



**THE CITY OF WINNIPEG**

# **BID OPPORTUNITY**

**BID OPPORTUNITY NO. 902-2007**

**SUPPLY AND DELIVERY OF HANDHELD INFIELD GPS DATA COLLECTION  
SYSTEM**

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## **PART B - BIDDING PROCEDURES**

### **B1. CONTRACT TITLE**

B1.1 SUPPLY AND DELIVERY OF HANDHELD INFIELD GPS DATA COLLECTION SYSTEM

### **B2. SUBMISSION DEADLINE**

B2.1 The Submission Deadline is 4:00 p.m. Winnipeg time, January 29, 2008

B2.2 Bids 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 promptly notify the Contract Administrator of the error, discrepancy or omission at least five (5) Business Days prior to the Submission Deadline.

B3.3 If the Bidder is unsure of the meaning or intent of any provision therein, the Bidder should request clarification as to the meaning or intent prior to the Submission Deadline.

B3.4 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.

B3.5 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.

B3.6 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 regularly and shortly before the Submission Deadline, as may be amended by addendum.

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;
  - (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 may 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 shall consist of the following components:
- (a) Form A: Bid; and
  - (b) Form B: Prices;

- B6.2 Further to B6.1, the Bidder should include the written correspondence from the Contract Administrator approving a substitute in accordance with B5.
- B6.3 All components of the Bid 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.
- B6.4 The Bid Submission may be submitted by mail, courier or personal delivery, or by facsimile transmission.
- B6.5 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
- B6.5.1 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.
- B6.6 Bidders are advised not to include any information/literature except as requested in accordance with B6.1.
- B6.7 Bidders are advised that inclusion of terms and conditions inconsistent with the Bid Opportunity document, including the General Conditions, may result in the Bid being determined to be non-responsive.
- B6.8 If the Bid Submission is submitted by facsimile transmission, it shall be submitted to (204) 949-1178.
- B6.8.1 The Bidder is advised that the City cannot take responsibility for the availability of the facsimile machine at any time.
- B6.9 Bids 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;
  - (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;
- (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 and the Contract, when awarded, shall be both joint and several.

## **B8. PRICES**

B8.1 The Bidder shall state the lump sum price in Canadian funds for the Work on Form B: Prices.

B8.1.1 The price 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;
- (d) profit and all compensation which shall be due to the Contractor for the Work and all risks and contingencies connected therewith.

B8.1.2 The price on Form B: Prices shall not include the Manitoba Association for Resource Recovery Corporation (MARRC) Environmental Handling Charge (EHC) which shall be extra where applicable.

## **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; and
- (b) be financially capable of carrying out the terms of the Contract; and
- (c) have all the necessary experience, capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract.

B9.2 The Bidder and any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

- (a) be responsible and not be suspended, debarred or in default of any obligations 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>.

B9.3 The Bidder and/or any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

- (a) have successfully carried out work similar in nature, scope and value to the Work; and
- (b) be fully capable of performing the Work required to be in strict accordance with the terms and provisions of the Contract; and
- (c) have a written workplace safety and health program, if required, pursuant to The Workplace Safety and Health Act (Manitoba);

B9.4 The Bidder shall 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.

B9.5 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 Bids will not be opened publicly.

B10.2 Following the Submission Deadline, the names of the Bidders and their bid prices (unevaluated, and pending review and verification of conformance with requirements or evaluated prices) 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 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 will:

- (a) retain the Bid until after the Submission Deadline has elapsed;
- (b) open the Bid 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;
- (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 or minor informalities or irregularities 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 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 lump sum price shown on Form B: Prices.

B13.4.1 If there is any discrepancy between the lump sum price written in figures and the lump sum price written in words, the price written in words 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.

B14.3.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of his Bid upon written request to the Contract Administrator.

- 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 the supply and delivery of a Handheld Infield GPS Data Collection system.

#### D3. DEFINITIONS

- D3.1 When used in this Bid Opportunity:
- (a) "**Award Authority**" means the authority having the jurisdiction to award the Contract according to the City's by-laws, policies or procedures;
  - (b) "**Business Day**" means any Calendar Day, other than a Saturday, Sunday, or a Statutory or Civic Holiday;
  - (c) "**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;

#### D4. CONTRACT ADMINISTRATOR

- D4.1 The Contract Administrator is:
- Dave Domke  
105-1155 Pacific Ave  
Winnipeg, MB  
R3E 3P1  
Telephone No.: (204) 986-3701  
Facsimile No.: (204) 986-7106

#### 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 following address or facsimile number:
- The City of Winnipeg  
Chief Administrative Officer Secretariat  
Attn: Chief Administrative Officer  
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  
Attn: City Solicitor  
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.

## **SCHEDULE OF WORK**

### **D7. COMMENCEMENT**

- D7.1 The Contractor shall not commence any Work until he is in receipt of a notice of award from the City 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 of authority to carry on business specified in D6;
  - (b) the Contractor has attended a meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a meeting.

D7.3 The Contractor shall commence the Work on the Site within seven (7) Calendar Days of receipt of the Purchase Order.

**D14. FORFEITURE OF CONTRACT**

D14.3 Notwithstanding GC.8.02 (1) and GC.8.02 (3), the City shall have the full right and power to take the whole of the Work, or any part or parts thereof, out of the hands of the Contractor, without process or action at law, upon giving the Contractor written Notice.

**MEASUREMENT AND PAYMENT**

**D15. PAYMENT**

D15.1 Further to GC.9.03, effective January 1, 2007 the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

**D16. PAYMENT SCHEDULE**

D16.1 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.

**INDEMNITY**

**D17. INDEMNITY**

D17.1 Notwithstanding GC.7.03, the Contractor shall indemnify the City in the amount of two million dollars (\$2,000,000), plus a minimum of twice the Contract value.

**WARRANTY**

**D18. WARRANTY**

D18.1 Warranty is as stated in GC.10.1.

## **PART E - SPECIFICATIONS**

### **GENERAL**

#### **E1. APPLICABLE SPECIFICATIONS**

- E1.1 These Specifications shall apply to the Work.
- E1.2 Bidders are reminded that requests for approval of substitutes as an approved equal or an approved alternative shall be made in accordance with B5.

#### **E2. GOODS**

- E2.1 The Contractor shall supply two (2) handheld infield GPS data collection systems in accordance with the requirements hereinafter specified.

### **HANDHELD GPS**

#### **E3. STANDARD FEATURES**

- E3.1 The System shall come complete with the following:
- (a) Microsoft Mobile 5.0 software.
  - (b) Minimum 416 MHz Intel X Scale processor.
  - (c) Minimum 512 MB non-volatile Flash data storage.
  - (d) Sealed SD card slot
  - (e) Outdoor colour display
  - (f) Ergonomic cable-free handheld
  - (g) Rugged and water-resistant design
  - (h) Minimum of 8 hour internally rechargeable battery
  - (i) Bluetooth Wireless
  - (j) 802.11b wireless LAN
  - (k) Ability to download collected data to PC computer for post processing to achieve higher accuracy and for merging into other GIS software.
- E3.2 The GPS shall have:
- (a) Submeter accuracy in real-time
  - (b) Integrated SBAS
  - (c) RTCM real-time correction support
  - (d) NMEA protocol support
- E3.3 Software shall include:
- (a) GPS Controller for control of integrated GPS and in-field mission planning
  - (b) GPS Connector for connecting integrated GPS to external ports
  - (c) Microsoft ActiveSync®, Calculator, File Explorer, Internet Explorer, Pictures, Excel Mobile, Outlook Mobile (Inbox, Calendar, Contacts, Notes, Tasks), Word Mobile, Windows® Media Player.
  - (d) Transcriber (handwriting recognition)
  - (e) A software application which will allow designing of data collection screens, complete with selection lists of multiple attributes data.

- (i) Data collection software should be compatible with the laser range finder supplied as part of the system (as specified in E5).
- (f) Software should allow ortho photos to be used as a backdrop for direct point referencing on unit screen.

**E3.4 Accessories shall include:**

- (a) Support module with power supply and USB data cable
- (b) Getting Started Guide
- (c) Getting Started Disc
- (d) Hand strap
- (e) Pouch
- (f) Stylus kit
- (g) Hard carry case
- (h) Serial clip for field data and power input
- (i) Vehicle power adaptor
- (j) 1 Day training (See E7)

**E4. TECHNICAL SPECIFICATIONS**

**E4.1 Physical**

- (a) Weight . . . . . shall not exceed 2 lb with battery.
- (b) Processor. . . . . Minimum of 416 MHz Intel PXA-270 X-Scale processor
- (c) Memory. . . . . Minimum of 64 MB RAM and 512 MB internal Flash disk
- (d) Battery . . . . . Internal, rechargeable with a minimum runtime of 8 hours

**E4.2 Environmental shall include:**

- (a) Operating Temperature  $-10^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$  ( $14^{\circ}\text{F}$  to  $122^{\circ}\text{F}$ )
- (b) Storage  $-20^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$  ( $-4^{\circ}\text{F}$  to  $158^{\circ}\text{F}$ )
- (c) Casing Wind-driven rain and dust-resistant per IP 54 standard
- (d) Slip-resistant grip, shock and vibration resistant for up to 1 m drop.

**E4.3 Input/output**

- (a) Communications. . . . . Bluetooth4, 802.11b wireless LAN
- (b) USB client v1.1 compliant via support module
- (c) Serial via optional DE9 serial clip adaptor
- (d) Ethernet 10/100 BaseT compatible via support module

**E4.4 Bluetooth Profiles**

- (a) Client and host support. . . . . Serial Port, Object Push
- (b) Client support only. . . . . Dial-Up Networking
- (c) Host support only. . . . . File Transfer (using OBEX)

**E4.5 Display**

- (a) Advanced outdoor TFT,  $240 \times 320$  pixel
- (b) 65,536 colors, with backlight
- (c) Ability to display ortho photos.



- E4.6 Audio
  - (a) Microphone and speaker, record and playback utilities
- E4.7 Interface
  - (a) Touch screen, Soft Input Panel (SIP) virtual keyboard
  - (b) Audio system events, warnings, and notifications
- E4.8 GPS
  - (a) Channels 12 (L1 code and carrier/L2 carrier)
  - (b) Integrated real-time SBAS
  - (c) Update rate 1 Hz
  - (d) Time to first fix 30 seconds (typical)
  - (e) Protocols: NMEA
- E4.9 Accuracy (HRMS) after differential correction
  - (a) Code post processed. . . . . Minimum of Submeter
  - (b) Real-time (SBAS or external RTCM source) . . . . . Minimum of Submeter

## **LASER RANGE FINDER**

### **E5. STANDARD FEATURES**

- E5.1 System
  - (a) Compass Sensor for Azimuth Measurements
  - (b) Support for Magnification
  - (c) Advanced Targeting Modes: Closest, Farthest & Continuous
  - (d) Tripod Mount
  - (e) Multiple Battery Options
  - (f) Water/dust resistant housing
  - (g) Thru-The-Lens targeting (Parallax free)
  - (h) Digital Data Output
  - (i) Inclinator for height measurements (preferred but not required)
  - (j) Compatible for use with Handheld GPS (E3).
- E5.2 Measurement Solutions
  - (a) Distance (Horizontal, Vertical & Slope)
  - (b) Azimuth (Compass bearing for single-shot positioning)

### **E6. TECHNICAL SPECIFICATIONS**

- E6.1 Physical
  - (a) Units. . . . . Feet, Yards, Meters, Degrees, and Percent Slope
- E6.2 Measurement Range
  - (a) Distance. . . . . 0 to 1,000 m (3,280 ft); typical, 2,000 m (6,560 ft); mx to reflective target.
  - (b) Azimuth. . . . . 0 to 359.9 degrees
- E6.3 Accuracy

- (a) Distance . . . . .  $\pm 30$  cm ( $\pm 1$  ft); typical,  $\pm 1$  m ( $\pm 1$  yd); to low quality targets
- (b) Azimuth . . . . .  $\pm 1$  degree; typical

**E7. TRAINING**

E7.1 1 Day training for ten (10) City of Winnipeg employees will include but not be limited to:

- (a) A basic introduction to the Handheld Infield GPS Data Collection System, including handheld GPS, laser range finder, and included software.
- (b) GPS fundamentals,
- (c) configuring the GPS equipment,
- (d) data collection techniques,
- (e) a field session on collecting data,
- (f) downloading data,
- (g) A comprehensive manual for each student,

E7.2 A total of one (1) training session is required as part of the Handheld Infield GPS Data Collection System.

**E8. DELIVERY**

E8.1 Goods shall be delivered within thirty (30) Business Day(s) of the placing of an order, f.o.b. destination, freight prepaid to:

Public Works Department  
Parks and Open Space Division  
Urban Forestry Branch  
105-1155 Pacific Ave,  
Winnipeg Manitoba R3E 3P1

E8.2 The Contractor shall confirm delivery with the Contract Administrator or his/her designate, at least two (2) Business Days before delivery.

E8.3 Goods shall be delivered between 8:00 a.m. and 4:00 p.m. on Business Days.