THE CITY OF WINNIPEG

REQUEST FOR PROPOSAL

RFP NO. 925-2010

AUTOMATIC FARE COLLECTION SYSTEM

Proposals shall be submitted to:

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

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 AUTOMATIC FARE COLLECTION SYSTEM

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 4:00 p.m. Winnipeg time, March 9, 2011.

B2.2 Proposals 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 D5.1.

B3.2 If the Bidder finds errors, discrepancies or omissions in the Request for Proposal, 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 ten (10) 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 in writing 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 Request for Proposal 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 Request for Proposal 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. CONFIDENTIALITY

B4.1 Information provided to a Bidder by the City or acquired by a Bidder by way of further enquiries or through investigation is confidential. Such information shall not be used or disclosed in any way without the prior written authorization of the Contract Administrator.

B4.2 The Bidder shall not make any statement of fact or opinion regarding any aspect of the Request for Proposals to the media or any member of the public without the prior written authorization of the Contract Administrator.

B5. ADDENDA

B5.1 The Contract Administrator may, at any time prior to the Submission deadline, issue addenda correcting errors, discrepancies or omissions in the Request for Proposal, or clarifying the meaning or intent of any provision therein.

B5.2 The Contract Administrator will issue each addendum at least five (5) Business Days prior to the Submission Deadline, or provide at least two (2) Business Days by extending the Submission Deadline.

B5.2.1 Addenda will be available on the Bid Opportunities page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/bidopp.asp

B5.2.2 The Bidder is responsible for ensuring that he has received all addenda and is advised to check the Materials Management Division website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.

B5.2.3 Bidders who wish to be notified that an addendum has been posted on the website may send an email request to the Contract Administrator (Section D4.2) that they be notified. Notwithstanding such a request, the provisions of B5.2.2 remain.

B5.3 The Bidder shall acknowledge receipt of each addendum in Paragraph 10 of Form A: Proposal. Failure to acknowledge receipt of an addendum may render a Proposal non-responsive.

B6. SUBSTITUTES

B6.1 The Work is based on the materials, equipment, methods and products specified in the Request for Proposal.

B6.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.

B6.3 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.

B6.4 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.

B6.5 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.

B6.6 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.

B6.6.1 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.

B6.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.

B6.8 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 B29.1.

B6.9 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.

B6.10 Notwithstanding B6.2 to B6.9 and in accordance with B8.12, deviations inconsistent with the Request for Proposal document shall be evaluated in accordance with B29.1(a).

B7. BIDDERS' CONFERENCE

B7.1 An optional Bidders' Conference will be held on Monday January 31th, 2011 at 10:00am. There will be an optional tour of the garages afterwards.

B7.2 The Bidders' Conference will be held in the 2nd Floor Boardroom at

Winnipeg Transit
421 Osborne Street
Winnipeg, Manitoba

B7.3 Bidders should register the names and e-mail address of every person who plans to attend by emailing the Contract Administrator (D5.1) at least 48 hours before the conference.

B8. PROPOSAL SUBMISSION

B8.1 The Proposal shall consist of a Technical Proposal and a Financial Proposal.

B8.2 The Technical Proposal shall consist of the following elements:

(a) Form A: Proposal;
(b) Schedule;
(c) Compliance Matrix;
(d) Technical Description.

B8.3 The Technical Proposal should also consist of the following elements:

(a) Executive Summary;
(b) Corporate Qualifications;
(c) Project Management;
(d) Customer Service Web Site;
(e) Operating and Support Services;
(f) Form Q: Project References.

B8.4 The Financial Proposal shall consist of the following:

(a) Detailed Pricing Schedule.

B8.5 Further to B8.1, the Bidder should include the written correspondence from the Contract Administrator approving a substitute in accordance with B6.

B8.6 Further to B8.2 and B8.4, all components of the Proposal 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, to constitute a responsive Proposal.

B8.7 Further to B8.3, all components of the Proposal should be fully completed or provided and submitted by the Bidder no later than the Submission Deadline, with all required entries made clearly and completely, to constitute a responsive Proposal.

B8.7.1 Bidders should submit one (1) unbound original (marked “original”) and nine (9) copies. The submission shall be submitted in hard copy.

B8.8 The Proposal Submission shall be submitted enclosed and sealed in **two** envelopes clearly marked with the RFP number, RFP title and the Bidder's name and address. **Envelope “A”** shall be labelled “Technical Proposal” and shall contain the entire submission except for the price information. **Envelope “B”** shall be clearly labelled “Financial Proposal” and shall contain the Detailed Pricing Schedule.

B8.8.1 Samples or other components of the Proposal Submission which cannot reasonably be enclosed in the envelope may be packaged separately, but shall be clearly marked with the RFP number, the Bidder's name and address, and an indication that the contents are part of the Bidder’s Proposal Submission.

B8.9 Further to B8.7.1, Technical Proposals should be prepared on 8-1/2” x 11” paper and bound in three-ring binders. Fold-outs for drawings, charts, tables and spreadsheets are acceptable. To facilitate evaluation, Proposals should be placed in the binder in the following order:

(a) Form A: Proposal;

(b) Executive Summary;

(c) Corporate Qualifications;

(d) Technical Description;

(e) Operating and Support Services;

(f) Project Management;

(g) Schedule;

(h) Customer Service Web Site;

(i) Compliance Matrix;

(j) Form Q: Project References.

B8.10 The Bidder should submit an electronic copy of the complete Proposal.

B8.10.1 The Technical Proposal should be provided on one clearly labelled CD and the Financial Proposal on a second clearly labelled CD.

B8.10.2 All spreadsheets, including the pricing spreadsheets and the compliance matrix, must be submitted in MS Excel® (2003).

B8.10.3 All schedules must be submitted in MS Project® (2003).

B8.10.4 Other documents must be submitted in MS Word® (2003).

B8.10.5 The Bidder is specifically requested not to submit their Proposal electronic copies in PDF format.

B8.10.6 If there is any discrepancy between the original hard copy and the electronic version, the original hard copy submission shall take precedence.

B8.11 Bidders are advised not to include any information/literature except as requested in accordance with B8.1.

B8.12 Bidders are advised that inclusion of terms and conditions inconsistent with the Request for Proposal document, including the General Conditions, will be evaluated in accordance with B29.1(a).

B8.13 Proposals submitted by facsimile transmission (fax) or internet electronic mail (e-mail) will not be accepted.

B8.14 Proposals shall be submitted to:

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

B9. PROPOSAL

B9.1 The Bidder shall complete Form A: Proposal, making all required entries.

B9.2 Paragraph 2 of Form A: Proposal 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.

B9.2.1 If a Proposal is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B9.2.

B9.3 In Paragraph 3 of Form A: Proposal, the Bidder shall identify a contact person who is authorized to represent the Bidder for purposes of the Proposal.

B9.4 Paragraph 12 of Form A: Proposal 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 the corporate seal, if the corporation has one, should be affixed;

(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.

B9.4.1 The name and official capacity of all individuals signing Form A: Proposal should be printed below such signatures.

B9.5 If a Proposal 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 Proposal and the Contract, when awarded, shall be both joint and several.

B10. SCHEDULE

B10.1 A detailed project schedule, using MS Project, shall be provided that displays project milestones and key deliverables and is based on receiving a Notice to Proceed on June 30, 2011.

B10.2 The schedule should indicate when and for what purpose the Bidder plans to have staff on-site at Winnipeg Transit.

B10.3 All schedule assumptions should be clearly stated.

B10.4 The schedule should include, but not be limited to, the following

(a) Payment milestones;

(b) Major project meetings;

(c) System Design Specification (SDS) document development, review, modification and approvals;

(d) Test procedure development, review and approval;

(e) Product development; hardware, software and firmware;

(f) Product manufacturing;

(g) Product shipment;

(h) Installation of on-bus and off-bus equipment with start, end and appropriate milestones;

(i) Testing;

(j) On-site work.

B11. COMPLIANCE MATRIX

B11.1 The Bidder shall complete and submit the Compliance Matrix Response Form, with a comment on all clauses and paragraphs contained in this RFP, stating either “compliant”, or “not compliant”.

B11.1.1 The Compliance Matrix Response Form, provided with the RFP, must be used.

B11.1.2 The Compliance Matrix Response Form should be signed by an authorized signing officer.

B11.2 The compliance matrix has been formatted in MS Excel to correspond with the section title and paragraph numbering scheme used to prepare the RFP document.

B11.3 Every section and paragraph in the compliance matrix should be confirmed. Sections and paragraphs not requiring a compliance response shall be annotated as “noted/understood” and in these circumstances, “noted/understood” shall mean “compliant” in every respect.

B11.4 Where a “YES” response is most appropriate select “compliant” as your response and where “NO” is more appropriate use “not compliant” as your response.

B11.5 The comment column in the Compliance Matrix is to be used for any explanations on non-compliance.

B11.6 If a section is marked as compliant and also includes a comment that has, in the opinion of the City, the effect of modifying the compliance, then the City will deem the section to be ‘non-complaint’ and the score will be reduced correspondingly.

B11.7 In the event of any disagreement between the commitment to provide a particular compliant functionality in the compliance matrix and words or numbers provided in the proposal narrative, the compliance matrix will take contractual precedence.

B12. TECHNICAL DESCRIPTION

B12.1 The Bidder shall describe how their proposed solution meets or exceeds the specific technical and functional requirements of the City as outlined in this RFP.

B12.2 It should include a detailed description of each piece of equipment and each element of software to be supplied together with a description of its functional performance, clearly demonstrating its suitability to meet the technical and functional requirements of the City including addressing accessibility requirements of disabled passengers.

B12.3 A description of routine maintenance tasks and an estimate of the time required to perform these tasks should be included.

B12.4 In addition to the functionality of the complete system it should include descriptions of all the features stipulated in PART E - SPECIFICATIONS. A detailed description of the following items should be included in the relevant sections:

(a) Handling of coin boxes;

(b) Ability of on-bus equipment to tolerate being parked outside overnight in winter;

(c) Functionality of the customer service web site;

(d) Capability to incorporate future system changes;

(e) Capability to provide variable fares by time-of-day (refer to section E4.11(f));

(f) A comprehensive and coherent description of how the information system requirements will be met, as stipulated in Section E52.

B12.5 The Technical Description must not include any pricing information.

B12.6 This section is not to exceed 100 pages.

B13. EXECUTIVE SUMMARY

B13.1 The Executive Summary should contain a brief overview of the key features and benefits of the Bidder's proposed system and should demonstrate how the proposed system meets The City of Winnipeg's objectives.

B13.2 The Executive Summary must not include any pricing information.

B13.3 The Executive Summary is not to exceed 6 pages.

B14. CORPORATE QUALIFICATIONS

B14.1 The Bidder should provide the following information to indicate why they are qualified to complete this Contract.

B14.2 The description of the qualifications should include:

(a) Corporate Identification;

(b) Experience;

(c) Capability;

(d) Personnel;

(e) Financial.

B14.3 Corporate Identification should include the Bidder's legal name, business address, telephone number, facsimile number, Business Number, GST Registration Number, the number of years in business and the number of company employees. It should also include information on any Canadian subsidiaries, offices and joint ventures.

B14.4 Experience should include a description of three (3) relevant reference projects that have been completed in the last five (5) years. Relevancy of the project should be judged based on project size, similarity of scope and geographic similarity as well as the requirements of Section B11.1. Details should include a description of the equipment supplied (quantity and description) and services supplied (such as design, supply, install, commission or operate). The City of Winnipeg may check all references provided during Proposal review. Form Q: Project References should be completed for each project.

B14.5 Capability should include a description of the Bidder's ability to produce the hardware, software and firmware required to supply a system that meet the requirements herein. Key suppliers/subcontractors should be identified including listing the items and services that each will supply.

B14.6 Personnel should include a demonstration that the Bidder has an adequate supply of appropriately skilled personnel available to complete this project to meet the schedule and requirements outlined herein. In particular, the Bidder should demonstrate the capabilities of its back-up team should its primary team be unavailable for any reason.

B14.7 Financial should provide sufficient information to permit the City to assess their financial capability to complete the project successfully. The City retains the sole and absolute discretion to decide whether the information provided, all as described herein, are adequate to permit the City to conclude that the Bidder is financially capable of successfully completing the project. A positive determination of the Bidder's financial capability to complete the project successfully is a mandatory requirement for a Bidder's Proposal to be considered in accordance with B20.1(b).

B14.7.1 Bidders should provide audited financial statements for the most recent two years plus three substantial current trade credit references in their Proposal to permit the City to make this assessment.

B14.7.2 Bidders may provide the audited financial statements in a sealed envelope with a confidentiality agreement attached.

B14.8 This section is not to exceed 15 pages excluding the financial statements.

B15. PROJECT MANAGEMENT

B15.1 The description of the Bidder's approach to project management should include:

(a) Project Manager;

(b) Project Team;

(c) Quality Certification;

(d) Project Management Methodology.

B15.2 The description of the Project Manager should include details concerning the professional training and project experience for the Project Manager who is proposed to be assigned to the project. The Contractor cannot change the Project Manager during the course of the project without the City's express agreement.

B15.3 The description of the Project Team should include professional training and project experience details about the key personnel who will be assigned to work on the project. The Contractor cannot change the nominated key personnel during the course of the project without the City's express agreement. Details should be included for key personnel from key subcontractors and suppliers. The roles and relationship between the Bidder and the key subcontractors and suppliers should be identified. An organization chart should be provided to illustrate functional roles and relationships of all members of the project team including key Subcontractors.

B15.3.1 Bidder should include the percentage of time each of the key personnel will spend on the project.

B15.4 Registration to ISO 9001 is the preferred quality certification. A copy of the Bidder's ISO 9001 registration should be included. Sub-contractors of the Bidder certified to ISO 9001 do not need to be certified. A Bidder that is not ISO 9001 registered should provide evidence and an explanation of comparable quality certification and/or practices.

B15.5 The Bidder should propose a schedule of regular project review meetings. To minimize travel, where feasible, it is acceptable for some project review meetings to be held by phone conference. An updated schedule clearly indicating the baseline schedule and the updated schedule together with an explanation for the reason for any variances from the baseline should be submitted prior to each project review meetings.

B15.6 The Bidder should describe their approach to the development and approval of the System Design Specification (SDS) documents. The Bidder should provide a preliminary list of SDS documents intended to be supplied for approval.

B15.7 The Bidder should describe in detail their approach to installation of on-bus equipment, particularly how to minimize interruption to revenue collection and inconvenience to the customers during the installation process. The installation process includes the removal of old equipment, installation of new equipment and commissioning of new system. The Bidder is responsible for installing all on-bus equipment with its own workforce. The City will not be providing any installation workers; however, the City will provide bus operators to drive the buses to/from the installation location.

B15.8 The Bidder should describe their approach to completing the installation as quickly as possible. The description should include a detailed list of the facilities and support that the City of Winnipeg will be expected to provide. Installation details should include but not limited to:

(a) Work space required;

(b) Installation throughput and installation time;

(c) Installation crew composition and numbers;

(d) Bus preparation and staging.

B15.9 This section should include a description of the Bidder's incident reporting and problem escalation procedures.

B15.10 This section is not to exceed 25 pages.

B16. CUSTOMER SERVICE WEB SITE

B16.1 The Bidder should provide a description of the proposed customer service web site. The Bidder should indicate how the proposed website will provide the entire specified customer service functionality. The Bidder should indicate how the proposed website will be integrated with the City's existing website.

B16.2 The Bidder may include one (1) CD in each technical envelope with samples of web-sites developed.

B16.3 This section should not exceed 25 pages.

B17. OPERATING AND SUPPORT SERVICES

B17.1 The Bidder should describe what services will be provided by the Bidder and what services are assumed to be provided by the City during system implementation, during the warranty period and following the expiry of the warranty period as part of a maintenance service program.

B17.2 The Bidder should describe their service response time, resolution commitments and escalation path for various service urgencies:

(a) **Mission critical** – unable to collect any fare revenue, data lost or severely compromised;

(b) **Urgent** – fare collection severely compromised, possible loss of data;

(c) **Serious** – fare collection difficult but achievable with manual workarounds, potential for loss of data;

(d) **Minor** – fare collection adequate, no data lost.

B17.3 The City intends to operate the AFC System and perform first line maintenance activities using Winnipeg Transit personnel during the warranty period. The Bidder should perform second and third line maintenance activities during the warranty period. The Bidder should clearly indicate the location and/or availability of:

(a) Its maintenance and technical support staff;

(b) Spare parts;

(c) Its telephone and on-line customer support services.

B17.4 The Bidder should describe any operating and maintenance responsibilities expected of the City, both prior to and subsequent to the expiry of the warranty period.

B17.5 The Bidder should use this section to outline its recommended preventative maintenance procedures and planned maintenance services for the equipment and software proposed.

B17.6 The Bidder should list the spare parts that it recommends the City purchase and retain.

B17.7 The price of these services and parts must not be included in this section.

B17.8 This section is not to exceed 25 pages.

B18. PROJECT REFERENCES

B18.1 The Bidder should complete a minimum of three (3) copies of Form Q: Project References, making required entries. A reference should be provided for three projects including at least:

(a) One comparable smart card fare collection system; and

(b) One comparable validating farebox system or equivalent.

B18.2 Paragraph 2 of Form Q: Project References should be the name of the project that is being used as a reference.

B18.3 Paragraph 3 of Form Q: Project References should be a description of the scope of the project. Additional information about the project should be supplied as stipulated in section B9.2.2.

B18.4 Paragraph 4 of Form Q: Project References should indicate the value of that portion of the project that the Bidder was responsible for including the value of sub-contractors to the Bidder.

B18.4.1 If a project was paid in non-Canadian funds provide the value in the original currency and a conversion to Canadian dollars.

B18.5 Paragraph 5 of Form Q: Project References should indicate the date of completion and indicate whether the project was early, late or on-time.

B18.5.1 If the project was completed after the due date, provide a brief explanation why.

B18.6 Paragraph 6 of Form Q: Project References should indicate the commercial relationship of the Bidder to the customer.

B18.7 Paragraph 7 of Form Q: Project References should indicate the name of the operating customer (normally this will be the transit company or the municipality).

B18.8 Paragraph 8 of Form Q: Project References should provide all the contact information for a knowledgeable and responsible person at the operating customer who is familiar with the installation and operation of the system and equipment and with the specific project performance of the Bidder on the contract. The Bidder is advised that all provided project references will be contacted relative to the project performance of the Bidder.

B18.8.1 The contact person must speak English fluently.

B19. DETAILED PRICING SCHEDULE

B19.1 The Bidder shall complete the Detailed Pricing Schedule. Values should be entered only in the spaces provided.

B19.1.1 The Detailed Pricing Schedule provided with the RFP must be used without alteration.

B19.2 The Detailed Pricing Schedule spreadsheet should be signed by an authorized signing officer.

B19.3 The Bidder shall state a price in Canadian funds for each item of the Work identified on the Detailed Pricing Schedule. All prices shall be firm.

B19.3.1 Prices on the Detailed Pricing Schedule shall include:

(a) duty, including all import duties and all customs and excise charges;

(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;

(e) all currency risk.

B19.4 The Bidder must clearly state any assumptions used in determining the prices on the worksheet provided.

B19.5 The pricing for spare parts must be firm for orders placed at least twenty-four (24) months from the date of signing of contract.

B20. QUALIFICATION

B20.1 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.

B20.2 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 Division website at http://www.winnipeg.ca/matmgt/debar.stm

B20.3 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);

B20.4 The Bidder shall submit, within five (5) Business Days of a request by the Contract Administrator, further proof satisfactory to the Contract Administrator of the qualifications of the Bidder and of any proposed Subcontractor.

B20.5 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.

B21. OPENING OF PROPOSALS AND RELEASE OF INFORMATION

B21.1 Proposals will not be opened publicly.

B21.2 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 Division website at http://www.winnipeg.ca/matmgt

B21.3 To the extent permitted, the City shall treat all Proposals as confidential, however the Bidder is advised that any information contained in any Proposal 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.

B22. IRREVOCABLE OFFER

B22.1 The Proposal(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 11 of Form A: Proposal.

B22.2 The acceptance by the City of any Proposal shall not release the Proposals of the other responsive Bidders and these Bidders shall be bound by their offers on such Work for the time period specified in Paragraph 11 of Form A: Proposal.

B23. WITHDRAWAL OF OFFERS

B23.1 A Bidder may withdraw his Proposal without penalty by giving written notice to the Manager of Materials at any time prior to the Submission Deadline.

B23.1.1 Notwithstanding C21, the time and date of receipt of any notice withdrawing a Proposal shall be the time and date of receipt as determined by the Manager of Materials.

B23.1.2 The City will assume that any one of the contact persons named in Paragraph 3 of Form A: Proposal or the Bidder's authorized representatives named in Paragraph 12 of Form A: Proposal, and only such person, has authority to give notice of withdrawal.

B23.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials will:

(a) retain the Proposal until after the Submission Deadline has elapsed;

(b) open the Proposal to identify the contact person named in Paragraph 3 of Form A: Proposal and the Bidder's authorized representatives named in Paragraph 12 of Form A: Proposal; and

(c) if the notice has been given by any one of the persons specified in B23.1.3(b), declare the Proposal withdrawn.

B23.2 A Bidder who withdraws his Proposal after the Submission Deadline but before his offer has been released or has lapsed as provided for in B22.2 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.

B24. REQUESTS FOR CLARIFICATION

B24.1 The Contract Administrator, in his sole discretion, may request any, some or all Bidders to provide a written response to one or more written Requests for Clarification to assist the City in evaluating the Proposals.

B24.2 These written responses will be deemed to be part of the Bidder's Proposal Submission.

B25. PRESENTATIONS

B25.1 The Contract Administrator, in his sole discretion, may request any, some or all Bidders to give a presentation and/or demonstrate their equipment and software to assist the City in evaluating the Proposals.

B26. NEGOTIATIONS

B26.1 The City reserves the right to negotiate details of the Contract with any Bidder. Bidders are advised to present their best offer, not a starting point for negotiations in their Proposal Submission.

B26.2 The City may negotiate with the Bidders submitting, in the City's opinion, the most advantageous Proposals. The City may enter into negotiations with one or more Bidders without being obligated to offer the same opportunity to any other Bidders. Negotiations may be concurrent and will involve each Bidder individually. The City shall incur no liability to any Bidder as a result of such negotiations.

B26.3 If, in the course of negotiations pursuant to B26.2 or otherwise, the Bidder amends or modifies a Proposal after the Submission Deadline, the City may consider the amended Proposal as an alternative to the Proposal already submitted without releasing the Bidder from the Proposal as originally submitted.

B27. NON-CONFORMING SUBMISSIONS

B27.1 Notwithstanding B8, with the exception of B2.2, if a Bidder's Submission is not strictly in accordance with any provision of this RFP, the City may, at its option:

(a) waive the non-conformance if, in the City's opinion, the non-conformance is immaterial; or

(b) reject the Submission as non-responsive if, in the City's opinion, the non-conformance is material.

B27.1.1 If the non-conformance is an omission, the City may, at its discretion, give the Bidder up to five (5) Business Days to supply the omitted material.

B27.2 If the requested information is not submitted by the time specified in B27.1.1, the Submission will be determined to be non-responsive.

B28. RFP SCHEDULE

B28.1 The RFP and project schedule is summarized in the following table; however, it should be used only as a guide since the City may revise the schedule at any time to suit its requirements.

Activity	Milestone Date
Release of RFP	Jan 17, 2011
Bidders' Conference	Jan 31, 2011
Deadline for Submission of Questions	Feb 4, 2011
Proposal Closing Date	March 9, 2011
Requests for Clarification – Issue	April 11, 2011
Requests for Clarification – Response	April 18, 2011
Presentations (if required)	April 25 to 29, 2011
Contract Signing and Issuing of Notice to Proceed	June 30, 2011
System Acceptance	Sept 30, 2012
Revenue Service	Dec 31, 2012

Table 1 RFP Schedule

B29. EVALUATION OF PROPOSALS

B29.1 Award of the Contract shall be based on the following evaluation criteria:

(a)	compliance by the Bidder with the requirements of the Request for Proposal or acceptable deviation therefrom:	(pass/fail)
(b)	qualifications of the Bidder and the Subcontractors, if any, pursuant to B20	(pass/fail);
(c)	Technical Assessment	30%
(i)	Technical Description	‡
(ii)	Customer Service Web Site	‡
(iii)	Compliance Matrix	‡
(d)	Operational Assessment	20%
(i)	Operating and Support Services	‡
(e)	Management Assessment	10%
(i)	Project Management	‡
(ii)	Schedule	‡
(f)	Commercial Assessment	10%
(i)	Corporate Qualifications	‡
(ii)	Executive Summary	‡
(g)	Evaluated Bid Price	30%
(i)	Detailed Pricing Schedule	
(h)	economic analysis of any approved alternative pursuant to B6;	

‡ These portions of the Proposal will be evaluated as part of Technical, Management, Operational and Commercial Assessment as noted below.

B29.2 Further to B29.1(a), the Award Authority may reject a Proposal as being non-responsive if the Proposal 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 Proposal, or waive technical requirements or minor informalities or irregularities if the interests of the City so require.

B29.3 Further to B29.1(b), the Award Authority shall reject any Proposal submitted by a Bidder who does not demonstrate, in his Proposal, in other information required to be submitted, during interviews or in the course of reference checks, that he is responsible and qualified.

B29.3.1 Reference checks to confirm information provided may not be restricted to only those submitted by the Bidder, and may include organizations representing persons, known to have done business with the Bidder.

B29.4 Further to B29.1, the Award Authority may reject any Proposal that does not achieve a minimum score of 50% in each of the Technical, Management, Operational and Commercial assessments.

B29.5 Further to B29.1(c), the Technical Assessment includes the review and consideration of the Technical Description, Customer Service Website and Compliance Matrix but will also consider various portions of the entire submitted Proposal with a view to evaluating:

(a) Compliance with the minimum functional requirements of the equipment and systems; and

(b) Extent to which the proposed system includes those features that are preferred.

B29.6 Further to B29.1(d), the Operational Assessment includes the review and consideration of the Operating and Support Services but will also consider various portions of the entire submitted Proposal with a view to evaluating the ease of operation use and maintenance of the installed and commissioned system by:

(a) Passengers;

(b) Bus operators;

(c) Systems administrators;

(d) Service and maintenance staff;

(e) Transit management;

(f) Customer service staff;

(g) City finance staff; and

(h) Persons with a variety of disabilities.

B29.7 Further to B29.1(e), the Management Assessment includes the review and consideration of the Project Management and Schedule but will also consider various portions of the entire submitted Proposal with a view to evaluating the ease with which the City will be able to manage the project implementation, particularly focusing on processes relative to:

(a) System design;

(b) Reporting;

(c) Installation;

(d) Testing;

(e) Training;

(f) Project management processes;

(g) Schedule; and

(h) Future functionality.

B29.8 Further to B29.1(f), the Commercial Assessment includes the review and consideration of the Corporate Qualifications and Executive Summary but will also consider various portions of the entire submitted Proposal with a view to evaluating the Bidder's:

(a) Financial capability to perform the Contract;

(b) Corporate capability to perform the Contract.

B29.9 Further to B29.1(f)(ii), the Evaluated Bid Price shall be the adjusted lump sum firm price shown on Summary Sheet of the Detailed Pricing Schedule.

B29.10 If, in the sole opinion of the City, a Proposal does not achieve a pass rating for B29.1(a) and B29.1(b), the Proposal may be determined to be non-responsive and will not be further evaluated.

B29.11 Notwithstanding B29.1, where Bidders fail to provide responses to B8.3, the score of zero or fail will be assigned to that Section.

B29.12 Bidders are advised that the City may retain professional firms and/or individuals (non-City staff) to assist in the evaluation of Proposals.

B29.13 This Contract will be awarded as a whole.

B30. AWARD OF CONTRACT

B30.1 The City will give notice of the award of the Contract or will give notice that no award will be made.

B30.2 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 Proposals are determined to be responsive.

B30.2.1 Without limiting the generality of B30.2, 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 Proposal 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.

B30.3 Where an award of Contract is made by the City, the award shall be made to the responsible and qualified Bidder submitting the most advantageous offer, in accordance with B29.

B30.3.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of his Proposal upon written request to the Contract Administrator.

PART C - GENERAL CONDITIONS

C0. GENERAL CONDITIONS

C0.1 The *General Conditions for the Supply of Goods* (Revision 2008 05 26) are applicable to the Work of the Contract.

C0.1.1 The *General Conditions for the Supply of Goods* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/gen_cond.stm

C0.2 A reference in the proposal to a section, clause or subclause with the prefix "**C**" designates a section, clause or subclause in the *General Conditions for Supply of Goods*.

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

D1.1 In addition to the *General Conditions for the Supply of Goods*, these Supplemental Conditions are applicable to the Work of the Contract.

D2. ORDER OF PRECEDENCE

D2.1 Notwithstanding C2.4, the documents listed below will form part of the Contract. If there is any discrepancy between the provisions of one document and the provisions of any other document that appears on the list, the provisions of the document which appears earlier on the list shall take precedence:

(a) Contract

(b) Responses to Requests for Clarification

(c) Addenda to RFP

(d) RFP Supplementary Terms and Conditions

(e) RFP General Conditions

(f) Approved System Design Specification Documents

(g) RFP Technical Terms of Reference

(h) Contractor's Proposal Compliance Matrix

(i) Contractor's Proposal

D2.2 The Contractor acknowledges and agrees that any Contract negotiated between itself and the City shall contain substantially the terms of the RFP, including but not limited to the terms and conditions noted in this PART D - SUPPLEMENTAL CONDITIONS.

D3. SCOPE OF WORK

D3.1 The Work to be done under the Contract shall consist of the design, supply, delivery, installation, commissioning, warranting and servicing of a turnkey automated farebox fare collection system for conventional and BRT buses operated by Winnipeg Transit.

D3.2 The major components of the Work are as follows:

(a) The Contractor shall be responsible for the customization of the hardware, software and/or firmware for the equipment to function as required;

(b) The Contractor shall be responsible for training Winnipeg Transit employees to operate and maintain the system;

(c) The Contractor shall be responsible for installing, commissioning, warranting and servicing of all on-bus equipment and of all other non-bus hardware and/or software required for the system to meet functional requirements;

(d) The Contractor shall be fully responsible for providing a complete, fully operational and integrated system. Failure on the part of the City to specify precisely each and every item necessary for the system shall not relieve any Contractor or sub-contractor of total system responsibility.

D4. DEFINITIONS

D4.1 When used in this Request for Proposal:

(a) "**AAVM**" means Attended Add-Value Machine;

(b) "**AFC**" means Automatic Fare Collection;

(c) "**Autoload**" means the automatic adding of value (pass, e-tickets or e-cash) to a smart card the next time the card interacts with a SCAD or AAVM;

(d) "**BOAW**" means Bus Operator Assignment Workstation;

(e) "**BOCU**" means Bus Operator Control Unit;

(f) "**BRT**" means Bus Rapid Transit;

(g) "**Cash**" means a combination of legal Canadian and US coins;

(h) "**CST**" means the Customer Service Terminal;

(i) "**E-Cash**" means cash equivalent that is stored in an e-purse on the smart card for fare payment;

(j) "**E-Sticker**" means an adhesive backed sticker that contains a smart card chip and an RFID antenna and that functions like a reloadable smart card;

(k) "**E-Ticket**" means a pre-purchased fare product valid for individual bus rides, usually purchased in groups. E-tickets in different quantities are to be encoded on both reloadable and limited-use 'disposable' contactless smart cards;

(l) "**FAT**" means First Article Test;

(m) "**FIAT**" means First Installation Acceptance Test;

(n) "**GPS**" means Global Positioning System;

(o) "**Hot List**" means a list of smart cards that were reported lost or stolen and identified in the central system as being invalid for use;

(p) "**ISO**" means International Standards Organization;

(q) "**MCU**" means Mobile Control Unit;

(r) "**NFC**" means Near Field Communications;

(s) "**ODBC**" means Open DataBase Connectivity;

(t) "**Omni-directional**" means any direction from the point of departure including a round trip;

(u) "**OPT**" means Operational Performance Test;

(v) "**Partners**" means organizations and institutions that contract with the City of Winnipeg to provide transit services to its members and clients;

(w) "**Pass**" means a pre-purchased fare product that permits the pass-holder to take as many bus rides as they want during the time period that the pass is valid;

(x) "**Passback**" means the additional use of a pass by a subsequent person while the first user is using it. This includes actions such as the first person boarding a bus and giving the pass to another person to also board the bus;

(y) "**PCI**" means Payment Card Industry;

(z) "**PCI DSS**" means Payment Card Industry Data Security Standard;

(aa) "**Period Pass**" means a pass issued for a specific period (e.g. July) that has a specific start date and end date;

(bb) "**PIPEDA**" means Personal Information Protection and Electronic Documents Act;

(cc) "**POS**" means Point-Of-Sale;

(dd) "**Proposal**" means the offer contained in the Proposal Submission;

(ee) "**Proposal Submission**" means the documents, forms, schedules and spreadsheets stipulated in the Request for Proposal which must be completed or provided and submitted by the Submission Deadline in order to constitute a responsive Proposal;

(ff) "**Request for Proposal**" means the Proposal Submission Forms, the Bidding Procedures, the General Conditions, the Supplemental Conditions, the Specifications, the Drawings, the Appendices and all Addenda;

(gg) "**RAT**" means Revenue Acceptance Test;

(hh) "**Revenue Service**" means the operation of a transit vehicle during the period which passengers can board and ride on the vehicle. Revenue service includes the carriage of passengers who do not pay a cash fare for a specific trip as well as those who do pay a cash fare; the meaning of the phrase does not relate specifically to the collection of revenue;

(ii) "**SAT**" means System Acceptance Test;

(jj) "**SCAD**" means Smart Card Acceptance Device;

(kk) "**SCR**" means Smart Card Reader;

(ll) "**TCIP**" means the Transit Communications Interface Profiles standard published by the American Public Transportation Association;

(mm) "**Time Pass**" means a pass issued for a set number of days (e.g. 5 days) that starts on the first day of use;

(nn) "**Transfer**" means a special pass issued by the farebox on request to passengers who have paid by cash or e-ticket that permits the passenger to continue travelling onward on another bus within a set period of time. Period of transfer validity is currently set at 60 minutes. Period of validity starts at the time the passenger makes the initial fare payment;

(oo) "**UAVM**" means Unattended Add-Value Machine;

(pp) "**UCVM**" means Unattended Card Vending Machine;

(qq) "**Uni-directional**" means a single direction from point of departure;

(rr) "**Winnipeg Transit**" means the City of Winnipeg Transit Department;

(ss) "**WPA**" means Winnipeg Parking Authority.

D4.2 Notwithstanding C1.1, when used in this Request for Proposal:

(a) "**Bid**" means Proposal;

(b) "**Bid Opportunity**" means Request for Proposal;

(c) "**Total Performance**" means successful completion of six (6) month Operational Performance Test and Completion of all Escrow Obligations.

D5. CONTRACT ADMINISTRATOR

D5.1 The Contract Administrator is:

Tim VanDekerkhove, P.Eng.
Superintendent of Plant and Engineering
421 Osborne Street
Winnipeg, Manitoba R3L 2A2

Telephone No.: (204) 986-2173
Facsimile No.: (204) 986-3672
E-Mail: TVandekerkhove@winnipeg.ca

D6. NOTICES

D6.1 Notwithstanding C21.3 all notices of appeal to the Chief Administrative Officer shall be sent to the attention of the Chief Financial Officer at the following facsimile number:

The City of Winnipeg
Chief Financial Officer

Facsimile No.: (204) 949-1174

D7. CONFIDENTIALITY AND OWNERSHIP OF INFORMATION

D7.1 Information provided to the Contractor by the City or acquired by the Contractor during the course of the Work is confidential. Such information shall not be used or disclosed in any way without the prior written authorization of the Contract Administrator.

D7.2 The Contract, all deliverables produced or developed, and information provided to or acquired by the Contractor are the property of the City. The Contractor shall not disclose or appropriate to its own use, or to the use of any third party, all or any part thereof without the prior written consent of the Contract Administrator.

D7.3 The Contractor shall not make any statement of fact or opinion regarding any aspect of the Contract to the media or any member of the public without the prior written authorization of the Contract Administrator.

SUBMISSIONS

D8. AUTHORITY TO CARRY ON BUSINESS

D8.1 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.

D9. SAFE WORK PLAN

D9.1 The Contractor shall provide the Contract Administrator with a Safe Work Plan at least five (5) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.

D9.2 The Safe Work Plan should be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/safety/default.stm

D10. INSURANCE

D10.1 The Contractor shall provide and maintain the following insurance coverage:

(a) commercial general liability insurance, in the amount of at least five million dollars ($5,000,000.00) inclusive, with The City of Winnipeg added as an additional insured; such liability policy to also contain a cross-liability clause, non-owned automobile liability and products and completed operations cover, to remain in place at all times during the performance of the Work;

(b) if required, automobile liability insurance for owned automobiles used for or in connection with the Work in the amount of at least two million dollars ($2,000,000.00), to remain in place at all times during the performance of the Work;

D10.2 Deductibles shall be borne by the Contractor.

D10.3 The Contractor shall provide the Contract Administrator with a certificate(s) of insurance, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4, for the return of the executed Contract.

D10.4 The Contractor shall not cancel, materially alter, or cause the policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the Contract Administrator.

D11. MATERIAL SAFETY DATA SHEETS

D11.1 The Contractor shall provide the Contract Administrator with one (1) copy of Material Safety Data Sheets (MSDS's) for each product to be supplied under the Contract at least two (2) Business Days prior to the commencement of Work but in no event later than the date specified in C4 for the return of the executed Contract.

D11.2 Throughout the term of the Contract, the Contractor shall provide the Contract Administrator with revisions or updates of the MSDS's as soon as may be reasonably possible.

D12. PERFORMANCE SECURITY

D12.1 The Contractor shall provide and maintain performance security until the expiration of the warranty period in the form of:

(a) a performance bond of a company registered to conduct the business of a surety in Manitoba, in the form attached to these Supplemental Conditions (Form H1: Performance Bond), in the amount of thirty percent (30%) of the Contract Price; or

(b) an irrevocable standby letter of credit issued by a bank or other financial institution registered to conduct business in Manitoba and drawn on a branch located in Winnipeg, in the form attached to these Supplemental Conditions (Form H2: Irrevocable Standby Letter of Credit), in the amount of thirty percent (30%) of the Contract Price; or

(c) a certified cheque or draft payable to "The City of Winnipeg", drawn on a bank or other financial institution registered to conduct business in Manitoba, in the amount of thirty percent (30%) of the Contract Price.

D12.1.1 Where the performance security is in the form of a certified cheque or draft, it will be deposited by the City. The City will not pay any interest on certified cheques or drafts furnished as performance security.

D12.2 The Contractor shall provide the City Solicitor with the required performance security within seven (7) Calendar Days of notification of the award of the Contract by way of and prior to the commencement of any Work.

D13. SECURITY CLEARANCE

D13.1 Each individual proposed to perform Work under the Contract shall be required to obtain a Criminal Record Search Certificate from the police service having jurisdiction at his place of residence.

D13.2 Prior to the commencement of any Work, and during the term of the Contract if additional or replacement individuals are proposed to perform Work, the Contractor shall supply the Contract Administrator with a Criminal Record Search Certificate obtained not earlier than one (1) year prior to the Submission Deadline, or a certified true copy thereof, for each individual proposed to perform the Work.

D13.3 Any individual for whom a Criminal Record Search Certificate is not provided, or for whom a Criminal Record Search Certificate indicates any convictions or pending charges related to property offences or crimes against another person, will not be permitted to perform any Work.

D13.4 Any Criminal Record Search Certificate obtained thereby will be deemed valid for the duration of the Contract subject to a repeated records search as hereinafter specified.

D13.5 Notwithstanding the foregoing, at any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require an updated criminal records search. Any individual who fails to provide a satisfactory Criminal Record Search Certificate as a result of a repeated criminal records search will not be permitted to continue to perform any Work.

SCHEDULE OF WORK

D14. COMMENCEMENT

D14.1 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.

D14.2 The Contractor shall not commence any Work until:

(a) the Contract Administrator has confirmed receipt and approval of:

(i) evidence of authority to carry on business specified in D8;

(ii) evidence of the workers compensation coverage specified in C6.16;

(iii) evidence of Safe Work Plan specified in D9

(iv) evidence of the insurance specified in D10;

(v) the Material Safety Data Sheets specified in D11;

(vi) the performance security specified in D12;

(vii) the security clearances specified in D13.

(b) the Contractor has attended a meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a meeting.

D14.3 The City intends to award this Contract by June 30, 2011.

D14.3.1 If the actual date of award is later than the intended date, the dates specified for Commencement and Total Performance will be adjusted by the difference between the aforementioned intended and actual dates.

D15. TOTAL PERFORMANCE

D15.1 Total Performance of the Contract shall be no later than December 31, 2013.

MEASUREMENT AND PAYMENT

D16. INVOICES

D16.1 Further to C10, the Contractor shall submit an invoice for each milestone to:

The City of Winnipeg
Corporate Finance - Accounts Payable
4th Floor, Administration Building, 510 Main Street
Winnipeg MB R3B 1B9

Facsimile No.: (204) 949-0864
Email: CityWpgAP@winnipeg.ca

D16.2 Invoices must clearly indicate, as a minimum:

(a) the City's purchase 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.

D16.3 The City will bear no responsibility for delays in approval of invoices which are improperly submitted.

D17. PAYMENT

D17.1 Further to C10, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

D18. PAYMENT SCHEDULE

D18.1 Further to C10, payment shall be in accordance with the following payment schedule:

Milestone	Payment
Successful Completion of First Installation Acceptance Test and Equipment Installation	50%
Successful Completion of System Acceptance Test and Commencement of Revenue Service and Completion of all Training Programmes	35%
Successful Completion of Revenue Acceptance Test	5%
Successful Completion of six (6) month Operational Performance Test and Completion of all Escrow Obligations	10%

Table 2 Payment Schedule

D18.2 The payment schedule will form part of the Contract. Upon satisfactory completion of each milestone as determined by the City in its sole discretion and upon receipt and approval of an acceptable invoice, payment to the Contractor will be made.

D18.3 The City will make payment 30 days after receipt and approval of an acceptable invoice based on the satisfactory completion of these milestones.

D18.4 All invoices must specify the Contract number and purchase order number, show GST amounts separately and the applicable GST registration number.

D18.5 The City reserves the right to require proof that payments to sub-contractors have been made in full prior to releasing payments.

WARRANTY

D19. WARRANTY

D19.1 Notwithstanding C11, the warranty period will be for a minimum period of two (2) years after the later of final acceptance of OPT and commencement of revenue service. In the instance of an OPT failure, the two (2) year warranty period restarts following the successful OPT.

D19.2 The City will operate and maintain the system hardware and software in accordance with the Contractor's specific instructions in order to maintain all warranties. However, the Contractor must hold the City harmless, and the Contractor must be responsible for repairing any damage caused to the system, due to the City's improper operation of any system hardware or software resulting from the Contractor's failure to provide adequate or correct training and/or complete operating manuals, software manuals, electrical drawings, complete software documentation, and other documents required to be furnished as identified notwithstanding the expiry of the warranty period.

D19.3 The Contractor shall warrant that it has good title to the system furnished by the Contractor and its components and the right to sell the systems and its components to the City free of any proprietary rights of any manufacturer or other party and free of any lien or encumbrance.

D19.4 The Contractor shall warrant that it has good title to all system software or that it has the right to license the use of such software, or both, free of any proprietary rights of any other party and free of any other lien or encumbrance.

D19.5 The Contractor shall warrant that all installation work and all system hardware furnished by the Contractor including but not limited to all such work and system hardware provided by other Contractors or other suppliers or manufacturers, shall be fit for their intended purpose, and shall be of good quality and free of any defects or faulty materials and workmanship for the warranty period.

D19.6 The Contractor shall warrant that all installation work and system hardware and software shall perform according to the specifications for the warranty period.

D19.7 It is recognized that the original manufacturers' or suppliers' warranties on components may expire before the end of the Contractor's contracted system warranty period. The Contractor must therefore provide extended warranties for all such products or equipment (software, firmware, hardware, and spare parts) to bridge to the end of the Contractor's contracted system warranty and must assume full responsibility for replacement or repair for the duration of the warranty period, the full cost of which must be included in the Contract price.

D19.8 The Contractor agrees that any failure of the system to operate and perform in accordance with the agreement between the parties will entitle the City to return the system to the Contractor and receive full repayment of the Contract price or sue for provable loss.

INTELLECTUAL PROPERTY

D20. INTELLECTUAL PROPERTY RIGHTS

D20.1 The City will own all intellectual property rights, including copyright, in and to the product developed for the City pursuant to the Contract resulting from this RFP, either by the Contractor or its subcontractors.

D20.2 With respect to the pre-existing Contractor software and intellectual property not specifically developed for City pursuant to the Contract resulting from this RFP, the City will receive a perpetual, irrevocable, non-exclusive, royalty free license from the Contractor to use such software and intellectual property for the purpose of implementing and operating the smart card fare collection system procured pursuant to the Contract.

D21. INTELLECTUAL PROPERTY INDEMNITY

D21.1 The Contractor must defend, indemnify and save harmless the City, its officers, employees, agents, successors and assigns, against all claims, action, suits and proceedings, including all costs incurred in connection with any patent, copyright, moral right, trademark or industrial design or the use or misuse of any of them in connection with its Proposal, which indemnity must extend to and be incorporated in any contract awarded to the successful Contractor.

D22. PROGRAM CODE/ESCROW

D22.1 The Contractor shall provide the City with a machine-readable copy of all source code and other files developed for the City for interfacing the Automatic Fare Collection System to other City and other service provider systems including smart card systems and for all displays and reports developed specifically for the City. The machine-readable files provided shall contain all the data required to enable the City to add, modify, and delete City-specific displays, reports, and interfaces to other systems.

D22.2 The Contractor shall deposit a copy of the version of the software and firmware used in the AFC system at the time of the Revenue Acceptance Test, (including but not limited to the source code) with an escrow agent acceptable to City. The Contractor and the City will negotiate an escrow agreement that guarantees the City unhindered access to and a perpetual, royalty-free

license to use and operate the source code and other files of the System software and firmware, (1) should the Contractor be unwilling or unable to perform future system software/firmware maintenance or modifications required by the City, whether through insolvency, bankruptcy or any financial or other reason or (2) at any time after the expiry of the warranty period for the AFC system. The Contractor will provide appropriate updates to the escrowed software at least every six (6) months.

D22.3 At the time of depositing the software and firmware with the escrow agent, the Contractor shall provide to the City a suitable index of the deposited software and firmware and adequate instructions that would enable the City or its agents to understand how to use and apply the software and firmware should the City be required to seize the escrowed software and firmware. The City will be entitled to satisfy itself as to the completeness of the escrowed software.

D22.4 The Bidder will provide appropriate updates to the escrowed file at least every six (6) months during the warranty period at no additional charge and then thereafter as stipulated in any software maintenance and service agreements.

FORM H1: PERFORMANCE BOND
(See D12)

KNOW ALL MEN BY THESE PRESENTS THAT

_____
(hereinafter called the "Principal"), and

_____ ,
(hereinafter called the "Surety"), are held and firmly bound unto **THE CITY OF WINNIPEG** (hereinafter called the "Obligee"), in the sum of

_____

_____ dollars ($_____.____)

of lawful money of Canada to be paid to the Obligee, or its successors or assigns, for the payment of which sum the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS the Principal has entered into a written contract with the Obligee for

RFP NO. 925-2010

AUTOMATIC FARE COLLECTION SYSTEM

which is by reference made part hereof and is hereinafter referred to as the “Contract”.

NOW THEREFORE the condition of the above obligation is such that if the Principal shall:

(a) carry out and perform the Contract and every part thereof in the manner and within the times set forth in the Contract and in accordance with the terms and conditions specified in the Contract;
(b) perform the Work in a good, proper, workmanlike manner;
(c) make all the payments whether to the Obligee or to others as therein provided;
(d) in every other respect comply with the conditions and perform the covenants contained in the Contract; and
(e) indemnify and save harmless the Obligee against and from all loss, costs, damages, claims, and demands of every description as set forth in the Contract, and from all penalties, assessments, claims, actions for loss, damages or compensation whether arising under "The Workers Compensation Act", or any other Act or otherwise arising out of or in any way connected with the performance or non-performance of the Contract or any part thereof during the term of the Contract and the warranty period provided for therein;

THEN THIS OBLIGATION SHALL BE VOID, but otherwise shall remain in full force and effect. The Surety shall not, however, be liable for a greater sum than the sum specified above.

AND IT IS HEREBY DECLARED AND AGREED that the Surety shall be liable as Principal, and that nothing of any kind or matter whatsoever that will not discharge the Principal shall operate as a discharge or release of liability of the Surety, any law or usage relating to the liability of Sureties to the contrary notwithstanding.

IN WITNESS WHEREOF the Principal and Surety have signed and sealed this bond the

_____ day of _____ , 20____ .

SIGNED AND SEALED
in the presence of:

_____
(Witness as to Principal if no seal)

_____
(Name of Principal)

Per: _____ (Seal)

Per: _____

_____
(Name of Surety)

By: _____ (Seal)
(Attorney-in-Fact)

FORM H2: IRREVOCABLE STANDBY LETTER OF CREDIT
(PERFORMANCE SECURITY)
(See D12)

_____
(Date)

The City of Winnipeg
Corporate Services Department
Legal Services Department
185 King Street, 3rd Floor
Winnipeg MB R3B 1J1

RE: PERFORMANCE SECURITY – RFP NO. 925-2010

AUTOMATIC FARE COLLECTION SYSTEM

Pursuant to the request of and for the account of our customer,

_____ ,
(Name of Contractor)

_____
(Address of Contractor)

WE HEREBY ESTABLISH in your favour our irrevocable Standby Letter of Credit for a sum not exceeding in the aggregate

_____

_____ Canadian dollars.

This Standby Letter of Credit may be drawn on by you at any time and from time to time upon written demand for payment made upon us by you. It is understood that we are obligated under this Standby Letter of Credit for the payment of monies only and we hereby agree that we shall honour your demand for payment without inquiring whether you have a right as between yourself and our customer to make such demand and without recognizing any claim of our customer or objection by the customer to payment by us.

The amount of this Standby Letter of Credit may be reduced from time to time only by amounts drawn upon it by you or by formal notice in writing given to us by you if you desire such reduction or are willing that it be made.

Partial drawings are permitted.

We engage with you that all demands for payment made within the terms and currency of this Standby Letter of Credit will be duly honoured if presented to us at:

_____
(Address)

and we confirm and hereby undertake to ensure that all demands for payment will be duly honoured by us.

All demands for payment shall specifically state that they are drawn under this Standby Letter of Credit.

Subject to the condition hereinafter set forth, this Standby Letter of Credit will expire on

_____ .
(Date)

It is a condition of this Standby Letter of Credit that it shall be deemed to be automatically extended from year to year without amendment from the present or any future expiry date, unless at least 30 days prior to the present or any future expiry date, we notify you in writing that we elect not to consider this Standby Letter of Credit to be renewable for any additional period.

This Standby Letter of Credit may not be revoked or amended without your prior written approval.

This credit is subject to the Uniform Customs and Practice for Documentary Credit (1993 Revision), International Chamber of Commerce Publication Number 500.

_____
(Name of bank or financial institution)

Per: _____
(Authorized Signing Officer)

Per: _____
(Authorized Signing Officer)

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS

E1.1 These Specifications shall apply to the Work.

E2. GOODS

E2.1 The Contractor shall supply Automatic Fare Collection System in accordance with the requirements hereinafter specified.

FUNCTIONAL REQUIREMENTS

E3. FUNCTIONAL REQUIREMENTS

E3.1 The plan is to procure an automated transit fare collection system that collects, validates and counts cash fare payments, issues and accepts a paper transfer and accepts contactless smart cards that may be configured as time passes, period passes, multi-ride e-tickets, single-ride e-tickets and as e-cash to be used by passengers to pay for a fare and for transfers.

E3.2 A diagram of the functional architecture of the system as envisioned by the City is shown in Appendix F1 System Architecture Diagram.

E4. AUTOMATED FARE COLLECTION FUNCTIONALITY

E4.1 The current fare structure is available on the Winnipeg Transit website at: http://winnipegtransit.com/en/fares/transit-fares/

E4.2 Passengers will be able to pay for their fares with cash, e-cash, e-tickets, time passes, period passes and transfers. When the system is implemented, it must have the flexibility to allow the City to offer multi-ride e-ticket 'books' of varying quantities and various time-based passes (e.g. monthly passes, weekly passes, day passes, multi-day passes, etc.) as well as have the flexibility to set different concession fares.

E4.3 The system should be capable of recognizing, recording and reporting multiple passenger fare classes. It should also be capable of adding more passenger classes in the future. The Bidder is required to indicate how many classes its proposed system can handle. The following classes should be available when the system is commissioned:

(a) Adult;
(b) Senior;
(c) High School Students;
(d) Youth;
(e) Child ;
(f) Post-Secondary Student;
(g) EcoPass Participant;
(h) City Employee;
(i) Winnipeg Transit Employee;
(j) Mail Carrier;
(k) Blind Person;
(l) Handi-Transit Registrant (when using regular transit);

(m) Special Concession Fare Passenger.

E4.4 The system should permit passengers to transfer from one bus to another and should automatically track all transfer usage and report as an unpaid ride delivered. Paper transfers should be issued for all passengers who request them who have paid their fare by cash or e-cash. The validated e-ticket itself should be able to act as a transfer. Passengers will be required to present and validate their time-based pass on boarding the second and subsequent buses. Date, time and issuing bus route should be machine-readable on all transfers. The City currently provides omni-directional transfers. The time period of transfer validity should be configurable by the City's Transit Department. The initial setting will be seventy-five minutes.

E4.5 Time-based and period-based passes can only be used by the person properly designated and are not transferable to other passengers, except for adult monthly passes and full-fare day and multi-day passes which are transferable between passengers.

E4.6 The new fare collection system should allow photos of passengers entitled to concession fares to be printed on the face of the smart card, however all evidence of fare payment should be in the data stored in the smart cards.

E4.7 The City should be able to continue its EcoPass Program. The existing program requires that individuals from participating companies enrol in the program for a minimum of one year, payment is made through payroll deduction and monthly bus passes are available at a reduced price. More information about the program is available on the Winnipeg Transit web site, http://winnipegtransit.com/en/fares/ecopass/. The Bidder should describe how this could be implemented in its system.

E4.8 For passengers who have more than one fare product on their card the reader must be able to select the product that is most advantageous to the passenger. For example, if the customer has a valid monthly pass, e-tickets and e-cash on their card, then the monthly pass will be used to validate the boarding; if the customer has e-tickets and e-cash then an e-ticket will be used. The Bidder shall describe how this process operates in its system and what is displayed on the passenger and bus operator screens.

E4.9 Appendix F2 Fare Payment Matrix shows the desired responses by the fare collection system to various patron actions. While only senior and child concession classes are illustrated, the system shall be able to manage all other passenger classes. The Bidder may suggest different responses that meet the general intent of the specification.

E4.10 Adequate links and the relevant documentation must be provided to permit the City to automate the purchase of passes or e-tickets by passengers over the Internet in the future. For more information on the web site requirements, refer to Section E34 - Customer Service Web Function.

E4.11 The system should have the following functional capabilities. The Bidder should describe how the functionalities will operate:

(a) **Negative Balance Protection** – transit e-cash purse going negative to permit a passenger to travel when there is an insufficient balance in the e-cash purse;

(b) **Accessibility Flag** – a data field reserved on the smart card that can indicate that the passenger is a person with a disability and that will enable the system to adapt the passenger interface or suit the requirements of that person such as:

(i) Increasing the volume of passenger audio interface for a hearing impaired passenger; or

(ii) Increasing the time that a passenger display is active to accommodate a visually impaired passenger.

(iii) The Bidder is asked to indicate whether its proposed system is able to adjust such operating parameters when prompted by such an accessibility flag;

(c) **Language Flag** – a data field reserved on the smart card that can indicate the language in which the passenger would like to have all farebox and SCAD passenger information displayed from among a list of languages, itemized in Appendix F7, that are offered by

Winnipeg Transit, which will provide the translations for the passenger information from English into the other languages;

(d) **Hanging Start Date for Time-Based Pass** – valid for the appropriate time period beginning on the day of first use rather than on the day of purchase or on a pre-determined date;

(e) **Zonal Fares** – the systems should be able to set fares on some, but not necessarily all, routes to a zonal fare structure;

(f) **Variable Fares by Time of Day** – to set different fares for particular classes at different times of the day. For example Sunday specials, off-peak fares and specials for seniors on Tuesday;

(g) **Unidirectional and Omni-directional Transfers** – each to be enabled on different routes at the same time;

(h) **Second E-purse** – to be available for future use as a non-transit municipal e-purse.

E4.12 The City would like to be able to implement a Third Party Loyalty Point Program. The system should be able to track transactions based on selected passenger fare paying and ridership behaviours and report such transactions to a third party loyalty point program partner. The system should be able to permit passengers to redeem third party loyalty points to load transit value such as a pass discount or an e-cash load on the passenger's smart card.

E4.13 There are some functionalities that the City would like the system to provide but are not considered mandatory. It is desirable that the system support the functionalities listed below. The Bidder should make it very clear in their Proposal which capabilities will be included in the base price, which are available for an additional price and which are not available.

(a) **Fare-By-Distance** – to set the fare by the distance travelled;

(b) **Contactless Credit Payment** – to enable passengers to pay a full-fare e-cash fare with a bank-issued credit card that carries a contactless interface. This does not include any concession fares or ticket or pass fares;

(c) **Variable Free Transfer Validity Period** – to set different free transfer validity periods for:

(i) All service;

(ii) Particular times of the day;

(iii) For particular routes; or

(iv) Particular passenger classes;

(d) **Paid Transfers** – to set a price that will be charged for a transfer that will be valid for a configurable length of time following the expiry of the Free Transfer Validity Period;

(e) **Variable Pass and Transfer Passback Periods** – to set different passback periods for particular times of the day, particular routes or particular passenger classes;

(f) **Frequent Rider Discount** - to give passengers a fare discount based on frequency of ridership rather than just on volume of purchase.

E4.14 All displays will use Canadian English and French. The system should also enable any passenger display on the farebox and SCAD to be provided in the language indicated by the language flag carried on the passenger smart card. The Bidder should indicate whether the passenger display on the proposed farebox and SCAD are alphanumeric displays or graphic displays. Bidders should be aware that graphic displays may be required to display several of the 'character-based' languages. The default passenger display should be Canadian English.

E5. FARE PRODUCT SALES/DISTRIBUTION PROCESS

E5.1 The City intends to implement the following fare product sales/distribution process. Details about smart card management can be found in Section E43 Fare Media Management. All requests to obtain a smart card in writing or by phone will be forwarded to the City's Transit Information Centre and will be entered on the Customer Service Terminal. Anonymous cards will have no record of the identification of the passenger. The system should be able to record what deposit was paid by the passenger, if any.

E5.2 Acquisition and registration of new reloadable smart cards.

E5.2.1 New reloadable smart cards should be available by:

(a) In-person visit to the Customer Service Centres;

(b) Request in writing to the City;

(c) Request on-line using the Winnipeg Transit web site;

(d) Request by phone to the City;

(e) In-person visit to third-party sales agents.

E5.2.2 All new reloadable non-concession smart cards will be anonymous until the passenger chooses to register the smart card. Registration may be performed by:

(a) In-person visit to the Customer Service Centres;

(b) Request in writing to the City;

(c) Request on-line using the Winnipeg Transit web site smart card registration process;

(d) Request by phone to the City.

E5.2.3 All new reloadable concession smart cards should be registered and will carry a photo ID and will only be available by:

(a) In-person visit to the Customer Service Centres;

(b) In-person visit to post-secondary institution sales office (post-secondary students only);

(c) In-person visit to designated employer office for EcoPass.

E5.3 Adding value to a reloadable smart card.

E5.3.1 Value, in the form of e-cash, multi-rides or passes, may be immediately added to the smart card by:

(a) In-person visit to the Customer Service Centres;

(b) In-person visit to a third-party sales agent.

E5.3.2 A registered smart card holder may make an Ad-Hoc Load request, which is a one-time request for value to be added to their smart card, by:

(a) Requesting in writing to the City;

(b) Requesting on-line using the Winnipeg Transit web site;

(c) Requesting by phone to the City.

E5.3.3 A registered smart card holder may also make a Threshold Load request, which is a request that value be added to their smart card automatically when a certain threshold is reached. Examples would be:

(i) To add a new monthly pass on the first day of every month, or add $20 to the e-cash when the balance on the e-cash drops below $5; or

(ii) Add 20 rides to the smart card when the number of rides left on the card drops below 4. These thresholds should always be configurable by the City.

Threshold Load requests may be made by:

(b) In-person visit to the Customer Service Centres;

(c) Requesting in writing to the Customer Service Centres;

(d) Requesting on-line using the Winnipeg Transit web site;

(e) Requesting by phone to the Customer Service Centres.

E5.3.4 These Ad-Hoc and Threshold Loads will be added to the cardholder's smart card using the Autoload feature, as described in Clause E6.

E5.4 Limited-use disposable smart cards must not be reloadable. These will be pre-encoded as single ride e-tickets, small quantity multiple ride e-tickets or short duration time passes (such as a day pass, which is valid on day of first use or multiple day passes (such as a tourist pass, which is valid on day of first use, or a convention pass, which is valid on certain programmed days).

E6. AUTOLOAD

E6.1 The City requires that the system include an Autoload function so that pre-approved passengers with registered smart cards can purchase threshold or periodic reloads on a regular basis without having to contact the City's Transit Department for each purchase.

E6.2 The City requires that the Autoload function can be used for the initial loading of new fare products on a registered smart card including period passes, time passes, e-tickets and e-cash and for ad-hoc reloads to existing fare products that have already been loaded on the customer's smart card. The City requires that Customers be able to authorize such fare product purchases and ad-hoc reloads by phone, internet or mail.

E6.3 Reloads performed through Autoload could be for any period pass for a specified number of days either before or after the expiry of the existing period pass, for a specified number of e-tickets or for a specified amount of e-cash. The specified number of days, e-tickets, or e-cash should be configurable by The City to meet policy requirements. The City requires that the system enable it to configure a cut-off date after which a customer would be unable to purchase a current month period pass or any other period pass. The City requires that the system enable it to configure the number of a particular fare product that a customer is permitted to purchase during a configurable time period and to configure the hours during a 24-hour period during which a fare product is valid.

E6.4 The reload will take place the next time the cardholder presents their smart card to pay a fare at a farebox or a Smart Card Acceptance Device (SCAD) on the day following the day that the load was authorized. For in-person, on-line and telephone requests, that will generally be the next business day. For mail requests, it may take several days

E6.5 The system should be able to provide a notification to the passenger by e-mail or text message if the credit card authorization for a threshold Autoload failed and the Autoload is not processed.

E6.6 When the reload takes place using the Autoload function, the passenger should be provided with visual indication on the passenger display and a unique audible indication from the farebox or SCAD when the Autoload transaction has been successfully completed.

OPTIONAL AND/OR FUTURE UPGRADE FUNCTIONALITY

E7. CONTACTLESS CREDIT CARD

E7.1 The City is considering the option to implement contactless credit card fare payment on the buses for single journey fares and as an e-cash alternative.

E7.2 Contactless smart card readers in the farebox and SCAD should be certified by credit card payment associations for later use to accept contactless credit card payments (e.g. MasterCard PayPass® and Visa payWave®). The Bidder should indicate if their contactless smart card readers are currently certified by credit card payment associations or their plan to become certified. Refer to Section E51 Security.

E7.3 The Bidder should describe its open-loop fare payment experience.

E7.4 The Bidder should indicate if its system is PCI DSS compliant and certified. If not, the Bidder should describe in detail its plan and schedule to become PCI DSS compliant.

E7.5 The Bidder should indicate how it proposes to provide the functionality stipulated in Section E7.1.

E7.6 This functionality should not be included in the base price of the system.

E8. HANDHELD CONTACTLESS READER

E8.1 The City is considering the option of purchasing some Handheld Contactless Readers. These devices may be used by Inspectors to check the fare payment should the City in the future decide to

(a) Implement a Proof-of-Payment fare policy on its BRT service; or

(b) Have Handi-Transit accept on-board smart card fare payment on its vehicles.

E8.2 The device should be small enough to carry easily (the size of a Personal Digital Assistant), be rugged, have sufficient battery capacity to operate for at least eight (8) hours without being recharged, be provided with a carrying case or holster and be able to upload and download data automatically and without any operator action when placed in the recharging cradle..

E8.3 The Bidder should provide a complete description of its Handheld Contactless Reader.

E8.4 This functionality will not be included in the base price of the system.

E9. PARK AND RIDE

E9.1 At any Park and Ride lot at which people parking their car must pay a parking fee, the system should provide passengers with the option to use the e-purse on their contactless smart fare card to pay the parking fee. Modifications to the existing 'pay and display' kiosks used by the Winnipeg Parking Authority may be required. The Bidder should indicate how this functionality will be provided.

E9.2 The Bidder is required to indicate the costs to provide this functionality as an optional item in the section provided in the separate Detailed Pricing Schedule.

FARE COLLECTION EQUIPMENT

E10. GENERAL

E10.1 The following is a functional description of the equipment that the City has determined it needs to fulfil its requirements. The Bidder must identify and price all equipment required to make the system function properly.

E11. QUANTITIES

E11.1 Table 3 Quantities indicates the primary pieces of equipment and does not include components specific to a Bidder's offering to meet the functional requirements herein.

Item	Base Bid Quantity	Base Bid Spares	Optional Bid Quantity
On-Bus Equipment including Farebox, SCR, BOCU, for city-owned transit vehicles	555	25	
Additional 'swap' coin boxes	32		
Transfer Printer/Issuer and Reader	555	25	
Standalone Smart Card Acceptance Device (SCAD)			30 and 580
Garage Depot Servers (if required by proposed system design)	3	-	

Item	Base Bid Quantity	Base Bid Spares	Optional Bid Quantity
Free-Standing Vault, each with Two Mobile Safes	4	-	
Spare Mobile Safes		2	
Personalization and Printing Equipment	3	-	1
Customer Service Terminals	5	-	
Mobile Customer Service Terminals,	4	-	
Management Workstations	20	-	
Attended Add-Value Machines	150	15	100
Handheld Card Readers			25
Bus Operator Assignment Workstations (BOAW)			3
Reloadable Smart Cards ***	110,000	-	
Limited Use Disposable Smart Cards ***	2,000,000	-	
E-Stickers	25,000		
Central System Server	1	-	
System Test Bed	1		

Table 3 Quantities

*** Quantities of smart cards are estimates; the Detailed Pricing Schedule includes several price points.

Optional extra pieces of equipment are listed in the Detailed Pricing Schedule.

E11.2 See Section E52.1 for Information Systems equipment that will be supplied by the City.

E12. FARE MEDIA – SMART CARDS

E12.1 The goal is for as many passengers as possible to use smart cards for fare payment for the majority of rides.

E12.2 All smart cards will use the Philips Mifare chip with contactless interface per ISO 14443A. Both reloadable and disposable smart cards will be required.

E12.3 Reloadable smart cards will be used for transit fare payment with period passes, multiple ride e-ticket and e-cash by passengers.

E12.4 The limited use disposable smart card will be used for transit fare payment with short duration time passes, single ride e-tickets and multi-ride e-tickets by social service clients, tourists and other occasional users. The City may also decide to distribute single ride e-tickets through third party sales agents. Limited use disposable smart cards will be configured to be non-reloadable.

E12.5 Basic physical standards as defined by ISO standards 7810 and 7813 shall apply. Dimensional thickness and physical robustness standards shall not apply to disposable cards, provided that height and width dimensions are met.

E12.6 It is possible that the reloadable smart card may be used by the City to hold other applications in addition to the transit application. The Bidder should state whether a 1K or a 4K card is recommended for their transit application. If a 1K card is proposed, the Bidder should describe the migration path to a 4K card if required.

E12.7 For the base Proposal, the reloadable smart card should be the Mifare Classic and the disposable smart card should be the Mifare Ultralight. An alternate Proposal should be provided with the Mifare DESFire reloadable smart card and the Mifare Ultralight C disposable smart card. The Bidder should elaborate on the capability of its proposed base system to be upgraded in the future from Mifare Classic and Mifare Ultralight to Mifare DESFire and Mifare Ultralight C cards.

E12.8 The transit application should be able to maintain a log/history of the last nine (9) transactions on the reloadable card. The Bidder should indicate the number of previous transactions that will be maintained on the limited use disposable cards.

E12.9 It should be possible for both types of smart cards to have graphics printed on them using the printer(s) supplied. If different printers are required to handle both reloadable and disposable cards, both should be included in the Proposal with prices itemized separately.

E12.10 The City requires the ability to print custom designs on small batches of smart cards (e.g. 500 cards) with advertising. The cards should be supplied white on one side. The artwork on the other side will consist of text including terms of use and return address, and is to be approved by the City before manufacture.

E12.11 All cards should have a printed serial number and an electronic serial number. If the printed and electronic numbers are different then cross-reference functionality should be provided.

E12.12 The reloadable smart card shall function electronically for at least four (4) years or 10,000 transactions, whichever is earlier, when used on a daily basis under normal circumstances for fare payment. For all cards that have names and/or pictures printed on the card surface at a Winnipeg Transit personalization workstation, the name and/or picture shall be legible for three (3) years under normal usage.

E13. FARE MEDIA – CASH FARE TRANSFER

E13.1 The City will continue with its current fare policy of providing free transfers on request to cash fare paying passengers who wish to continue their journey on another bus.

E13.2 The City has decided to use thermal paper as the cash transfer fare media. The passenger class, route (if applicable), date, transfer ID number and expiry time of the transfer validity period should be printed on the ticket both in human-readable characters and in bar code format that will be machine-readable by a bar code reader on the farebox.

E13.3 The transfer should be issued by the on-board equipment at the request of the bus operator.

E13.4 The bar code will also contain a secret security number that will be valid only for that date and that will be the same as the secret security number on the bar code of all cash transfers issued on that date throughout the system. For a transfer to be accepted as valid, the bar code must carry the secret security number for that date. This secret security number can be calculated as a random number by the central system and then downloaded each day to each farebox as part of the equipment operating parameters for that day. Alternatively, the secret security number can be calculated each day by the farebox or the onboard paper transfer issuer/reader using a private key and an on-board SAM. The Bidder should explain how its system will meet this requirement.

E13.5 The Bidder should explain how its system will enable both omni-directional and unidirectional transferring.

E14. FARE MEDIA – E-TICKETS/DAY PASSES

E14.1 E-tickets configured to be valid for one or a small number of rides will be sold to Partners and then distributed for the following purposes:

(a) By social service agencies to provide rides to their clientele; and

(b) By schools for students who participate in after-school activities and are travelling too late to take the school bus.

E14.2 Single ride e-tickets and 1-day passes may also be sold at the Transit Service Centres and through third party sales agents.

E14.3 The e-ticket and 1-day pass fare products should be pre-encoded on limited use disposable smart cards.

E14.4 All other single ride fares will be paid with cash or e-cash.

E15. FARE MEDIA – E-STICKERS

E15.1 E-stickers will have the same functionality as the reloadable smart card. E-stickers will have different physical dimensions than the reloadable smart card. It should use the same contactless chip interface as the reloadable smart card. Each e-sticker should have a unique serial number.

E15.2 E-stickers may be used for programs with partner institutions such as the employer Eco-Pass program. It will be affixed to the respective institution's student or employee card as appropriate.

E15.3 The size, shape and graphic design of the e-sticker should permit continued usage of other functions on the existing card such as magnetic stripe and bar code, if applicable.

E15.4 The adhesive should be sufficient to ensure that the e-sticker remains fixed to the identification card for a minimum of three (3) years under reasonable use. The e-sticker must become permanently non-operational in the event that it is removed from the institutional card. The Bidder should indicate in detail how the proposed e-stickers will satisfy this requirement.

E15.5 Bidders should describe the characteristics of the e-sticker including minimum size, material, adhesive and artwork design limitations. Bidders should identify if there are any plastic ID card materials to which the e-Sticker will not adhere.

E16. FARE MEDIA – ALTERNATE FORMATS

E16.1 The City is interested in offering customers the opportunity to use smart cards in different formats such as watches, pendants and wrist bands. The alternate formats should have the same functionality as the reloadable smart card with the exception of size and shape. Bidders should describe possible formats that could be implemented at the start of Revenue Service.

E17. FAREBOX - GENERAL

E17.1 The purpose of the farebox is to allow patrons to pay their fare by depositing cash or presenting their contactless smart card to validate a pass or transfer, to cancel an e-ticket or deduct a fare from the e-cash when boarding the bus and for the bus operator to log on/off at the beginning/end of the shift.

E18. FAREBOX – FARE PAYMENT

E18.1 The overall design, functionality and location of the farebox should be established to enhance the passenger's fare-paying experience. This would include easy-to-read displays under all lighting conditions and fareboxes that are easy to reach but do not block passengers and bus operators when entering or exiting the bus. Reliability, durability and accuracy will enhance the experience over the long term.

E18.2 The farebox should validate, count and record Canadian and US coins except for 1-cent coins.

(a) The Bidder should describe how its farebox recognizes and validates coins.

(b) It should be capable of recognizing at least two versions of each value of the following Canadian coins: 5 cent, 10 cent, 25 cent, 1 dollar, 2 dollar and one version of the following Canadian coin: 50 cent.

(c) It should be capable of recognizing at least one version of each value of the following US coins: 5 cent, 10 cent, 25 cent.

(d) It should be capable of recognizing at least one version of a special coin called the "Blue Loonie", which is a token-based loyalty program sponsored by the Downtown Winnipeg Business Improvement Zone (BIZ). More information is available on the following website web site http://www.downtownwinnipegbiz.com/home/getting_around/blue_loonie/

(e) Notwithstanding the requirements of sub sections E18.2 (a), (b) and (c), the coin validator should be capable of recognizing and accepting a minimum of 16 types of coins.

(f) The Bidder should indicate the number of coin versions that its coin validation mechanism will recognize and how it will handle Canadian and US coins.

(g) All coins that are invalid or considered unacceptable should be returned to the passenger.

(h) The Bidder should describe the process for updating coin profiles as may occur from time to time as changed and new coins are issued by the Royal Canadian Mint and the United States Mint. This should include a possible new 5 dollar Canadian coin.

(i) It should be possible to bypass the coin validation mechanism in the event of a jam or other malfunction. Deactivation must be logged in the event log of the farebox.

(j) It is preferable that passenger boarding throughput not be significantly impeded by the time required to insert coins into the farebox coin slot. The Bidder is required to provide a detailed description of the farebox coin mechanism and the coin depositing process.

E18.3 Current fare policy is that passengers should pay the exact fare as no change is provided.

E18.4 The volume of the fare box coin box should be at least 200 cubic inches.

E18.5 The farebox must read, validate and record all fares paid including fares paid by passes, e-tickets, e-cash, cash, paper transfers carrying a bar code and transfers encoded on both reloadable and disposable smart cards.

E18.6 The farebox should give visual and audible confirmation of the acceptance of the pass or transfer or the successful deduction of an e-ticket or the payment of a fare. The passenger and bus operator screens should show, as a minimum, the number of e-tickets remaining on the smart card or the date of expiry of the pass and the concession class, if applicable.

E18.7 The farebox should provide a visible and audible feedback of a failed transaction such as an incomplete transaction, an invalid pass, an invalid transfer or an invalid card. This audible feedback should be substantially different from the audible feedback for a valid transaction. The volume of the audible feedback should be configurable by authorized maintenance personnel only.

E18.8 The farebox should be able to detect when a pass or a transfer has likely been used by more than one passenger and refuse to honour the pass or transfer. This should be achieved by having the system refuse to honour a pass or transfer that is presented for travel within a configurable time period after the pass or transfer was previously presented for fare payment. The initial "anti-passback" period for both passes and transfers should be 10 minutes but this value should be configurable by the City's Transit Department. The "anti-passback" period configured for passes should be capable of being different from that configured for transfers.

E18.9 The Bidder should describe how a passenger would be able to pay the fare for more than one passenger from the e-tickets or the e-cash or using cash, particularly in the event that the City offers concession cash fares.

E18.10 A passenger paying by e-cash should be able to complete a payment with cash if the e-cash balance on the card is not sufficient. This may require a bus operator prompt on the BOCU.

E18.11 The speed at which each transaction can be completed is important to the City. The Bidder should state the total time to complete different transactions, including Autoloads.

E18.12 It is desirable that the passenger fare payment information remain on the customer display for the duration that the passenger holds their smart card in the smart card field. The Bidder should state whether or not it is able to provide this functionality.

E18.13 The bus operator should be able to recall the details of a completed transaction prior to the next transaction occurring. The bus operator should not be able to modify the completed transaction.

E19. FAREBOX – CONSTRUCTION AND LOCATION

E19.1 The farebox should be mounted near to the position of the existing farebox. The Bidder is responsible for reviewing the conditions on the bus and recommending the most appropriate location and method of mounting, taking into consideration the safety and ease-of-access of the bus operator and the patrons. The Bidder is advised that existing crowd rails, draft doors, bus operator's tray and safety shields may need to be altered to accommodate the new farebox. It should be easy to move a farebox with minimal re-configuration between buses especially to move a farebox from a high floor bus to a low floor bus.

E19.2 All fareboxes and farebox coin boxes should have permanent ID number. The farebox ID number should be visible during normal operations. It is required that the farebox automatically register and record the coin box ID number when inserted into the farebox without requiring any overt coin box handler action.

E19.3 The farebox shall not operate if the farebox coin box is not in position and if both the farebox and its coin box are not locked.

E19.4 The farebox must be tamper-resistant and should be provided with secure locks and alarms. The Bidder should describe the precautions taken to make the farebox secure.

E19.5 The farebox and the coin box shall be constructed of stainless steel. All exterior surfaces of the farebox shall be clean with all corners rounded. There shall be no exposed bolt heads, nuts or sharp edges. The interior of the farebox should be laid out to facilitate access to serviceable components and there should be no sharp edges.

E19.6 The construction, layout and location of the farebox should meet all Accessibility Compliance requirements.

E20. FAREBOX – COMMUNICATIONS

E20.1 The required method of recovering transaction data from the farebox memory shall be through an IEEE 802.11(n) wireless data download system to operate when the bus returns to the garage. This method should be as simple as possible with minimum intervention from the operator.

E20.2 In order to communicate with the central server, the Bidder is required to use the existing Wi-Fi 802.11(n) data communication utility supplied by Infodev to provide wireless communications to all buses for its AVL system when the buses are in the range of the Wi-Fi antennae installed at both garages. Information about the Infodev Wi-Fi system is provided in Appendix F5.

E20.3 The central system should be able to communicate at any time with every bus that is in the revenue servicing lanes or that is parked in any of the storage lanes without any operator intervention provided the bus ignition is on to:

(a) Retrieve all payment transaction or event data from the buses, and

(b) Publish equipment operating data including faretables, messages, hot card lists, Autoload lists and other action instruction items.

E20.4 The farebox should have a secondary method of removing the data from memory in case of failure of the primary method. The secondary method should be able to function at locations remote from the service lanes and storage garages. It may require the use of a technician with specific training. The Bidder should describe the secondary method and the security features to prevent tampering with the data.

E21. FAREBOX – DATA

E21.1 The messages to be displayed in the passenger display window on the farebox should be fully and easily configurable in multiple languages by the City and displayed when prompted by the language flag on the passenger smart card. It should be possible for the City to store messages in the farebox for activation at a future time.

E21.2 The farebox should hold the current fare table and at least one future fare table with the date and time that the future fare table is to be activated. The Bidder should indicate the number of future fare tables that can be stored.

E21.3 All transactions and events should be stamped with date, time and bus stop ID number. The farebox will need to obtain the bus stop ID number from the on-board Infodev MCU. Information about the Infodev on-board MCU and the bus stop ID data is provided in Appendix F5. System Architecture requirements are provided in Section E52.11.2.

E21.4 The farebox should keep a record of when it last downloaded data and the total value of fares accumulated since the download.

E21.5 The farebox memory should be large enough to hold at least five (5) days of transactions and events before requiring downloading to the central system. The Bidder should indicate the number of transactions that can be stored.

E21.6 Clocks in the farebox should be regularly and automatically synchronized with the AFC central system clock and the on-board AVL system every time transactions are downloaded or equipment-operating parameters are uploaded over the Wi-Fi communications utility. The central system clock should synchronize daily with the Infodev AVL system clock. The Bidder should describe how its system synchronizes these clocks. The Bidder should indicate the maximum drift that will occur between the central system clock, the Infodev system clock and the farebox clock.

E21.7 In the event of loss of power or other malfunction, the farebox should maintain a log of all transactions and events in non-volatile memory.

E21.8 In the event of loss of power while the farebox is processing a transaction, the farebox should have sufficient stored power (through battery, capacitive storage or other means) to complete the transaction followed by an orderly shutdown. The Bidder should describe this orderly shutdown process for its system.

E21.9 Authorized personnel should be able to access operational data on the farebox including:

(a) Date and time of last download and upload;

(b) Recent transactions log;

(c) Serial numbers of equipment;

(d) Alarms and warnings.

E22. FAREBOX – USE BY BUS OPERATOR

E22.1 To log-on to the farebox at the start of the shift, the bus operator will present a valid bus operator smart card to the farebox. The farebox must record the log-on details as a transaction or event. Other valid log-on smart cards would include cards issued for maintenance and management. It should also be possible for an authorized person to log-on to the farebox without a valid smart card. All attempts to log-on should be recorded as transactions

E22.2 The bus operator, maintenance and management smart cards may be either:

(a) a Mifare transit smart card similar to the passenger fare cards, but configured as the bus operator, maintenance or management smart card by the Bus Operator Assignment Workstation (BOAW) described in Section E36, or

(b) an employee ID and access card that will be issued to every City employee. The employee ID and access system uses HID i-Class readers. The employee ID and access cards will contain both an Indala 125 KHz (low frequency) chip and a 13.5 MHz ISO 14443 type B chip (high frequency). The SCR in the farebox and SCAD will therefore be required to read cards using both ISO 14443 type B and the Mifare ISO 14443 type A protocols.

E22.3 The Bidder should provide a price for alternative (a) in its base Proposal and a price for alternative (b) as an optional price where indicated in the Detailed Price Schedule.

E22.4 The farebox should go inactive after a pre-set period of time of no fares recorded and require bus operator log-on to reactivate. The initial time period should be set at 20 minutes but this value should be configurable by the City.

E23. FAREBOX – COIN BOXES

E23.1 Additional swap coin boxes are to be supplied so that coin box handlers can bring an empty coin box onto the bus to replace the full coin box that is being removed.

E23.2 Coin box handlers will be required to present their smart card to the farebox SCR in order to unblock the farebox to permit the coin box to be removed. The smart card serial number of the coin box handler will be recorded as part of the event by the farebox.

E23.3 The Farebox should automatically identify and record the serial number of each coin box when it is inserted.

E23.4 The Farebox should record, at a minimum:

(a) The time of the removal of the coin box and the time of insertion of the ‘swap’ coin box;

(b) The smart card serial number of the coin box handler who removed and replaced the coin box;

(c) The serial number of the coin box removed; and

(d) The serial number of the ‘swap’ coin box inserted.

E23.5 The coin box should be able to withstand drops onto a concrete floor from a height of one (1) metre without suffering operational impairment.

E23.6 The coin box should be able to withstand drops onto a concrete floor from a height of ten (10) metres without suffering a security breach that permits access to any of the coins.

E23.7 The Farebox should be capable of determining and reporting to the central system the extent to which the coin box is full so that a decision can be made whether to remove the cash from the coin box. The determination can be through software or hardware or a combination.

E24. FAREBOX – BUS OPERATOR CONTROL UNIT (BOCU)

E24.1 The purpose of the BOCU is to enable the bus operator to enter information that might be required to acknowledge or override transactions and to allow the bus operator to see the messages generated as a result of a smart card validation. The bus operator should be able to over-ride an invalid pass but a record must be kept of the transaction.

E24.2 The bus operator display should be located so that the bus operator can see the display easily without limiting the view or access to other pieces of equipment that they are required to use. The Bidder is responsible for reviewing the conditions on the bus and recommending the most appropriate location taking into consideration the safety and ease-of-access of the bus operator.

E24.3 The bus operator display should show all alarms on the screen including a warning that the farebox coin box is nearly full. The Bidder should state whether this level is configurable. All alarms should be recorded as events and the data available for management reports.

E25. FAREBOX – VEHICLE LOCATION

E25.1 The farebox will be required to integrate with the Infodev AVL system that is installed on every bus to obtain and record the bus stop number where every payment transaction and event occurs. The Bidder should indicate how it will interface with the Infodev system. Details concerning the Infodev AVL system are provided in Appendix F5.

E25.2 It is not required that bus stop numbers where payment transactions occur be stored on the passenger smart card; however, if they are stored there, the Bidder should state if storing them there impacts the decision whether to use a 1K or a 4K card.

E26. FAREBOX – SMART CARD READER (SCR)

E26.1 The purpose of the SCR is to allow patrons to pay their fare by validating their smart card when boarding the bus and for the bus operator to log on/off at the beginning/end of the shift. It is preferred that the SCR be embedded into the farebox.

E26.2 The overall design, functionality and location of the farebox should be established to enhance the passenger's smart card fare paying experience. This would include:

(a) Easy-to-read passenger displays under all lighting conditions;

(b) Payment transactions that take less than 300 milliseconds; and

(c) SCR's that are easy to reach but do not block passengers when entering or exiting the bus.

Reliability, durability and accuracy will enhance the experience over the long term.

E26.3 The SCR should give visual and audible confirmation of the validity of the pass or transfer on the smart card or the successful deduction of an e-ticket or payment of an e-cash fare.

E26.4 The messages displayed in the passenger display window on the farebox should be fully and easily configurable by the City. It should be possible for the City to store messages in the SCR for activation at a future time. The length of time that the message is illuminated on the passenger display should be configurable. It is desirable that the length of time be adjusted automatically when the reader detects the 'accessibility flag' on a passenger's smart card.

E26.5 The SCR memory should be large enough to hold at least five (5) days of transactions and events before requiring downloading to the central system.

E26.6 The processing of a transaction shall be completed within 0.3 seconds (300 ms). The processing of a transaction includes at least the following actions:

(a) Transaction initialization;

(b) Authentication and other security protocols;

(c) Data Exchange (read and encode);

(d) Choice of fare;

(e) Payment of fare;

(f) Display of results on the passenger and bus operator displays;

(g) Close of transaction.

E26.7 To log-on to the system at the start of the shift, the bus operator will present a valid bus operator smart card to the SCR. The SCR should record the log-on details as a transaction. Other valid log-on transactions would include the presentation of maintenance and management smart cards. All attempts to log-on should be recorded as transactions.

E26.8 The Bidder should indicate whether the proposed Farebox SCR is capable of communicating with a payment device such as a mobile phone using Near Field Communication (NFC) technology. If the proposed device does not have this capability, the Bidder should indicate how the proposed Farebox SCR can be upgraded to provide this capability.

E27. SMART CARD ACCEPTANCE DEVICE (SCAD) – OPTIONAL

E27.1 The purpose of the optional SCAD is to provide a standalone fare payment device that could be installed at a second location at the front of the bus, at the rear door of certain buses or in Handi-Transit vehicles. The SCAD contains an SCR.

E27.2 The overall design, functionality and location of the SCAD should be established to enhance the passenger's smart card fare paying experience. This would include:

(a) Easy-to-read passenger displays under all lighting conditions;

(b) Payment transactions that take less than 300 milliseconds; and

(c) SCAD's that are easy to reach but do not block passengers when entering or exiting the bus.

Reliability, durability and accuracy will enhance the experience over the long term.

E27.3 The SCAD should give visual and audible confirmation of the validity of the pass or transfer on the smart card or the successful deduction of an e-ticket or payment of a fare.

E27.4 The Bidder is responsible for reviewing the conditions on the bus and recommending the most appropriate location and method of mounting, taking into consideration the safety and ease-of-access of the bus operator and the patrons.

E27.5 In event of loss of power or other malfunction the SCAD must maintain a log of all transactions and events in non-volatile memory.

E27.6 The SCAD will download all transactions to the farebox as soon as they are completed and will upload all equipment operating parameters from the farebox as soon as they are available in the farebox.

E27.7 The SCAD should have a secondary method of removing the data from memory in case of failure of the primary method.

E27.8 The passenger interface experience on the farebox and the SCAD should be similar. The messages displayed, the lights illuminated and the sounds should be consistent between the two devices such that most passengers will not be confused by any differences.

E27.9 The messages to be displayed in the passenger display window on the SCAD should be fully and easily configurable by the City. It should be possible for the City to store messages in the SCAD for activation at a future time. The length of time that the message is illuminated on the passenger display should be configurable. It is desirable that the length of time be adjusted automatically when the reader detects the 'accessibility flag' on a passenger's smart card.

E27.10 The SCAD memory should be large enough to hold at least five (5) days of transactions and events before requiring transmission to the farebox for downloading to the central system.

E27.11 Clocks in the SCAD should be regularly and automatically synchronized with the central system clock to ensure minimal difference in time settings between the units. The Bidder should indicate the maximum drift between the SCAD and the central system.

E27.12 The SCAD should provide audio feedback of a failed transaction such as an incomplete transaction, an invalid pass, expired transfer or an invalid card.

E27.13 The SCAD should be able to detect when a pass or transfer has likely been used by more than one passenger and refuse to accept the smart card. The initial "anti-passback" period should be 10 minutes but this value should be configurable by the City. The Bidder should state

whether the “anti-passback” provisions of transfers are different from fare payments by smart card.

E27.14 The processing of a transaction shall be completed within 0.3 seconds (300 ms). The processing of a transaction includes at least the following actions:

(a) Transaction initialization;

(b) Authentication and other security protocols;

(c) Data Exchange (read and encode);

(d) Choice of fare;

(e) Payment of fare;

(f) Display of results on the passenger and bus operator displays;

(g) Close of transaction.

E27.15 All exterior surfaces of the SCAD shall be smooth with all corners rounded. There shall be no exposed bolt heads, nuts or sharp edges.

E27.16 The Bidder should indicate whether the proposed SCAD SCR is capable of communicating with a payment device such as a mobile phone using Near Field Communication (NFC) technology. If the proposed device does not have this capability, the Bidder should indicate how the proposed SCAD SCR can be upgraded to provide this capability.

E28. FREE STANDING VAULT WITH MOBILE SAFE

E28.1 The purpose of the vault is to permit the farebox coin boxes to be emptied in a secure manner.

(a) The free-standing vault will be located adjacent to the bus servicing lane in each garage;

(b) The vault will consist of a secure housing with a coin box receiver located on the top of the housing and a removable mobile safe located inside the secure housing;

(c) The vault housing and mobile safe must be secure and prevent unauthorized access;

(d) The vault housing and mobile safe must be alarmed for tampering;

(e) The mobile safe must be on heavy duty castors and should be safely movable by forklift/tow motor/pump truck from a secure room to a truck for secure transport to a counting room in a separate City Treasury location.

E28.2 Each Vault should be supplied with two (2) mobile safes. One mobile safe will be in use in the Vault and the other mobile safe will be transported to/from the City Treasury location or will be available to be installed in the Vault. Two spare mobile vaults may be optionally purchased.

E28.3 The vault should automatically, and without any action from the handler, record the date, time and ID number of the farebox coin box being emptied.

E28.4 The vault receiver should not function if the mobile safe is not securely inside the receiver bin.

E28.5 At no time should any cash be accessible to unauthorized personnel.

E28.6 Operation of the receiver should be easy, quick and secure.

E28.7 It is preferred that the coin box not be inverted by the coin box handler prior to inserting it into the vault receiver. The Bidder should indicate the maximum weight of a full coin box to be lifted by a coin box handler.

E28.8 The design of the vault receiver and farebox coin box should be such that they can withstand rough use.

E28.9 The Bidder should completely and clearly indicate the power requirements and communications connections that the vault requires to function.

E28.10 The housing for the free-standing vault must be robust as it is located adjacent to a bus lane and may be exposed to splashed water, dirt and salt. The housing may also be exposed to other fluids such as coffee, soft drinks, cleaning fluids, fuel and oils. The vault shall function without failure due to EMI from buses and other equipment.

E28.11 A detailed description of the security design of the vault and a detailed description of its operation should be included in the Proposal. The total cycle time to complete the transfer of cash from the farebox coin box to the vault receiver should be indicated.

E28.12 Each mobile safe should be capable of holding a minimum of 12,000 cubic inches in mixed coins.

E29. GARAGE BASE STATION/GARAGE SERVER

E29.1 The purpose of the Garage Base Station is to allow data transfer between the buses and the central system. All successful and unsuccessful attempts to transfer data between the buses and the base station and between the base station and the central system shall be logged. It should be possible to monitor all data transfers.

E29.2 In the event of a loss of the connection between the central system and the garage, the garage base station should be capable of operating in stand-alone mode and storing all the accumulated data from all the buses for a period of at least ten (10) days without running out of memory.

E29.3 The download of transactions and upload of equipment operating parameters between the buses and the central system will be achieved using the existing Infodev AVL system Wi-Fi communications utility on each bus and in each garage, as described in Appendix F5. It may not be necessary, therefore, for the Bidder to provide a Wi-Fi Garage Base Station. Subject to the Bidder's proposed system design and provided the functionality stipulated in this section is provided, it may not be necessary for the Bidder to provide a Garage Server. The Bidder should elaborate on its system design relative to the requirement for a Garage Server.

E30. MANAGEMENT WORKSTATIONS

E30.1 The purpose of the Management Workstations is to enable the management personnel of the City:

(a) To manage the fare collection system;

(b) To make changes to fare tables; and

(c) To analyse data and create reports.

All configurable operating parameters (i.e., fare tables and policies; visual and audible messages; and operating data such as device ID numbers) should be remotely configurable by the City through these Management Workstations. The detail specification of the desktop computer can be found in Section E52.5.

E30.2 The Contractor should warrant that its software will function on the existing desktop computers in use by the City according to the specification documented in Section E52.5 without having a detrimental effect on the operation of other software installed at the City.

E31. PERSONALIZATION AND PRINTING EQUIPMENT

E31.1 The purpose of the Personalization and Printing Equipment is to enable the City to personalize smart cards for passengers and to print the graphics on the face of the card.

E31.2 The Personalization and Printing Equipment should be easily connected to any of the Customer Service Terminals or Mobile Customer Service Terminals.

E31.3 The printer should be able to print batches of Mifare Classic reloadable plastic smart cards and Mifare Ultralight non-reloadable paper smart cards approximately 500 cards per batch. The City

should be able to design the artwork, which may include pictures and text. The Bidder should state if it is necessary to provide two separate printers to accomplish this requirement. The Bidder should also indicate whether the proposed printer is capable of printing batches of Mifare DESFire reloadable plastic smart cards and Mifare Ultralight non-reloadable paper smart cards. The Bidder should indicate the printer throughput rate.

E31.4 Personalization is intended to allow bus operators to identify and validate concession e-tickets and passes and to allow the City to return found cards to the passenger. If a passenger loses a personalized or registered card, the City will have the capability of returning the value on a lost card to the passenger.

E31.5 The City requires three (3) options for card personalization:

(a) Registration – Registration to an individual – As a minimum the database will have the full name, title, full address, phone number, mobile number, work name, work address, work phone, gender, date of birth, security question and answer;

(b) Simple Personalization - Registration and printed name – The database will have the same information as option 1, and the name will be printed on the surface of the card in human-readable characters;

(c) Full Personalization - Registration, printed name and picture – The database will have the same information as option 1 and the passenger name and photo will be printed on the surface of the card.

E31.6 The Personalization and Printing Equipment should also be capable of preparing new smart cards to be used in the system. The Bidder should indicate the throughput rate of the proposed equipment for each activity. This will include the following activities:

(i) Initialization – The activities required to prepare a card securely for use in the system. This involves injecting project security keys and creating the card issuer domain in the card;

(ii) Issuance – The activities required to issue a card to a cardholder. This involves collecting a possible deposit from the cardholder, updating the card issuer domain in the card and unblocking the card and leaving the card ready for applications to be loaded;

(iii) Application Loading – The activities required to load a new product such as e-cash, e-tickets, a time pass or a period pass onto the card..

E31.7 Smart cards that are purchased in person or picked up in person will be initialized, issued and have value loaded on. Smart cards that are mailed to passengers will not have any value loaded; the value will be loaded at first use when presented to a farebox SCR or a SCAD on a bus, or presented to an SCR at a customer service office. The system should provide a mechanism for the passenger to call the customer service centre to acknowledge receipt of a mailed out smart card by the correct person prior to the Autoload being authorized. The Bidder should elaborate on this mechanism in its proposed system.

E31.8 For smart cards used by non-concession (i.e. full fare) passengers, it is very desirable that any changes to the data on the smart card, if required, be written to the card when the smart card is next presented to a farebox SCR or a SCAD on a bus. This is to permit mail-in registration in place of in-person registration. The Bidder should indicate whether its system can provide this functionality.

E32. CUSTOMER SERVICE TERMINAL (CST)

E32.1 The purpose of the Customer Service Terminal (CST) is to allow City employees to respond to passenger requests:

(a) To purchase, register and personalize a smart card;

(b) To reload a smart card;

(c) To report a lost or stolen card;

(d) To answer general questions related to the card; and

(e) To be able to set-up Autoloads for customers.

E32.2 Internet sales and reload requests will be made through the Customer Service website, described in Section E34.

E32.3 Smart cards shall have no value until they are sold. At sale, the customer service representative encodes the following minimum information on each smart card at the moment when it is issued or re-valued:

(i) Terminal identification number;
(ii) Date and time of sale;
(iii) Cost of purchase;
(iv) Payment method (no personal financial information);
(v) Smart card expiration date.

E32.4 Smart cards will either be anonymous or personalized. For anonymous cards, there will be no record of who purchased the card. Personalized cards can be one of three varieties that are described in Section E31.

E32.5 The City may either charge a deposit or fee for every reloadable smart card issued to a passenger or it may charge a fee to replace a lost card.

E32.6 The Customer Service Terminal should be able to perform all the re-load functions of the Attended Add-Value Machines described in Section E35.

E33. MOBILE CUSTOMER SERVICE TERMINAL (MCST)

E33.1 The Mobile Customer Service Terminal (MCST) will have the same functionality as the Customer Service Terminal. It will be used for short periods of time (1-2 hours to 1-2 days) at schools, colleges, universities, retirement homes and community centres to facilitate the issuance of personalized smart cards to concession fare passengers.

E33.2 It is preferred that the MCST be able to connect to the City's server via an Ethernet, dial-up or Wi-Fi connection. The City is currently testing the implementation of a virtual private network (VPN) and it is anticipated that the MCST will connect to the server through this VPN.

E33.3 Portability, ease of set-up and ease of use will be a prime consideration for this piece of equipment. The Bidder should describe very clearly the components involved and provide an outline of how the equipment is set up.

E33.4 The Mobile Customer Service Terminal requires a small volume smart card printing capability (see Section E31). This will be used to print passenger identification information. Identification may include name, photograph, ID number and expiry.

E34. CUSTOMER SERVICE WEB FUNCTION

E34.1 The Contractor should provide a web site to provide passengers with 24-hour customer service functionality relative to its transit smart card. The web site should include at least the following functionality:

(i) Request information about smart cards;
(ii) Lodge a compliment or complaint;
(iii) Request a smart card;
(iv) Register a smart card;
(v) Query balance on the smart card;
(vi) Query recent transactions on the smart card;
(vii) Request a report or other evidence required to submit for transit pass income tax credit;
(viii) Change registration details on smart card;

(ix) Report a lost or stolen card;

(x) Request one-off purchase of pass, e-tickets or e-cash value to be Autoloaded to smart card (see Section E34.2);

(xi) Request on-going purchase of pass (e.g. monthly) to be Autoloaded to smart card (see Section E34.2.);

(xii) Request on-going purchase of e-tickets or e-cash value to be Autoloaded to smart card dependent on the achievement of a specified threshold (see Section E34.2.)

E34.2 Payment for all purchases and loads would be acquired, verified and authorized manually by the City. After authorization of payment, the fare product would be loaded to the customer's smart card using Autoload.

E34.3 The Bidder should describe the functionality of the web site customer service software that they are able to provide. The web site should be integrated in to the existing Winnipeg Transit web site and conform to its standards.

E34.4 The Customer Service Web Site will be priced independently of the fare collection system..

E34.5 The Bidder should describe the functionality of an optional linkage to a future City e-payment facility to automate the City's manual process as described in this section.

E35. ATTENDED ADD-VALUE MACHINES (AAVM)

E35.1 The purpose of the Attended Add Value Machines (AAVM) is to allow smart cards to be sold directly to a passenger and value to be added directly to a passenger's smart card at third party sales agent locations around the City that are convenient for the passenger.

E35.2 Trained third party sales agent attendants will operate the AAVM. Cash payments and credit and debit card payments will be handled by the merchant payment system that is already in use by the sales agent at the location. No integration will be required between the existing merchant payment system and the City's AAVM. Whereas the AAVM will perform In-Person sales and loads at third party sales agents, all other sales and load transactions and all card queries will be handled through the CST and using the City's web site. All transactions on the AAVM that cannot be completed must be reversed. The simplicity and ease of operation of the AAVM is important due to the potentially large number of third party sales agent attendants who may be operating the device. The low cost and small footprint of the device will be important to these sales agents.

E35.3 AAVM's will only be able to sell Anonymous smart cards. Patrons who then wish to register their card will be directed to contact the Customer Services Office at the City by telephone, by mail or in person or to visit the City's web site.

E35.4 The attendant will need to log on to the AAVM before any transactions can be performed. Each AAVM must keep complete records of each transaction. These records will be transferred to the City's server by dial-up modem at pre-configured intervals. Transactions must not be deleted from the AAVM until the central system has confirmed receipt of them. In the event that the AAVM cannot communicate with the central system, the AAVM should be able to store at least ten (10) days of transactions. The City should be able to configure the maximum number of transactions or dollar value of loads or both or the maximum number of elapsed days that will be allowed at the AAVM before the AAVM is successfully polled, such that the device ceases to function after it is exceeded. The purpose of this limit is to cap the exposure of the City to fraudulent use of these devices. The AAVM should attempt to transfer the records to the central system before it disables itself.

E35.5 Before a new attendant can log on to the AAVM, the current attendant needs to log off. When an attendant logs off, the AAVM should provide a summary of sales by purchases made.

E35.6 The AAVM should alert the operator of any malfunction and report the alert as a transaction or event.

E35.7 It is anticipated that the AAVM have a physical profile similar to a conventional retail credit/debit Point-of-Sale (POS) terminal.

E36. BUS OPERATOR ASSIGNMENT WORKSTATION (BOAW) (OPTIONAL)

E36.1 The purpose of the optional Bus Operator Assignment Workstation (BOAW) is to allow the City to issue and manage individual bus operator smart cards in the event that the City-issued ID cards are not utilized .

E36.2 The bus operator will use the smart card to log onto the Farebox.

E37. DATA COMMUNICATIONS

E37.1 The City plans to use as much of its existing MIS infrastructure as possible. Details of the existing MIS infrastructure can be found in Section E52.

E37.2 All uploading and downloading of data between the bus and the central system should be fully automated and not require any overt bus operator action; however, it should also be possible to upload or download data manually if necessary.

E37.3 Data should not be deleted from the source device until the receiving device has confirmed receipt.

E37.4 On-bus communications should employ recognized standards such as SAE J-1708, SAE J-158, RS-232 and RS-485. The Proposal should clearly state which ones are being proposed.

E37.5 Bus to garage communications should have the following functionality:

(a) Buses return to the garage at least once per day for cleaning, re-fuelling and emptying of coin boxes. Data should be transferred at this time and data transfer time should not extend the time that the bus is in the garage;

(b) It is required that the data transfer be transparent to operations and not require changes to current operating procedures. The Bidder should identify any possible changes or limitations to operating procedures as a result of implementing their proposed data transfer solution;

(c) The transfer of data should be capable of being initiated without operator intervention when the buses return to the garage at the end of the day, and then again in the morning when the buses are powered up before being dispatched. Buses will return to the garage and be revenue-serviced at any time of the day, and it is important that all buses have the latest available data before the start of the morning shift;

(d) Wireless data transfer should use the Infodev Wi-Fi communications utility and meet the requirements of the IEEE 802.11(n) standard. See the City's requirements as outlined in Section E52.10.

E37.6 Workstation to central system communications should have the following functionality:

(a) There is an existing Ethernet LAN in the Winnipeg Transit garage facilities that the farebox fare collection system can use. A more detailed description is in Section E52.8.

(b) If the existing LAN is inappropriate for the proposed AFC System then the Bidder should include all costs for upgrading the network including equipment, installation, and commissioning. All additional operation and maintenance costs should also be identified.

(c) All work on the central system must be done in conjunction with the Information Services Branch, and must meet the City's corporate standards.

CENTRAL SYSTEM REQUIREMENTS

E38. OVERVIEW

E38.1 The purpose of the central system is to provide access to, storage of and processing of:

(a) Fare payment data collected by the fareboxes; and

(b) The parameters that need to be sent to the fareboxes.

E38.2 It is mandatory that all data collected be processed and stored on a dedicated transit fare collection server(s) located in the City's offices. The server(s) will be the primary storage location for data from all terminals; however, it is permissible for a copy of the data to stay on the garage servers. Provision should be made for automatically copying data from the garage servers to the central system server(s) in a timely manner.

E38.3 It is necessary that multiple persons have access:

(a) To the data collected;

(b) To the reports provided;

(c) To export the data to different software applications;

(d) To the operating parameters such as the fare tables; and

(e) To be able to activate the download to the buses.

Varying access levels are required.

E38.4 The system is required to maintain a log of all actions processed including associated user details.

E38.5 The system should have a well-documented architecture that will permit interfacing by others to other on-board systems including future smart card readers that may be sourced from a different supplier. The Bidder shall indicate how this interfacing will be achieved.

E38.6 Consistent with Intellectual Property Rights Section D20, the City will own the smart card formatting and data mapping and the smart card security keys.

E39. DATA

E39.1 At a minimum, the central system should be able to maintain a minimum of twenty-four (24) months of data in detail, and at least an additional one (1) previous year of data in summary form before archiving. Authorized employees should be able to retrieve individual transactions that occurred anytime in the previous twenty-four (24) months, on a rolling basis. Management should be able to retrieve data from at least six (6) years including the current year. All archived data should be available for retrieval for up to twelve (12) years.

E39.2 The Bidder should describe the process for archiving data and the level of detail retained in the summary form. The Contractor must work with the City to ensure that archived data is accessible.

E39.3 The City will supply the archiving equipment.

E40. UPDATING FARE TABLES

E40.1 The City should be able to change fares easily whenever it desires. The system should be able to hold at least one future fare table in addition to the one in use. It should be possible to activate a fare table at any specified time and date in the future. Fare table changes that can be performed centrally will include, but not be limited to:

(i) Fare/class/product;

(ii) Change transfer validity time period;

(iii) Change passenger fare classifications and categories;

(iv) Set different numbers of days and different starting days for passes;

(v) Sell different numbers of e-tickets in a "ticket book".

E40.2 If the feature is available in the proposed system, then the following fare table changes should be performed centrally:

(i) Establish different fares for different times of day/class/product.

E40.3 Changes to fare tables should only be permitted by users with adequate access authority.

E41. REPORTING

E41.1 All reports should contain a header or footer stating the name of the report, the date prepared and the date range of the data in the report. Report generation should be menu-driven.

E41.2 The Bidder should describe the report generating software tools that will be supplied including a statement whether or not the report generating tool is able to modify the database.

E41.3 Winnipeg Transit deploys the SAS Family of tools for business analytics. It would be highly preferable to have the AFC system available in a manner accessible by SAS using Open DataBase Connectivity (ODBC). Winnipeg Transit's existing reports server runs Crystal Reports Enterprise X1R2 (V11.5)

E41.4 Pre-defined reports will include the standard reports to be specified by the City during the detailed design phase.

E41.4.1 The user should be able to save a report configuration for future use.

E41.4.2 Data should be available for any user-defined period. The City should be able to modify pre-defined reports easily to meet new reporting requirements.

E41.4.3 The pre-defined reports provided by the Bidder's system should be specified in the Proposal; however, these pre-defined reports need to include at least the following reports:

(a) Revenue Passengers – by any combination of
  (i) Passenger classification (adult, senior etc);
  (ii) Fare option;
  (iii) Route;
  (iv) Boarding location;
  (v) Time period; and
  (vi) Transfers within a single revenue passenger trip;

(b) Boardings – by any combination of:
  (i) Passengers classification (adult, senior etc);
  (ii) Fare option;
  (iii) Route;
  (iv) Boarding location; and
  (v) Time period;

(c) Financial – by any combination of:
  (i) Fare payment type (cash, smart card, etc.);
  (ii) Sales merchant sales reconciliation; and
  (iii) Rejected transactions;

(d) Fare payment devices – by any combination of:
  (i) Payment activity;
  (ii) Maintenance activity;
  (iii) Review for potential device tampering;
  (iv) Walkaways;
  (v) Transaction type (add value, balance inquiry, transaction history); and
  (vi) Payment type (cash, stored value smart card, contactless credit card);

(e) Transactions:
  (i) Activity report by sales location;

(f) Website – by any combination of:
  (i) Activity;
  (ii) Audits
  (iii) Transaction type (add value, balance inquiry, transaction history);
  (iv) Payment type (cash, debit, credit card);
  (v) Reconciliation; and
  (vi) Order management;

(g) Smart card management – by any combination of:
  (i) Inventory reconciliation;
  (ii) Distribution
  (iii) Destruction
  (iv) Activation/account registration; and
  (v) Random audits;

(h) Various reports for analysis – by any combination of:
  (i) Customer usage;
  (ii) Program efficiencies;
  (iii) Loyalty programs; and
  (iv) Hotlist;

(i) User access maintenance (monitoring who accessed system components identified) – by any combination of:
  (i) Employee ID;
  (ii) Device ID;
  (iii) Date and time access initiated and completed;
  (iv) Reason for access, and
  (v) Action(s) taken;

(j) Maintenance reports – by any combination of:
  (i) Historical usage patterns by system component; and
  (ii) Record of work conducted by device number and location;

(k) Sales merchant reconciliation – by any combination of:
  (i) Information defined for each sales merchant;
  (ii) Sales (gross funds collected, quantity fare products sold, by fare option); and
  (iii) Net settlement values (manual adjustments such as reversals, account revisions, additions and credits, total funds payable).

E41.4.4 Financial reports must be verified for accuracy and contents as part of the System Acceptance Test.

E41.5 The system should be set-up to provide exception reports, including but not limited to:

(a) Alarms;

(b) Missing data;

(c) Memory clears;

(d) Time discrepancies;

(e) Missing actions or events;

(f) Incomplete transactions; and

(g) Devices that have not ‘reported in’ within a configurable time period.

E41.6 The Ad Hoc report system will have the following functionality:

E41.6.1 Tools should be provided to permit the easy export of user-selected data from the database to a software program of the user's choice such as another database programme, a spreadsheet or word processor.

E41.6.2 Data shall be available in a format complying with the Open Database Connectivity (ODBC) standard.

E41.6.3 At the user's option, it should also be possible to use a user-provided report generating software program to access, analyse and report on the data.

E41.6.4 A data dictionary and normalization tables should be supplied before the system goes into revenue service.

E41.6.5 The City should also be able to produce reports that track more than one attribute. An example would be to track and report on the ridership during peak periods of persons with certain disabilities who are also adults.

E41.6.6 The Bidder should indicate whether its proposed system will enable the City to make an Ad Hoc report into a pre-defined report that is available from the main report menu.

E42. CONTROLLED ACCESS TO INFORMATION

E42.1 With personal and financial information being stored on the AFC system, it is important to be able to restrict access to various areas of the system to those personnel that have a need to access the data. The data collected and the access to the data collected must allow the City to meet their obligation to protect personal data under the Personal Information Protection and Electronic Documents Act (PIPEDA) and the Manitoba Personal Information Protection Act (Bill 200). The Bidder needs to describe in its Proposal how its system will enable the City to meet its obligations under PIPEDA.

E43. FARE MEDIA MANAGEMENT

E43.1 The fare media management system should permit the City to track the usage of all smart cards and smart stickers (e-stickers) in inventory.

E43.2 The functions in the life cycle of the smart card are described in Appendix F3.

E43.3 The central system should maintain an inventory of all smart cards and smart stickers in the system including:

(i) Issued fare media, with personalization information if applicable;
(ii) Un-issued fare media (never circulated smart cards and smart stickers);
(iii) Malfunctioning fare media;
(iv) Lost fare media;
(v) Destroyed fare media (smart cards and smart stickers that have reached the end of their useful life);
(vi) Fare media available for re-circulation; and
(vii) Special purpose smart cards such as for security and maintenance personnel.

E43.4 The central system should maintain a database of all smart cards and smart stickers, which should include at least the following:

(i) When and where it was provided to the passenger and who provided it to them;
(ii) Fare products loaded on each fare media type;
(iii) Current status;
(iv) History of fare media use;
(v) Institutional data including name of institution and passenger account ID, if applicable;
(vi) If personalized, the information on the ownership;
(vii) If personalized, information on lost and replacement fare media; and

(viii) If destroyed, the date of destruction and the employee ID of the person that destroyed the fare media.

E43.5 The customer service terminals must have the functionality to:

(i) Initialize – unblock and set-up fare media for use;
(ii) Issue - add products purchased and any other options such as Autoload;
(iii) Personalize – add specific personal ID;
(iv) Maintain – current status; and
(v) Block – prevent a particular fare media item from being re-used.

SYSTEM REQUIREMENTS

E44. GENERAL EQUIPMENT

E44.1 The Bidder should provide equipment that has been proven in transit revenue service and that has an anticipated service life of 15 years.

E44.2 The system should have the capacity to handle a minimum of three (3) times the specified quantity of devices.

E45. SYSTEM DESIGN SPECIFICATIONS (SDS)

E45.1 The System Design Specification (SDS) is the critical link between the RFP and the delivered product.

E45.2 At least five (5) months before the start of system installation, the Contractor shall provide to Winnipeg Transit, for approval, a series of detailed SDS documents, relative to each system hardware and software element that will be provided; such documents will describe the detailed functionality of the system element.

E45.3 All SDS documents shall be approved at least eight (8) weeks before the start of installation.

E45.4 The City will require four (4) weeks to turn around initial approvals and two (2) weeks to turn around approvals of revisions of individual documents. More time will be required if large groups of documents are submitted at one time for approval.

E45.5 Some SDS documents may not receive final approval until the SDS of related hardware, software or firmware has been reviewed and approved.

E45.6 SDS documents must be approved prior to the manufacturing of hardware, or the development of software or firmware.

E45.7 Each System Design Specification document will include, as appropriate:

(i) Purpose of hardware or software element;
(ii) Functional description, including default settings and range of operation;
(iii) Physical description, including materials to be used;
(iv) Interface descriptions, both human and machine;
(v) Electrical description;
(vi) Electronic description;
(vii) Environmental description;
(viii) Security features;
(ix) Usage description;
(x) Installation and layout for each bus;
(xi) Ergonomic assessment;
(xii) Accessibility compliance;

(xiii) Limitation of the element; and

(xiv) Basis of the design.

E45.8 The specification should be detailed enough for the City to be assured that the system to be supplied meets the functionality stipulated in this RFP.

E46. ENVIRONMENTAL CONDITIONS

E46.1 The farebox will be located on city buses and will be subject to shock and vibration levels consistent with city bus operation.

E46.2 The equipment may be exposed to rain, snow, sun, dust and grit depending on their location in the bus. A summary of normal and peak values is given below and more information about the climate in Manitoba can be found on the web site for the Weather Office of Environment Canada www.climate.weatheroffice.ec.gc.ca.

Parameter	Unit	Winnipeg
Daily Maximum	^{o}C	26
Extreme Maximum	^{o}C	41
Daily Minimum	^{o}C	- 23
Extreme Minimum	^{o}C	- 45
Monthly Rainfall	mm	90
Peak Daily Rainfall	mm	84
Monthly Snowfall	cm	23
Peak Daily Snowfall	cm	36
Maximum Wind	km/h	89
Peak Gusts	km/h	129

Table 4 Environmental Conditions

E46.3 The farebox may also be exposed to a variety of cleaning fluids used during the normal maintenance of the bus. Currently these fluids include Jet Clean soap, Windex glass cleaner, Aromz deodorizer, State Chemical Graffiti cleaner and Percept viruside.

E46.4 During normal operation, it is possible that the equipment will be exposed to a variety of liquids including water, coffee and soft drinks. Equipment should either be sealed or allow these liquids to drain out. The outside of the equipment should be easy to clean.

E46.5 The Bidder should certify that the equipment and system proposed is suitable for the environmental conditions that will be encountered in Winnipeg. The Bidder should state what operating temperature, storage temperature, and humidity the equipment is rated to. For equipment mounted on the buses, the shock and vibration rating should also be given.

E46.6 It may be necessary for a bus to be parked outside overnight during the winter. The Bidder should describe how the farebox and all other fare collection equipment installed in the bus would tolerate the cold.

E47. ELECTRICAL REQUIREMENTS

E47.1 Since the nominal voltage available on each bus may be either 12VDC or 24VDC, all on-bus equipment needs to be able to operate on both 12VDC and 24VDC; however, the operating range may be much greater (between 9VDC and 39VDC) and may be subject to 48 Volts

reverse polarity during a battery boost. There will be fluctuations in voltage due to other equipment on the bus starting or stopping. Equipment may either automatically sense supply voltage or there can be a switch that is easily accessible by maintenance to switch from one supply voltage to the other when the equipment is moved from one bus to another

E47.2 The Bidder should specify the current drawn by its on-bus devices under the following four (4) scenarios:

(a) In full operation;

(b) Under maximum load;

(c) At idle; and

(d) When parked overnight.

E47.3 All on-board equipment should be provided with a switch so that the equipment can be turned off if the bus is to be parked out of service for an extended period of time.

E47.4 The equipment shall be designed to ensure that electrical and electronic components operate in their intended operational environments without being affected by, or causing, harmful interference. Protection shall be provided against radio frequency and electromagnetic interference (RFI/EMI) emission sources, as well as internal conductive or inductive emissions.

E47.5 All non-bus mounted equipment should be configured to run from a single-phase power source of 110V, 60Hz, 20A maximum with normal supply variations. A valid CSA sticker must be mounted in a visible location.

E47.6 All equipment should have an appropriate fuse.

E47.7 In the event of a power interruption, the system must provide for an orderly shutdown of the computers. All open programs should be properly shut down and, where possible, all data transmissions completed. The Bidder should describe how this is achieved with its system.

E47.8 Static electricity is a substantial concern for all electrical and electronic equipment. The Bidder should indicate preventive precautions that have been taken.

E48. SOFTWARE REQUIREMENTS

E48.1 It is anticipated that the software supplied will be a combination of both commercially available and proprietary software. The Contractor is responsible for acquiring and paying any license fees for all commercially available software that is not already available at the City.

E49. OPERATIONAL REQUIREMENTS

E49.1 Operational reliability and accuracy are key elements affecting the public's experience using the fare collection system and the amount of revenue that can be collected. The Contractor shall achieve the following operational reliability levels:

E49.2 Operational Reliability will be measured in terms of Mean Transactions between Failures (MTBF), which is the Number of Transactions over a given period divided by the Number of Failures for the same period. Within 60 days after the start of revenue service, the operational reliability of the system must be at a rate greater than 100,000 transactions between failures.

$$MTBF = \frac{Number\_of\_Transactions}{Number\_of\_Failures} \geq 100{,}000$$

Equation 1 Operational Reliability

E49.3 Availability will be measured as the number of hours the equipment is actually operating properly during revenue service divided by the expected operating hours. Within 60 days after the start of revenue service the availability of the system must be at a rate greater than 99.5 percent of expected operating hours. The Contractor will undertake any remedial action at their own cost, including any modifications required to bring the system to the specified availability level. Revenue service hours are the total number of hours that each component is required in service (e.g. 24 hours per day for the central system, 18 hours per day for each bus). Expected operating hours are revenue service hours less the time for scheduled maintenance.

$$Availability = \frac{Actual\_Operating\_Hours}{Expected\_Operating\_Hours} \geq 99.5\%$$

Equation 2 Availability

E49.4 The Contractor will, immediately upon notice, undertake any remedial action at its own cost, including making any modifications required to bring the system to the specified operational reliability or availability level.

E49.5 Failures that will not be included in operational requirements calculation are those events over which the Contractor does not have control and may include events such as:

(i) Vandalism or deliberate misuse of equipment (except by employees of the Contractor);

(ii) Power failure or other failure outside the Contractor's control;

(iii) Failure of third party equipment; and

(iv) Failures that are due to a force majeure event.

E49.6 If there is any failure in data accuracy and integrity, the Contractor will be required to undertake remedial action at its own cost.

E49.7 To protect the data in event of a major failure, the Contractor should supply, install and set-up a back-up system that is appropriate for the system being operated.

E49.8 The Contractor will not be held responsible for the reliability of the equipment supplied by the City unless there is evidence that the Contractor supplied software is causing failures, or that the problem is caused by Contractor-supplied equipment connected to the City supplied equipment.

E50. MAINTAINABILITY REQUIREMENTS

E50.1 It is important that preventative maintenance can be performed quickly so as to minimize the interruption to transit operations. Likewise, corrective maintenance procedures should minimize the impact on transit operations and the inconvenience to passengers including:

(a) Functionally identical modules should be fully interchangeable;

(b) Fasteners should be standardized, positive-locking and indexed;

(c) Any component, sub-assembly or cable that may be used by maintenance personnel should be clearly marked; and

(d) All modules that can be changed when the bus is on the road should not require the use of special tools.

E50.2 Diagnostic routines should be available for all equipment.

E50.3 All equipment items that can be disassembled should be designed so that there is only one way to reassemble.

E50.4 Regularly or frequently used components should be easy to access and service with no tools (preferred) or with standard shop tools.

E50.5 All materials should be protected against corrosion and galvanic action.

E50.6 Configuration of replacement equipment should be easy or automatic. It is preferable that the equipment be configured at the maintenance office and then taken to the site, and any site configuration should be as simple as possible.

E50.7 The Bidder should describe how it achieves these maintainability requirements.

E51. SECURITY

E51.1 The City is concerned about the possibility of persons tampering with the fare collection system, intentionally or unintentionally, and would like to take all reasonable precautions to protect the data collected. Security issues include integrity of financial reports.

E51.2 It must be possible to audit the system and ensure that all transactions reach the central system without being tampered with. It must also be possible to ensure that illegal transactions cannot be added into the system.

E51.3 The Bidder should elaborate on potential sources of illegal transactions and indicate how its proposed system mitigates the risk of these illegal transactions either occurring or not being caught.

E51.4 In the event that data is removed from a farebox using a secondary method, this method must not unlock the farebox or provide access to the coin box. However, there should also be a method for approved persons to access the coin box when the bus is not in the regular revenue servicing location. Multiple accesses to a farebox must not create multiple copies of the revenue data in the reports.

E51.5 The database must be secure from both unauthorized and untraceable modifications.

E51.6 The Bidder needs to describe the various security methods employed in its solution, specifically addressing the issues raised in this section, how smart card security is managed and any other issues that are relevant to this system. The Bidder should state what encryption devices and processes are used.

E51.7 The Bidder should indicate whether the proposed solution is PCI DSS compliant, and if not, how the requirement to accommodate contactless credit card fare payment will be met.

E52. INFORMATION SYSTEMS REQUIREMENTS

E52.1 The Bidder should provide a clear indication of how its Proposal and the proposed system meets or exceeds all the information system requirements stipulated in this section.

E52.2 All information systems equipment (such as desktop computers, servers, wireless access points and network components) will be supplied by the City. All equipment needs to be part of the overall managed network solution, and it should be possible to monitor, upgrade, and integrate it. Any required modifications will be performed by City's IT staff.

E52.3 The Bidder should provide a description of the proposed technical design including data flows between components, infrastructure design diagrams and any security considerations.

E52.4 The Bidder should provide a list of information systems equipment that will be required to be supplied by the City.

E52.5 Desktop computers functionality is described below:

E52.5.1 All workstations will be supplied by the City. The Bidder should provide a detailed specification of the desktop computers that are required.

E52.5.2 Standard software on all City computers includes:

(a) Windows XP Professional; and

(b) Microsoft Office 2003 Standard.

E52.5.3 The City will be undertaking an organization wide upgrade to their desktop suite environment concurrent with the early deployment stages of the AFC system. The City expects a migration either to MS Office 2010 or to an open source suite such as OpenOffice or Lotus Symphony.

E52.5.4 The City is currently considering standardization on terminal servers and thin client platforms as a future desktop strategy. Workstation based software should be compatible with:

(a) Windows Remote Desktop; and

(b) Citrix XenDesktop.

E52.5.5 The Bidder should warrant that its client application will not conflict with the suites of software described above. The Bidder is not responsible for the licensing of these suites of software.

E52.6 Mobile computers functionality is described below:

E52.6.1 All mobile computers will be supplied by the City. The Bidder should provide a detailed specification of the laptop computers that are required.

E52.6.2 The standard software will be the same as the desktop computers.

E52.7 Server functionality is described below:

E52.7.1 Servers will be supplied by the City. The Bidder should provide a detailed specification of the servers that are required.

E52.7.2 There is currently a large infrastructure of 40+ physical servers deployed. In addition, there are approximately 50 virtualized servers in operation. The majority of the servers operate in a SUSE Linux 9e environment. Major applications are deployed on a number of IBM System i systems. Microsoft Windows Servers are deployed for a limited number of infrastructure server functions only. Data centers are largely rack equipped and fully supported by existing UPS equipment.

E52.7.3 Within the timeframe of early AFC system deployment, the City will likely undertake a server consolidation project that will centralize all City servers in a central facility. This facility will be completely blade server based and fully virtualized. Any server components should be compatible with a virtual VMWare environment.

E52.7.4 Winnipeg Transit prefers systems where server component software is compatible with a Linux operating system environment.

E52.7.5 The Bidder should provide the system server environment and capacity requirements for the database and application.

E52.7.6 The Bidder should describe their recommendations for archiving including an estimate of the size of the space required.

E52.8 The network functionality is described below:

E52.8.1 All Winnipeg Transit facilities are connected via the City of Winnipeg wide area network. The minimum network capacity is 100 mbps with most connections being 1GB Ethernet. The Bidder should provide a statement of bandwidth requirements for its system needs at Winnipeg Transit.

E52.9 The software functionality is described below:

E52.9.1 Winnipeg Transit has previously been standardized on IBM DB2 UDB databases. All new applications are being deployed to a mySQL Enterprise open database platform. An acceptable alternative is SQL Server. Winnipeg Transit is currently investigating the possibility of using the City's Oracle DB. If a different database is proposed the Bidder

should provide the rationale for its recommendation. Only industry standard databases will be considered.

E52.9.2 The Bidder should state the database and reporting software that it recommends.

E52.10 The wireless functionality is described below:

E52.10.1 The Bidder is advised that there is a dedicated access point used by the Infodev Automatic Vehicle Location (AVL) system operating in each garage. More information is provided in Appendix F5 Infodev Automatic Vehicle Location System.

E52.10.2 It is required that the Contractor uses the Wi-Fi communication capability of the Infodev AVL system to upload and download data between the server and the on-bus fare collection equipment.

E52.11 The data/system architecture is described below:

E52.11.1 Winnipeg Transit has a very large portfolio of applications that supports almost all aspects of its operation from end-to-end:

(a) All the existing deployed systems are tightly integrated such that they act as one large virtual data system;

(b) Data integration is achieved through deployment of an architected Operation Data Store (ODS) that acts as a data repository, and a set of services for all data that is shared among the individual applications;

(c) All data "producer" applications that are responsible for create/update data are also responsible for storing the current data in the ODS. All "consumer" applications requiring data that is shared are responsible for retrieving it from the ODS;

(d) The ODS represents both a planned state of service and a real-time version of the current state. As such, the ODS is an accurate authoritative model of transit service;

(e) Access to the ODS is via a set of well-defined Web Services;

(f) All processes related to maintaining the ODS are automated and, where appropriate, occur in real-time at a transactional level;

(g) Utilizing this concept, Winnipeg Transit has avoided redundant and potentially disparate versions of data being maintained and stored in different applications. Data integrity between applications is assured; and

(h) Winnipeg Transit has gone to great lengths to assure that data maintenance functions are not duplicated. Examples include bus operator assignments, vehicle assignments, service definitions and service exceptions. A transaction occurs only once in the originating application and the data content is propagated automatically through the ODS to other applications.

E52.11.2 To conform to this integrated systems strategy, the City will give preference to AFC applications that can participate in and fully exploit this data architecture.

(a) All data required by the AFC system that does not originate within that system, and is maintained by other applications, will be retrieved from the ODS using the established access services. Where required, this access will be on a transactional real-time basis. This may include:

(i) Vehicle to Service Assignments;

(ii) Bus Operator to Service Assignment;

(iii) Vehicle Run Definition Data;

(iv) Transit Service Network Definition Data; and

(v) GIS/Location Data;

(b) In instances where this data is required on-board the vehicle and no communication channel is available to the AFC, the data shall be retrieved from the Infodev MCU. The MCU has access to authoritative data through its communication capabilities;

(c) Any data originating in the AFC system that is required by other transit applications will be stored in the ODS. The City will extend the ODS definition to include shared AFC data if required;

(d) The AFC system will not require users to duplicate any functions with other applications. This may include:

(i) Vehicle to Service Assignments;

(ii) Bus Operator to Service Assignments; and

(iii) Bus Operator Log-in.

E52.11.3 The City is currently planning a consolidation of data shared by multiple departments and applications in a manner that is similar in concept to the Winnipeg Transit ODS. The AFC system should be architected to take advantage of this construct because of the specific advantages to the end customer.

(a) A primary candidate for this consolidation is citizen identity and address information. The benefits include:

(i) One single contact/transaction for data changes such as moves, name changes, contact information changes etc.;

(ii) A single identity across all City departments/applications;

(iii) A single set of credentials across all applications; and

(iv) A single reference to data linkages such as financial institutions and payment mechanisms.

(b) The model being contemplated is distributed in nature and would allow extension for the purposes of attributes unique to specific applications.

(i) Winnipeg Transit would propose to expose citizen information through its ODS services.

E52.12 The architecture functionality is described below:

E52.12.1 A full technical schematic of the information technology architecture (physical servers, networking, services on servers, data stores) should be provided by the Contractor.

E52.12.2 The City's Information Technology (IT) department has the following architectural expectations:

(i) the City is a VMware shop, using VMware V13 server virtualization;

(ii) Winnipeg Transit utilizes Apache HTTP server environment with Apache Tomcat as web application server; compatible solutions are preferred;

(iii) User authentication should take place via an LDAP compatible directory service such MS Active Directory;

(iv) For passenger authentication, users must be able to use the same authentication as for other secure Winnipeg Transit applications;

(v) Timely supply of software patches, and upgrades, including but not limited to support of the regular Microsoft security updates;

(vi) Licensing solution must not affect other applications installed on servers.

E52.12.3 The Bidder should review the architectural expectations and the technical landscape and identify in its Proposal all specifications that may cause a problem.

E52.13 The upgrade functionality is described below:

E52.13.1 The Bidder should specify its upgrade procedure including planning, testing, software rollout tools and frequency.

E52.14 All back-up equipment and back-up software will be supplied by the City. The Contractor is responsible for identifying the elements that require back-up and the recommended back-up frequency.

E53. FUTURE SYSTEM CHANGES

E53.1 The AFC system shall be configured according to open architecture principles, complying with applicable international standards, such as TCIP, and allowing subsequent addition of functionality without recourse to the original Contractor's services for modification of software or hardware. Sufficient documentation shall be provided to allow successor integrators to provide such additional functionality as may be desired by the City during the lifetime of the system. The Bidder should explain in detail how it would comply with this requirement.

E53.2 This specification is intended to provide for the supply of a system that can be expanded to incorporate new features and functionalities as they become available, or to link to other systems (such as on-bus vehicle logic units) to create a more powerful whole. This specification relies on a number of principles to achieve this expandability, including open architecture standards, excess memory and processing capability incorporated into computer systems, use of openly available standards, etc. The Bidder is required to describe in its Proposal how their proposed system and solution satisfies the City's requirement to implement a system that can evolve over time to meet new needs. The Bidder should outline its plan, approach and methodologies for providing the City with the ability to add future equipment and functionality without being dependent on the Contractor.

E53.3 The functionality of the proposed smart card based Automatic Fare Collection System should not depend on the implementation of any future features.

E54. HAZARD ASSESSMENT AND MITIGATION

E54.1 The Bidder is required to provide a list of potential major malfunctions which may impact the system's ability to collect revenue, including the probability of events occurring and how they will jeopardize data integrity. A detailed description of previous attempts to avert such disasters, proactive methods of avoiding their occurrence, steps to be taken and recovery specifics are to be included.

E55. ACCESSIBILITY

E55.1 The Bidder should certify that the equipment and system proposed to be provided for use by the City of Winnipeg and its passengers is compliant with all applicable accessibility design standards and that the fare collection equipment and system will be accessible and will allow for the safe and secure use by persons with disabilities.

E55.2 All equipment that is provided should be designed, manufactured and installed and all system functionality developed in accordance with the requirements of the current versions of CAN/CSA-B651-04 and CAN/CSA B651.2-07, the City of Winnipeg Accessibility Design Standards section 4.4.11 and the current version of the Americans With Disability Act (ADA).

E55.2.1 Americans With Disability Act
http://www.access-board.gov/transit/html/vguide.htm

E55.2.2 City of Winnipeg Universal Design Policy
http://www.winnipeg.ca/ppd/Universal_Design.stm
http://www.winnipeg.ca/ppd/ud/4.0/4.4/4.4.11_card_access_safety_security_systems.stm

INSTALLATION

E56. GENERAL INSTALLATION REQUIREMENTS

E56.1 The Contractor will be responsible providing all the labour and materials required for installing all on-bus equipment.

E56.2 The Contractor will be responsible for the removal of the existing fareboxes.

E56.3 The Bidder is advised to read the requirements of the First Installation Acceptance Test (FIAT) in Section E59.

E56.4 Adequate materials and tools should be supplied by the Contractor to allow the Contractor to install the equipment on the buses.

E56.5 One or more City employees may work with the Contractor staff during the installation of all equipment and software so that they are familiar with the installation procedure; however, the Bidder should not count on any City employee to perform any of the installation tasks.

E56.6 The City will assign bus operators to ferry buses to and from the installation location.

E56.7 The Bidder should indicate clearly how it plans to accomplish the installation on the entire fleet to minimize the disruption to ongoing fare collection, and to minimize the elapsed number of days required to complete the entire fleet.

E56.8 Installation of all software on servers and workstations will be performed by the City's staff. The Contractor should have complete installation documentation and software available at least two weeks prior to the start of installation and testing.

E56.9 The Bidder is required to provide an optional price for the installation of the AAVMs at third party sales agents.

TESTING

E57. GENERAL TESTING REQUIREMENTS

E57.1 All of the components, subsystems and systems processes constituting the system shall be tested individually and together to ensure that they meet the Contract requirements and provide a properly functioning system. The work under this section shall include all labour, materials, and support services required to completely inspect and test all hardware and software.

E57.2 Testing will be performed using new coins, street coins, bogus coins and all other types of fare media that will be used in operation.

E57.3 The Contractor must submit to the City a Comprehensive Test Plan for each of:

(a) First Article Test (FAT) (if required);

(b) First Installation Acceptance Test (FIAT);

(c) System Acceptance Test (SAT);

(d) Revenue Acceptance Test (RAT); and

(e) Operational Performance Test (OPT) for approval as one of the SDS documents.

E57.3.1 The plans should include:

(a) The test purpose;

(b) The test procedures;

(c) The test documentation;

(d) The test criteria; and

(e) The test schedule.

E57.4 The Contractor must be able to demonstrate that all reports produced by the system are accurate and complete.

E57.5 All tests and their results should be documented and submitted to the City within one week of their completion. The City's Project Manager should be notified of all test failures and the applicable corrective actions. A new test should be scheduled for all failed tests.

E57.6 The Contractor is responsible for tests to be performed by sub-contractors and/or suppliers. The Contractor is also responsible for ensuring that sub-contractor and/or supplier support is available during System Acceptance Testing and Revenue Acceptance Testing.

E57.7 Testing of servers and workstations will be done with the City's configuration and hardware. The Contractor should identify staffing requirements from Information Technology Services (ITS) for this.

E57.8 The City's Project Manager and/or designate may choose, at any time, to witness any or all of the tests.

E58. FIRST ARTICLE TEST (FAT)

E58.1 The City reserves the right to require a First Article Test (FAT) on any piece of equipment. The FAT shall be performed to ensure that the components meet all the functional requirements of this RFP. If this test is required, it is anticipated that it will take place at the Contractor's facility and before any product is shipped to the City.

E58.2 The Contractor shall demonstrate that individual pieces of equipment will meet the requirements set out in this RFP.

E58.3 The City's Project Manager and/or designate may choose to witness some or all of the FAT tests.

E59. FIRST INSTALLATION ACCEPTANCE TEST (FIAT)

E59.1 First Installation Acceptance Testing (FIAT) shall be performed to ensure that the supplied components meet all functional and environmental requirements and specifications. First Installation Acceptance Tests are performed prior to full roll-out.

E59.2 The principal objective of the FIAT is to demonstrate that the new equipment does not interfere with existing equipment and will function in the environment. For example, installation of on-bus equipment on a Winnipeg Transit bus that is not in service to demonstrate:

(a) That the installation procedure is sufficient; and

(b) That the equipment can operate on the bus without negatively impacting the operation of the bus; or be negatively impacted by the operation of the bus.

E59.3 The Contractor shall demonstrate that individual pieces of equipment will meet the requirements set out in this RFP.

E59.4 The City's Project Manager and/or designate may choose to witness some or all of the FIAT tests.

E60. SYSTEM ACCEPTANCE TEST (SAT)

E60.1 During the System Acceptance Test (SAT), it is verified that the installed and integrated system functions according to the system requirements. System Acceptance Test is performed once all devices are installed and software is commissioned, and prior to placing the system into revenue service.

E60.2 The City's Project Manager or designate will witness all SATs.

E60.3 The plan for the SAT should be submitted to the City's Project Manager and approved before it can start. Equipment failures, major software failures and an excessive number of software issues will result in the test being repeated.

E60.4 SAT will include tests where specific transactions are followed through the system from end-to-end.

E61. REVENUE ACCEPTANCE TEST (RAT)

E61.1 Following successful completion and the City's approval of the System Acceptance Test, revenue service will begin. Revenue Acceptance Testing (RAT) will be performed on all equipment and services placed into revenue service to demonstrate the performance of the system as a whole. The completion of the Revenue Acceptance Testing will depend upon the system meeting specified performance levels.

E61.2 It is expected that RAT will be completed within 90 days of the start of revenue service.

E61.3 All failures during RAT will be subject to review by a team made up of the City's employees and Contractor staff.

E62. OPERATIONAL PERFORMANCE TEST (OPT)

E62.1 The Operational Performance Test will be performed six months after the successful completion of the Revenue Acceptance Test. The purpose of the test is to ensure that the system is still performing within specification with particular attention to overall reliability and system up-time. A significant failure during the six-month period will cause the period to be re-started.

E62.2 All failures during OPT will be subject to review by a team made up of the City's employees and Contractor staff.

E63. SYSTEM TEST BED

E63.1 The Contractor should provide a permanent System Test Bed that will include sufficient equipment and software so that future updates and changes to software can be tested on an isolated representative set of equipment before it is deployed to all operational equipment. In the case of the server, testing will be accommodated via VMWare where possible; if not then separate physical servers will be required. The Bidder should provide a comprehensive description of the system test bed being proposed.

TRAINING

E64. GENERAL TRAINING REQUIREMENTS

E64.1 The Contractor will "Train the Trainer" for all areas of the system except for central system operation. For the central system operation, the Contractor will train the designated City employee(s) who will operate the central system.

E64.2 The purpose of the training is to provide the City employees with the information and skills needed to operate, maintain, and support the system.

E64.3 Training will include, but not be limited to the courses and personnel outlined in Table 5 Matrix of Training Requirements.

Training Courses	Overview	Bus Equipment	Customer Service	Management	System	Installation	Coin Processing	Maintenance
Customer Service	✓		✓					
Bus Operators	✓	✓						
Maintenance	✓	✓				✓		✓
Management	✓	✓	✓	✓				

System Operator	✓	✓	✓	✓	✓		✓	
Number of Trainers	21	6	3	3	2	4	2	3
Total Staff to be Trained by the City	1300	1000	35	15	5	25	12	25

Table 5 Matrix of Training Requirements

E64.4 The City will provide a location for the training. The Contractor is responsible for identifying the supplies and equipment required to fulfil the training requirements.

E64.5 Training materials should include tests that can be used to evaluate if the student has a sufficient grasp of the material to allow them to do their jobs.

E64.6 It is recognized that some of these courses will be short and in practice it may be easier to combine them into one session.

E64.7 The Contractor will provide the City with a detailed training plan at least two months prior to the start of training and copies of training materials at least two weeks prior to the start of training.

E65. OVERVIEW COURSE

E65.1 The overview course is an introduction for all employees to the automatic fare collection system that is being installed at the City's Transit Department. It should show how individual actions fit into the overall system.

E66. BUS EQUIPMENT COURSE

E66.1 The bus equipment course is to train bus operators, their supervisors, other managers (such as customer service) and maintenance personnel how the smart card equipment and the farebox work.

E66.2 At the end of the course, the bus operators should be comfortable and capable of providing all necessary services to the passengers, as well as being able to answer basic questions about the system.

E67. CUSTOMER SERVICE COURSE

E67.1 The customer service course is to train customer service representatives, their supervisors and maintenance personnel how the customer service terminals and personalization workstation operate.

E67.2 At the end of the course, the customer service representatives should be comfortable and capable of

(a) issuing, personalizing, and re-loading smart cards;

(b) changing or adding products on the card;

(c) changing personal data on the database;

(d) cancelling a smart card;

(e) hot-listing a smart card; and

(f) responding to passenger requests for information and help.

E68. MANAGEMENT COURSE

E68.1 The management course is to train the managers how to manage the fare collection system.

E68.2 At the end of the course, the managers should be comfortable and capable of producing both pre-defined and ad-hoc reports, and being able to input any and all changes to the fare tables and any other operating parameters as required by fare policy and the strategic goals of the City.

E69. SYSTEM COURSE

E69.1 The system course is to train the system operator and their back-up how to operate and maintain the central system. They should be the local resource for all other Winnipeg Transit employees when they have questions or problems. They should be able to operate all the equipment in the system.

E69.2 At the end of the course, the system operator should be comfortable and capable of operating the smart card fare collection system. This will include all routine maintenance of the central system, system updates and back-ups.

E70. INSTALLATION COURSE

E70.1 The installation course is to train the maintenance staff and their supervisors how to install the farebox into the buses and ensure that they are configured correctly.

E70.2 At the end of the course the maintenance staff should be comfortable and capable of safely installing the farebox into any and all of the buses in the City's Transit fleet.

E71. MAINTENANCE COURSE

E71.1 The maintenance course is to train the maintenance staff and their supervisors how to perform preventative and corrective maintenance on the equipment.

E71.2 At the end of the course, the maintenance staff should be comfortable and capable of performing diagnosis, removing and replacing equipment, and performing basic repairs. Section E74 describes the level of maintenance that the City expects to be able to perform.

E72. COIN PROCESSING COURSE

E72.1 The coin processing course is to train the revenue handling staff and their supervisors how to perform the exchange and dumping of the coin boxes, as well as the exchange and transport of the mobile safes from the free standing vault.

E72.2 At the end of the course, the revenue handling staff should be comfortable and capable of exchanging and dumping coin boxes, and exchanging and transporting mobile safes.

SERVICE AND MAINTENANCE

E73. MAINTENANCE

E73.1 Maintenance tasks can be structured into three levels:

(a)	First Line	Equipment Level
(b)	Second Line	Sub-Assembly Level
(c)	Third Line	Component Level

E74. FIRST LINE MAINTENANCE

E74.1 The City will perform First Line Maintenance.

E74.2 In general, First Line Maintenance is performed onsite, without the need for specialized equipment or workshop facilities and requiring only basic tools and fundamental knowledge. Training should be provided for First Line Maintenance technicians.

E74.3 Typical first line maintenance tasks would include:

(i) Periodic preventative maintenance, e.g., cleaning, replacement of consumables;
(ii) Removal of defective equipment and installation of replacement equipment;
(iii) Replacement equipment commissioning;
(iv) Adjustments or calibration requiring only basic technical expertise;
(v) Periodic monitoring, recording and reporting of performance data;
(vi) Assessment of equipment malfunction or damage and the preparation of fault reports.

E75. SECOND LINE MAINTENANCE

E75.1 The Contractor will perform any required Second Line Maintenance.

E75.2 It is expected, pursuant to this procurement, that this level of maintenance will rarely be required for the equipment supplied to the City, and that, when required, defective devices will be returned to the original manufacturer for repair or replacement either directly by the City or via the Contractor.

E75.3 Typical second line maintenance activities include:

(i) Periodic preventative maintenance procedures that require special technical knowledge;
(ii) Removal and installation of sub-assemblies;
(iii) Fault diagnosis to equipment module level;
(iv) Identification and replacement of faulty printed circuit boards;
(v) Functional testing and certification of equipment;
(vi) Equipment commissioning, including adjustment and calibration.

E76. THIRD LINE MAINTENANCE

E76.1 The Contractor will perform any required Third Line Maintenance.

E76.2 Third Line Maintenance covers all activities that require greater expertise or are more complex than the Second Line Maintenance, or may require the use of specialized test equipment and tools. Repairs to electronic assemblies such as printed circuit boards will normally be considered to be third line maintenance.

E76.3 Generally, the Original Equipment Manufacturer (OEM) or accredited service agents carry out this level of maintenance.

E76.4 The City expects that the Contractor will arrange for such third line maintenance if required.

E77. SERVER MAINTENANCE

E77.1 The City will:

(a) Conduct routine maintenance;
(b) Install updates'
(c) Back-up systems data; and
(d) Manage system troubleshooting.

E78. MANUALS

E78.1 All manuals should be written in Canadian English and in a format that is appropriate for the skill level of the manual user.

E78.2 Manuals should be bound in a way that allows the manual to stay open when in use. Unless the manual is very short (e.g. less than 4 pages) a table of contents and index should be included.

E78.3 All manuals should include either revision date and/or revision number.

E78.4 Manuals should be in a format that is easy for the City to copy or re-print without restriction or license for distribution to all employees that need to know how to use or maintain equipment or software.

E78.5 Documentation for all upgrades and patches should be provided in electronic format suitable for easy reproduction.

E78.6 All pages in a manual should be numbered so that missing pages can be identified.

E78.7 All measurements should be presented in metric (conversions to English units may be included).

E78.8 The use of diagrams, pictures and photographs is encouraged where it clarifies the written instruction. Exploded view diagrams should be used to explain assemblies where appropriate. Videos may be included where appropriate to help clearly demonstrate a method.

E78.9 The Contractor should authorize the City to make copies of these manuals and distribute as required for the purpose of operating and maintaining the system.

E78.10 User manuals should include the following:

E78.10.1 User manuals must include all necessary warnings and cautions to permit safe operation of the equipment or software.

E78.10.2 A troubleshooting guide should be included in all manuals.

E78.10.3 User manuals for the system should include instructions for operation of the system, including:

(a) Normal operating;

(b) Diagnostic procedures;

(c) Restart/recovery procedures; and

(d) Other necessary procedures for operating the system.

E78.10.4 A complete description of functions necessary for generating reports should be provided for the system.

E78.10.5 Where appropriate the user manual should include a handy reference sheet for the user.

E78.10.6 Consumable items should be identified.

E78.11 Maintenance manuals should include the following.

E78.11.1 Manuals should include a list of all the tools, equipment materials and any other items that will be required to perform the maintenance tasks.

E78.11.2 The manuals should describe both preventative and corrective maintenance procedures. The frequency of preventative maintenance test procedures should be clearly described.

E78.11.3 Diagnostic and built-in test procedures should be included for equipment and software. Procedures should indicate whether the item being tested is operating within normal parameters and if there are any critical or non-critical failures.

E78.11.4 Troubleshooting guide should be included to assist maintenance technicians in determining the cause and repair for the failure. Schematics, diagrams and part lists should be included.

E79. SPARE PARTS AND CONSUMABLES

E79.1 The Bidder should propose a list of spare parts and consumables that will be required to maintain and operate their system for a period of one (1) year from revenue service and for a period of five (5) years from revenue service.

E79.2 The list should include:

(a) A description of the part;

(b) The current cost of the part; and

(c) At least one possible source of supply besides the Contractor.

All cost information must be included in the Financial Proposal. Where an item is proprietary to the Contractor and should be sole sourced from the Contractor, the list should be so marked. The Bidder should warrant that sole sourced items will be available at market competitive prices and if the Contractor ceases to manufacture the part, it will provide the City with notice and an opportunity to purchase adequate quantities for its spare parts inventory.

E79.3 A list of consumable items should be provided with:

(a) A description of the part;

(b) An estimate of quantity to be used in one (1) year;

(c) The current cost of the part; and

(d) At least one possible alternative source.

Where an item is proprietary to the Contractor and should be sole sourced from the Contractor, the list should be so marked. The Bidder should warrant that sole sourced items will be available at market competitive prices.

E79.4 Sufficient information will be provided by the Contractor to allow the City to purchase additional contactless smart cards and smart stickers from a contractor of their own selection.

E80. SERVICE

E80.1 During the warranty period:

(a) The Contractor will replace all defective parts;

(b) Will make corrections to the software to fix any identified errors; and

(c) Will provide software upgrades that are issued to other customers free of charge.

E80.2 The Bidder will describe the support available (phone, email, on-site), both during the warranty period and after the expiry of the warranty period, for different categories of failure as described in Section B 15.2, including examples of failures in the category, what sort of support will be provided and how quickly it will be provided.

E80.3 Categories of failure will include:

(a) Mission critical – unable to collect any fare revenue, data lost or severely compromised;

(b) Urgent – fare collection severely compromised, possible loss of data;

(c) Serious – fare collection difficult but achievable with manual workarounds, potential for loss of data;

(d) Minor – fare collection adequate, no data lost.

E80.4 The description should include:

(a) How software updates are issued;

(b) How different levels of downtime severity are handled;

(c) Whether software upgrades are included

(d) How frequently updates are issued

(e) What level of support is available such as phone, email and on-site; and

(f) The availability of a “user” information site such as a web-based FAQ or forum.

E80.5 The discussion of service of equipment should include:

(a) Repair of equipment;

(b) The options for repair, replacement or re-conditioned parts;

(c) The availability of components for pieces of equipment rather than replacing whole assemblies;

(d) The turnaround time for repairs;

(e) What level of support is available such as phone, email and on-site; and

(f) The availability of a “user” information site such as a web-based FAQ or forum.

E80.6 The City would strongly prefer a Canadian-based service centre. The Bidder should indicate where their service centre is located and if it is not in Canada what provisions will be made to reduce the complications of shipping to another country.

E81. SERVICE AND MAINTENANCE AGREEMENTS

E81.1 The Bidder should be very specific and clear in its explanation of the hardware and software services and service call response rate that will be provided during the warranty period, and those services that will be provided after the warranty period expires, both with and without a maintenance service agreement in place.

E81.2 The Contractor should be prepared to provide service and maintenance for the fare collection system after the expiry of the warranty period. Costs should be included on the Detailed Pricing Schedule.

E81.3 The Bidder should describe the hardware and software service options available to the City for the AFC system after the end of the warranty period.

E81.4 The Bidder should describe in detail:

(a) The service provided;

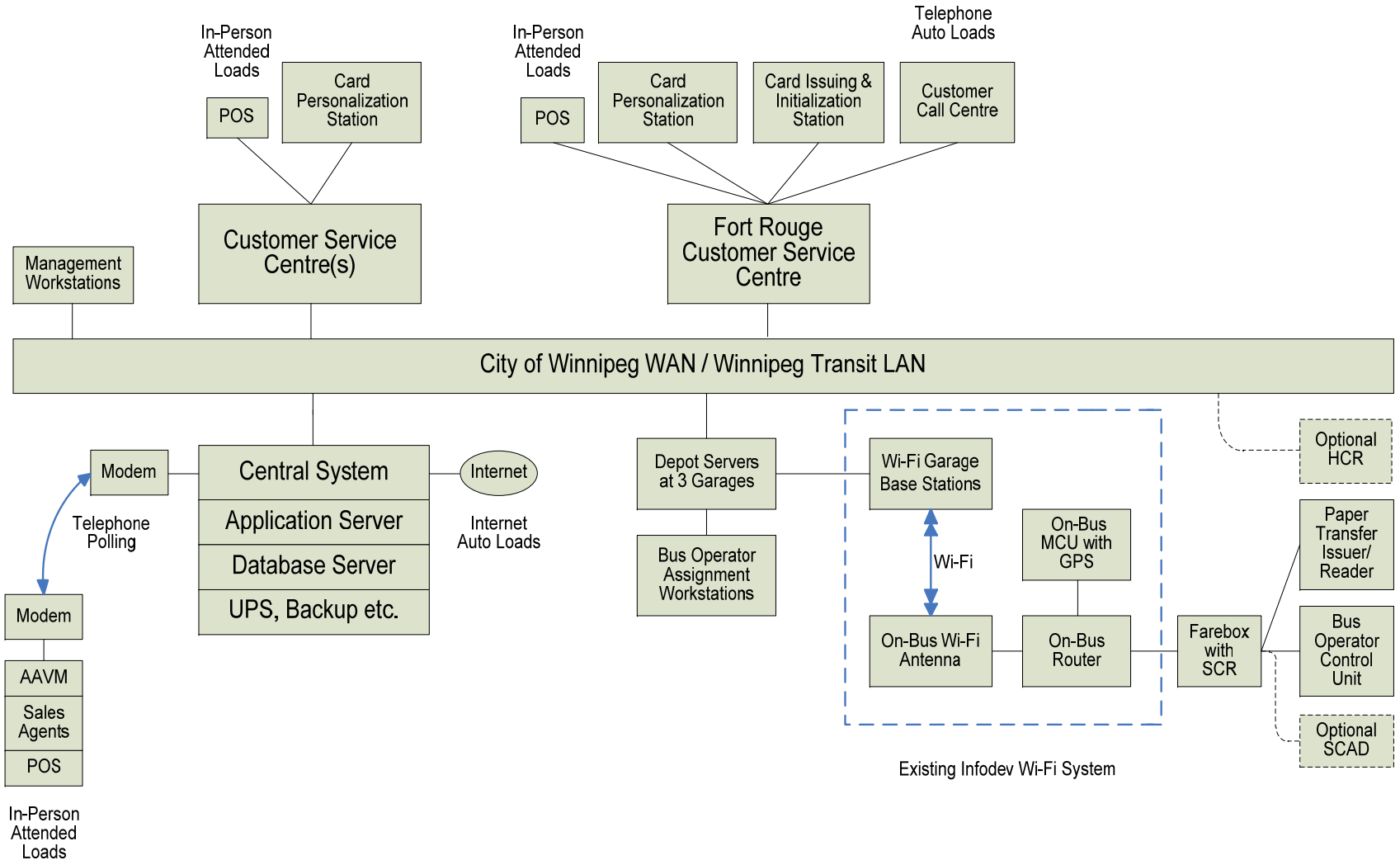
(b) Response times; and

(c) What services or items are excluded.

E81.5 The Bidder is reminded that all discussion of price must be provided only in the Financial Proposal envelope.

PART F - APPENDICES

F1. SYSTEM ARCHITECTURE DIAGRAM



F2. SAMPLE FARE PAYMENT MATRIX

Fare Payment	Passenger Class	Patron Action	Patron Display	Farebox Action	Bus Operator Action	Bus Operator Display
Cash	Full Fare Adult [1]	Deposit exact fare in farebox	Amount deposited	None	None – farebox automatically dumps	Amount deposited
	Reduced Fare Youth, HS, Senior	Deposit exact fare in farebox	Amount deposited	None	Key in 'Reduced Fare' and then key in 'Dump'	Amount deposited
Smart Card Pass	Full Fare Adult	Present smart card to farebox SCR	Pass expiry date	Beep 1 for valid pass Beep 2 for invalid pass	Challenge on Beep 2	Pass expiry date
	Reduced Fare Youth, HS, Post-Secondary, Senior	Present smart card to farebox SCR	Pass expiry date	Beep 1 for valid pass Beep 2 for invalid pass	Verify passenger class on Beep 1 Challenge on Beep 2	Passenger class and pass expiry date
Smart Card e-ticket	Full Fare Adult	Present smart card to farebox SCR	Number of e-tickets remaining after this fare	Beep 1 for e-ticket deducted Beep 2 for no e-ticket present	Challenge on Beep 2	Number of e-tickets remaining after this fare
	Reduced Fare Youth, HS, Senior	Present smart card to farebox SCR	Number of e-tickets remaining after this fare	Beep 1 for e-ticket deducted Beep 2 for no e-ticket present	Verify passenger class on Beep 1 Challenge on Beep 2	Passenger class and number of e-tickets remaining after this fare
E-Cash	Full Fare Adult	Present smart card to farebox SCR	E-cash balance remaining after this fare	Beep 1 for e-cash fare deducted Beep 2 for insufficient e-cash balance present	Challenge on Beep 2	E-cash balance remaining after this fare
	Reduced Fare Youth, HS, Senior	Present smart card to farebox SCR	E-cash balance remaining after this fare	Beep 1 for e-cash fare deducted Beep 2 for insufficient e-cash balance present	Verify passenger class on Beep 1 Challenge on Beep 2	Passenger class and e-cash balance remaining after this fare
Cash Transfer	All	Present transfer to bar code reader	Transfer expiry time	Beep 1 for valid transfer Beep 2 for invalid transfer	Challenge on Beep 2	Transfer expiry time
Smart Card Transfer	All	Present smart card to farebox SCR	Transfer expiry time	Beep 1 for valid transfer Beep 2 for invalid transfer	Verify passenger class on Beep 1 Challenge on Beep 2	Passenger class and transfer expiry time

[1] Adult Passenger Class includes Post-Secondary Students and Handi-Transit Registrants

F3. SMART CARD LIFE CYCLE FUNCTIONS

Lifecycle Stage	Purpose of Stage	In-Person Activities	Remote Activities
Card Initialization	Activities required to prepare a card securely for use in the system. This involves injecting project security keys and creating the card issuer domain in the card.		
Card Issuing	Activities required to prepare a card for use in the system by a generic cardholder. This involves updating the card issuer domain in the card, unblocking the card and leaving the card ready for applications to be loaded.		
Application Loading/Issuing	Activities required to load a new product such as an e-cash, pass or tickets or application onto the card		
Card Distribution	Activities required to transport cards to the location where they will be sold to customers		
Card Sale	Activities required to transfer the possession of the card to the cardholder including the possible collection of a deposit or fee from the cardholder	Cards sold directly to customers at CST and by retail agents. Retail agents can only sell anonymous cards, the CST can sell and optionally register the card at the same time	Delivery by mail to the cardholder following mail, telephone or web request (or purchase if a fee or deposit is collected)
Card Registration	Activities required to link the card serial number to an individual cardholder at the database	Registration can be arranged in person at CST at the time of card sale. Registration of an anonymous card can be arranged by mail, telephone or web	Cards delivered by mail are always registered before delivery
Card Personalization	Activities required to link the card serial number to an individual cardholder through a name or photo ID printed on the card	Personalization, which is required for concession fares, can only be done at CST	Personalization, which is required for concession fares, can only be done at CST
Loading Value	Activities required to add value including fare products and electronic cash to a smart card both in person and through Autoload	Anonymous cards can only be loaded in person at CST or retail agents. Registered cards can Autoload regular fares. Only personalized cards can Autoload concession fares	Anonymous cards cannot be loaded remotely. Registered cards can Autoload regular fares. Only personalized cards can Autoload concession fares

F4. WINNIPEG BUS FLEET

F4.1 The table below is representative of the buses in the City of Winnipeg fleet (as of November 2010)

Quantity	Make	Model	Year
1	New Flyer	D40	1987
23	MCI	TC40102N	1988
11	New Flyer	D40	1989
7	New Flyer	D40	1990
9	New Flyer	D40	1991
3	New Flyer	D40	1992
57	New Flyer	D40	1994
3	New Flyer	D40 - LF	1994
15	New Flyer	D30 - LF	1996
43	New Flyer	D40 - LF	1998
60	New Flyer	D40 - LF	1999
20	New Flyer	D30 - LF	2001
52	New Flyer	D40 - LF	2002
10	New Flyer	Invero	2002
30	New Flyer	D40 - LF	2003
29	New Flyer	D40 - LF	2004
30	New Flyer	D40 - LF	2005
12	New Flyer	D40 - LF	2007
33	New Flyer	D40 - LFR	2008
98	New Flyer	D40 - LFR	2009

F5. INFODEV AUTOMATIC VEHICLE LOCATION SYSTEM

F5.1 The Infodev system is an already installed and operational Intelligent Transportation System providing radio communication management, vocal and text, real time onboard schedule adherence, audible and visual next stop announcement, external route announcement and more.

F5.2 Bidders are required to integrate with the Infodev system as indicated in the technical specifications of the RFP

F5.3 For the purposes of planning this integration, Bidders are advised of the following design attributes of the Infodev system:

(a) **Hardware Specification** - A new on-board router to be installed by Infodev at the time of implementing the new fare collection system will give access to an 802.11 b/g Wi-Fi network through an RJ45 connector. The Ethernet port operates at 10/100 Mbit/s with auto-MDI/X.

(b) **Network configuration** - Each vehicle will have a static IP address assigned to it for the Fare Collection System. Network configuration details such as Mask, Subnet Mask, Gateway etc, will be provided to the Contractor at the appropriate time.

(c) System Information Access - Current bus stop ID number and route number will be available to the farebox on request via the Ethernet connection (RJ45). The information will be sent via UDP protocol and will be encapsulated in key-value coding including a checksum. The exact format of data exchange will be defined in consultation with the Contractor at the appropriate time.

(d) **Power Management -** The Infodev system can control the power to the on-board Fare Collection System. The power management will be done via a relay provided by Infodev. Electrical specifications of the relay are NO: 20A / NC: 10A. A power cable will have to be provided by the Fare Collection System Contractor with proper gauge and fusing.

F6. OVERVIEW OF WINNIPEG TRANSIT OPERATIONS

F6.1 Winnipeg Transit Snapshot

Winnipeg Transit is a department of Infrastructure Renewal/Public Works in the City of Winnipeg that provides conventional and Handi-Transit transit service over an area of 218 square kilometres for 633,800 citizens of the capital of the Province of Manitoba. Winnipeg Transit operates a current fleet of 545 conventional diesel buses on 85 fixed routes with plans to establish a number of higher order bus rapid transit routes in the coming years. Over 300 of the buses and 47 of the routes are accessible

Handi-Transit (para-transit) service is provided by 8 private contractors with a combined fleet of 36 accessible vans, 3 small buses, 53 non-accessible cars and 9 other vehicles.

Winnipeg Transit provides an off-peak hour request bus service called Dial-A-Ride ('DART') to residents living in selected areas of South and South East Winnipeg. It also provides free downtown accessible daytime transit service on three Downtown Spirit routes

In 2008, Winnipeg Transit delivered over 42,637,200 conventional transit revenue rides and 60,811,600 total conventional rides (including transfers) and delivered 544,878 Handi-Transit rides generating $60,165,600 in conventional transit passenger revenue and $1,028,792 in Handi-Transit transit passenger revenue.

The City of Winnipeg has committed to expand the electronic delivery of many of its services through a multi-phased project to develop and renew cross departmental information systems. This e-government initiative involves offering internet-based information accessing services and providing automated customer call centres and using interactive voice technologies.

F6.2 Current Fare Collection System and Processes

The current conventional transit farebox is a simple mechanical 'drop-box' that was supplied many years ago by Cleveland Farebox Company. This farebox collects and secures cash and tickets that have been deposited but doesn't count or record fares paid. Bus operators find it difficult to verify that the correct number of coins have been deposited in the farebox.

Handi-Transit tickets and cash fares for the Handi-Transit service are currently collected from the passenger manually by the bus operator, retained in a pouch and submitted to the dispatcher at the end of the day. Handi-Transit fares are currently manually reconciled with the passenger 'manifest' by Handi-Transit staff.

Passes presented by passengers for travel on both conventional transit and Handi-Transit are visually validated by the bus operator. No record of the pass fare payment is retained.

The number of rides delivered in a month is estimated by adding the product of the number of passes sold that month multiplied by the assumed number of monthly journeys per pass holder to the estimated number of redeemed tickets sold that month and then adding the remainder determined by dividing the cash fares collected that month by an estimate of the average cash fare. The resulting ridership is therefore just a calculated value.

Buses are revenue serviced (have their fareboxes emptied) in a bus lane adjacent to the 'Blister' on the side of the Osborne Street and Main Street garages. Winnipeg Transit has plans to establish a third garage (Carlaw and Daly).

Cash removed from the fareboxes is placed on a cart and loaded into an unmarked cube van and transported to the Garry Street Treasury office.

Passes, tickets and paper transfers are purchased for the entire year and are stored in a secure vault and storage room at the Garry Street facility. Transfers are produced in the same colour paper stock for the year but are printed with a unique date and month indication. Farebox handlers deliver transfers each day to the Fort Rouge and North garages for distribution to bus

operators at the start of their shift. Each of Winnipeg Transit's 1,000 bus operators is issued a transfer punch with punch pattern that is unique to that bus operator. This means that it needs to manage the distribution, care and return of 1,000 distinct mechanical devices.

The cash box revenue servicing process is that tills are manually dumped into pails which are then emptied into a blower/sorter that separates bills and paper tickets from the coins. Banknotes represent less than 1% of revenue collected. Pails of coins removed from the blower/sorter are then emptied into coin sorter machines that separate coin denominations into bags and segregate mutilated (approximately 500 to 800 per month) and foreign coins. US coins are currently accepted for fare payment by Winnipeg Transit and are accepted by the bank for deposit at par, so there is currently no need to segregate US coins. Approximately 20% of all tickets (1,100 grams per week day) are counted exactly and sampled manually for counterfeits. This count is then extrapolated to the entire ticket revenue collected. Coins are then rolled and boxed and made ready for pick up and transport by Securicor and bank deposit. Other foreign coins are sold by the pound to a local coin firm.

The revenue servicing process also collects and processes 'Blue Loonies', which were introduced 20 years ago as a Downtown Winnipeg Business Improvement Zone (BIZ) incentive program to encourage customers to patronize downtown merchants. Blue Loonies are produced by a private mint under contract with the BIZ and managed by the City's bank and can be purchased by merchants for $1.00 and are redeemed by the bank at $0.90. The bank shares its 10-cent fee with the BIZ. Blue Loonies are provided by downtown merchants to their customers for use to contribute to a parking fee or taxi fare or pay for a full transit fare.

City Council directed that transit tickets should be sold in sheets of five in addition to sheets of ten. Because the Treasury machines can't automatically count returned sheets of five, these sheets are counted manually.

Except for plastic employee passes which are issued for long time periods, all other fare products are produced on paper with limited security processes. The proliferation of fare products with differing dimensions and very different designs can be very confusing to the bus operators who are required to validate them manually and to the sales agents who resell them. Tickets have no expiry date; however, because monthly passes, Superpasses and Max 5 passes have the validity period printed on the pass, Winnipeg Transit must carefully manage the distribution, return and reconciliation of monthly passes 12 times annually and weekly passes 52 times annually.

Tickets and passes are distributed and sold by 161 retail outlets, 87 EcoPass partners and 39 post-secondary school partners.

F6.3 Current Fare Structures

Winnipeg Transit provides service throughout its municipal service area for a single flat exact fare for both conventional transit and Handi-Transit services. Bus operators do not make change.

F6.4 Current Fare Policies

(a) Policies Regarding Specialized Transit Fares and Fare Policies

Handi-Transit cash, ticket and monthly pass fares are identical to regular full fare cash, ticket and monthly pass fares on conventional transit. All Handi-Transit fare products are accepted for fare payment on conventional transit services. Handi-Transit 'permanent' pass holders can ride conventional transit for free by presenting a special photo ID.

(b) Fare Table Review Process and Adjustment Principles

Winnipeg Transit does not need to obtain Council approval for fare increases if the average amount of the fare increase is less than or equal to the rate of inflation using the Consumer Price Index ('CPI') for Winnipeg. While the focus is on cash fares, the directive applies to all fares.

All fare increases are usually effective on January 1 of each year. Because budgets are submitted in August each year, it is necessary to forecast the rate of change of CPI at the end of the year.

In the 1990's, WT established a fare table template with fare product prices and passenger concessions calculated as a consistent multiple of the adult cash fare. Recently, individual fare products and discounts directed by Council have altered this consistent template.

(c) Passenger Fare Classifications

Passenger Fare Classifications	Primary Passenger Fare Class Qualifications	Concession Fare Entitlement Criteria	Photo ID Req'd?
Full Fare	All other passengers	No concession fare	No
Reduced Fare	Youths age 6 to 16 and full time high school students age 17 to 21	Youth – 'Under 17 Card' required if appears older, HS Student – 'GoCARD'	Yes Yes
Post-Secondary Student Fare	Full time students at approved post-secondary institution	Valid photo ID from institution	Yes
Senior Fare	Age 65 and older	Blue federal government ID or Transit Photo ID	Yes
Child Fare	Age 5 and younger	Accompanied by fare-paying passenger	No
Handi-Transit Fare	Certified to HT eligibility requirements	No concession fare	No

(d) Fare Products/Fare Media/Validity

Fare Products	Fare Media	Validity
Cash	Coins and bills	
Full fare tickets – sheets of 5 and 10	Paper	No expiry date
Reduced fare tickets – sheets of 5 and 10	Paper	No expiry date
Senior fare tickets – sheets of 5 and 10	Paper	No expiry date
Handi-Transit fare tickets – sheets of 5 and 10	Paper	No expiry date
Full fare monthly pass	Coated paper	One calendar month
Reduced fare monthly pass	Coated paper	One calendar month
Senior monthly pass	Coated paper	One calendar month
Post-secondary student monthly pass	Coated paper	One calendar month
Handi-Transit monthly pass	Coated paper	One calendar month
Full fare Superpass	Coated paper	One week (Mon-Sun)
Reduced fare Superpass	Coated paper	One week (Mon-Sun)
Senior Superpass	Coated paper	One week (Mon-Sun)
Full fare Max 5 pass	Coated paper	Five days (Mon-Fri)
Convention pass	Coated paper	Duration of event
Employer EcoPass	Coated paper	One calendar month
Blue Loonie	Metal Token	No expiry date
Transfer	Paper	One hour from issue

(e) Fare Payment Process

Conventional transit passengers pay their fare when boarding the bus either by depositing the proper cash fare or the proper ticket into the farebox under the bus operator's supervision or by presenting a valid period pass or unexpired transfer to the bus operator for visual inspection and verification. Handi-Transit passengers pay their fare when boarding in the same manner with the distinction that the cash fare and tickets are retained by the bus operator in a pouch.

(f) Free Travel Entitlement Policies

Winnipeg Transit provides transit rides at no charge to the following groups of passengers:

- Children 5 years of age and under who are accompanying a fare-paying passenger,
- Passengers carrying a CNIB card,
- Transit employees in uniform or presenting a valid photo ID,
- Police officers in uniform or presenting a valid photo ID, and
- Handi-Transit 'unlimited eligibility' registrants presenting a valid photo ID

Winnipeg Transit policy is to allow a passenger that doesn't have any fare or sufficient fare to request a 'fare adjustment envelope' on which the passenger is required to write their name and address and which is then to be deposited in the farebox. The passenger is not to be denied the ride. It was commented in the February 2006 Fare Audit that "a growing number of adults and students are boarding without paying any fare. It is assumed that the few who are given fare adjustment envelopes do not pay their debt."

Several municipal departments and social service agencies purchase tickets and passes from Winnipeg Transit at face value for distribution to their clients for free transit rides. From the perspective of Winnipeg Transit, these rides are 'fully paid'. The Social Services Department of the provincial government purchases 900 monthly passes each month from Winnipeg Transit at a discount of 23% off the current full $74 price to distribute to its clients.

(g) Reduced Fare Entitlement Policies

The objective of most concession fare discounts is to provide financial assistance to people who have trouble affording full transit fares.

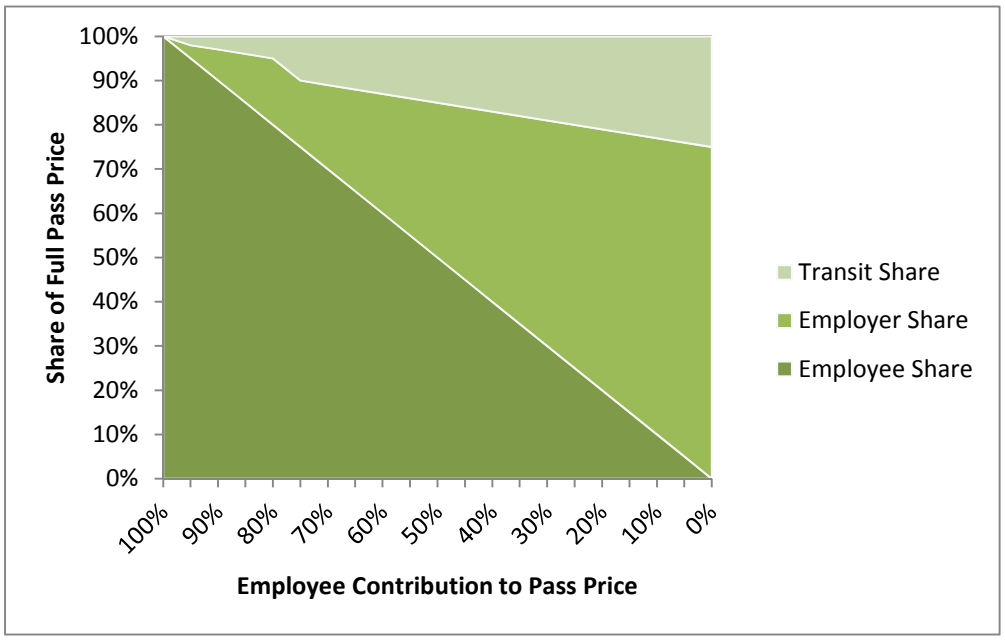
Winnipeg Transit offers three concession fare discount categories:

1. Reduced Fare (for youths age 6 to 16 and high school students age 17 – 21),
2. Senior Fare (for age 65 and up), and
3. Post-Secondary Student Fare (monthly pass only)

Handi-Transit fares are not discounted from the regular full fare.

Winnipeg Transit operates an EcoPass employer pass program for participating employers that subsidize between 5% and 100% their employees' cost to purchase a transit pass. Winnipeg Transit provides a rebate in turn on the price of the pass ranging from 1% to 24% depending on the level of the employer subsidy. Employers who participate in the EcoPass program allow their employees to pay for their pass through payroll deduction. The EcoPass is identical to the regular monthly pass except there is an "E" printed in front of the 5-digit serial number (found on lower right corner on front of card). The EcoPass expires at the end of each month. No additional ID required. The passes are sold by participating employers only and are not available to the general public.

The following chart illustrates the discount structure of the EcoPass



While Winnipeg Transit does not offer a U-Pass program for students at the University of Manitoba or the University of Winnipeg, it does offer a discounted monthly pass for students enrolled at approved post-secondary institutions.

(h) Discount Bus Pass Program

Winnipeg Transit is investigating whether to offer a discount bus pass for low-income passengers that earn less than a low-income threshold such as that established by Statistics Canada. It is anticipated that the province will cover 50% of Winnipeg Transit's costs to provide these discount bus passes. Winnipeg Transit is determining how it can arrange to have the eligibility of passengers determined by a third party or government organization. A Discounted Bus Pass must not appear to be any different visually from any regular adult bus pass.

(i) Transfer Policy

Winnipeg Transit passengers that pay their fare with cash or a ticket can request at the time of boarding that the bus operator provide them with a paper transfer (the 'Power Hour Transfer') that entitles that passenger to board any bus travelling in any direction including return journeys for up to one hour after the time of boarding the original bus. Transfer validity times are re-set every 15 minutes at predetermined locations. Winnipeg Transit provides a 5-minute transfer validity grace period.

(j) Fare Product Refundability and Transferability

All passes are not refundable. Only full-fare passes are transferable between passengers.

(k) Sales Distribution

Winnipeg Transit conventional transit and Handi-Transit tickets in sheets of 5 and 10 and passes can currently be purchased at the following City and Winnipeg Transit locations:

Winnipeg Transit Location	Address	All Passes	5-10 tickets	Handi-Transit
Fort Rouge Transit Centre	414B Osborne	X	X	X
Downtown Transit Service Centre	SW Concourse, Portage & Main	X	X	
Garry Street Transit Service Centre	65 Garry – main floor	X	X	X
City Hall Cashier	510 Main	X	X	
Bilingual Service Centre		X	X	

Transit Photo ID, GoCARD Photo ID and Under 17 Photo ID can be obtained at the Fort Rouge Transit Centre at 414B Osborne Street.

Winnipeg Transit tickets and passes are also distributed and sold by 161 retail outlets, 87 EcoPass employer partners and 39 post-secondary school partners. Handi-Transit tickets are also sold at Safeway stores and selected other pharmacy and retail locations throughout the city.

The largest retail outlets are:

- Safeway stores – 28 outlets generating 15% of ticket sales
- 7/11 stores – 40 outlets generating 25 to 27% of ticket sales
- Macs Milk stores – 18 outlets generating 10% of ticket sales
- Shoppers Drug Mart stores – private stores individually contracted

Retail outlets receive a 1% sales commission and are required to carry and sell all Winnipeg Transit fare products, with the exception of Handi-Transit products. If any passes are torn out of the pass books, the pass is treated as sold and cannot be returned. The Weekday and Weekly Pass distributions and returns are reconciled every week but based on a rolling four-week pass sale. Sales agents frequently complain that the commission doesn't compensate them for their costs to handle the proliferation of fare products.

(l) Park & Ride

Winnipeg Transit has negotiated agreements with 12 neighbourhood churches and shopping centres located near stops to permit Express Bus passengers (20 to 50 per lot) to 'park and ride'. Parking fees are not charged at these 12 park and ride facilities. In November 2009, Winnipeg Transit built its first dedicated Park and Ride lot with 145 spaces that is operated by the Winnipeg Parking Authority. The parking rate of $32 per month plus $3 to $4 per day was established so that when the parking cost is added to the cost of a WT monthly pass, the total monthly Park and Ride plus transit cost is less than the monthly cost of paying for parking downtown.

The unattended Park and Ride lot is equipped with Pay + Display parking machines. Winnipeg Parking Authority currently sells both monthly parking passes and monthly transit passes.

(m) Current Ridership Estimation Model

To calculate current ridership, Winnipeg Transit assumes that every adult and post-secondary student monthly pass holder will take approximately 61 transit journeys per month and that every reduced fare and senior monthly pass holder will take approximately 54 transit journeys per month. For each of these types of passes, a daily bus pass trip rate (bus pass trip per day) is assumed for each weekday, Saturday, Sunday/Holiday. The number of redeemed tickets is estimated from samples taken of daily weights of all tickets collected in the fareboxes. All cash collected in the farebox in a month is divided by a blended adult/youth cash fare to calculate the cash fare passenger ridership that month. Transfer journeys are not counted in ridership determination. Surveys of boardings and captured transfers would indicate a 42.6% transfer rate including stopovers and return trips on the same fare.

F6.5 Fare Table

(a) Current Fare Table (effective January 1, 2011)

Passenger Class ($)	Cash	5 Ticket	10 Ticket	1-Mo Pass	7-Day Pass 'SuperPass'	5-Day Pass 'Max 5'	B/E Ticket
Full Fare – Adult	2.40	10.50	21.00	75.35	21.00	18.60	36.10
Reduced Fare – Youth & HS Student	1.90	7.15	14.30	51.00	14.30		35.71
Senior	1.90	5.25	10.50	37.70	10.50		36.27
Post-Secondary Student	2.40 or Full	10.50 or Full	21.00 or Full	60.10	21.00 or Full	18.60 or Full	28.78
Handi-Transit	2.40	10.50	21.00	75.35			36.10
Child	Free						

F7. PASSENGER DISPLAY LANGUAGES

F7.1 Passenger displays on the farebox and SCAD are to be provided in the following languages:

(a) English,
(b) French,
(c) German,
(d) Tagalong (Filipino),
(e) Ukrainian,
(f) Spanish,
(g) Cantonese,
(h) Mandarin,
(i) Polish,
(j) Portuguese,
(k) Italian,
(l) Punjabi,
(m) Vietnamese,
(n) Ojibway,
(o) Hindi,
(p) Russian,
(q) Cree, and
(r) Dutch

F7.2 Winnipeg Transit will provide the translations for each passenger display message from the default English into each of these languages.