



THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 72-2006

SUPPLY AND DELIVERY OF TRAFFIC SIGNAL HEADS

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PART B - BIDDING PROCEDURES

B1. PROJECT TITLE

B1.1 SUPPLY AND DELIVERY OF TRAFFIC SIGNAL HEADS

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 4:00 p.m. Winnipeg time, February 28, 2006.

B2.2 Bid Submissions determined by the Manager of Materials to have been received later than the Submission Deadline will not be accepted and will be returned upon request.

B2.3 The Contract Administrator or the Manager of Materials may extend the Submission Deadline by issuing an addendum at any time prior to the time and date specified in B2.1.

B3. ENQUIRIES

B3.1 All enquiries shall be directed to the Contract Administrator identified in D4.1.

B3.2 If the Bidder finds errors, discrepancies or omissions in the Bid Opportunity, or is unsure of the meaning or intent of any provision therein, the Bidder shall notify the Contract Administrator of the error, discrepancy or omission, or request a clarification as to the meaning or intent of the provision at least five (5) Business Days prior to the Submission Deadline.

B3.3 Responses to enquiries which, in the sole judgment of the Contract Administrator, require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator to all Bidders by issuing an addendum.

B3.4 Responses to enquiries which, in the sole judgment of the Contract Administrator, do not require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator only to the Bidder who made the enquiry.

B3.5 The Bidder shall not be entitled to rely on any response or interpretation received pursuant to B3 unless that response or interpretation is provided by the Contract Administrator in writing.

B4. ADDENDA

B4.1 The Contract Administrator may, at any time prior to the Submission deadline, issue addenda correcting errors, discrepancies or omissions in the Bid Opportunity, or clarifying the meaning or intent of any provision therein.

B4.2 The Contract Administrator will issue each addendum at least two (2) Business Days prior to the Submission Deadline, or provide at least two (2) Business Days by extending the Submission Deadline.

B4.2.1 Addenda will be available on the Bid Opportunities page at The City of Winnipeg, Corporate Finance, Materials Management Branch internet site at <http://www.winnipeg.ca/matmgt>.

B4.2.2 The Bidder is responsible for ensuring that he has received all addenda and is advised to check the Materials Management Branch internet site for addenda shortly before submitting his Bid.

B4.3 The Bidder shall acknowledge receipt of each addendum in Paragraph 8 of Form A: Bid. Failure to acknowledge receipt of an addendum may render a Bid non-responsive.

B5. SUBSTITUTES

- B5.1 The Work is based on the materials, equipment, methods and products specified in the Bid Opportunity.
- B5.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.
- B5.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least seven (7) Business Days prior to the Submission Deadline.
- B5.4 The Bidder shall ensure that any and all requests for approval of a substitute:
- (a) provide sufficient information and details to enable the Contract Administrator to determine the acceptability of the material, equipment, method or product as either an approved equal or alternative;
 - (b) identify any and all changes required in the applicable Work, and all changes to any other Work, which would become necessary to accommodate the substitute;
 - (c) identify any anticipated cost or time savings that may be associated with the substitute;
 - (d) certify that, in the case of a request for approval as an approved equal, the substitute will fully perform the functions called for by the general design, be of equal or superior substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the Contract; and
 - (e) certify that, in the case of a request for approval as an approved alternative, the substitute will adequately perform the functions called for by the general design, be similar in substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the Contract.
- B5.5 The Contract Administrator, after assessing the request for approval of a substitute, may in his sole discretion grant approval for the use of a substitute as an “approved equal” or as an “approved alternative”, or may refuse to grant approval of the substitute.
- B5.6 The Contract Administrator will provide a response in writing, at least two (2) Business Days prior to the Submission Deadline, only to the Bidder who requested approval of the substitute.
- B5.6.1 The Bidder requesting and obtaining the approval of a substitute shall be entirely responsible for disseminating information regarding the approval to any person or persons he wishes to inform.
- B5.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.
- B5.8 If the Contract Administrator approves a substitute as an “approved alternative”, any Bidder bidding that approved alternative shall base his Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with B13.
- B5.9 No later claim by the Contractor for an addition to the price(s) because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.

B6. BID SUBMISSION

- B6.1 The Bid Submission consists of the following components:

- (a) Form A: Bid; and
- (b) Form B: Prices.

B6.2 All components of the Bid Submission shall be fully completed or provided, and submitted by the Bidder no later than the Submission Deadline, with all required entries made clearly and completely in ink, to constitute a responsive Bid.

B6.3 The Bid Submission may be submitted by mail, courier or personal delivery, or by facsimile transmission.

B6.4 If the Bid Submission is submitted by mail, courier or personal delivery, it shall be enclosed and sealed in an envelope clearly marked with the Bid Opportunity number and the Bidder's name and address, and shall be submitted to:

The City of Winnipeg
Corporate Finance Department
Materials Management Branch
185 King Street, Main Floor
Winnipeg, MB R3B 1J1

B6.4.1 Samples or other components of the Bid Submission which cannot reasonably be enclosed in the envelope may be packaged separately, but shall be clearly marked with the Bid Opportunity number, the Bidder's name and address, and an indication that the contents are part of the Bidder's Bid Submission.

B6.5 If the Bid Submission is submitted by facsimile transmission, it shall be submitted to (204) 949-1178.

B6.5.1 The Bidder is advised that the City cannot take responsibility for the availability of the facsimile machine at any time.

B6.6 Bid Submissions submitted by internet electronic mail (e-mail) will not be accepted.

B7. BID

B7.1 The Bidder shall complete Form A: Bid, making all required entries.

B7.2 Paragraph 2 of Form A: Bid shall be completed in accordance with the following requirements:

- (a) if the Bidder is a sole proprietor carrying on business in his own name, his name shall be inserted;
- (b) if the Bidder is a partnership, the full name of the partnership shall be inserted;
- (c) if the Bidder is a corporation, the full name of the corporation shall be inserted; and
- (d) if the Bidder is carrying on business under a name other than his own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.

B7.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B7.2.

B7.3 In Paragraph 3 of Form A: Bid, the Bidder shall identify a contact person who is authorized to represent the Bidder for purposes of the Bid.

B7.4 Paragraph 10 of Form A: Bid shall be signed in accordance with the following requirements:

- (a) if the Bidder is a sole proprietor carrying on business in his own name, it shall be signed by the Bidder;

- (b) if the Bidder is a partnership, it shall be signed by the partner or partners who have authority to sign for the partnership;
- (c) if the Bidder is a corporation, it shall be signed by its duly authorized officer or officers; and
- (d) if the Bidder is carrying on business under a name other than his own, it shall be signed by the registered owner of the business name, or by the registered owner's authorized officials if the owner is a partnership or a corporation.

B7.4.1 The name and official capacity of all individuals signing Form A: Bid shall be printed below such signatures.

B7.4.2 All signatures shall be original.

B7.5 If a Bid is submitted jointly by two or more persons, the word "Bidder" shall mean each and all such persons, and the undertakings, covenants and obligations of such joint Bidders in the Bid Submission and the Contract, when awarded, shall be both joint and several.

B8. PRICES

B8.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.

B8.1.1 Prices on Form B: Prices shall include:

- (a) duty;
- (b) freight and cartage;
- (c) Provincial and Federal taxes [except the Goods and Services Tax (GST) and Manitoba Retail Sales Tax (MRST, also known as PST), which shall be extra where applicable] and all charges governmental or otherwise paid; and
- (d) profit and all compensation which shall be due to the Contractor for the Work and all risks and contingencies connected therewith.

B8.2 The quantities listed on Form B: Prices are to be considered approximate only. The City will use said quantities for the purpose of comparing Bids.

B8.3 The quantities for which payment will be made to the Contractor are to be determined by the Work actually performed and completed by the Contractor, to be measured as specified in the applicable Specifications.

B9. QUALIFICATION

B9.1 The Bidder shall:

- (a) undertake to be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba, or if the Bidder does not carry on business in Manitoba, in the jurisdiction where the Bidder does carry on business;
- (b) be responsible and not be suspended, debarred or in default of any obligation to the City;
- (c) be financially capable of carrying out the terms of the Contract;
- (d) have all the necessary experience, capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract;
- (e) have successfully carried out work, similar in nature, scope and value to the Work;
- (f) employ only Subcontractors who:

- (i) are responsible and not suspended, debarred or in default of any obligation to the City (a list of suspended or debarred individuals and companies is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Branch internet site at <http://www.winnipeg.ca/matmgt>); and
 - (ii) have successfully carried out work similar in nature, scope and value to the portion of the Work proposed to be subcontracted to them, and are fully capable of performing the Work required to be done in accordance with the terms of the Contract.
- (g) have a written workplace safety and health program in accordance with The Workplace Safety and Health Act (Manitoba).

B9.2 The Bidder shall be prepared to submit, within three (3) Business Days of a request by the Contract Administrator, proof satisfactory to the Contract Administrator of the qualifications of the Bidder and of any proposed Subcontractor.

B9.3 The Bidder shall provide, on the request of the Contract Administrator, full access to any of the Bidder's equipment and facilities to confirm, to the Contract Administrator's satisfaction, that the Bidder's equipment and facilities are adequate to perform the Work.

B10. OPENING OF BIDS AND RELEASE OF INFORMATION

B10.1 Bid Submissions will not be opened publicly.

B10.2 Within two (2) Business Days following the Submission Deadline, the names of the Bidders and their Total Bid Prices (unevaluated, and pending review and verification of conformance with requirements) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Branch internet site at <http://www.winnipeg.ca/matmgt>.

B10.3 After award of Contract, the name(s) of the successful Bidder(s) and the Contract Amount(s) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Branch internet site at <http://www.winnipeg.ca/matmgt>.

B10.4 The Bidder is advised that any information contained in any Bid Submission may be released if required by City policy or procedures, by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law.

B11. IRREVOCABLE BID

B11.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 9 of Form A: Bid.

B11.2 The acceptance by the City of any Bid shall not release the Bids of the next two lowest evaluated responsive Bidders and these Bidders shall be bound by their Bids on such Work for the time period specified in Paragraph 9 of Form A: Bid.

B12. WITHDRAWAL OF BIDS

B12.1 A Bidder may withdraw his Bid without penalty by giving written notice to the Manager of Materials at any time prior to the Submission Deadline.

B12.1.1 Notwithstanding GC.7.05(2), the time and date of receipt of any notice withdrawing a Bid shall be the time and date of receipt as determined by the Manager of Materials.

- B12.1.2 The City will assume that any one of the contact persons named in Paragraph 3 of Form A: Bid or the Bidder's authorized representatives named in Paragraph 10 of Form A: Bid, and only such person, has authority to give notice of withdrawal.
- B12.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials shall:
- (a) retain the Bid Submission until after the Submission Deadline has elapsed;
 - (b) open the Bid Submission to identify the contact person named in Paragraph 3 of Form A: Bid and the Bidder's authorized representatives named in Paragraph 10 of Form A: Bid; and
 - (c) if the notice has been given by any one of the persons specified in B12.1.3(b), declare the Bid withdrawn.
- B12.2 A Bidder who withdraws his Bid after the Submission Deadline but before his Bid has been released or has lapsed as provided for in B11.2 shall be liable for such damages as are imposed upon the Bidder by law and subject to such sanctions as the Chief Administrative Officer considers appropriate in the circumstances. The City, in such event, shall be entitled to all rights and remedies available to it at law.

B13. EVALUATION OF BIDS

- B13.1 Award of the Contract shall be based on the following bid evaluation criteria:
- (a) compliance by the Bidder with the requirements of the Bid Opportunity (pass/fail);
 - (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B9 (pass/fail);
 - (c) Total Bid Price; and
 - (d) economic analysis of any approved alternative pursuant to B5.
- B13.2 Further to B13.1(a), the Award Authority may reject a Bid as being non-responsive if the Bid Submission is incomplete, obscure or conditional, or contains additions, deletions, alterations or other irregularities. The Award Authority may reject all or any part of any Bid, or waive technical requirements if the interests of the City so require.
- B13.3 Further to B13.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his Bid Submission or in other information required to be submitted, that he is responsible and qualified.
- B13.4 Further to B13.1(c), the Total Bid Price shall be the sum of the quantities multiplied by the unit prices for each item shown on Form B: Prices.
- B13.4.1 If there is any discrepancy between the Total Bid Price written in figures, the Total Bid Price written in words and the sum of the quantities multiplied by the unit prices for each item, the sum of the quantities multiplied by the unit prices for each item shall take precedence.
- B13.5 This Contract will be awarded as a whole.

B14. AWARD OF CONTRACT

- B14.1 The City will give notice of the award of the Contract or will give notice that no award will be made.
- B14.2 The City will have no obligation to award a Contract to a Bidder, even though one or all of the Bidders are determined to be responsible and qualified, and the Bids are determined to be responsive.

- B14.2.1 Without limiting the generality of B14.2, the City will have no obligation to award a Contract where:
- (a) the prices exceed the available City funds for the Work;
 - (b) the prices are materially in excess of the prices received for similar work in the past;
 - (c) the prices are materially in excess of the City's cost to perform the Work, or a significant portion thereof, with its own forces;
 - (d) only one Bid is received; or
 - (e) in the judgment of the Award Authority, the interests of the City would best be served by not awarding a Contract.
- B14.3 Where an award of Contract is made by the City, the award shall be made to the responsible and qualified Bidder submitting the lowest evaluated responsive Bid.
- B14.4 Notwithstanding GC.3.01 and GC.3.02, the City will issue a purchase order to the successful Bidder in lieu of the execution of a Contract.
- B14.5 The Contract Documents, as defined in GC.1.01(7), in their entirety shall be deemed to be incorporated in and to form a part of the purchase order notwithstanding that they are not necessarily attached to or accompany said purchase order.

PART C - GENERAL CONDITIONS

C1. GENERAL CONDITIONS

C1.1 The *General Conditions for the Supply and Delivery of Goods* (Form 21: 88 03) are applicable to the Work of the Contract.

C1.1.1 The *General Conditions for the Supply and Delivery of Goods* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Branch internet site at <http://www.winnipeg.ca/matmgt>.

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

- D1.1 In addition to the *General Conditions for the Supply and Delivery of Goods*, these Supplemental Conditions are applicable to the Work of the Contract.
- D1.2 The General Conditions are amended by striking out "The City of Winnipeg Act" wherever it appears in the General Conditions and substituting "The City of Winnipeg Charter".
- D1.3 The General Conditions are amended by striking out "Board of Commissioners" or "Commissioner" wherever it appears in the General Conditions and substituting the "Chief Administrative Officer".
- D1.4 The General Conditions are amended by striking out "Tender Package" wherever it appears in the General Conditions and substituting "Bid Opportunity".
- D1.5 The General Conditions are amended by striking out "Tender Submission" wherever it appears in the General Conditions and substituting "Bid Submission".
- D1.6 The General Conditions are amended by striking out "Bidding Instructions" wherever it appears in the General Conditions and substituting "Bidding Procedures".

D2. SCOPE OF WORK

- D2.1 The Work to be done under the Contract shall consist of supply and delivery traffic signal heads for the period of April 01, 2006 to March 31, 2007.
- D2.2 The major components of the Work are as follows:
- D2.3 The Work shall be done on an "as required" basis during the term of the Contract.
- D2.3.1 The type and quantity of Work to be performed under this Contract shall be as authorized from time to time by the Contract Administrator and/or Users.
- D2.3.2 Subject to GC.4.08, the City shall have no obligation under the Contract to purchase any quantity of any item in excess of its actual operational requirements.

D3. DEFINITIONS

- D3.1 When used in this Bid Opportunity:
- (a) "**Business Day**" means any Calendar Day, other than a Saturday, Sunday, or a Statutory or Civic Holiday;
 - (b) "**Submission Deadline**" and "**Time and Date Set for the Final Receipt of Bids**" mean the time and date set out in the Bidding Procedures for final receipt of Bids;
 - (c) "**User**" means a person, department or other administrative unit of the City authorized by the Contract Administrator to order Work under this Contract;
- D3.2 Notwithstanding GC.1.01, when used in this Bid Opportunity:
- (a) "**ITE**" means the Institute of Transportation Engineers that complies with the latest edition of standards including amendments and supplements in effect on the date of issue of this Bid Opportunity shall apply to the Work;;

- (b) "**LED**" means Light Emitting Diode; and ;
- (c) "**AASHTO**" means the American Association of State Highways and Transportation Officials that complies with the latest edition of standards including amendments and supplements in effect on the date of issue of this Bid Opportunity shall apply to the Work.

D4. CONTRACT ADMINISTRATOR

D4.1 The Contract Administrator is:

Bill Woroby, P. Eng
Staff Engineer
Public Works
103-1155 Pacific Avenue
Winnipeg, MB R3E 3P1
Telephone No. (204) 986-5326
Facsimile No. (204) 986-7358

D5. NOTICES

D5.1 GC.7.05 is hereby amended to delete reference to "registered mail" and to replace same with "ordinary mail".

D5.2 GC.7.05 is further amended hereby to include delivery by facsimile transmission (fax) as an acceptable means of delivering notices, consents, approvals, statements, authorizations, documents or other communications required or permitted to be given under this Contract. Deliveries by fax will be deemed to have been received on the day of delivery, if a business day, or if not a business day, on the business day next following the day of delivery.

D5.3 Further to GC.7.05, all notices, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D5.4, D5.5 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator at the address or facsimile number identified in D4.1.

D5.4 All notices of appeal to the Chief Administrative Officer shall be sent to the attention of the Chief Financial Officer at the following address or facsimile number:

The City of Winnipeg
Chief Administrative Officer Secretariat
Administration Building, 3rd Floor
510 Main Street
Winnipeg MB R3B 1B9
Facsimile No.: (204) 949-1174

D5.5 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications required to be submitted or returned to the City Solicitor shall be sent to the following address or facsimile number:

The City of Winnipeg
Corporate Services Department
Legal Services Division
185 King Street, 3rd Floor
Winnipeg, MB R3B 1J1
Facsimile No.: (204) 947-9155

SUBMISSIONS

D6. AUTHORITY TO CARRY ON BUSINESS

- D6.1 The Contractor shall be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba, or if the Contractor does not carry on business in Manitoba, in the jurisdiction where the Contractor does carry on business, throughout the term of the Contract, and shall provide the Contract Administrator with evidence thereof upon request.

CONTROL OF WORK

D7. COMMENCEMENT

- D7.1 The Contractor shall not commence any Work until he is in receipt of a purchase order authorizing the commencement of the Work.
- D7.2 The Contractor shall not commence any Work on the Site until:
- (a) the Contract Administrator has confirmed receipt and approval of:
 - (i) evidence that the Contractor is in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba.

D8. ORDERS

- D8.1 The Contractor shall provide a local Winnipeg telephone number or a toll-free telephone number at which orders for delivery may be placed.

D9. RECORDS

- D9.1 The Contractor shall keep detailed records of the goods supplied under the Contract.
- D9.2 The Contractor shall record, as a minimum, for each item listed on Form B: Prices:
- (a) User name(s) and addresses;
 - (b) order date(s);
 - (c) delivery date(s); and
 - (d) description and quantity of goods supplied.
- D9.3 The Contractor shall provide the Contract Administrator with a copy of the records for each year within fifteen (15) Calendar Days of the end of that year.

MEASUREMENT AND PAYMENT

D10. INVOICES

- D10.1 Further to GC.9.01 and notwithstanding GC.9.03, the Contractor shall submit an invoice for each order delivered.
- D10.2 Further to D5.3, the Contractor shall submit invoices to the locations designated at the time of ordering.

D10.3 Invoices must clearly indicate, as a minimum:

- (a) the City's order number;
- (b) date of delivery;
- (c) delivery address;
- (d) type and quantity of goods delivered;
- (e) the amount payable with GST and MRST shown as separate amounts; and
- (f) the Contractor's GST registration number.

D10.4 The City will bear no responsibility for delays in approval of invoices which are improperly submitted.

D11. PAYMENT

D11.1 Further to GC.9.01 and GC.9.03, payment shall be in Canadian funds net thirty (30) Calendar Days after receipt and approval of the Contractor's invoice.

WARRANTY

D12. WARRANTY

D12.1 Notwithstanding GC.10.01 and GC.10.02, the warranty period for each item of Work supplied shall begin on the date of successful delivery and shall expire one (1) year thereafter unless extended pursuant to D12.2, in which case it shall expire when provided for thereunder.

D12.2 If a defect or deficiency prevents the full and normal use or operation of the Work or any portion thereof, for purposes of calculating the warranty period, time shall be deemed to cease to elapse for the defective or deficient portion, and for any portion of the Work whose use or operation is prevented by such defect or deficiency, as of the date on which the defect or deficiency is observed or the use or operation is prevented and shall begin to run again when the defect or deficiency has been corrected or the Work may be used or operated to the satisfaction of the Contract Administrator.

D12.3 Notwithstanding GC.10.01, GC.10.02 and D12.2, if any law of Manitoba or of the jurisdiction in which the Work was manufactured requires, or if the manufacturer provides, a longer warranty period or a warranty which is more extensive in its nature, then the provisions of such law or manufacturer's warranty shall apply.

PART E - SPECIFICATIONS

GENERAL

E1. GENERAL

E1.1 These Specifications shall apply to the Work.

E1.2 The intent of this specification is to establish minimum acceptable electrical, mechanical, design and performance requirements, which Traffic Signal Heads complete with LED indications, shall meet to ensure satisfactory and reliable operation. Where there is a variation between this specification and the latest ITE Standard, the provisions of this specification shall still apply.

E2. MATERIAL

E2.1 All Traffic Signal Heads shall be die-cast aluminum in construction.

E2.1.1 The visors shall be aluminum;

E2.1.2 The metallic component of traffic signal head section connecting brackets, visor mounting fasteners, backboard mounting fasteners, hinge pins, reflector pins, door securing bolts and wing-nut hardware shall be stainless steel;

E2.1.3 Pins used for the door hinge shall be of roll spring type, unless they are user replaceable;

E2.1.4 Stainless steel screws shall be provided for backboard attachment. Note: the screw holes on the traffic signal heads shall be of sufficient depth to accept the screws and hold the backboard firmly in place. Screw head size must be large enough such that the backboard withstands wind gust velocities up to and including 80 mph; and

E2.1.5 Backboards shall be aluminum, Grade 5052-H321.

E2.2 All Traffic Signal module indications shall be LED (Light Emitting Diode) type unless otherwise specified in the contract document.

E3. DESIGN STANDARDS

E3.1 Backboards:

- (a) the thickness of the backboards shall be 0.05 inch +0.02, - 0.00 inch;
- (b) if the backboard mounting screws secure to the hinge or door locking bolt shoulders, the shoulders must not break when the backboard screws are inserted and tightened;
- (c) "J" hook mounting of backboards is not acceptable, and heads that use this mounting system will be rejected;
- (d) all vehicle signal heads, whether eight (8) or twelve (12) inch in diameter, when equipped with a backboard must fit a City of Winnipeg specified ten (10) foot high straight shaft pole, as described below, without deforming the backboard;

Note: City of Winnipeg 10 Foot High Straight Shaft Poles:

- (i) 10 foot high straight poles shall consist of a straight shaft which tapers uniformly from the base plate to the nipple plate. **Overall height** of the pole from top surface of the nipple plate to the bottom of the base plate shall be **10 feet, + 1 inch**;
- (ii) the exterior dimensions of the 10 foot pole shaft walls measured "across the flats" shall be as follows:

- (a) exterior dimensions "across the flats" at **top** of the shaft (at nipple plate) shall be **4 3/4 inches +0, -1/8 inch**; and
- (b) *exterior dimensions "across the flats" at **bottom** of the shaft (at base plate) shall be **7 inches +0, - 1/8 inch.***
- (iii) at the top of each 10 foot straight shaft pole shall be a nipple plate made of 1/2-inch steel plate. Centered within that plate shall be a 1-1/2 inch IPS non-tapered threaded nipple extending through and projecting 1-1/2 inch (+ 1/8, -0) above the nipple plate. The nipple shall be fastened to the plate with a circumferential weld on the **interior** side of the nipple plate. The nipple shall be aligned within 1 degree of the vertical centreline of the pole. The threads shall be continuous and uninterrupted from the top of the nipple to within a distance of 1/16-inch or less, from the top surface of the nipple plate. The nipple plate shall be level and smooth such that a traffic signal head will sit flat and true on the plate; and
- (iv) The nipple plate shall be octagonal in shape to match the internal across flats dimension of the 10 foot pole shaft and shall be inserted partially into and welded circumferentially to the top of the pole shaft.
- (e) Backboards designed for plumbizer mounted signal heads shall be continuously adjustable so as to fit any plumbizer bracket ranging from one (1) inch thick to two (2) inches thick (thickness being defined as the separation distance required between the two (2) head sections to accommodate the plumbizer.

E3.2 Signal Heads

- (a) Vehicle traffic signal heads shall be a **maximum** of fourteen (14) inches square, and must meet the current edition of the ITE specification.

E3.3 Signal Lenses

- (a) All vehicular indications shall be LED.

E3.4 Visor Design

- (a) All visors shall be of cut-away design; and
- (b) Tunnel visors for signal heads are not part of this Contract.

E3.5 All traffic signal heads shall be designed in accordance with the latest revisions of the requirements of the AASHTO standard specifications for structural supports for highway signs, luminaries and traffic signals.

E4. WIND LOAD

- E4.1 All traffic signal heads shall be designed to withstand gust wind velocities up to and including 100 miles per hr, equivalent to a wind pressure $P = 25.6 C_d C_h$ for a single point (top or bottom) head mounting.
- E4.2 All backboard mounting shall be designed to withstand gust wind velocities up to and including 80 miles per hr.

E5. DELIVERY

- E5.1 Goods shall be delivered on an "as required" basis during the term of the Contract, f.o.b. destination, freight prepaid, to:

Public Works
Equipment and Material Stores
1277 Pacific Street

Winnipeg, MB

E5.1.1 Goods shall be delivered within twenty (20) Business Days of the placing of an order, except where otherwise agreed at the time of ordering.

E5.2 Goods shall be delivered between 7:30 a.m. and 3:00 p.m. on Business Days.

E5.3 The Contractor shall off-load goods as directed at the delivery location.

E6. PAINTING

E6.1 All burrs and sharp edges must be made smooth on traffic signal heads and backboards before painting.

E6.2 The traffic signal heads and backboards shall be degreased with a suitable solvent or steam cleaning process before painting.

E6.3 The traffic signal heads and backboards aluminum shall be etched, if required, by the product recommended by the paint manufacturer.

E6.4 The traffic signal heads and backboards shall be undercoat painted, with an appropriate undercoat paint, if required by the topcoat paint manufacturer.

E6.5 The traffic signal heads shall be topcoat painted with an Epoxy polyester powder coat paint, in U.S.A. Standard colour Federal **YELLOW** number 595A-13538 or 13415, or **BLACK** as required.

E6.6 The backboards shall be topcoat painted with an Epoxy polyester powder coat paint, in U.S.A. Standard colour Federal **YELLOW** number 13415, or **BLACK** as required.

E6.7 All parts referenced in the ITE specification that must be **FLAT BLACK** must conform to the ITE requirements.

E7. ASSEMBLY

E7.1 All heads shall be assembled, excluding backboard, in the configuration specified in the order.

E7.2 Visors may be packaged separately from the head assembly if desired.

E7.3 All sections shall be wired and ready for use.

E7.4 The traffic signal heads shall have the wiring splitters mounted in the AMBER housing in an electrically secure manner. There shall be not less than 4 circuits on wiring splitters in the 3 section heads and not less than 6 circuits on wiring splitters in 4 section heads.

E8. LED

E8.1 All traffic signal indications shall be LED (Light Emitting Diode) type unless otherwise specified in the contract document.

E8.2 LED units shall properly fit within all ITE conforming traffic signal heads for eight (8) inch or twelve (12) inch signal sections as per design;

(a) all light emitting diodes units shall conform to the current ITE specification for LED signals for Lumen Output and Chromaticity;

- (b) units shall have a diode string failure rate of no more than 1 for 4", that is, for any individual diode failure no more than four (4) diodes may be out unless the ITE specification for LED signals specifies a lower amount;
- (c) design of symbols shall conform to ITE standards for circular (Red/Amber/Green), Arrows, bus priority;
- (d) all arrow LED units shall have two rows of LED's for each segment making up the arrow configuration, and conform to the Manual of Uniform Traffic Control Devices Canadian Standard with respect to configuration and dimensions for arrow indications;
- (e) units shall operate from 90 to 135 volts RMS 60 Hz. alternating and from minus 40 to plus 165 degrees Fahrenheit and from zero to one hundred percent humidity;
- (f) units shall have a sharp voltage turn-off characteristic, decaying to less than 15 volts A.C. RMS within 200 milliseconds of removal of power, over the full 90 to 135 VAC specified operating voltage range, so as to not to cause false triggering of a signal Conflict Monitor device due to extended turn-off voltage decay;
- (g) units shall not show any visible light when in the OFF condition when attached to a Model 200 switch pack as used in the 170 type controller 33X control cabinet, (Evaluation of this requirement shall be undertaken in total darkness);
- (h) each UNIT shall be identified with manufacture's name, wattage, voltage range, date of manufacture and serial number, if used"; and
- (i) all circuit boards, including the LED mounting circuit board shall be conformal coated.

E8.3 The Manufacture shall warrant that all the LED units be guaranteed against failure of any component indicated in clause D12.1, and maintaining of ITE Lumen Output and Chromaticity, for five (5) years from date of acceptance by the City of Winnipeg.

E9. PACKAGING

- E9.1 Each assembled traffic signal head shall be packaged separately, in a manner suitable to protect the unit and paint from damage.
- E9.2 Each package shall have the configuration of the Head clearly indicated.
- E9.3 Visors, if packaged separately, shall be protected from damaging each other in packaging and have the size, colour type and amount in package clearly indicated on the package.
- E9.4 Backboards shall be packaged in suitable quantities for handling manually and, if required by the paint manufacturer, separated with suitable packing material.