-98
	ASSOC. TRAFFIC ENGINEER
	DRAWING NO.