

## PRODUCT PURCHASE AND INSTALLATION CONTRACT

THIS CONTRACT is made and entered into by and between the CITY OF FRESNO, a California municipal corporation, hereinafter called the "City," and SPX Corporation, a North Carolina corporation, hereinafter called the "Contractor," as follows:

1. CONTRACT DOCUMENTS. The body of this Contract, the City's Standard Specifications ("Specifications") effective as of the date of execution, all Exhibits, and any drawings, plans, and documents specifically referred to all of the above, are hereby incorporated into and made a part of this Contract, and shall be known as the Contract Documents.

2. PRICE. For the monetary consideration of FOUR MILLION TWO HUNDRED AND SIXTY FOUR THOUSAND DOLLARS AND ZERO CENTS (\$4,264,000), Contractor promises and agrees to furnish or cause to be furnished, in a new and working condition, and to the satisfaction of City, and in strict accordance with the Specifications, all of the items as set forth in **Exhibit A**, Quote and Payment Schedule.

3. PAYMENT. City agrees to pay the consideration stated, at the times, in the amounts, and under the conditions specified in the Contract Documents.

4. TERMINATION, REMEDIES AND FORCE MAJEURE.

(a) This Contract shall terminate without any liability of CITY to CONTRACTOR upon the earlier of: (i) CONTRACTOR'S filing for protection under the federal bankruptcy laws, or any bankruptcy petition or petition for receiver commenced by a third party against CONTRACTOR; (ii) 7 calendar days prior written notice with or without cause by CITY to CONTRACTOR; (iii) CITY'S non-appropriation of funds sufficient to meet its obligations hereunder during any CITY fiscal year of this Contract, or insufficient funding for the Project; or (iv) expiration of this Contract.

(b) Immediately upon any termination or expiration of this Contract, CONTRACTOR shall (i) immediately stop all work hereunder; (ii) immediately cause any and all of its subcontractors to cease work; and (iii) return to CITY any and all unearned payments and all properties and materials in the possession of CONTRACTOR that are owned by CITY. Subject to the terms of this Contract, CONTRACTOR shall be paid compensation for services satisfactorily performed prior to the effective date of termination. CONTRACTOR shall not be paid for any work or services performed or costs incurred which reasonably could have been avoided.

(c) In the event of termination due to failure of CONTRACTOR to satisfactorily perform in accordance with the terms of this Contract, CITY may withhold an amount that would otherwise be payable as an offset to, but not in excess of, CITY'S damages caused by such failure. In no event shall any payment by CITY pursuant to this Contract constitute a waiver by CITY of any breach of this Contract which may then exist on the part of CONTRACTOR, nor shall such payment impair or prejudice any remedy available to CITY with respect to the breach.

(d) Upon any breach of this Contract by CONTRACTOR, CITY may (i) exercise any right, remedy (in contract, law or equity), or privilege which may be available to it under applicable laws of the State of California or any other applicable law; (ii) proceed by

appropriate court action to enforce the terms of the Contract; and/or (iii) recover all direct, indirect, consequential, economic and incidental damages for the breach of the Contract. If it is determined that CITY improperly terminated this Contract for default, such termination shall be deemed a termination for convenience.

(e) CONTRACTOR shall provide CITY with adequate written assurances of future performance, upon Administrator's request, in the event CONTRACTOR fails to comply with any terms or conditions of this Contract.

(f) CONTRACTOR shall be liable for default unless nonperformance is caused by an occurrence beyond the reasonable control of CONTRACTOR and without its fault or negligence such as, acts of God or the public enemy, acts of CITY in its contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, unusually severe weather, and delays of common carriers. CONTRACTOR shall notify Administrator in writing as soon as it is reasonably possible after the commencement of any excusable delay, setting forth the full particulars in connection therewith, and shall remedy such occurrence with all reasonable dispatch, and shall promptly give written notice to Administrator of the cessation of such occurrence.

#### 5. CONFIDENTIAL INFORMATION AND OWNERSHIP OF DOCUMENTS.

(a) Any reports, information, or other data prepared or assembled by CONTRACTOR pursuant to this Contract shall not be made available to any individual or organization by CONTRACTOR without the prior written approval of the Administrator. During the term of this Contract, and thereafter, CONTRACTOR shall not, without the prior written consent of CITY, disclose to anyone any Confidential Information. The term Confidential Information for the purposes of this Contract shall include all proprietary and confidential information of CITY, including but not limited to business plans, marketing plans, financial information, materials, compilations, documents, instruments, models, source or object codes and other information disclosed or submitted, orally, in writing, or by any other medium or media. All Confidential Information shall be and remain confidential and proprietary in CITY.

(b) Any and all writings and documents prepared or provided by CONTRACTOR pursuant to this Contract are the property of CITY at the time of preparation and shall be turned over to CITY upon expiration or termination of the Contract. CONTRACTOR shall not permit the reproduction or use thereof by any other person except as otherwise expressly provided herein.

(c) If CONTRACTOR should subcontract all or any portion of the services to be performed under this Contract, CONTRACTOR shall cause each subcontractor to also comply with the requirements of this Section 5.

(d) This Section 5 shall survive expiration or termination of this Contract.

6. INDEMNIFICATION: To the furthest extent allowed by law, including California Civil Code section 2782 (if applicable), Contractor shall indemnify, hold harmless and defend City and each of its officers, officials, employees, agents and volunteers from any and all loss, liability, fines, penalties, forfeitures, costs and damages (whether in contract, tort or strict liability, including, but not limited to personal injury, death at any time and property damage) incurred by City, Contractor or any other person, and from any and all claims, demands and actions in law or equity (including attorney's fees and litigation expenses), arising or alleged to

have arisen directly or indirectly out of Contractor's negligence or omission in the performance of this Contract. Contractor's obligations under the preceding sentence shall apply regardless of whether City or any of its officers, officials, employees, agents or volunteers are passively negligent, but shall not apply to any loss, liability, fines, penalties, forfeitures, costs or damages caused by the active negligence, or by the willful misconduct, of City or any of its officers, officials, employees, agents or volunteers.

If Contractor should subcontract all or any portion of the work to be performed under this Contract, Contractor shall require each subcontractor to indemnify, hold harmless and defend City and each of its officers, officials, employees, agents and volunteers in accordance with the terms of the preceding paragraph.

This section shall survive termination or expiration of this Contract.

## 7. INSURANCE.

(a) Throughout the life of this Contract, CONTRACTOR shall pay for and maintain in full force and effect all insurance as required in **Exhibit B**, which is incorporated into and part of this Contract, with an insurance company(ies) either (i) admitted by the California Insurance Commissioner to do business in the State of California and rated no less than "A-VII" in the Best's Insurance Rating Guide, or (ii) as may be authorized in writing by CITY'S Risk Manager or his/her designee at any time and in his/her sole discretion. The required policies of insurance as stated in Exhibit B shall maintain limits of liability of not less than those amounts stated therein. However, the insurance limits available to CITY, its officers, officials, employees, agents and volunteers as additional insureds, shall be the greater of the minimum limits specified therein or the full limit of any insurance proceeds to the named insured.

(b) If at any time during the life of the Contract or any extension, CONTRACTOR or any of its subcontractors/sub-Contractors fail to maintain any required insurance in full force and effect, all services and work under this Contract shall be discontinued immediately, and all payments due or that become due to CONTRACTOR shall be withheld until notice is received by CITY that the required insurance has been restored to full force and effect and that the premiums therefore have been paid for a period satisfactory to CITY. Any failure to maintain the required insurance shall be sufficient cause for CITY to terminate this Contract. No action taken by CITY pursuant to this section shall in any way relieve CONTRACTOR of its responsibilities under this Contract. The phrase "fail to maintain any required insurance" shall include, without limitation, notification received by CITY that an insurer has commenced proceedings, or has had proceedings commenced against it, indicating that the insurer is insolvent.

(c) The fact that insurance is obtained by CONTRACTOR shall not be deemed to release or diminish the liability of CONTRACTOR, including, without limitation, liability under the indemnity provisions of this Contract. The duty to indemnify CITY shall apply to all claims and liability regardless of whether any insurance policies are applicable. The policy limits do not act as a limitation upon the amount of indemnification to be provided by CONTRACTOR. Approval or purchase of any insurance contracts or policies shall in no way relieve from liability nor limit the liability of CONTRACTOR, its principals, officers, agents, employees, persons under the supervision of CONTRACTOR, vendors, suppliers, invitees, Contractors, sub-Contractors, subcontractors, or anyone employed directly or indirectly by any of them.

(d) If CONTRACTOR should subcontract all or any portion of the services to be performed under this Contract, CONTRACTOR shall require each subcontractor/sub-

Contractor to provide insurance protection, as an additional insured, to the CITY and each of its officers, officials, employees, agents and volunteers in accordance with the terms of this section, except that any required certificates and applicable endorsements shall be on file with CONTRACTOR and CITY prior to the commencement of any services by the subcontractor. CONTRACTOR and any subcontractor/sub-Contractor shall establish additional insured status for CITY, its officers, officials, employees, agents and volunteers by using Insurance Service Office (ISO) Form CG 20 10 11 85 or both CG 20 10 10 01 and CG 20 37 10 01 or by an executed manuscript company endorsement providing additional insured status as broad as that contained in ISO Form CG 20 10 11 85.

8. **NONDISCRIMINATION.** To the extent required by controlling federal, state and local law, CONTRACTOR shall not employ discriminatory practices in the provision of services, employment of personnel, or in any other respect on the basis of race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, marital status, sex, age, sexual orientation, ethnicity, status as a disabled veteran or veteran of the Vietnam era. Subject to the foregoing and during the performance of this Contract, CONTRACTOR agrees as follows:

(a) CONTRACTOR will comply with all applicable laws and regulations providing that no person shall, on the grounds of race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, marital status, sex, age, sexual orientation, ethnicity, status as a disabled veteran or veteran of the Vietnam era be excluded from participation in, be denied the benefits of, or be subject to discrimination under any program or activity made possible by or resulting from this Contract.

(b) CONTRACTOR will not discriminate against any employee or applicant for employment because of race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, marital status, sex, age, sexual orientation, ethnicity, status as a disabled veteran or veteran of the Vietnam era. CONTRACTOR shall ensure that applicants are employed, and the employees are treated during employment, without regard to their race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, marital status, sex, age, sexual orientation, ethnicity, status as a disabled veteran or veteran of the Vietnam era. Such requirement shall apply to CONTRACTOR'S employment practices including, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. CONTRACTOR agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provision of this nondiscrimination clause.

(c) CONTRACTOR will, in all solicitations or advertisements for employees placed by or on behalf of CONTRACTOR in pursuit hereof, state that all qualified applicants will receive consideration for employment without regard to race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, marital status, sex, age, sexual orientation, ethnicity, status as a disabled veteran or veteran of the Vietnam era.

(d) CONTRACTOR will send to each labor union or representative of workers with which it has a collective bargaining Contract or other contract or understanding, a notice advising such labor union or workers' representatives of CONTRACTOR'S commitment under this section and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(e) If CONTRACTOR should subcontract all or any portion of the services to be performed under this Contract, CONTRACTOR shall cause each subcontractor to also comply with the requirements of this Section 8.

9. INDEPENDENT CONTRACTOR.

(a) In the furnishing of the services provided for herein, CONTRACTOR is acting solely as an independent contractor. Neither CONTRACTOR, nor any of its officers, agents or employees shall be deemed an officer, agent, employee, joint venturer, partner or associate of CITY for any purpose. CITY shall have no right to control or supervise or direct the manner or method by which CONTRACTOR shall perform its work and functions. However, CITY shall retain the right to administer this Contract so as to verify that CONTRACTOR is performing its obligations in accordance with the terms and conditions thereof.

(b) This Contract does not evidence a partnership or joint venture between CONTRACTOR and CITY. CONTRACTOR shall have no authority to bind CITY absent CITY'S express written consent. Except to the extent otherwise provided in this Contract, CONTRACTOR shall bear its own costs and expenses in pursuit thereof.

(c) Because of its status as an independent contractor, CONTRACTOR and its officers, agents and employees shall have absolutely no right to employment rights and benefits available to CITY employees. CONTRACTOR shall be solely liable and responsible for all payroll and tax withholding and for providing to, or on behalf of, its employees all employee benefits including, without limitation, health, welfare and retirement benefits. In addition, together with its other obligations under this Contract, CONTRACTOR shall be solely responsible, indemnify, defend and save CITY harmless from all matters relating to employment and tax withholding for and payment of CONTRACTOR'S employees, including, without limitation, (i) compliance with Social Security and unemployment insurance withholding, payment of workers' compensation benefits, and all other laws and regulations governing matters of employee withholding, taxes and payment; and (ii) any claim of right or interest in CITY employment benefits, entitlements, programs and/or funds offered employees of CITY whether arising by reason of any common law, de facto, leased, or co-employee rights or other theory. It is acknowledged that during the term of this Contract, CONTRACTOR may be providing services to others unrelated to CITY or to this Contract.

10. NOTICES. Any notice required or intended to be given to either party under the terms of this Contract shall be in writing and shall be deemed to be duly given if delivered personally, transmitted by facsimile followed by telephone confirmation of receipt, or sent by United States registered or certified mail, with postage prepaid, return receipt requested, addressed to the party to which notice is to be given at the party's address set forth on the signature page of this Contract or at such other address as the parties may from time to time designate by written notice. Notices served by United States mail in the manner above described shall be deemed sufficiently served or given at the time of the mailing thereof.

11. BINDING. Subject to Section 12, below, once this Contract is signed by all parties, it shall be binding upon, and shall inure to the benefit of, all parties, and each parties' respective heirs, successors, assigns, transferees, agents, servants, employees and representatives.

12. Assignment.

(a) This Contract is personal to CONTRACTOR and there shall be no assignment by CONTRACTOR of its rights or obligations under this Contract without the prior written approval of the City Manager or his/her designee. Any attempted assignment by CONTRACTOR, its successors or assigns, shall be null and void unless approved in writing by the City Manager or his/her designee.

(b) CONTRACTOR hereby agrees not to assign the payment of any monies due CONTRACTOR from CITY under the terms of this Contract to any other individual(s), corporation(s) or entity(ies). CITY retains the right to pay any and all monies due CONTRACTOR directly to CONTRACTOR.

13. Compliance With Law. In providing the services required under this Contract, CONTRACTOR shall at all times comply with all applicable laws of the United States, the State of California and CITY, and with all applicable regulations promulgated by federal, state, regional, or local administrative and regulatory agencies, now in force and as they may be enacted, issued, or amended during the term of this Contract.

14. Waiver. The waiver by either party of a breach by the other of any provision of this Contract shall not constitute a continuing waiver or a waiver of any subsequent breach of either the same or a different provision of this Contract. No provisions of this Contract may be waived unless in writing and signed by all parties to this Contract. Waiver of any one provision herein shall not be deemed to be a waiver of any other provision herein.

15. Governing Law and Venue. This Contract shall be governed by, and construed and enforced in accordance with, the laws of the State of California, excluding, however, any conflict of laws rule which would apply the law of another jurisdiction. Venue for purposes of the filing of any action regarding the enforcement or interpretation of this Contract and any rights and duties hereunder shall be Fresno County, California.

16. Headings. The section headings in this Contract are for convenience and reference only and shall not be construed or held in any way to explain, modify or add to the interpretation or meaning of the provisions of this Contract.

17. Severability. The provisions of this Contract are severable. The invalidity, or unenforceability of any one provision in this Contract shall not affect the other provisions.

18. Interpretation. The parties acknowledge that this Contract in its final form is the result of the combined efforts of the parties and that, should any provision of this Contract be found to be ambiguous in any way, such ambiguity shall not be resolved by construing this Contract in favor of or against either party, but rather by construing the terms in accordance with their generally accepted meaning.

19. Attorney's Fees. If either party is required to commence any proceeding or legal action to enforce or interpret any term, covenant or condition of this Contract, the prevailing party in such proceeding or action shall be entitled to recover from the other party its reasonable attorney's fees and legal expenses.

20. Exhibits. Each exhibit and attachment referenced in this Contract is, by the reference, incorporated into and made a part of this Contract.

21. Precedence of Documents. In the event of any conflict between the body of this Contract and any Exhibit or Attachment hereto, the terms and conditions of the body of this Contract shall control and take precedence over the terms and conditions expressed within the Exhibit or Attachment. Furthermore, any terms or conditions contained within any Exhibit or Attachment hereto which purport to modify the allocation of risk between the parties, provided for within the body of this Contract, shall be null and void.

22. Cumulative Remedies. No remedy or election hereunder shall be deemed exclusive but shall, wherever possible, be cumulative with all other remedies at law or in equity.

23. No Third Party Beneficiaries. The rights, interests, duties and obligations defined within this Contract are intended for the specific parties hereto as identified in the preamble of this Contract. Notwithstanding anything stated to the contrary in this Contract, it is not intended that any rights or interests in this Contract benefit or flow to the interest of any third parties.

24. LIMITATION OF LIABILITY: IN NO EVENT, WHETHER BASED ON CONTRACT, INDEMNITY, WARRANTY, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, SHALL EITHER PARTY BE LIABLE FOR INCIDENTAL, INDIRECT, EXEMPLARY OR CONSEQUENTIAL DAMAGES OF ANY NATURE. NEITHER PARTY'S AGGREGATE LIABILITY FOR ANY DAMAGES RESULTING FROM ITS PERFORMANCE OR FAILURE TO PERFORM HEREUNDER SHALL EXCEED TWICE (2x) THE CONTRACT PRICE. EXCEPT, the limitation of liability contained herein shall not apply to Contractor's indemnity obligations under Section 6 of the Contract.

25. Extent of Contract. Each party acknowledges that they have read and fully understand the contents of this Contract. This Contract represents the entire and integrated Contract between the parties with respect to the subject matter hereof and supersedes all prior negotiations, representations or Contracts, either written or oral. This Contract may be modified only by written instrument duly authorized and executed by both CITY and CONTRACTOR.

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IN WITNESS WHEREOF, the parties have executed this Contract at Fresno, California, the day and year first above written.

CITY OF FRESNO,  
a California municipal corporation

SPX Corporation,  
A North Carolina corporation

By: \_\_\_\_\_  
Brian Marshall,  
Director of Transportation

By: \_\_\_\_\_  
Name: Darren Dickson

ATTEST:  
YVONNE SPENCE, CMC  
City Clerk

Title: President  
(if corporation or LLC, Board  
Chair, Pres. or Vice Pres.)

By: \_\_\_\_\_  
Deputy

By: \_\_\_\_\_  
Name: Ben Andrews

APPROVED AS TO FORM:  
City Attorney's Office

Title: CFO/Secretary

By: Amanda B. Freeman Date 12/28/16  
Amanda B. Freeman  
Deputy City Attorney

(if corporation or LLC, CFO,  
Treasurer, Secretary or Assistant  
Secretary)

Addresses

CITY:  
City of Fresno  
Attention: Kathleen Healy,  
Administration Manager  
2223 G Street  
Fresno, CA 93726  
Phone: (559) 621-1441  
FAX: (559) 498-1065

CONTRACTOR:  
SPX Genfare  
Attention: Mark Mahon,  
Director of Sales  
800 Arthur Avenue  
Elk Grove Village, IL 60007  
Phone: 847-871-1190  
FAX: 847-758-4999

Attachments:  
Exhibit A – Quote and Payment Schedule  
Exhibit B - Insurance Requirements  
Exhibit C – Federal Provisions



**EXHIBIT A  
QUOTE AND PAYMENT SCHEDULE  
FOR TICKET VENDING MANCHINE PURCHASE AND INSTALLATION**

- 1.City Specifications
- 2.Genfare Proposal

# STATEMENT OF WORK

TO



## CITY OF FRESNO/FAX

FOR A

# BUS RAPID TRANSIT FARE COLLECTION SYSTEM

Prepared and Submitted by



Genfare, a Division of SPX Corporation  
800 Arthur Avenue  
Elk Grove Village, IL 60007  
Phone: 847-593-8855 – Fax: 847-758-4997

Contact:  
Mark Mahon  
Director of Sales, Western Region  
847-222-3639 | [mark.mahon@spx.com](mailto:mark.mahon@spx.com)

December 7, 2016

## **CONFIDENTIALITY STATEMENT**

**This proposal contains proprietary information whose disclosure to unauthorized parties would be materially damaging to Genfare. Distribution of such information should be limited to those involved in the review and evaluation of this proposal. Access to this document by others should be limited to the extent permitted by law. If you receive a request to produce this document, we request that you notify us immediately so that Genfare may assert its privileges against production on its own behalf.**

December 7, 2016

Kathleen Healy  
Administration Manager  
City of Fresno/FAX  
2223 G Street  
Fresno, CA 93706

**RE: Technical Specifications – Bus Rapid Transit Fare Collection System**

Dear Ms. Thompson:

Genfare, a division of SPX Corporation, is pleased to provide the City of Fresno/FAX with this statement of work (SOW) for an automatic fare collection system for your bus rapid transit line. The SOW was prepared following our review of your BRT-TVM FCS-TVM Technical Specifications and Performance Requirements – Version 1.1. The SOW is intended to provide a basis for our upcoming negotiations.

This submittal consists of the following elements:

- This cover letter.
- Technical narrative and scope of work, describing the goods and services to be provided.
- Compliance matrix indicating the extent to which the offered goods and services comply with your technical specifications.

Our solution is substantially compliant with your requirements but differs in matters of detail. We propose that our team review the SOW with you during our meeting on Dec. 8, paying particular attention to the compliance matrix. If the solution as described is acceptable to the City, we will furnish the indicated goods and services for the price quoted. If revisions are agreed on, we will revise our pricing accordingly.

As a long-time supplier to the City we are confident we can deliver a system that will provide many years of satisfactory service. Our team, led by Mark Mahon, Director of Sales – Western Region, will be happy to answer any questions you may have. We recognize the City's time constraints and will act promptly to resolve issues and bring negotiations to a successful conclusion.

We look forward to continuing to provide the City and its riders with modern, reliable fare collection equipment.

Regards,

Kim Green  
Executive Director – Business Development

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**PART A – TECHNICAL NARRATIVE AND SCOPE OF WORK**

Genfare will provide the City of Fresno/FAX with the specified quantities of the following:

- Vendstar III TVM capable of issuing magnetic and smart fare media compatible with the Genfare fareboxes on FAX buses.
- Vendstar Information Processor (VIP), the central computer system for the TVM. Fresno’s existing VIP implementation will be upgraded for use with the TVM.
- Handheld ticket inspection device (HTID) for use by fare inspectors.
- Printer/encoder machine (PEM).
- Fare media printer/encoder.
- Optional mobile ticketing
- Spare parts
- Delivery, installation, and commissioning of the equipment and systems provided.
- Training, documentation, warranty repairs and other goods and services as described in this submittal.



**1. VENDSTAR III TICKET VENDING MACHINE**

Genfare will furnish its Vendstar III ticket vending machine, which was designed to serve the needs of agencies seeking a cost-effective means of selling electronic fare media. The Vendstar can be installed in any location suitable for self-service vending equipment, including indoor and outdoor locations, on or off agency property. The Vendstar offers the following features and capabilities:

- Compact cabinet – 72” tall x 31” wide x 21” deep.
- Logically laid-out, easy-to-understand passenger interfaces, with screen graphics, audio instructions, and easy-to-upgrade external graphics
- Enhanced 10” diagonal color LCD passenger display, visible in high ambient light including direct sunlight with 10 selection buttons and three function buttons
- Bill handling system – accepts and validates \$1, \$2, \$5, \$10, \$20 and optionally \$50. Escrow accepts up to 15 bills for return if transaction cancelled. Cashbox neatly stacks up to 1,000 bills – simplifies handling in the money room
- Coin handling system – accepts 5¢, 10¢, 25¢, and \$1 coins

- 
- Receipt printer for proof of payment receipts, bank card transactions, audit tickets, and local reports
  - Electronic control unit with solid-state hard drive
  - Data transmission via cellular modem or network connection
  - Heavy-duty monocoque (one-piece) cabinet with sloping top
  - ADA compliant. All controls are wheelchair-accessible via side reach. All labels are provided with raised letters and Braille equivalents. Ten function keys are numbered 1 through 0
  - Uninterruptible power supply (UPS) to enable a transaction in progress to be completed if external AC power is lost
  - Alarm module to detect and report access and excessive shock and vibration.

The Vendstar can:

- Accept major debit/credit cards using bank card processing module with encrypted keypad
- Validate magnetic fare cards
- Issue magnetic fare cards, limited-use (paper) smart cards and, if desired, reloadable (plastic) smart cards. Three ticket dispensers can be accommodated in any combination
- Interface with the customer via:
  - 10 ATM-style selection keys adjacent to a high-visibility 10.4” diagonal color LCD display plus three buttons for AUDIO, LANGUAGE, and CANCEL
  - Easy-to-read graphics and labels with Braille equivalents
  - 12-button ADA-compliant encrypting keypad for entry of bank card verification data
  - Customer-selectable audio instructions with socket for optional headphone use.
- Continue operation despite failure of a fare acceptance module
- Store cumulative data on all transactions as well as individual transaction detail for uploading to the data system
- Transmit alarms to the central office in real time via customer-provided network
- Go in or out of service in response to central office command.

The TVM is operated and controlled by an internal microprocessor-based controller and is provided with all necessary software. Genfare will deliver and install the TVMs and provide all testing, parts, and other necessities to make the equipment ready for service. Genfare will provide parts and support for a minimum of 15 years.



## 1.1 OPTIONS

Numerous optional capabilities are available for the Vendstar III. Our base bid assumes the following but we are happy to amend it following discussion with the City:

- Three ticket dispensers, which may be any combination of the following:
  - TRIM magnetic ticket reader/issuer machine
  - LUCC TRiM limited-use smart card dispenser
  - PSCD 30-mil plastic smart card dispenser
- Magnetic ticket validator
- Smart card processor
- Recirculating coin validator
- Coin hoppers for supplementary change making
- Bill validator
- Bank card reader and PIN pad to permit acceptance of credit and debit cards.
- Door-mounted security camera.
- Washlight with scrolling display.

## 1.2 ENVIRONMENTAL REQUIREMENTS

The Vendstar is designed to prevent ingress of water and other liquids under normal circumstances, including floor cleaning. Water entering the machine via fare acceptance apertures drains to the exterior. The machine will operate satisfactorily under the following conditions:

- Ambient temperature: 4 degrees F (with heater) to 115 degrees F
- Relative humidity of 10-90% (non-condensing).

## 1.3 SITE REQUIREMENTS

The TVM is intended for installation, indoors or outdoors, on a level floor surface capable of supporting a load of not less than 20 pounds per square inch. Genfare will inspect locations proposed for TVM installation and advise the agency of any required site modifications prior to installation. The agency is responsible for the indicated modifications. The TVM will be positioned so that doors can open fully, providing unimpeded access to the TVM interior. The agency must provide 120 VAC and communications capability, which may be via copper wire or fiber-optic based Ethernet or cellular modem. If desired, multiple TVMs can be positioned side-by-side or back-to back.

The TVM is provided with surge protection and can withstand short duration voltage spikes, including lightning strikes, provided the machine is properly installed and grounded. In extreme cases a surge would trip the overvoltage protection devices, preventing more extensive damage.

The TVM operates on 115 VAC input power, 15 amperes maximum without heater, 30 amps with heater (required for outdoor operation). The TVM is provided with internal power supplies to furnish each component with the voltage required for proper operation.

Power and data communications hookups to the TVM can be provided in a variety of ways, depending on the configuration of a particular site. The preferred installation is one in which the power hookup is concealed, entering either from below or to the rear via conduit. Separate conduits are required for data and AC power.

The TVM is designed to prevent radiation of radio and electrical signals to external equipment and will not affect operation of other equipment (public address, patron information signs, etc. TVM conforms to FCC emission limits (Part 15).

A main disconnect switch, circuit breaker, and 115 VAC convenience outlet are provided within the TVM cabinet.

The TVM is provided with an uninterruptible power supply (UPS) capable of providing sufficient power to complete a transaction in progress in the event of external 120 VAC power loss. The UPS is a modular OEM unit. When external power is restored following an interruption, the TVM automatically reboots and returns to service without manual intervention.

**1.4 PATRON INTERFACE**

**1.4.1 General**

The Vendstar’s patron interface consists of the following elements:

- Full-color 10.4” passenger display, legible in direct sunlight
- Display keypad consisting of 10 dynamically programmable function keys and three permanently labeled function keys (LANGUAGE, AUDIO, and CANCEL)
- Coin entry slot
- Separate bill insertion and bill return slots
- Bank card reader and PIN keypad
- Smart card processor and ticket validator
- Dispensing cup for tickets, receipts, and change.



A vending transaction consists of three steps, clearly marked on the TVM’s front panel:

1. SELECT. The passenger selects from a menu of choices on the passenger display using the adjacent function keys. Subsidiary screens permit the passenger to choose various options, e.g., buying multiple tickets as part of one transaction.
2. INSERT. The passenger inserts cash or a bank card.
3. TAKE. The passenger retrieves ticket(s) and receipt as appropriate from the dispensing cup.

#### **1.4.2 Passenger Display**

The ticket vending machine uses a flat-panel LCD color display with a diagonal measurement of 10.4". This display shows idle messages, transaction choices, machine status and current transaction status. The display has the following characteristics:

- Format – VGA (640x480), 4:3 aspect ratio, 6-bit color
- Technology – advanced TFT – LED backlit with transreflective filter.

The display is positioned approximately 42" off the floor (to bottom edge) on the left side of the cabinet front for ease of viewing during transactions. A one-quarter inch thick polycarbonate window protects the display. A quarter-inch gap is provided between the polycarbonate window and the display to permit the former to deflect and protect the latter from damage in the event of impact.

The passenger display is designed to remain readable in high ambient light including direct sunlight. To further enhance readability, the display is tilted toward the viewer and partially recessed within the TVM cabinet, reducing glare. Nonetheless, in designing the facilities in which the TVMs are to be installed, reasonable precautions should be taken to minimize direct sunlight.

#### **1.4.3 Passenger Keypad**

The display is provided with 13 buttons for passenger input. Ten selection buttons numbered 1 through 0 are provided, five on each side of the screen. Electronic "labels" for the function buttons are shown on the screen and vary depending on the function to be performed. Three additional buttons are provided beneath the display labeled as follows:

- LANGUAGE. If multilingual capability is enabled, pressing this button switches the passenger display text from English to Spanish. Additional languages are optionally available.
- AUDIO. Provides audible instructions in addition to the on-screen displays as an aid to the visually impaired. Audio instructions issue from a concealed speaker mounted immediately above the passenger display. For passengers desiring privacy, a socket for a headphone jack is provided adjacent to the speaker. A volume control is provided to enable users to adjust the audio as desired. If LANGUAGE and AUDIO are both pressed the spoken instructions will be in Spanish.
- CANCEL. Cancels the transaction in progress if ticket printing has not yet started.

Buttons are circular,  $\frac{3}{4}$ " in diameter. All buttons provide tactile feedback and are protected by sealed silicone rubber membranes to deter intrusion of liquids.

#### **1.4.4 Bank Card Processor Interface**

A bank card processor is provided, consisting of a magnetic card reader and 12-button encrypted keypad for entry of PINs and other verification input. The keypad supports DUKPT. A raised dot is provided on the keypad's "5" key to aid the visually impaired.

#### **1.4.5 Bill Slot**

The bill insertion slot is located 47½" above the floor. A shutter is provided to prevent insertion of bills under certain conditions, e.g., when a bank card transaction is in progress. The bill insertion slot provides a small landing platform to facilitate insertion of bills. An indicator light is provided to show when to insert bills. A green indication means that bills can be inserted; a red indication means that bills should not be inserted.

#### **1.4.6 Coin Slot**

The coin entrance slot is positioned approximately 48" inches from the floor. Oriented vertically, the width of the slot is less than that of two stacked dimes, the thinnest U.S. coin. This prevents two coins from being inserted simultaneously, eliminating a major cause of jams. The coin slot is sized so as not to permit insertion of any coin larger than a post-1978 dollar coin (no half-dollar coins). In the rare event a jam occurs, an automatic detector activates a solenoid that widens the coin validator "clamshell" and allows stuck coins to enter the reject chute and slide into the coin cup.

The coin acceptor does not escrow inserted coins. If a transaction is canceled, coins of like value (but not the same coins) are returned. In the event that a \$1 coin is inserted into a TVM and the transaction is canceled, a dollar coin is returned from a supplemental coin hopper.

The coin slot is equipped with a solenoid-operated pin to prevent insertion of coins when cash acceptance is not enabled.

#### **1.4.7 Dispensing Cup**

An internally illuminated dispensing cup is provided on the front of the TVM for the dispensing of tickets and receipts. The cup is illuminated when a card, ticket, receipt or coin is directed to it. It has a clear polycarbonate plastic top-hinged door, which, when pushed to the open position, forms a seal to any of the ticket or coin chutes. The cup is made of stainless steel and has an external drain connection for any water accumulation.

#### **1.4.8 ADA Compliance**

The TVM is compliant with the requirements of the Americans with Disabilities Act (ADA), as follows:

- *Insertion and Controls* – All slots, bezels, pushbuttons and dispensing bins requiring manual manipulation are positioned between 18 inches and 48 inches from the floor.
- *Graphics* – TVM graphics are printed in color on .007-inch clear Lexan polycarbonate and affixed to their backing by full-area high-yield adhesive. The graphics make use of symbols where possible and have ADA Braille raised character equivalents for all words provided.

- *Audio* – It is possible for a patron to press a button to hear spoken instructions. Audio is provided in English and Spanish.

#### **1.4.9 Instructional Graphics**

Easy-to-understand passenger interfaces are provided on all Genfare fare collection products. The Vendstar features clear, intuitive organization of passenger controls, as follows:

- Controls are divided into three logical groupings, each color-coded and identified with a prominent one-word label and number, indicating the order of steps to be followed:
  1. **SELECT** – This consists of the passenger display and adjacent function buttons. Because the display is in color and can cycle through a series of messages when idle, the eye is drawn to it first.
  2. **INSERT** – Having made a selection, the passenger then inserts cash or bank card
  3. **TAKE** – Tickets and receipts drop into the dispensing cup, where they may be retrieved by the passenger.
- Each group of controls is visually framed by the TVM’s black ABS plastic faceplate, which contrasts with the TVM’s stainless steel cabinet and the bezels of the fare acceptance modules.
- Each grouping is further differentiated by the use of distinctive color coding for the bezels around each module.
- The groups are organized so that the patron’s attention is drawn in a natural manner, starting at eye height and moving clockwise and down. The **SELECT** functions are at top left, the **INSERT** functions are at top right, and the **TAKE** function is at bottom center.
- The passenger display and fare acceptance bezels each feature easy-to-follow instructional graphics or simple words:
  - Passenger display – LANGUAGE, AUDIO, CANCEL
  - Bill acceptor – graphic of bills showing accepted denominations
  - Bank card acceptor – logos of acceptable cards, graphic showing insertion orientation
  - Coin acceptor – graphic of accepted denominations of coins
- All controls are marked with Braille, as indicated in the preceding section.

#### **1.4.10 Audible Tones**

The TVM is provided with a speaker mounted above the passenger display. This speaker emits audio feedback (a “blip” – very short beep) to indicate a valid key has been pressed. Other sounds can be programmed as desired. The speaker also provides audio instructions when the **AUDIO** button is pressed.

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**1.4.11 Multilingual Capabilities**

As indicated, the Vendstar offer multilingual capability, which is invoked using the LANGUAGE button beneath the passenger display. Pressing this button switches the passenger display text to Spanish; pressing it again reverts to English, or, if optional additional languages are enabled, cycles through the available languages. Standard languages are English and Spanish. If the passenger presses the LANGUAGE button while the transaction is in progress, the TVM switches languages in mid-transaction.

**1.4.12 Voice Instructions**

Upon pressing the AUDIO beneath the passenger display, synthesized voice instructions are played back through the TVM speaker. As with the LANGUAGE button, the AUDIO button can be pressed at any time during the transaction. The audio instructions are context-sensitive and take into account that visually impaired passengers need more detailed instructions, comparable to what would be provided on a telephone-based voice response system. (“The keys next to the display screen are labeled 1 through 10. Press key 1 to select a 5-day pass for five dollars,” etc.)

**1.4.13 In Service/Out of Service Indicator**

In normal operation, the passenger display will cycle through one or more idle messages, indicating that the TVM is ready for operation. In limited mode operation, the display will provide an appropriate message such as BILLS ONLY. If the TVM is unable to perform transactions but the display remains functional, the display will show OUT OF SERVICE – COME BACK LATER.

**1.4.14 Information Signage Holder**

An information signage holder measuring approximately 7½” tall by 28½” wide is provided on the front panel of the TVM above the faceplate. A conventionally printed sign may be inserted into the holder by authorized personnel when the TVM door is open. The sign is protected by a clear Lexan polycarbonate panel secured by a metal frame, suitably sealed. It is possible to gain access to the panel and change the sign only when the TVM door is open. Signage is provided by customer.

**1.5 CABINET CONSTRUCTION****1.5.1 General**

The Vendstar cabinet has two main parts:

- The main enclosure, which houses the TVM’s internal components, and
- The front outer door, which contains all passenger interfaces and provides access to internal components for servicing.

All corners of the cabinet are rounded; no externally visible fasteners are used. The only access to the machine interior is through the outer door. The top of the cabinet slopes to the rear to shed moisture.

The TVM is 72 inches high, 31 inches wide and 21 inches deep (including marquee lighting module). The cabinet is of monocoque design, consisting of a single steel weldment without seams or interior framing. This makes for economical fabrication and high security by reducing the number of possible pry points. The Vendstar cabinet is made of heavy gauge stainless steel with an orbital finish to resist corrosion.

The Vendstar's cabinet door is attached with an external full-length stainless steel hinge for maximum security. The outer door is secured with a four-point locking bar made of ¼"-steel stock operated by a T-handle. A labyrinth seal is provided around the three openable sides of the door to deter prying. Once open, the door is secured with a latching mechanism that holds it open at a 120 degree angle during servicing. When the door is closed and locked, it is not possible to view the TVM's internal components or insert objects into gaps between the door and cabinet. The TVM weighs approximately 750 pounds with all components installed.

The Vendstar employs modular construction techniques. All major subsystems are self-contained and capable of being quickly and easily removed and replaced in the field without the use of tools. Support shelves on telescopic slides are provided to permit access to the ticket modules and cash accepting modules. Blank plates are provided to conceal openings when door-mounted modules are omitted from a particular TVM. Notwithstanding the configuration of modules in a given TVM, wiring for the full complement of modules is provided in all TVMs so that no additional wiring is required if modules are added subsequent to initial installation. All cables are terminated with polarized connectors. Different types of connectors and minimal slack in the harness minimize the possibility of cabling errors.

### **1.5.2 Faceplate**

All passenger interfaces are mounted in a faceplate frame of high-durability black ABS plastic that is installed on the TVM's outer door. The frame has recesses into which plastic decals are fitted to identify modules and provide instructions for use. The faceplate offers numerous advantages:

- Visually organizes passenger interfaces, as previously described.
- Easy to maintain. The black matte surface hides fingerprints, scratches, and smudges. If desired, gouges can be quickly rubbed out with steel wool. Most buttons and bezels are recessed behind the plane of the faceplate, making them less likely to snag passengers' belongings or become damaged.
- Supports modular design. If a module is unneeded in a particular machine, a blank filler plate can be easily and securely installed to conceal the opening in the face plate.
- Secure. The high-impact phenolic plastic openings are backed with 1/8" steel. The faceplate is strongly resistant to forced entry.
- Flexible. Passenger instruction decals are applied to the module bezels that fit within the faceplate frame. If a decal must be replaced, the module can simply be swapped out rather than having to change the decal in the field. Edges of decals are concealed by the faceplate frame, making them less susceptible to peeling.

### **1.5.3 Marquee Lighting Module**

A marquee lighting module is provided to illuminate the front panel of the TVM as well as the interior of the TVM when the outer door is open. The module is mounted at the top of the front panel above the door. The marquee module can be provided with either a backlit sign or, as an extra-cost option, a scrolling high-intensity LED display (e.g., "Purchase passes here"). Backlighting is provided using LED lamps, which also provide wash light (downlighting) to illuminate the Vendstar's front panel. Wash lighting also provides substantial light to the interior of the machine when the outer door is open, facilitating maintenance and revenue service. If equipped for a backlit sign, e.g., "TICKETS," the display



provides a framed opening protected by 1/8" Lexan. The sign can readily be removed and replaced when the cabinet door is open. The marquee lighting module protrudes from the front surface about three inches, bringing the maximum depth of the machine to 21 inches. Built of the same rugged materials as the TVM cabinet, the marquee display is weatherproof and will not admit dust, insects, etc. Note that the washlight is on at all times; this reduces complexity and entails minimal power draw.

## **1.6 SECURITY**

### **1.6.1 General**

The Vendstar is protected against vandalism and burglary in the following manner:

- The seamless monocoque design and substantial construction of 1/8" stainless steel plate are strongly resistant to burglary tools. There are no gaps or seams wider than 0.05 inches.
- The multipoint locking bar that latches the TVM front door shut is made of heavy ¼" steel stock. The locking bar secures the door at the top, bottom, and side.
- No external fasteners are used. All modules are held in place with internal fasteners that are concealed when the TVM front door is closed.
- External locks and related hardware are drill resistant and flush-mounted.
- The passenger display is protected by a ¼" UV-resistant polycarbonate plastic shield with a ¼" gap between shield and display to enable the shield to flex and avoid damaging the display in the event of a blow. The shield is independent of the display and can be easily replaced.
- The TVM is equipped with an alarm system.
- The stainless steel cabinet with orbital finish makes it easy to clean off graffiti.
- Decals with instructional graphics can easily replace if damaged. The edges and corners of the decals are concealed behind the black phenolic faceplate, making it more difficult to pull the decals off.

### **1.6.2 Locks**

The TVM front door lock employs locking bars to secure the door to the enclosure on the top, bottom and sides. The lock is operated by a T-handle tool, access to which is controlled by a high security lock. The locking mechanism engages a door switch which is activated whenever the door is unlocked. The door hinge is continuous and has a pin cap to prevent removal of the hinge pin.

Interior locks are provided for the following purposes:

- Keyswitch to silence the alarm
- To lock all ticket tekpaks in place on shelf
- To lock coin tekpak in place
- To lock coin cashbox in place
- To lock the bill tekpak in place
- To lock the bill tekpak cashbox in place



- To lock the supplemental coin hoppers in place.

In addition the following modules also have their own individual locks:

- Card cassette to secure cassette door
- Coin tekpak to secure coin mechanism within enclosure
- Coin cashbox to secure cover
- Bill tekpak cashbox to secure cover.

Multiple types of keys and locks are used in the Vendstar to provide maintenance technicians, revenue service personnel, and counting room personnel with the level of access appropriate to their jobs. All keys of a given type are keyed alike. All keys are of the high-security type (pick-resistant, multi-tumbler, not readily duplicated).

### **1.6.3 Alarm**

An internal alarm is provided and connected to a switch on the door locking bar. When the bar is opened the alarm circuit is activated. The proper user ID and password must be entered within 30 seconds of opening to prevent the alarm from sounding. Alternatively, a key may be inserted in the alarm keyswitch. This key remains in the switch while the TVM is being serviced. When the key is removed, the TVM must be locked within 30 seconds to prevent the alarm from sounding.

### **1.6.4 Opening the TVM Front Door**

Opening the front door of the Genfare TVM involves the following steps:

- A key is inserted into the high-security Medeco lock on the door and turned, opening a steel access port. A smart-card-controlled electronic shutter is optional.
- A “T” handle actuator is inserted into the access port and turned 90 degrees. This motion moves the locking bars to the “open” position. This action also starts the internal alarm timer.
- The individual opening the door then has 30 seconds to enter an authorized ID number and a PIN in order to halt the alarm countdown. The ID and PIN are entered manually using the 10 buttons on the front panel.
- The TVM logic checks the ID and PIN against a list of authorized ID and PIN numbers previously downloaded from the central office. If the entered ID and PIN are not on the list, the alarm countdown continues.
- If a valid ID and PIN have not been entered by the time the alarm countdown ends, the alarm sounds and an “unauthorized entry” alarm is sent immediately to the central office.
- All IDs and PINs entered into the TVM are date- and time-stamped and recorded in memory for uploading to the data system, along with an authorized/unauthorized indication.
- The TVM internal alarm module is equipped with a keyswitch to permit manual silencing of the alarm, plus an unlabeled “silent alarm” button that may be pressed after the door is opened.

Pressing this switch does not sound an audible alarm locally but rather sends an immediate silent alarm to the central office indicating that assistance is required.

As an extra-cost option, the TVM can be provided with a smart card-based access system that eliminates the need for employees to enter a user ID (typically a PIN is still required).

### **1.6.5 Alarm Processing**

The Vendstar TVM generates two types of alarms, security alarms and maintenance alarms. It also generates status information.

The following security alarms are sent immediately to the VIP data system. Once received by the VIP, the alarm is then forwarded to designated agency cell phones via text message – it is not necessary for someone to be looking at a computer screen to get the alarm message:

- Unauthorized entry
- Shock and/or vibration sensor activated
- Silent alarm button pressed
- Excessive internal temperature.

The following alarms relate to operational issues and are sent by the TVM during the normal polling process, which typically is less than 5 minutes after occurrence. Note that the TVM sends warnings of impending events before they become critical, e.g., low ticket stock, cashbox almost full.

- Coin cashbox 90% full
- Coin cashbox full
- Bill stacker cashbox 90% full
- Bill stacker cashbox full
- Ticket dispenser #1, #2 or #3 low
- Ticket dispenser #1, #2 or #3 empty.

### **1.7 BILL ACCEPTANCE**

The TVM is provided with a removable, self-docking, enclosed and locked bill acceptance and secured storage module. Access to the bill tekpak requires opening of the TVM front door. The bill tekpak is removable under secure conditions without the use of tools. The tekpak is mounted on telescopic slides to permit easy access for maintenance.

The TVM accepts valid \$1, \$2, \$5, \$10, \$20 and optionally \$50 bills in any one of four insertion modes: front or back, top or bottom. The acceptance rate is not less than 95% on first insertion of a valid machine readable bill. The bill tekpak will accept both new and old style bills. The bill validator is capable

of being upgraded to accept future bill designs. Upgrades for designs introduced after the expiration of the warranty period are provided at additional cost unless a service agreement is in place.

The bill tekpak has a 15-bill internal escrow – when the transaction is successfully completed, the escrowed bills are deposited in secure storage. If the transaction is canceled, the escrowed bills are returned. Bill storage has a nominal capacity of 1,000 bills. Accepted bills are not exposed during the revenue transfer process.

It is possible to open the tekpak to clear a bill jam without removing the tekpak from the TVM. Access for jam clearing does not provide access to bill storage.

### **1.7.1 Bill Acceptance/Rejection Criteria**

Bill validation is based on optical and magnetic sensing of both sides of the bill, the size of the bill, and the magnetic signature of the ink used on currency. The bill validator can accept:

- New, clean, old, worn, damp, or dirty bills within reasonable limits
- Bills that have been folded or crumpled, then flattened out.

The bill validator may reject:

- Bills with torn corners, one side of which corner exceeds  $\frac{3}{4}$ " in length.
- Bill with sticky substances on them
- Bills with longitudinal tears exceeding one quarter of bill length or crosswise tears exceeding one half of bill width
- Bills with holes
- Bills with staples or other attached items
- Bills with excessive pen, pencil, or marker lines.

*Bill Acceptance Rate.* The bill validator accepts 95% of valid bills on first insertion and 98% on second insertion. All counterfeits, photocopies and other duplicates, foreign bills, foreign matter, and valid bills of unacceptable denomination are rejected.

*Bill Accuracy.* The bill validator identifies acceptable bills with 99.99% accuracy.

### **1.7.2 Bill Cashbox**

The bill validator is provided with a stacking cashbox separate from the coin cashbox. Upon completion of a transaction, bills are transported from the escrow to the cashbox, where they are placed in a stack held in position by a spring-mounted steel plate. Controlled stacking of bills helps to speed bill processing in the counting room. A "two cashbox" approach is used when servicing the Vendstar – the full cashbox is replaced with an empty one and then taken to the money room for emptying.

The bill cashbox cannot be removed from the TVM except when closed and locked. It is not possible to gain access to the interior of the cashbox when it is installed in the TVM. The cashbox has a handle that can comfortably accommodate a gloved hand.

The bill cashbox has a capacity of 1,000 bills. The TVM tracks the number of bills entering the cashbox and generates an alarm when the bill cashbox reaches an “almost full” condition (default 90% of capacity). When the cashbox is full, the TVM will switch to “no bills accepted” mode.

### **1.7.3 Bill Jams**

When a bill jam is detected, the bill acceptor automatically attempts to clear it by reversing the transport mechanism. If this fails to clear the jam, the TVM switches to “bank cards only” mode.

## **1.8 COIN ACCEPTANCE**

### **1.8.1 Coin Tekpak**

The TVM is provided with a removable, self-docking, enclosed and locked coin acceptance module (“coin tekpak”) which contains a coin validator and recirculating coin storage compartments to provide coins for return and for change for transactions.

The coin tekpak is inserted into guides in the TVM for electrical and mechanical connections. The enclosure has a locked cover to secure access to the coins and an easy-grip handle for carrying. A self-docking electrical connector is provided for electrical power and data communications. The serial number of the coin tekpak is transmitted to the TVM logic by means of this connector.

The coin validator accepts the following coins: nickel (\$.05), dime (\$.10), quarter (\$.25), and post-1978 one dollar coins (\$1). The TVM does not accept pennies (\$.01), half dollars (\$.50), foreign or bogus coins, tokens or Eisenhower dollars.

**NOTE:** For this procurement, the TVM will be configured to accept valid FAX tokens and issue a proof of payment receipt. Tokens will not be recirculated but will be deposited directly in the cashbox.

### **1.8.2 Coin Cashbox**

A coin cashbox with a locked cover is provided to collect all coins not directed to the coin tekpak hoppers. It is locked in place and has an entry aperture that is closed and locked as a condition of removal from the TVM. The cashbox has a nominal capacity of 300 cubic inches and will hold approximately \$1,000 in mixed coins. The cashbox provides the TVM logic with the cashbox ID only when it is locked in place and ready to receive coins.

When the cashbox is inserted into the TVM, a magnetic key automatically engages a lock at the rear of the cashbox. The revenue service technician then inserts a key in a separate lock in the front of the cashbox and turns it. Only when both keys are engaged can the cashbox be opened, permitting it to accept coins. It is not possible to access the coins in the coin cashbox when it is properly installed in the TVM. The cashbox is made of steel and is designed to withstand rough service. It will not open or become inoperative if dropped from a height of three feet onto a concrete floor. The coin cashbox has a handle that will comfortably fit a gloved hand. Once in the money room, the coin cashbox access lid may be opened using a separate Medeco key. The coin cashbox is provided with an electronic ID device that automatically identifies itself to the electronic control unit upon insertion into the TVM.

The TVM tracks the coins entering the cashbox. When the quantity of coins reaches a predetermined value for “nearly full” and “full,” maintenance alarms are generated. When the cashbox becomes full, the TVM switches to exact-fare mode, but continues to dispense change for bill transactions.

**1.8.3 Coin Jams**

The TVM has sensors to identify a coin going into and out of the coin verification section of the tekpak. If a coin goes in and does not come out, a “jam” is determined to have occurred and a solenoid automatically opens the coin mechanism, allowing the jammed coin to fall into the coin return cup.

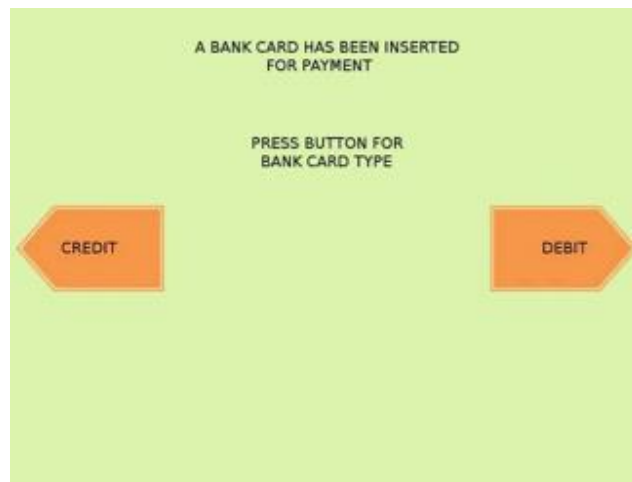
The coin system is designed to permit quick inspection and clearing of jams by maintenance or revenue service personnel if unjamming using the coin release is unsuccessful. Coin channels and guideways use an open design that permits the location of a jam to be easily ascertained. Channels and guideways can be readily removed by authorized personnel to facilitate clearing.

**1.8.4 Supplemental Coin Hoppers**

If desired, supplemental coin hoppers dispensing dollar coins and quarters can be optionally provided to augment the change provided by the coin tekpak.

**1.9 BANK CARDS**

The Vendstar is provided with a bank card module that can accept a magnetically striped credit or debit card for payment. The bank card module has a swipe-type magnetic bank card reader with a PIN pad and LCD display. It also provides an insertion slot for acceptance of EMV-type contact chip cards.



***Typical bank card acceptance screen***

The Vendstar screen prompts the user through the steps of paying with a bank card. The rider selects the ticket(s) to be purchased and the TVM indicates the total transaction amount. If bank card communication is enabled and a card is swiped or inserted, processing proceeds in the following manner:

- *Credit card acceptance.* If the user selects “CREDIT” on the bank card acceptance screen, the card number is sent to the gateway/processor for approval via an encrypted communication link and the display indicates authorization is taking place.
- *Debit card acceptance.* If the user selects “DEBIT” on the bank card acceptance screen, the customer is prompted to enter a PIN on the keypad. The PIN and card number are encrypted by the PIN pad and sent to the gateway/processor for approval and the display indicates authorization is taking place.

Upon approval, the tickets are encoded and printed (as appropriate) and the customer is asked if a receipt is desired. If “YES” is selected, a receipt indicating fare media type, transaction amount and other relevant information is printed and dropped into the coin/ticket tray along with the ticket(s). If the transaction is declined, the TVM screen advises the customer to use cash, cash acceptance is enabled, and the process continues as a normal cash transaction.

For security, complete bank card numbers are not stored in the TVM or the central data system. However, authorization codes and the like are stored in such a way that they can be matched to the corresponding transaction for auditing purposes. Encryption meeting financial institution requirements is provided.

*PCI compliance.* The Vendstar III payment application has received certification of compliance with the Payment Application Data Security Standard (PA/DSS) promulgated by the Payment Card Industry Security Standards Council. Genfare’s TVM design employs a hardware security device to handle bank card transactions; no sensitive bank card data is stored in the TVM.

**1.10 RECEIPT PRINTER**

A thermal receipt printer is provided to issue proof of payment tickets, receipts for bank card and other transactions, and selected on-site reports. The receipt printer has a thermal print head and integral full-width self-sharpening cutter. The printer uses a 4-inch-diameter paper roll suitable for approximately 2,000 receipts, each two inches long. A low paper sensor and paper feed button are provided. Cut receipts are fed into a chute for presentation in the dispensing cup. The receipt printer is used to print receipts for bank card transactions and maintenance and revenue service audit tickets.

**NOTE:** Proof of payment receipts when needed can be issued either on magnetic ticket stock or rollfed thermal paper dispensed by the receipt printer. The preferred approach will be determined in consultation with the agency.

**1.11 TICKET DISPENSERS**

To provide the ability to dispense or print and issue fare documents, the Vendstar can be equipped with up to three ticket dispensers, which may include any combination of the following:

- Magnetic ticker reader issuer machine (TRiM), which can encode, print on and issue a magnetic stripe fare document on 10 mil paper or plastic stock. The TRiM used in the TVM is substantially the same as the one used in Genfare fareboxes.
- Limited-use contactless card TRiM (LUCC TRiM), which can encode, print on and issue an ISO-compliant disposable paper smart card

- Plastic smart card dispenser (PSCD), which can encode and issue a 30-mil ISO-compliant reloadable plastic smart card intended for long-term use.

All fare media issued by the TVM are fully compatible with the agency's Genfare fare equipment. We have quoted on one magnetic TRiM, one LUSC TRiM, and one 30 Mil issuing dispenser but are happy to adjust our bid following discussion.

### **1.12 RECHARGE/VALIDATE MAGNETIC CARDS**

The TVM is provided with an internal ticket validator to permit recharge or validation of a previously purchased magnetic farecard. The validator consists of a magnetic ticket processing unit that does not have ticket issuing capability. A customer wishing to recharge or validate a magnetic farecard first presses the appropriate button adjacent to the passenger display, which then directs that the card be inserted in the validator. Once this is done, the validator accepts and reads the card. If the card is to be validated, the validator prints on and encodes it as appropriate and returns it to the passenger. If the card is to be recharged, payment instructions are shown on the passenger display. Following payment, the card is processed and returned to the passenger.

### **1.13 SMART CARD PROCESSOR**

The TVM will be provided with an ISO/IEC 14443 compliant smart card processor to permit validation or recharge of previously issued smart cards. The Genfare smart card data format supports a wide variety of fare instruments, including fixed and rolling-period passes and stored ride/value cards in addition to employee passes.

### **1.14 ELECTRONIC CONTROL UNIT**

The TVM has an electronic control unit (ECU) to monitor and control all aspects of TVM operation. The ECU is a single board computer with an Intel microprocessor and solid-state hard drive. The ECU is in constant communication with the central data system and pushes transaction and event records to central as they occur. The ECU notifies the central data system in the event of an alarm and communicates with the bank card gateway server for all bank card transactions.

If a backup memory module is desired, the ECU can be provided with a flash drive inserted in one of its USB ports. Once data has been confirmed as accepted by the VIP, the old data on the flash drive will be overwritten.

### **1.15 FARE TABLE**

Each type of document offered for sale in the TVM has an associated price. The matrix of ticket types and associated values constitutes the fare table. Each fare table indicates the types of documents that may be vended, price, screen layout, etc. Fare tables are downloadable to the TVM by network, modem, or portable memory device.

## **1.16 DATA REPORTING**

### **1.16.1 Data Recording**

The TVM records all transactions and events and transmits in real time to the central data system. Data is recorded and reported in two forms, (1) cumulative data and (2) transaction and event detail. Cumulative data consists of totals for various quantities, including coins and bill validated by denomination, tickets dispensed, bank cards read, etc. Transaction detail includes time/date, transaction amount, payment method, type of ticket vended, etc.

The TVM also records events such as locking/unlocking the TVM door; removal or insertion of bill tekpak, cashbox, coin acceptance module, or ticket dispenser; alarms such as low ticket stock, and so on.

### **1.16.2 Data Transmission**

The TVM stores all operational and financial data in non-volatile memory and uploads it periodically to the central computer. The TVM can transmit information to the network manager either by network or cell modem, as required by a particular location. Data is transmitted upon request by the network manager. Cumulative registers may be set to zero upon removal of a cashbox or other unit count device.

It is possible to operate the TVM in one of three communication modes, depending on the requirements of a particular location:

- Network connection using TCP/IP over copper wire or fiber optic cable.
- Cellular modem via commercial 3G/4G network.
- No external communications. It is possible to operate the TVM with no external communications access. Data in such cases is periodically exchanged manually. This configuration precludes the use of features such as bank card acceptance and real-time transmission of alarms and is not recommended.

### **1.16.3 Audit Reports**

Each TRiM, coin tekpak, coin cashbox, bill tekpak and bill cashbox installed in the TVM is provided with an electronic ID number. Whenever one of these devices is removed an event is recorded in memory indicating the module, ID number, date and time, and the quantity of money or tickets in the module at the time. This information is provided to service personnel in the form of an audit ticket that can accompany the removed module back to the shop. Alternatively, audit data can be shown on the display.

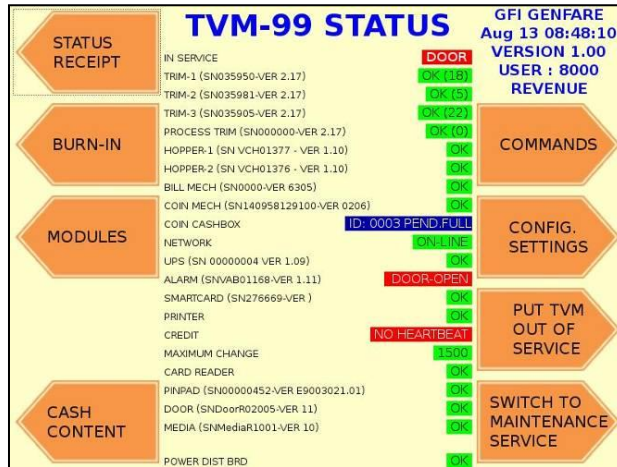
### **1.16.4 Maintenance/Test Mode**

The Genfare Vendstar TVM provides a comprehensive maintenance and service display making use of the LCD passenger display whenever the TVM door is in an authorized unlocked position. The TVM makes full use of menus and the 13 selection buttons surrounding the display. To enter test mode, an authorized technician must enter a valid user ID and PIN as previously described.

The initial display is illustrated below. It shows the status of all components within the TVM and indicates whether they are online or offline, full, empty or non-functional. The display then provides a



series of selections to further interrogate each of the installed components and to perform tests to confirm their status. All this may be done from the front of the machine so that the nature of any problem is known before opening the door of the TVM.



**Vendstar maintenance screen**

Test functions include a “system health snapshot” of TVM modules, test ticket issuance, exercise of cash acceptance modules, and more.

**1.16.5 Diagnostics**

The Genfare Vendstar TVM displays comprehensive status and diagnostic information on its LCD screen when the door is in an authorized, unlocked position. Messages are shown in either green (indicating ready condition), red (indicating a fault condition), or blue (indicating revenue service needed). The real-time status of all TVMs can also be viewed on the VIP data system. Priority alarms are forwarded to a designated cell phone to facilitate prompt agency response. The TVM also permits service personnel to test each module to determine proper operation.

**1.16.6 Remote Operation**

Using the VIP central computer system, it is possible to communicate with a particular TVM and:

- Remove the TVM from service
- Perform a self-test and generate a status report on all modules
- Send a test message to the TVM and receive acknowledgment
- Restore the TVM to service.

**1.17 ALARMS**

The TVM automatically generates alarms when service conditions arise. Alarms have one of three priority levels:

- *Priority 1.* In the event of a “panic alarm” such as intrusion attempt, the VIP is notified immediately and a message is sent to one or more designated mobile devices and/or security office/police department.

- *Priority 2.* When immediate service is required, e.g., ticket stock is exhausted or a cashbox is full, the VIP is immediately notified and the TVM enters limited or out of service mode.
- *Priority 3.* If service will soon be required, e.g., a consumable is low, an alarm is sent to the VIP but normal operation continues.

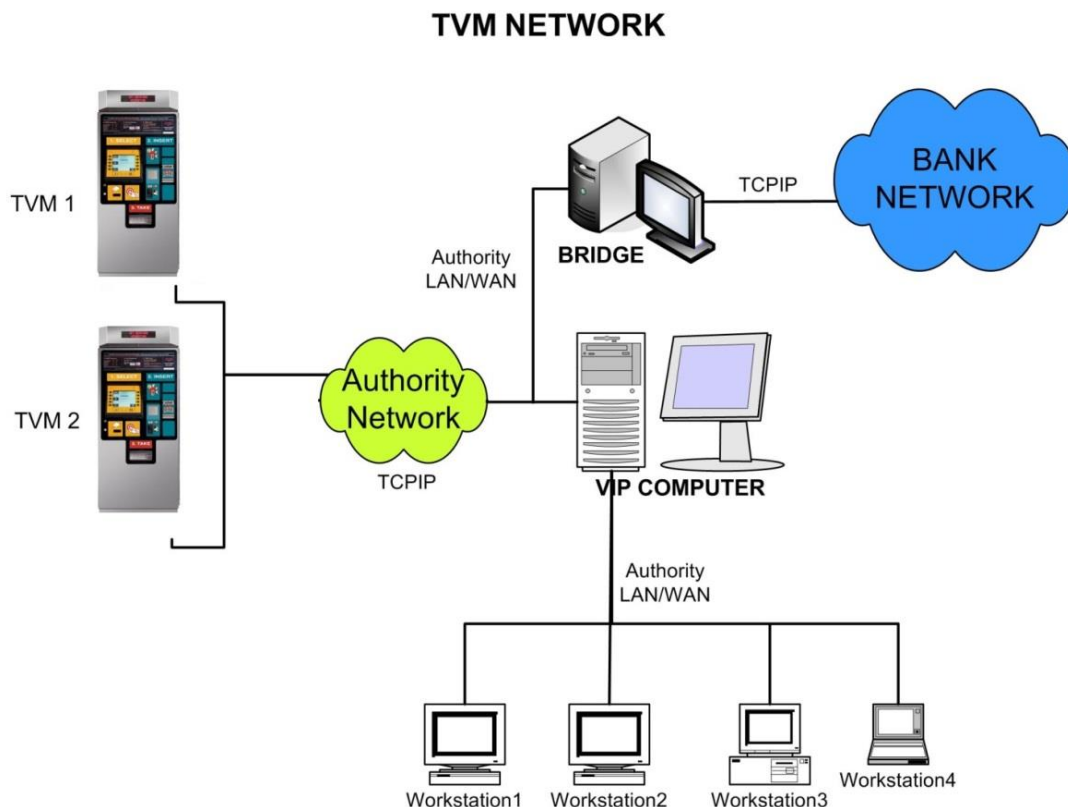
The Vendstar provides alarms for conditions such as unauthorized access, shock and vibration, low ticket stock, full cashbox, out of change, and so on.

## 2. VENDSTAR INFORMATION PROCESSOR (VIP)

**NOTE:** Fresno’s existing VIP implementation is used to control the agency’s PEMs. The system will be upgraded to support TVMs. Functionality of the upgraded VIP is described below.

The Vendstar TVM is monitored and controlled by the Vendstar Information Processor (VIP). A system diagram is provided below. The VIP performs the following functions:

- Monitor and control the TVMs, extract transaction and event data, and download fare tables and configuration parameters
- Provide a central repository of system operational data consisting of:
  - Daily summary data for all equipment
  - Database of transaction and event detail for all equipment
- Provide the ability to generate standard and custom reports
- Provide a fare structure manager to permit modification of fare tables and TVM displays and messages.



The VIP communicates with:

- TVMs via agency-supplied network

- Agency-supplied workstations via agency-supplied LAN or Internet connection.

**2.1 SECURITY**

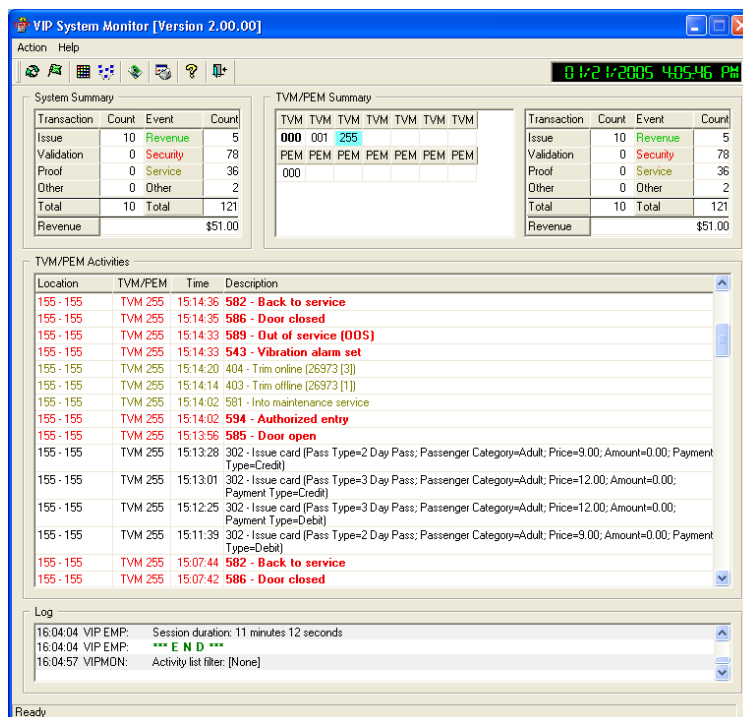
Access to any VIP workstation requires a user ID and a password. VIP privileges are assignable to users in one of two ways:

- A password matrix, in which privileges are assigned to users on an individual basis; or
- A password hierarchy, in which users are assigned to groups having a defined set of privileges appropriate to their jobs.

Regardless of the method selected, one user or group has system administrator privileges, which provides the ability to perform any function in the system, including modifying the privileges and passwords of other users or groups and adding or deleting users or groups.

The VIP logs all password use and all user activity. Upon interrogation by a user with a high level password, it reports all uses of passwords for the previous 60 day period, the date and time of password use, the amount of time the system was in use with the password, and what reports or other functions were accessed. The high-level password can be changed via the operator keyboard by an authorized user.

After a user-settable number of minutes of inactivity, an in-use password times out and requires re-entry of the user ID and password to regain access. It is possible to cause passwords to expire and become unusable after a user-settable number of days.



**Typical Vendstar VIP data system screen showing system monitor function**

## 2.2 SYSTEM MONITOR

The VIP makes it easy to monitor and control station equipment from the central office. VIP functions include:

- Monitor the status of each TVM and its components and detect faults
- Extract transaction and event data and download fare tables and configuration parameters
- Provide a central data repository consisting of daily summary data for all equipment plus a database of transaction and event detail for all equipment
- Provide the ability to generate standard and custom reports
- Provide a fare structure manager to permit modification of fare tables and TVM displays and messages.

The VIP provides the following types of information:

- Equipment status – indicates status of TVMs and their principal components, including cash-containing devices and ticket printers
- Cash on hand – lists cash contained in each TVM
- Polling status – indicates last successful polling of each TVM
- Module location – lists serial numbers of all modules with electronic ID currently in service in each TVM or selected TVMs.

## 2.3 DATA EXCHANGE

The VIP has the ability to poll the station equipment for data at scheduled times and on demand. Polled data may include cash in each cash storage device, status of major modules, transaction data since last polling, etc. The VIP can also download fare tables, display screens, security tables (persons authorized to access the TVM) and other configuration parameters.

## 2.4 FARE TABLE MANAGEMENT

Each type of document offered for sale in the TVM, or which is capable of being presented for validation or decrement, has an associated price to be paid by the TVM user. The matrix of ticket types and associated values constitutes the fare table. The fare table is one of the configuration files periodically downloaded to the TVM from the central office. It controls the appearance of the passenger display screen, ticket types and prices, and information printed on tickets. The fare table is modified using the fare table editor, a freestanding application provided as part of the VIP. The editor is designed to allow agency staff to modify the fare table with minimal assistance from the contractor. The fare table editor enables the agency to determine the menu of tickets to be vended, set prices, and establish many other parameters.

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## 2.5 VOICE MESSAGING SYSTEM MANAGEMENT

Genfare provides a library of pre-recorded voice messages played when patrons press the AUDIO button on the TVM. Messages are available in various voices and languages. If none of the prerecorded messages are suitable, the fare table editor provides the ability to generate new voice messages.

## 2.6 DATA REPORTING

The VIP provides a menu of standard reports, each of which is provided with an input form to assist the user in selecting data. Forms are also used to modify system operating parameters. Three types of report are supported:

- Routine reports, which are run every morning, reflecting the previous day's activities for a given TVM or all TVMs.
- Demand reports, which are run on request and usually deal with prior dates or a range of dates for a given TVM or all TVMs. These include sales and revenue, bank cards usage and other sales or service related events.
- Exception reports, which are printed or displayed immediately, including alarms for TVMs or modules requiring service. These messages can be accompanied by a text message to a designated mobile device.

Reports may be exported in comma-delimited ASCII (CSV), Excel or PDF format. A description of all standard reports can be provided if desired.

## 2.7 BANK CARD TRANSACTIONS

The Vendstar TVM is provided with a swipe-type magnetic bank card reader, PIN pad, LCD display and internal communication software to facilitate transmission of data from the TVM to the gateway/processor for authorization. The card processing module is also equipped with an insertion reader for processing of EMV-type (contact chip) bank cards. The Vendstar bank card payment process has been certified as compliant with the Payment Application Data Security Standard (PA/DSS) published by the Payment Card Industry Security Standards Council. Use of PA/DSS-certified equipment is an essential step when an agency seeks PCI/DSS certification for its bank card acceptance procedure.

To process bank cards, the agency enters into an agreement with one or more financial services firms to provide gateway and merchant processing services. Gateway services include accepting bank card transactions from the TVMs, performing preliminary processing, and then transmitting the transactions to an agreed-on payment processor and acquiring bank. We are happy to consult with the agency regarding gateway providers but will not be a party to the resulting contract.

### 2.7.1 TVM Interface to Payment Gateway

As previously indicated, each TVM communicates directly with the payment gateway via the network to process all bank card transactions. Transaction detail, including the last four numbers of the credit card number, is reported to the VIP. This approach is mandated by the Vendstar's PA/DSS certification and offers several advantages: (1) no delays due to data logjams at the VIP; (2) fewer possibilities for mishap

– fewer links in the communication chain; (3) preferred vending industry approach; (4) greater security. All transaction detail is reported to the VIP upon periodic upload.

For security, complete bank card numbers are never stored in the TVM or the central data system. Instead, unique identifiers, authorization codes and the like are used to match VIP transaction records with corresponding card authorizations for auditing purposes.

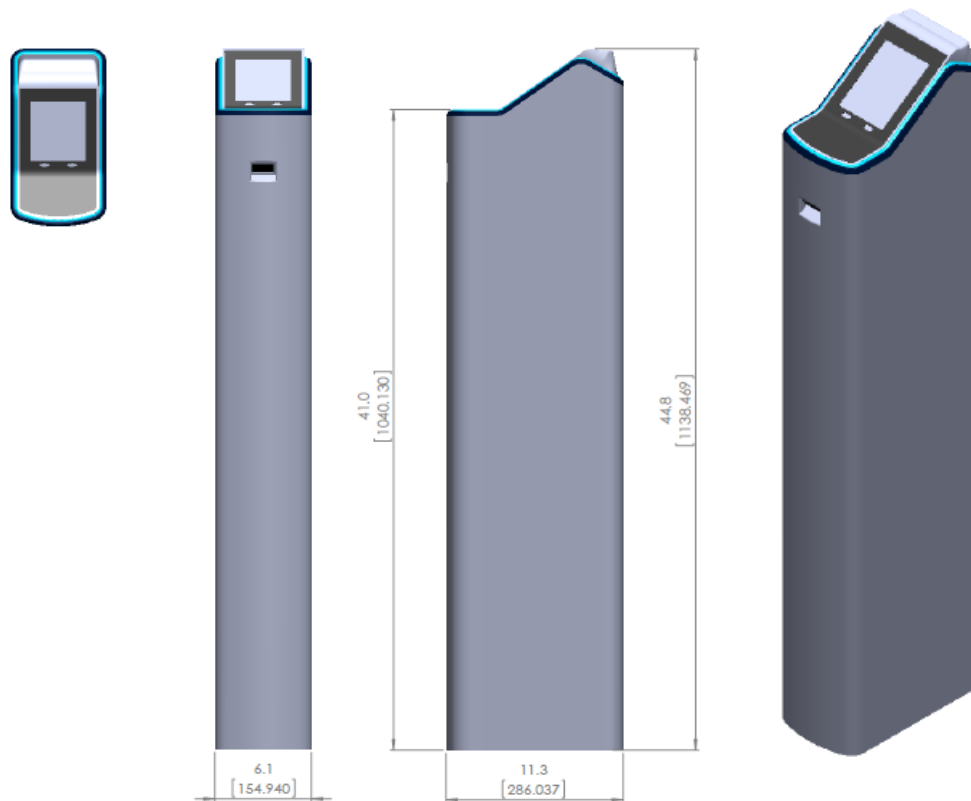
### 3. STATION PLATFORM VALIDATOR

Genfare is proposing a station platform validator as described below. As a cost saving measure, a validator could be mounted to the side of the TVM (either side or both sides) to accommodate passengers who want to pay their fare with a smart card. This approach would negate the need for a platform validator stanchion and the associated costs of installing a separate unit. Obviously, this approach can only work if the station design allows for access to the sides of the TVM and FAX feels that the concentration of all fare activity in one area can be accommodated within the station. We will be happy to discuss this approach during negotiations.

For this procurement, Genfare will repackage its field-proven Fast Fare-e standalone onboard validator for outdoor service. The platform validator will have the following characteristics:

- Stainless steel pillar
- Designed for outdoor use
- Input power: 120VAC
- IP55 ingress protection for housing (dust, water protection)
- Ambient operating temperature: -30°C to +60°C
- Transport/storage temperature: -40 °C to +70 °C
- 5.7" color VGA display
- Voice and tone audio indicators
- Visual transaction indicators
- Supports Mifare DESFire EV1 and other ISO 14443 cards
- Component status reporting.
- IP55 ingress protection for housing (dust, water protection).





**Platform validator – top, front, side and three-quarter views**

The platform validator will draw power and communication from the Vendstar TVM installed in proximity to it at each BRT station. Cabling will be brought in through the validator’s base. If hard-wired communication is not feasible in a given location, WiFi or cellular modem capability can be provided.

The validator will permit automated acceptance of electronic transit fare media, including ISO 14443-compliant smart fare media and, if desired, read-only magnetic cards.

**NOTE:** The proposed platform validator will not be equipped with a TRIM and will not have the ability to re-encode magnetic cards – pedestal mounting of a TRiM in an exposed location does not seem practical. Instead, we propose that magnetic tickets be validated at the TVM. If desired, the validator could be equipped with a swipe reader to enable processing of read-only magnetic cards.

The platform validator will be a rugged unit featuring a color passenger display with easy-to-understand graphics plus audio messaging and color status indicators to facilitate passenger use. Graphics will indicate how fare media are to be presented.

When a fare instrument is placed within range of the smart card processor’s antenna, the unit reads the encoded data, determines the card’s validity, updates its value if appropriate, and provides visual and audible indicators of acceptance or rejection. Detail for each transaction is transmitted to the central data system.

### **3.1 PASSENGER INDICATIONS**

*Audible Signals.* The validator is programmed to produce one of two sounds, a "beep" (short, clear tone) and a "warble" (intermittent tone). The "beep" sounds upon conclusion of any successful fare transaction. The "warble" sounds when smart card transaction fails due to invalid or unreadable media.

*Display.* The validator is provided with a passenger display consisting of a 5.7" full-color VGA (640x480 pixels) screen capable of showing text and graphics using TFT LCD (thin-film transistor liquid crystal display) technology. The display shows transaction status and other messages.

When a fare card transaction is initiated, the display shows messages such as remaining value, validity status, etc. These indications are accompanied as appropriate by a beep/warble.

#### **4. HANDHELD TICKET INSPECTION DEVICE**

The proposed handheld ticket inspection device (HTID) consists of a mobile phone with a rugged enclosure and appropriate software to enable fare inspectors to read magnetic and smart fare media and verify proof of payment.

The HTID software runs on the mobile phone's operating system. The combination of commercial off-the-shelf hardware and custom software has shown itself to be an excellent way to provide advanced functionality and high reliability at reasonable cost.

The HTID was designed with two goals in mind: ease of use and processing speed. Fare media typically can be processed in 500 milliseconds or less. Color indicators identify ticket as valid (green), invalid (red), valid with warning (yellow). Minimal training is needed to enable HTID operators to use the core functionality.

The HTID offers the following capabilities:

- Read magnetic tickets and smart fare media and check proof of payment
- Validation against database of purchased and used passes
- Operator login/logout
- Perform validation in offline or online mode
- Enforce expiration policies
- Remote management.

##### **4.1 COMMUNICATION**

The HTID uses the mobile phone for bidirectional communication with the central database. All data transmitted between systems and/or devices is reliably sent using connection-oriented protocols such as TCP and secured using the SSL and transport layer security (TLS) standards. The transport protocols operate in a connection-oriented manner, meaning the receipt of all data packets is confirmed to facilitate reliability. Genfare employs the most current industry and U.S. government techniques for data security.

**5. PRINTER/ENCODER MACHINE (PEM)**

Genfare proposes a PEM printer/encoder machine substantially similar to those currently in operation at FAX – see illustration below. The PEM enables agency staff to sell or recharge magnetic and smart fare media using a convenient touch-screen console. For this procurement, the PEM will be provided with a smart card processor, a magnetic TRiM, a limited-use contactless card TRiM (LUCC TRiM) and a cash drawer.



**PEM printer/encoder machine – smart card reader at left, TRiM at right**

The PEM is a compact desktop device for use by a trained operator under authorized conditions in an office environment. The PEM has the following features:

- Touch screen display to permit operator input and display relevant information
- Read/write magnetic ticket processing unit capable of issuing and processing magnetic tickets
- Receipt printer.

The PEM can communicate with the data system via modem, network, or USB port and memory stick. The PEM stores detail about all transactions and other activity in memory for uploading to the central data system.

The PEM’s small size and light weight make it suitable for any location where a desktop PC might be installed. The PEM has many benefits:

- Permits agency staff or other authorized parties to sell or recharge magnetic tickets and smart cards, check damaged fare media, issue replacements, and perform other customer service tasks. The PEM is designed to be used in conjunction with credit card authorization capability provided by others, generating shift reports and the like to facilitate cash and credit card reconciliation.
- Makes it possible for create or modify employee ID cards.

- Eases the transition to smart cards. By making it possible to read smart cards and confirm value without debiting the card, the PEM enables agency staff to make the public feel more comfortable with this new fare medium.
- Generate magnetic cards in quantity (e.g., for a special promotion) using a batch feature. The PEM is not intended for high-volume production but does make it possible to generate cards on short notice.

The PEM is modular in design and uses the same ticket reader/issuer machine (TRiM) used in Genfare fareboxes and Vendstar ticket vending machine, simplifying spare parts provisioning and maintenance. Operation is menu-driven and intuitive, facilitating operator training and reducing errors. The PEM offers convenience and flexibility at a reasonable price.

**6. FARE MEDIA PRINTER/ENCODER**

**NOTE:** Development to enable Datacard SR300 or other third-party device to produce Genfare-formatted cards would require significant time and expense. Alternatives include (a) bulk encoding of magnetic cards and LU smart cards on PEM – PEM supports manual encoding of 30-mil smart cards only; or (b) bulk smart card encoding using Genfare Link cloud-based central data system. We are happy to discuss alternatives during negotiations.

**7. MOBILE TICKETING (OPTION)**

Genfare’s proposed mobile ticketing application is an end-to-end solution that allows riders to purchase transit tickets using a mobile device and have their ticket delivered instantly to their phone. Tickets are activated by the rider at time of use and can be validated visually by drivers or electronically by a farebox or validator equipped with a barcode scanner. The solution is convenient for riders and provides the agency with increased revenue, reduced costs, and comprehensive analytics. The solution will be tailored to meet your needs and use your branding.



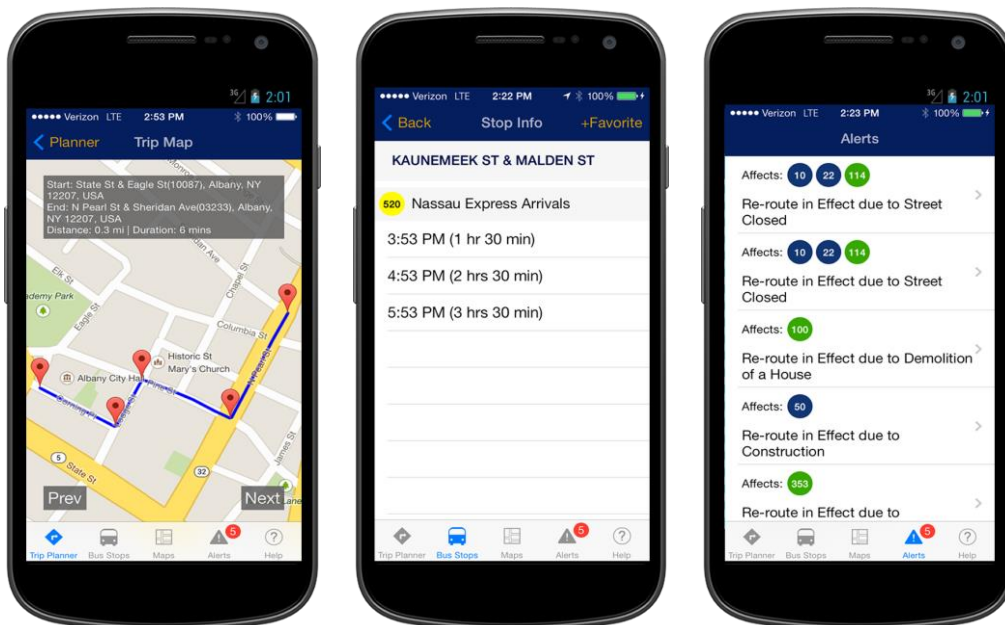
**Mobile ticketing app home page (left); barcoded “virtual ticket” (right)**

**7.1 MOBILE TICKETING OPERATION**

Here’s how mobile ticketing works:

- Customers with iOS or Android smart phones or tablets go to the app store for their device and download the agency-branded mobile ticket application. There is no charge for the app.
- Customers may purchase mobile tickets either through the app. Payment via credit or debit card is accepted. Eligible ticket types include any fare product designated for mobile use by the agency, including passes, stored ride and stored value cards.
- Customers are encouraged but not required to create an account when purchasing tickets – this simplifies future purchases and provides other benefits.
- The ticket is electronically transmitted to the mobile device. When received, the ticket is inactive and stored in the customers “ticket wallet.” To use the ticket, the customer must activate it by tapping a button on the screen. Depending on the preferred validation method, the ticket will be displayed either in human-readable form or as a 2D bar code – see illustration.

- Activation “starts the clock” on period passes and embeds the current time and date in the 2D barcode if used. To board the bus, the customer must present the mobile ticket within a predetermined time, typically 30 minutes. Once this time elapses, the ticket becomes inactive and cannot be used. This reduces the chances that unauthorized copies of the ticket can be used to board without paying.
- If the mobile ticket is configured for visual validation, the rider presents it to the driver for inspection. If desired, the farebox can be programmed to enable the driver to press a keypad button to tally acceptance of a mobile ticket.
- If the farebox is equipped with a bar code reader for electronic validation of mobile tickets, the rider presents the ticket to the reader. If the ticket is valid for boarding, the farebox sounds the “accepted” beep, the fare registers, and the fare product type is shown on the display.



Trip Planner (left); Next arrival information (middle); Alerts (right)

**7.2 FEATURES**

The barcode ticketing application runs on iPhone and Android devices. The interfaces for each device feature common branding and operational flow while conforming to best practices for each platform, enhancing user acceptance and speeding adoption. The app makes ticket purchase easy for both regular commuters and occasional riders. All existing agency ticket types are supported, and new ticket types can be added as needed by agency staff. Tickets purchased on a mobile device are delivered to a secure ticket wallet in the app and are available in both online and offline modes.

Features and benefits of the Genfare mobile ticketing solution include:

- *Secure payment.* Customers can pay for their tickets using credit or debit cards. Guest checkout for payment is an available option, but users are encouraged to create an account for maximum



convenience. The app and Web portal are PCI-compliant, using a hosted payment solution to ensure the security of sensitive customer data.

- *“Smart wallet”*. Registered users can store their payment information in our “smart wallet,” allowing them to easily purchase or re-purchase tickets. The wallet allows quick access to tickets and deletes expired or depleted items.
- *Ticket history*. We maintain a history of all tickets purchased by a customer using the mobile app. This history may be accessed at any time. Repurchasing a previous ticket can be accomplished with a few clicks. Customers can also mark a ticket as a favorite, allowing them to easily find and repurchase it as needed.
- *Online help*. Every screen has a help button to provide context-sensitive assistance. FAQs and searchable help documentation are also available.
- *Animated graphics to reduce fraud*. Mobile tickets configured for visual validation feature an animated graphic, indicating the ticket is legitimate and not simply a screen shot sent from another phone. The graphic is conspicuous from at least five feet away.

Purchasing mobile tickets requires that the app be online to the server. However, for greater reliability, much information is cached on the app for offline access. All information on purchased tickets is stored locally to allow activation and use in offline mode.

### 7.3 MANAGEMENT TOOLS

The Genfare mobile ticketing application provides an extensive array of management tools. These include:

- Fare maintenance module to facilitate fare structure revisions
- Customer service module to permit quick resolution of customer inquiries by agency staff. This Web-based tool provides service history, current status, and other relevant information status plus service functions for refunds, credits, and voids.
- System status and metrics dashboard – shows graphical and detailed representations of system operations and sales in real time. Results can be sorted and filtered as needed. This tool provides unparalleled awareness of all ticketing events as they occur.
- Analytical reporting database – standard and custom reports allow in-depth analysis of all system metrics.

### 7.4 SAFEGUARDS AGAINST FRAUD

The mobile application employs several independent counter-measures to limit fraud when tickets are visually validated:

*Image Background*. The background areas of the both the **Ticket** and **Barcode** screens contain an agency-selectable image. Additionally, a programmatic overlay “sweeps” the background in a predictable fashion to prevent static app images from being displayed.

*Activation Timer.* Riders must activate their mobile ticket shortly before boarding. This starts a timer and other visual validation features that change at predictable intervals, demonstrating that the ticket is genuine and not a copy. It also queues an event to be independently pushed to the central servers when a connection becomes available.

*Display Security Tokens.* Displayed behind the activation timer is the daily security token. These are a pool of agency-selected images that are shuffled into sets and made accessible to the mobile application for use during activation.

*Automatic Ticket Deactivation.* Once a ticket has been activated for a predetermined time, it automatically deactivates and is no longer valid for fare payment. The limited activation window reduces opportunities for copying of tickets or other fraudulent activity.

The **Ticket History** will save records of expired and/or invalidated tickets for an agency-determined period of time. Customers will be able to go online at any time and review their entire purchase history and access receipts if necessary.

*Barcode Security.* For mobile tickets configured for electronic validation, the barcode is encrypted using an AES encryption scheme. The encoded, encrypted barcode is readable by most commercially available scanners but is indecipherable without knowledge of the encoding schema, encryption scheme, and the relevant encryption keys.

**8. MAINTENANCE**

We will provide on-site maintenance of all equipment in conformance with the technical specification, subject to the following understandings:

- We will maintain all Genfare-provided equipment in service at FAX, including previously purchased equipment such as fareboxes in addition to devices furnished as part of this procurement.
- FAX will furnish up to 1,000 square feet of secure, conditioned space within its garage or maintenance facilities for the exclusive use of Genfare personnel in performance of their duties. Space will be provided with 120 VAC power and Internet access.
- Genfare will supply all tools, benches, test equipment, task lighting, storage cabinets and incidental supplies.
- Genfare will supply all labor and supervision needed to maintain the equipment in the manner specified.
- FAX will purchase the initial supply of spare parts in agreed-on quantities. Genfare will use and replenish spares as needed. Upon termination of the maintenance agreement, Genfare will restock spare parts inventory to the level originally purchased.
- Genfare will provide one maintenance vehicle. FAX is responsible for providing a secure parking space.

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**9. IMPLEMENTATION****9.1 TASKS TO BE ACCOMPLISHED BY GENFARE**

- Genfare will perform all work tasks in the manufacture and delivery of the proposed system.
- Genfare will develop a schedule and work plan for the performance of all work tasks within 60 days of Notice to Proceed.
- Plans for all work will meet requirements of local building codes. Genfare will submit final plans for any such work to the agency for approval.
- All equipment will be installed and tested in accordance with an installation plan developed by Genfare and submitted for agency approval.
- For those items of equipment to be installed by the contractor, Genfare will provide all hardware, tools, personnel and supervision for installation work in accordance with a schedule proposed by Genfare and approved by the agency.
- Genfare will provide personnel to monitor, inspect and adjust all equipment during system startup.
- All equipment proposed will be of the latest engineering change level available with modifications installed for all known operational problems.
- Genfare will retrofit all new problem solutions (engineering changes) to the equipment installed during the testing and warranty period following agency approval.
- Genfare will make on-site visits and surveys as necessary to familiarize itself with agency operations and facilities.
- Genfare will provide full and competent engineering services to handle and correct all problems associated with the performance of its equipment.
- Subsequent to the warranty period, parts, assemblies, and equipment shipped to Genfare for repairs shall be subject to repair charges, and the services of Genfare personnel for repairs in the field shall be compensated in accordance with a fee schedule, provided that such fees shall not apply if a service agreement is in force.
- Genfare will provide the services of a qualified project manager to consult with the agency as needed regarding installation of the equipment specified under this contract.
- The Contractor will utilize existing AC electrical power on the property and at installation sites. If existing power arrangements are unsatisfactory, Genfare will provide sufficient advance notice to enable agency to make necessary provisions.
- Contractor will provide all necessary training and documentation as described in this proposal.

**9.2 TASKS TO BE ACCOMPLISHED BY AGENCY**

- Agency is responsible for providing all data and access reasonable and necessary to configure the system, including but not limited to fare structure and business rules; style sheets, logos and other necessities; and fare media requirements. It is understood that time is of the essence and that delays by the agency in providing necessary information may result in delays in implementation.
- Agency shall provide a suitable air conditioned location on agency property to house computers, printers, and other items of equipment required for the transmission and reporting of data.
- Agency shall provide incoming power and communications capability for each TVM to be installed.
- Agency shall provide project management to work with the Contractor’s project manager throughout the life of the project.
- Agency is responsible for site or facility modifications that may be required for installation of the equipment.

## PART B – COMPLIANCE MATRIX

The following lists Genfare’s response to each item in FAX’s technical specification.

RFP REQUIREMENT	Comply ?	Remarks
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<p><b>PART 1 – GENERAL</b></p> <p><b>1.1 General System Summary</b></p> <p>The Fresno Area Express (FAX) is the largest public transit provider in the San Joaquin Valley, providing approximately 18 million fixed-route and over 270,000 demand-response passenger trips in FY 2015. The FAX existing fixed-route bus system, consist of 16 routes, served by 100 buses during peak hours for a total bus fleet of approximately 130. This traditional efficient green bus fleet is being complimented with the new planned late 2017 BRT-TVM FCS (Bus Rapid Transit) service, supporting 52 stations to be equipped with both full-featured Ticket Vending Machines (TVMs) and quick access platform Validation devices. Each of the BRT-TVM FCS stations will have a minimum of one TVM and one Validator located on the station platform area allowing for the first time, ticket purchase and ticket validation right at the station platform for speedy access that compliments the BRT-TVM FCS.</p> <p>Further, FAX desires to integrate smart card and future mobile technology solutions by first introducing select secure Limited Use (LU) smart card fare products. FAX requires that any newly introduced fare media types to work interchangeably between the existing bus system and the new BRT-TVM FCS system. FAX understands that there may be a degree of Genfare Odyssey-farebox upgrading required ensuring full acceptance of any new fare media types introduced from this specification. In such a case, an upgrade to the existing fareboxes will be taken under consideration within this RFP but, addressed and priced as an optional requirement. The smart card and magnetic ticket/card will be complimented by an increased quantity of Point of Sale (POS) systems (Same or similar to the existing Genfare Printer/Encoder Machine (PEM)), and new smart card and magnetic printer/encoder machines.</p>	Y	
<p><b>1.2 Summary of Work</b></p> <p>The FAX BRT-TVM FCS systems approach takes a unique deviation from traditional North American bus systems that classically integrate a farebox only solution. The BRT-TVM FCS systems approach is to integrate both Ticket Vending Machines (TVMs) complimented with on-platform validation devices to reduce bus queuing times that contribute to improving overall system efficiency and reducing dwell-time while, improving the rider’s experience.</p> <p>The FAX-BRT-TVM FCS project is requesting a proposal whereby, the Contractor (Vendor) shall furnish and install at least one Ticket Vending Machine (TVM) at each station platform per the “Station Electrical and Communication Plan” and at least one on-platform</p>	Y	

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<p>validation device. The Contractor shall furnish, configure, install, providing the system integration inclusive of: system compliancy, test, and training and to demonstrate successful operation of all items described herein to be included as part of the Ticket Vending and Validator apparatus.</p> <p>The system in general shall be comprised of the following primary elements:</p> <ul style="list-style-type: none"> <li>a. A Ticket Vending Machine which, shall be in technical conformance with this request for proposal, installed at each station platform as indicated in the “Station Electrical and Communication Plan”.</li> <li>b. A standalone and or connected station platform validator which, shall be in technical compliance with the request for proposal, installed at each station platform as indicated in the “Station Electrical and Communication Plan”.</li> <li>c. Ticket media inclusive of both existing magnetic tickets and newly introduced smart cards that interoperable with the TVMs, Fareboxes and Validators and in compliance with the technical specifications set forth in this document.</li> <li>d. The FAX Central Data System (CDS), to be modified for central configuration, monitoring and control of the newly added TVMs, Validators and Mobile Inspection Devices. The CDS shall consist of a central server and software to perform all of the required new functions outlined by the technical specifications set forth in this document.</li> <li>e. The TVMs shall be connected to the BRT-TVM FCS network and CDS utilizing the communications system provided by the FAX Administration Building and at the station platforms.</li> <li>f. The contractor shall be responsible for both the data integrity and data confidentiality of all data transmitted between the CDS and the end-point devices</li> <li>g. The TVMs and CDS shall fully integrate with, and be fully interoperable with FAX’s existing farebox system: the Genfare Odyssey Validating Farebox</li> <li>h. A Mobile Ticket Enforcement device(s) capable of both 4g cellular and Wi-Fi, that is interoperable with the specified operational and connectivity specifications set forth in this document and further operationally in compliance with the CDS.</li> <li>i. All equipment supplied must comply with “Buy America” requirements were applicable, inclusive of the TVM, Validator, Mobile Inspection device and Fare media.</li> <li>j. TVMs and Validators must be in compliance with the 2010 revised American with Disabilities Act (ADA), or latest revision</li> <li>k. Optionally, a mobile ticketing application may be implemented that will be structured to work with the validators and enforcement inspection devices, as well as, possible recharge of the smart cards</li> </ul>		

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<p><b>PART 2 – MATERIALS AND EQUIPMENT</b>  <b>2.1 Ticket Vending Machine (TVM) Specifications</b>                      The Contractor/Vendor will supply 52 TVMs plus spares (See Spares Section-6) TVMs. In addition, the Contractor/Vendor will supply the initial supply of fare media per the quantities listed in the Fare Media section of this TVM Specification.</p>	Y	
<p><b>2.1.1 Operational Power</b>                      The primary source of AC power will be from Pacific Gas and Electric Company (PG&amp;E) whereby, the TVM must operate within all PG&amp;E power tolerances.                      – General operations and storage and security requirements:</p> <ul style="list-style-type: none"> <li>• 117 VAC/60 Hz single phase at 30 Amps maximum (3,520 watts) at a VAC tolerance of +/- 5% or, 208 VAC/60 Hz at 17 Amps maximum (3,540- watts) at a VAC/Hz tolerance of +/- 2% or as recommended by PG&amp;E.</li> <li>• Storage Temperature: -20o F to +150o F</li> <li>• Operating Temperature: 10o F to +120o F</li> <li>• Humidity (Operation): 10% to 95% (non-condensing)</li> <li>• IP 54 Rated</li> <li>• Vibration Testing: 3 axis testing, 24 hours</li> <li>• Electromagnetic Interference: FCC, Part 15 A and B</li> </ul>	A	<p>Genfare will provide certified test results for Vendstar III indicating environmental standards with which proposed TVM complies.</p> <p>Accepted by FAX.</p>
<ul style="list-style-type: none"> <li>• Markings: shall meet EN 12414-compliant</li> <li>• Money Storage: minimum EN 14450 Level 2 certified</li> <li>• Vandalism and fraud-resistant</li> <li>• Separate access to cash and maintenance compartments</li> <li>• Double-walled cashbox, armor-plated safe for resistance to theft</li> </ul>	A	<p>Vendstar markings not tested to EN 12414 but are ADA compliant.</p> <p>Vendstar revenue security not tested to EN 14450 but unit has shown high resistance to vandalism and fraud based on ~800 units in service at numerous agencies. Cashboxes enclosed in secure TVM cabinet protected by multiple safeguards for resistance to theft. We have had no reports of successful TVM break-ins.</p> <p>Separate keying provided for revenue service vs. maintenance functions</p> <p>Accepted by FAX.</p>
<ul style="list-style-type: none"> <li>• Sealed, self-contained and motorized compact coin channel and selector.</li> <li>• Remote detection of physical attack.</li> </ul> <p>– The TVMs shall operate autonomously without operator intervention once programmed for regular day-to-day operations</p>	Y	<p>Coin-handling modules are self-contained and locked in secure tekpak. Coin hoppers are motorized. We assume this satisfies requirement.</p>
<p>– All internal service plugs (minimum of 1 duplex plug), to be GFI</p>	A	<p>Genfare TVM service outlet</p>



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protected, separately fuse protected and limited to a maximum of 117 VAC @ 5.0 Amps (585 watts)		provided with 15 amp circuit breaker. Genfare to provide a Ground Fault Interrupter Circuit.
<ul style="list-style-type: none"> <li>– A 36 VDC @ 5.5 amps regulated power supply with connection terminals (to power up to 2 remote validators)</li> <li>– Solar powered supplementary power assist would be encouraged as an optional feature but, not a mandatory requirement</li> </ul>	A	Genfare TVM provides 12 and 24 VDC, which may be used to power Genfare validator. Solar power not available at this time. Accepted by FAX.
– ALL Power and Communications connections must be through the bottom mount (preferred) or through the backside lower panel not to be placed higher than 10.0 inches from the backside lower panel	Y	
– To be equipped with an Uninterruptable Power Systems (UPS) device that will sustain full operation or a reduced operational mode of the TVM for a period of no less than 10 minutes. This device is to have a replaceable life cycle of no less than 5 years.	Y	UPS should last life of TVM. UPS batteries typically last 3-5 years. Batteries can be readily replaced.
– Supports no less than 3-fare card magazines (4 preferred).	Y	Up to 3 ticket dispensers supported
<p><b>2.1.2 Operational Communications</b></p> <p>All communication secure networks shall be provided by FAX and or its subcontractor “Tiger”, although the Contractor/Vendor is still responsible for the data integrity and confidentiality of all transmitted data. The network connectivity will be positioned in a manner that creates the best user experience and platform flow and therefore, some connection runs could exceed 100 feet. Ethernet running CAT-5E wire or better will be used to support all TVMs and Validators. Optionally a secure encrypted Wi-Fi network may be implemented to communicate between the Validator, Mobile Inspection device and the TVM.</p> <ul style="list-style-type: none"> <li>– TVM must support Ethernet connectivity via an industrial RJ45 connector with no less than 100mbits/sec transmission capability</li> <li>– All TVMs shall communicate with the CDS via the communications network described in Section 17000 Station Platform Fiber-Optic Communications System, although a cellular mechanism should be provided as an optional cost item</li> <li>– The TVMs may act in the capacity of a station computer having Ethernet, as well as, Wi-Fi and/or cellular capability to communicate with the station platform Validators</li> <li>– An Ethernet router with activity lamps will be provided with each TVM</li> <li>– All Ethernet and Wi-Fi bi-directional communication streams sourced or processed within the TVM will be encrypted prior to transmission.</li> </ul>	Y	SSH encryption used for Genfare support services via remote access. Data exchange between TVM and CDS can be encrypted if desired.
<p><b>2.1.3 Operational and Environmental</b></p> <p>TVM will operate in an outside semi-sheltered environment with partial sun, rain and wind exposure, meeting the following requirements.</p> <ul style="list-style-type: none"> <li>– Ambient operating temperatures of +10o F to +120o F at 95 percent</li> </ul>	A	Genfare will provide certified test results for Vendstar III indicating environmental standards with which proposed TVM complies.

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non-condensing humidity – Water resistant to direct water spray of no less than 40psi – Water exposure to be directed away from the internal components via water gutters and seals integrated at the door and any other access point.		The Vendstar has been tested to 115 degrees F at 98% humidity.  Accepted by FAX.
– Cold: Internal temperature management is to be assisted by a thermostatically controlled internal heater operational at a threshold turn-on temperature of 35o F with a tolerance of +/- 3.0o F. The heater upon threshold enablement must operate within a temperature band of +/-5.0F degrees. The heater is not to exceed 1500 watts. – Hot: Internal temperature management is to be assisted by a thermostatically controlled fan which circulates air inside the TVM. The fan shall be programmed to be switched on, should the internal TVM temperature reach above 95 degrees F +/- 3o F	Y	Heater current draw 400W. Thermostat adjustable 0 to 100 degrees F. Blower threshold temp also adjustable.  Heater is not needed.
– A durable/flexible and vandal resistant made Sun shield will be provided that may be placed on or detached by FAX staff on the TVM color display (above the display). The shield material should be durable fabric that is water resistant and would cover up to no less than 60% of the display screen, the shield can be retracted when it is not required due to direct Sun light exposure.	N	Station design should provide for basic passenger/TVM cover  Genfare states that sun loading is not a problem and if a problem arises Genfare will work with FAX to rectify.
<p><b>2.1.4 General Mechanical Features</b></p> The TVM shall be designed in a manner that is suited for a permanent outdoor top- sheltered placement and use environment. The design should support under normal outside use conditions, a minimum 15 year life cycle before replacement (Individual internal and serviceable components will have a lesser life cycle expectancy). FAX desires that all components specified and integrated within the TVM by the contractor/Contractor/Vendor be available for the duration of the TVMs expected life cycle of seven (7) years, and free of obsolescence for ten (10) years.                     – Cabinet constructed materials will be made of austenities 304 grade stainless steel at 12 AWG or similar with a vandalism/graffiti resistant surface finish (Power coated with color approval by FAX) – Floor mount footprint and overall cabinet dimensions will be in compliance with Appendix-A – Cabinet top will have an anti-trash/trash resistant sloping top design of 10 to 12 degrees of either front to back or back to front – External air ventilation access ports will be kept to a minimum to prevent vandalism and water and foreign debris penetration – Forced air ventilation flow designed for cooling and optional heater operation in hot and cold weather – Door opening will trigger reasonable illumination of the interior working components of the machine for easy maintenance and servicing – Multipoint front door access locking system highly resistant to	Y	Cabinet constructed of type 304 stainless steel, 11 AWG (0.125")  Accepted by FAX.

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<p>vandalism. The controlled locks to implement levels of security to separate maintenance and revenue servicing. High security locks and keys shall be furnished and are subject to the review and approval by FAX. The Contractor shall provide twenty-four (24) sets of keys for the TVMs, and all keys shall be uniquely numbered.</p> <ul style="list-style-type: none"> <li>– TVM shall be a self-contained machine complete with its own cabinet and mounting stand or base, and shall be designed to be securely bolted to a concrete surface</li> </ul>		
<ul style="list-style-type: none"> <li>– Integrated LED (Light Emitting Display) top side of the TVM display to display a FAX generated user-defined message that will be triggered by a user-defined event, e.g., “Out of Service”, “In Service”, “Welcome”, etc. to communicate real-time dynamic user information messages. (Sufficient to display no less than 16 characters with scrolling feature)</li> </ul>	A	<p>Welcome screen, OUT OF SERVICE and similar messages shown on passenger display. Standard messages subject to agency approval during design review.</p> <p>Genfare to provide dome light on top of mTVM.</p>
<p><b>2.1.4.1 TVM System Performance Requirements</b></p> <p>The TVM is to be Designed/Supplied in line with “State of the Art” vending machine operational performance standards that meet at minimum, the following requirements:</p> <ul style="list-style-type: none"> <li>– The TVM shall be capable of being operated at the specified performance levels, stored, and maintained without impairment resulting from the natural or induced environmental conditions within which area FAX will use or store the equipment</li> <li>– The TVM finish, graphics panels, and all external surfaces, including lettering, maps, and other information displayed on the equipment shall be highly resistant to ultraviolet radiation and airborne contaminants. Airborne particulates shall not affect the operation of the TVM (Installing a serviceable air filter is acceptable and desired to reduce foreign contaminates within the TVM)</li> <li>– Ticket vending machines, including coin and bill/note acceptance functions, shall meet either the Mean Cycle Between Failure (MCBF) or Mean Time Between Failure (MTBF) criteria listed below, whichever occurs first:               <ul style="list-style-type: none"> <li>i. MCBF of 6,000 cycles (7,500 to 8,000 MCBF preferred)</li> <li>ii. MTBF of one failure per TVM per forty-five (45) days, calculated as an average of all machines in service over a period of ninety (90) days</li> </ul> </li> <li>– Cycles shall be defined as one complete fare payment transaction (Coin, Note, Trade-in or Bank card). This would include all required actions from fare media selection to the completion of the ticket issuing transaction</li> <li>– The measures MCBF and MTBF shall be the average for the combined units per equipment type in revenue service.</li> <li>– If a specific TVM is documented to have failures 20% higher than the remainder of the combined units in operation within the first year of</li> </ul>	A	<p>Vendstar will attain 6K MCBF provided: (a) preventive maintenance performed in conformance with Genfare-recommended schedule; (b) passenger-caused malfunctions excluded; (c) validator transactions included in MCBF computation.</p> <p>Accepted by FAX.</p>

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service, it will be required that such machines be replaced and or completely refurbished by the Contractor/Vendor to achieve the expected MCBF. – In the event a TVM hard or soft reset becomes necessary, the TVM will recover in less than 120 seconds – A user initiated transaction of any type, will be performed in under 90 seconds		

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<p><b>2.2 User/Rider Functional Features:</b> The TVM’s will be of one type having compliance to the requirements set forth by the Americans with Disabilities Act (ADA) accessibility guidelines for reach, access, signage and Braille and in accordance with the U.S. Access Board’s Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG). All operable controls shall be on the front vertical plane of the equipment, and shall meet the requirements of the ADA in effect at contract NTP. The Contractor/Vendor will submit for review and approval during the design review process, descriptions and drawings of how the TVM will achieve ADA compliance.</p> <ul style="list-style-type: none"> <li>– ADA: Each TVM must be within U.S. ADA Standards for Accessible Design compliance per the 2010 revised accessibility or latest. (I.e., each TVM must support audio announcement, brail, color coded access bezels, viewing font size and in full compliance with required machine interface height and general dimensions</li> <li>– Languages: The TVM will have a minimum of two languages supported; (U.S. English and Castilian/Formal Spanish) with the option of adding two additional languages at a later date without any hardware upgrades</li> <li>– Display: Color LCD 15.0" diagonal display having a minimum viewing area of 14.0" diagonal, non-glare rated at a minimum illumination sufficient to allow viewing in near-direct sunlight exposure. Display brightness/lumens shall be controlled by a photo-sensor to detect sun exposure and or nighttime reduced ambient light exposure</li> <li>– The ISO/IEC 14443 Reader shall read the smart card presented in the active field by no less than 5.0cm or 2.0 inches in distance from the card’s surface to the TVM’s reader surface (parallel to each other)</li> <li>– The GUI operational interface must have no more than a 3-step process to access any of the features/functions of the machine used by the general public</li> <li>– The TVM shall include controls on the front panel to toggle the display and the audio message system. The messages and audio are to have select ability between English and Spanish and or one of two other languages, to be determined in the future by FAX. The TVM screen messages and audio is to default to English. The Contractor shall verify the proper language usage in both the audio and text files. The Contractor shall submit to FAX for approval information on the patron messages during the design review.</li> </ul>	A	<p>Passenger display 10.4" diagonal, sufficient for intended use as demonstrated by &gt;10 years of satisfactory service with more than 800 units shipped. Display brightness not sensor-controlled.</p> <p>Accepted by FAX.</p>
<p><b>2.2.1 Security and Safety Features</b> The TVM shall be equipped with adequate security features to minimize break-ins through features and methods of deterrent, and to assist FAX with accurate time/date stamped information in case of an actual TVM unauthorized access event. The TVMs will/may be assisted by FAX provided CCTV and/or security cameras are available and active on the platforms.</p>	A	<p>Accounts not locked out after X unsuccessful attempts and do not expire – this would add administrative complexity. Security maintained by (a) two-factor authentication – badge or user ID plus PIN; (b) all login</p>

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<p>The Contractor/Vendor shall ensure that data confidentiality and integrity is maintained, and that access is controlled to all application programs, data, network, the operating system and its commands, activities and other resources. Access requests shall be validated each time an individual attempts to log on to the system. Access shall be denied if the user does not have authorized access to that requested activity, function, or resource.</p> <p>The Contractor/Vendor shall conform to North American fare collection security standards and guidelines. Account lockouts must be maintained in a System log and reported on a daily basis. In order to assure maximum security for the BRT-TVM FCS-TVM FCS, passwords shall be stored and transmitted in encrypted format, and shall be stored in non-viewable field and not printed on any reports. Passwords shall have expiration dating so that the FCS can require them to be changed on a regular basis. The Contractor/Vendor shall recommend other security features as may be deemed appropriate, based upon system risks and exposures they assess. The security features will include but are not limited to: controlling access to databases by major group names as well as user ID and providing time of day limitations by individual user ID. These parameters would be viewable and set only by the System Administrator and would be changeable as required. The System Administrator shall also have the ability to change the security features including, but not limited to, the ability to add, change and delete user IDs, access rules and resource entities, and reset passwords.</p> <p>The system shall automatically execute all site specific configuration parameters required to start up and enter the operational mode of the application software upon system initialization. The operational mode of the software environment shall prevent operators from exiting the FCS application software to access the operating system or to any other software not part of the FCS.</p> <p>The Contractor/Vendor shall conduct an analysis of security features of the system to be provided, and notify FAX of any potential exposure in system design. A System Security Plan shall be developed and presented to FAX for review and approval at PDR. This System Security Plan shall include password systems and administration, communications security measures, operating systems and program security, network security, access controls and data encryption and data integrity methods. The Contractor/Vendor shall provide FAX with the following Security requirements:</p> <ul style="list-style-type: none"> <li>– The TVM shall be designed to ensure the safe, reliable and simple interface with patrons and maintenance/servicing personnel. The equipment shall provide patrons and service personnel with displays, graphics and signage, controls and mechanisms, which are simple to use, easy to understand, and conveniently located</li> </ul>		<p>attempts, both successful and unsuccessful, recorded and reportable per user ID. Time of day access limitations not supported. Operators cannot exit TVM application to access operating system. CDS is accessed via Windows-based workstations, providing command-line access to local OS only.</p> <p>Accepted by FAX. Genfare to provide virus protection at time of install if available and disable flash drive port.</p>



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<p>i. Describe the Contractor/Vendor’s methodology to assure data integrity during transmission between devices or while in storage</p> <p>ii. Describe the Contractor/Vendor’s methodology to mitigate against data loss due to equipment failure</p> <p>iii. Provide the Contractor/Vendor’s data cross checking methodology</p> <p>iv. Describe the types of potential fraudulent use of cashless transactions and the methodology of protections against fraud</p> <p>v. Describe the Contractor/Vendor’s process to synchronize separate devices when affecting changes in time-of-day, fare collection parameters, equipment, or software versions</p> <ul style="list-style-type: none"> <li>– Were taken during software development and delivery to secure software from virus infiltration,</li> <li>– Validate the integrity of the furnished software from virus infiltration,</li> <li>– Restore software integrity in the event of a virus infection</li> <li>– The ability to remove or add users shall be restricted to designated users with the highest level of security clearance. Additional password authorization shall be required to perform this function. At no time shall any password be displayed on any screen in the system. In the event security is compromised at any time during the development, installation, or testing of the system, the Contractor/Vendor shall insure that all system passwords shall be safeguarded and resettable under FAX control, and that no “back doors” or means of unauthorized entry are designed into the system. All system default passwords shall be required to be changed to user specific passwords upon system implementation.</li> <li>– High decibel (&gt;100db at a distance of 20 feet) alarm sounds when shock or vibration is detected</li> <li>– Real-time alarm notifications to central office conveyed through the network identifying the unique ID of the machine and type of alarm triggered</li> <li>– Electronic ID tracking access for any removal or ticket replacement, coins and dollar/note modules. Support for any door open access via ID tracking (Unauthorized access without Electronic ID validation will trigger the high decibel alarm)</li> <li>– Convenient and secure smart card ID employee access control with four-digit PIN</li> <li>– Issuance of a printed receipt upon user’s request for Bank Card transactions and Ticket/Card fare value added or Trade-in for security inspection purposes</li> </ul>	A	<p>Methodology items (i) through (v) to be addressed at design review. Briefly: (i) Data integrity during transmission assured through checksum and similar; in storage through use of nonvolatile memory. (ii) Data loss mitigated by combining real-time transmission of transaction and event data to TVM with local persistence – data always exists in two places. Optionally, TVM data can be archived locally to flash drive. (iii) Meaning of “data cross checking methodology” unclear. (iv) PCI compliance protects against fraudulent cashless transactions. (v) CDS broadcasts time/day, fare table, firmware updates, etc., to all or some field devices as desired. Virus protection a planned future upgrade.</p>
<ul style="list-style-type: none"> <li>– All data encryption is to be based on the U.S. NIST 197 open standard which implements Advanced Encryption System (AES) at 128 bits. This encryptions method will transcend the TVM, Validator Mobile Device communications, EMV Bank Cards and all electronic smart card media.</li> </ul>	Y	
<ul style="list-style-type: none"> <li>– The TVM shall have a security camera embedded behind the security glass of the front door. This camera shall be used to track a</li> </ul>	Y	<p>Base-bid TVM to be furnished with door-mounted camera;</p>

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patron purchasing a ticket, as a customer service help tool, for added patron security and as an indicator to put the TVM in sleep/wakeup mode.		interior camera for use during servicing available as extra-cost option. Camera output sent via router to agency-provided remote location, not stored or processed locally. Camera-based sleep/wakeup operation not supported.
– The TVM shall be PCI and EMV compliant	Y	
<p><b>2.2.2 FAX Fare Media and Bank Cards</b></p> <p>The TVMs are to be designed to support pre-encoded smart card fare media issuance and acceptance capabilities, as well as, encoding magnetic tickets offering FAX with an order of flexibility as it transitions into a broader array of cost effective fare media offerings. Existing Tokens and Printed Paper tickets will be supported with acceptance and trade-in functions. Bank cards will be EMV/EMVCo compliant and issued from a third party, not FAX or the Contractor/Vendor. The Contractor/Vendor will need to accept such bank cards within the TVM and PoS terminal systems as described in the TVM and PoS requirements.</p> <p>Note: Also see Section 2.6 for Magnetic and smart card fare media encoding/print device requirements.</p> <p>– Having an integrated fully compliant ISO/IEC 14443:2016 contactless proximity coupling reader (PCD) supporting a full range of dual sourced proximity integrated circuit cards (PICCs)/contactless smart cards that are fully compliant to ISO/IEC 14443:2016 and NIST 197 AES 128-bit security cryptology, including the following types:</p> <ul style="list-style-type: none"> <li>• Smart cards: DESfire™ EV1, Limited Use, Ultralight™-“C” , CIPURSETM “S” and “L”</li> <li>• Capable of handling 16mil -18mil paper/plastic/composite Limited Use ID1 type cards/ticket in compliance with INCITS/ANSI 410 specification:2015</li> <li>• Capable of handling 30mil full-featured plastic ID1 type smart cards in compliance to ISO 7810-1 and EMVCo.</li> <li>• Magnetic tickets shall be fully compatible and or compliant to the Genfare™ - Odyssey™ farebox ticket specification such as, 10mil ID1 type paper tickets presently being used by FAX</li> </ul> <p>– Pre-encoded Smart Cards: Each magazine will hold a minimum of 1,000, 30 mil thick ID1 cards or, 1,200 16-18 mil (Limited Use ID1 X,Y type)</p> <p>– The Limited Use Smart cards must pass the stacker and flexibility test and follow the requirements of ANSI/INCITS 410:2016 standard, inclusive of the following critical card performance requirements, as follows:</p> <p>i. The Limited Use smart card(s) shall not in any manner stick or adhere to each other (known as the block effect), while stored and or</p>	A	<p>TVM currently supports DESFire, Ultralight. TVM can accept and validate token in <b>coin mech</b>. TRiM cassette can hold 1,500 10-mil magnetic tickets or ~800 18-mil paper smart cards. In lieu of specified requirements Genfare will supply a media specification.</p> <p>Not negotiable. Genfare must follow specification.</p>



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<p>stacked in the magazine within the TVM or while in storage with a temperature range between 10o F and 120o F with non-condensing humidity of between 10% and 95%</p> <p>ii. The card supplier is to ensure to the Contractor/Vendor that the card flexibility testing was performed with successful results whereby, the cards will remain fully functional (physically and electrically) after being subjected to multiple ending/flexing cycles</p> <p>iii. The Contractor/Vendor’s selected smart card media supplier is to ensure the Contractor/Vendor and in return FAX, that they have run successfully both of these important tests along with the other test required in the ANSI/INCITS 410 standard</p> <p>iv. The Limited Use cards must fully operate between 10o F and 120o F at 95% humidity.</p> <p>v. The Limited Use cards must fully operate and show no physical or cosmetic damage after being stored in an environment between 10o F and 120o F at 95% non-condensing humidity for a period of not less than three (3) years</p> <p>vi. The Limited Use card will have a protective thin ploy film or non-adhesive type thin vanish layer applied to protect and extend the card life from environmental conditions, in particular rain, UV light and or ice</p> <p>– Card Graphics Package to be pre-printed onto the Limited Use smart cards using a four (4) pass/type color printing method on both the front and backside of the cards. The card graphics package will be supplied by FAX no less than 90 days prior to the TVM start of installation date, per the project schedule and or upon an earlier request formally in writing made by the Contractor/Vendor, provided a 90 day graphics package turn around by FAX</p>		
<p>– The Limited Use Smart card fare media will have a warranty period not less than six (6) months in Use card life, (Warranty period starts at date of TVM issuance to rider)</p> <p>– The Limited Use Smart card fare media will have a warranty period not less than three (3) years in Storage card life, (Warranty period starts at date of TVM issuance or FAX sales issuance to rider)</p> <p>– Magnetic Tickets: Each magazine will hold a minimum of 1,500 10mil ID1 tickets or 2,000 tickets if roll feed type</p> <p>i. The magnetic tickets will be have pre-printed FAX approved graphics in compliance to the existing and issued FAX provided graphics package unless otherwise stipulated by FAX, giving the Contractor/Vendor no less than 90 days in advance of any new card order</p> <p>ii. The magnetic ticket shall be coated with a thin protective film as so stated by FAX (providing added environmental protection). FAX Tokens will be accepted and captured for trade-in for another type of fare media (Paper Proof of Payment Ticket) to gain access to the BRT-TVM FCS</p> <p>– FAX 10-Ride magnetic tickets will be accepted for trade-in to another</p>	A	<p>Useful life of LU smart cards varies depending on treatment by card holder. Genfare does not advise use of LU cards more than 60 days after issuance. In lieu of specified requirements Genfare will supply a media specification.</p>

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<p>type of fare media (Paper Proof of Payment Ticket), by deducting one ride and issuing the Paper ticket and returning the magnetic card to the user with one ride deducted remaining ride balance</p> <ul style="list-style-type: none"> <li>– The Magnetic ticket fare media will have a warranty period not less than two (2) months in Use card life, (Warranty period starts at date of TVM issuance or FAX sales issuance to rider)</li> <li>– The Magnetic ticket fare media will have a warranty period not less than three (3) years in Storage card life, (Warranty period starts at date FAX accepts receivership)</li> <li>– Printed Paper Tickets (Both token trade-in and single ride or round trip tickets)</li> </ul>		
<ul style="list-style-type: none"> <li>– Use of up to two (2) double printing units in a thermal process and pick-up for 4 ticket rolls 4) Printing unit with pick-up for up to two (2) paper rolls (depending on final dispensing configuration) to support receipts and paper proof of purchase tickets</li> </ul> <p>Note: A time/date valid magnetic 31-Day Pass will be considered proof of payment upon surrender to the BRT-TVM FCS fare enforcement inspector.</p>	A	<p>We are uncertain what is meant by “double printing units.” Standard TRiM uses die-cut stock, not roll-fed. We are happy to discuss during negotiations.</p> <p>Clarified by FAX. Accepted by Genfare.</p>
<p><b>2.2.3 Initial Fare Media and Spares Supplied</b></p> <p>FAX is requiring the Contractor/Vendor to supply a quality of card product to populate the TVMs upon final installation and secondly deployment, to supply sufficient fare media spare quantities to last FAX for a period of no less than 90 day after the “Go-live” date per the agreed upon schedule. Any quantity of cards/tickets or receipt paper used by the Contractor/Vendor prior to this Go-live date for the purposes of testing, sample issuance, system acceptance, etc., are the responsibility of the Contractor/Vendor and are not to be subtracted from the initial spares quantity. The quantities as so stated below are minimum quantities and may be increased if mutually agreed upon by FAX and the Contractor/Vendor.</p> <ul style="list-style-type: none"> <li>– Quantity of 500,000 Limited Use pre-encoded smart cards having a data user memory capacity size of no less than 256 bytes and no more than 1K bytes with AES supported encryption security, constructed of paper with a protective poly-vinyl finish having a coefficient of friction value suitable to the dispensing requirements of the TVM supplier’s magazine feeder mechanism. The smart cards will be pre-encoded with the following value:             <ul style="list-style-type: none"> <li>• 350,000 pre-encoded 10 Ride Cards</li> <li>• 150,000 Pre-encoded 31 Day Pass</li> </ul> </li> <li>– Quantity of 125 rolls (if roll feed is implemented) or 250,000 magnetic tickets suitable to be dispensed and in full requirements of the TVM supplier’s magazine or roll-feed units and accepted by the existing Genfare-Odyssey™ farebox. Encoded ready for either a single ride/trip or round trip ride</li> <li>– Quantity of 260 rolls of Receipt Paper suitable to be in full</li> </ul>	Y	

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compliance to the TVM supplier's requirements – Delivery schedule of cards/tickets to be delivered throughout the term of Contract will be finalized during Final Design Review Trademarks: - Mifare, Ultralite and Desfire are trademarks of NXP Corporation - CIPURSE is a trademark of the OSPT (Open Standards for Public Transportation)		
<b>2.2.4 Cash Acceptance</b> The TVM will have integrated an easily serviceable Coin acceptor/verifier which, includes a coin insertion mechanism and a verifier to accept only the specified approved Federal Reserve U.S. coins. The coin acceptor/verifier shall identify valid acceptable coins with at least a +99.9% accuracy. The coin acceptor/verifier will contain a coin escrow to return coins inserted by the rider if the TVM transaction is cancelled before a ticket or card product is dispensed. A TVM will also have an integrated easily serviceable Bill/Note acceptor/verifier which includes a note insertion mechanism and a verifier to accept only the specified approved Federal Reserve U.S. notes. The note acceptor/verifier shall identify valid acceptable notes with at least a +99.9% accuracy. In addition to the above general cash acceptance criteria are the following requirements for coin and note acceptance: 2.2.4.1 Coins Acceptance Coins are defined as both U.S. Coin currency and FAX Tokens. – TVM shall be equipped with a coin vault having sufficient revenue service capacity to require servicing no more than once every 48 hours (Under normal daily use) – Accepts and validates coins utilizing the latest validation technology to minimize fraudulent coin acceptance – The coin acceptor/validator shall have a mechanism to return to the rider unacceptable notes – Separate access to cash and maintenance compartments – Double-walled cashbox, armor-plated safe for resistance to theft – Sealed, self-contained and motorized compact coin channel and selector – Remote detection of physical attack.	Y	
– Money (Coin & Note) Storage: Shall meet minimum EN 14450 Level 2 certified – The ticket and coin return bins shall be illuminated with LED lights. – The coin acceptor/verifier shall be equipped with a coin return capability – The coin acceptor/verifier will accept the following coin types: <ul style="list-style-type: none"> <li>• Nickels</li> <li>• Dimes</li> <li>• Quarters</li> <li>• Sacagawea, Susan B. Anthony (SBA) and the Presidential dollar)</li> </ul>	A	Vendstar revenue security not tested to EN 14450 but unit has shown high resistance to vandalism and fraud based on ~800 units in service at multiple agencies. Vendstar can accept Sacagawea and SBA dollar coins but not Eisenhower dollar. Accepted by FAX.

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<p>– The TVM via the coin handler will accept FAX Tokens for trade-in and issuance of a Paper Ticket to be used for visual inspection once on the BRT-TVM FCS buses. (One Token trades-in for a “One trip” Printed Paper ticket)</p> <p>– The coin handler is to return change in the amount not to exceed \$10.00 for coin or note transactions</p> <p>– Coin acceptor/handler and or its controller will monitor the status of the coin vault/tubes to determine a “nearly full capacity” or “Nearly Low Coin Tube” or Jam indication for an early alert message to the CDS for immediate revenue servicing of the coin handlers and or vault/tubes in advance of a no coin type indicator, in addition:</p> <p>i. The quantity of coins remaining in the hopper is tracked by the TVM software (and sent up to the CDS within 120 seconds of new data) and by the hopper’s low-coin sensor providing sample notification to maintenance personnel as to when refilling is required</p> <p>ii. The coin and note/bill insertion shutters shall open automatically when vaults are inserted and close automatically when the vaults are removed</p> <p>iii. The coin and note/bill vaults shall be self-locking and self-sealing, so that when they are removed from the TVM, they cannot be opened locally or re-inserted in a TVM without emptying the contents of the vaults through authorized means.</p>		
<p><b>2.2.4.2 Note/Bill Acceptance</b> Each TVM shall be equipped with a note processing unit that includes a note validator/verifier, bill escrow, bill vault, and the associated electronic assemblies. The note processing shall have a first insertion bill acceptance of greater than or equal to 95%. The note processing unit shall also meet the following requirements:</p> <p>– Accepts and validates notes utilizing the latest validation technology to minimize fraudulent note acceptance</p> <p>– The note acceptor/validator shall have a mechanism to return to the rider unacceptable notes</p> <p>– The Note vault having sufficient revenue service capacity to require servicing no more than once every 48 hours (Under normal daily use)</p> <p>– The note acceptor/verifier will accept the following note denominations:</p> <ul style="list-style-type: none"> <li>• \$1</li> <li>• \$5</li> <li>• \$10</li> <li>• \$20</li> </ul> <p>– Note acceptor/handler and or its controller will monitor the status of the bill vault to determine a “Nearly Full Capacity” or Jam indicator for an early alert message to the CDS to advise of immediate revenue servicing of the Note Handler/Bill vault.</p>	Y	<p>Base-bid TVM can store 1,000 bills; high-capacity bill validator capable of storing 2,000 bills available as extra-cost option.</p> <p>Accepted by FAX.</p>
<p><b>2.2.5 Data Collection</b> The TVM is to feature multiple payment methods to purchasing a</p>	Y	

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<p>ticket/card to gain access to the BRT-TVM FCS system, as well as, the FAX existing Bus system. Both credit and debit bank issued cards will be accepted (Visa, Master Card with the option to add American Express and Discover cards) along with cash (U.S. Coins and Notes). All transactions will be recorded and sent to the back office (CDS) for account recording and issuance of consolidated reports to manage the fare collection system (Including balance sheets, individual card issuance records/transactions and fraudulent activity reports).</p> <ul style="list-style-type: none"> <li>– Accepts major credit and debit cards via Ethernet or supported secure fiber optic network</li> <li>– Integrates a contact and EMV contact compliant/certified reader</li> <li>– Integrates a contactless EMVCo contactless compliant reader that is also OSPT open standards compliant with ISO/IEC 14443:2016 compliance</li> <li>– Credit and Debit card acceptance to be in compliance with EMVCo:2016 and PCI:2016 requirements. (See Appendix-B for more detail)</li> <li>– Personal payment information including bank and credit card numbers shall not be stored in the TVM or the CDS. Other methods for transaction accounting such as authorization numbers can be stored in the TVM and the CDS for the purposes of matching corresponding transactions for auditing purposes</li> <li>– Records individual sales/transaction events and cumulative totals</li> <li>– Consolidates transactions and events in a central database and uploads data to central office (CDS)</li> <li>– Offers standard and customer reporting capabilities</li> </ul>		
<p><b>2.2.6 TVM Central Data System (CDS) Requirements</b> The TVMs shall be provided with a Central Data System (CDS) connection which shall be a web-based back office system software approach that shall serve the following purposes:</p> <ul style="list-style-type: none"> <li>– Monitor and bi-directionally communicate to each individual TVM and Validator including, but not limited to sending alerts for any faults or failures of any individual TVM or Validator including;</li> <li>– Allow the agency to modify and change operation parameters (fare tables, ticket types, User Interface, messages to patrons, etc.);</li> <li>– To reset alerts and sensors remotely</li> <li>– Allow the Agency to have the capability to download software configuration upgrades</li> <li>– Clearing functionality for credit card transactions</li> <li>– Collect and store transaction data</li> <li>– Provide the agency personnel, operational, maintenance, transaction and financial reports needed to efficiently monitor and manage the TVMs; and provide data back-up and recovery</li> <li>– Have the option to support image/video data up load and download in compressed formats such as MPEG and JPEG</li> <li>– Autoload capabilities of downloadable smart card value but, not a</li> </ul>	A	<p>Video data upload/download in compressed formats not supported. Unprocessed camera output transmitted via router to agency-provided location. CDS is based on Version 7 data system and is not web based.</p> <p>Accepted by FAX.</p>

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functional requirement to either the TVM or Validator.		
<p><b>2.2.7 User GUI Requirements</b> For the layout of the customer GUI, including the touch screen soft and side mount hard keys display; the CDS shall provide a user interface and be able to design/modify the user interface for the TVMs using HTML coding. The CDS interface for the TVM customer interface shall provide the following functions:</p> <ul style="list-style-type: none"> <li>i. Configuration of screen views;</li> <li>ii. Colors and operating processes;</li> <li>iii. Creation of ticket types and ticket layouts; and</li> <li>iv. Import of prices and relational tables</li> <li>v. Configure general FAX system maps and user information</li> </ul>	A	<p>Configuration of screen views, etc., is provided by Genfare system support and pushed to CDS in consultation with agency. TVM works with buttons and not touch screen.</p> <p>Accepted by FAX.</p>
<p><b>2.2.7.1 The CDS shall be able to perform the following required functions:</b></p> <ul style="list-style-type: none"> <li>i. Obtain status information (cash status, paper supply, card magazine, etc.)</li> <li>ii. Transfer and install fare updates,</li> <li>iii. Generate sales information,</li> <li>iv. Set up users and assign roles,</li> <li>v. Map and implement role-based actions in accordance with defined hierarchies (e.g. SMS to the service engineer when paper runs out)</li> <li>vi. Perform remote maintenance access,</li> <li>vii. Perform software updates,</li> <li>viii. Conduct problem analyses,</li> <li>ix. Provide on-line access,</li> <li>x. Overview of service removal (status of data queries transferred to the background software); Cash data (cash status of the ticket machine components coin carousel, coin hopper, bill acceptor and coin vault)</li> <li>xi. Sales data for the TVM(s) within a specified period</li> <li>xii. Sales data on ticket level</li> <li>xiii. Device-related events (e.g. alarm messages, paper empty or print problems, etc.).</li> <li>xiv. All reports shall be able to be issued in various export formats and transferred to commonly used software tools. Data exchange between the CDS server and the TVMs shall be carried out automatically. Recurring events such as service calculations at the end of the month shall be able to be set up once and be carried out automatically.</li> </ul>	Y	
<p><b>2.2.8 Report Generator</b> The CDS shall allow the creation of various independent freely selectable reports (e.g. line analyses, type statistics etc.) with export options to subsystems whereby the statistics requested are provided in full through the CDS software. There shall be no less than ten (10) new reports to support the added TVM system. These ten reports will be defined and or pre-approved during the PDR phase by the FAX IT staff. The following are the suggested reports at minimum that must be</p>	Y	



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<p>supported:</p> <p><b>2.2.8.1 Standard Analysis Reports</b> The following standard reports (at a minimum) shall be provided:</p> <ul style="list-style-type: none"> <li>i. Maintenance analysis per device;</li> <li>ii. Sales per fare and type;</li> <li>iii. Sale complete;</li> <li>iv. Sale complete with price levels;</li> <li>v. Sale by payment types and price levels;</li> <li>vi. Sale per device with price levels;</li> <li>vii. TBD</li> <li>viii. TBD</li> <li>ix. TBD</li> <li>x. TBD</li> </ul>		
<p><b>2.2.8.2 Standard Analysis “Control” Reports</b> The following standard control reports (at a minimum) shall be provided:</p> <ul style="list-style-type: none"> <li>i. Control of workshop sales;</li> <li>ii. Control of device accounting;</li> <li>iii. Control of individual overview of sales for a device;</li> <li>iv. Control of credit card purchases.</li> </ul> <p>The CDS shall be able to create various independent freely selectable reports (e.g. line analyses, type statistics etc.) with export options to other FAX subsystems. All reports shall be able to be initiated manually.</p>	Y	Unclear what is meant by “workshop sales.” We report sales per TVM.
<p><b>2.2.9 User/Rider Interface</b> The TVM User’s/Rider’s Graphical Users Interface (GUI) environment shall be sourced and downloaded from the CDS and is to be reasonably intuitive to comprehend and use by the vast majority of the general public interacting with the TVM to perform the ticket/card purchase in less than 60 seconds; a 3-step or less GUI is required for user’s simplification and transaction duration experience minimization. In no case, shall a transaction to purchase a ticket take more than 75 seconds (Not counting undue user hesitation time). The TVM transaction functions will include the following but, may be added to in the future:</p>	Y	
<p><b>2.2.9.1 TVM’s General Transaction Functions List:</b></p> <ul style="list-style-type: none"> <li>– To purchase/dispense three types of tickets/cards: <ul style="list-style-type: none"> <li>i. Limited Use 10 Ride</li> <li>ii. Limited Use 31 Day Pass</li> <li>iii. Magnetic single use ticket</li> <li>iv. Magnetic round trip ticket</li> <li>v. Magnetic 10 Ride (if a Limited Use 10 Ride is not implemented)</li> </ul> </li> <li>– To purchase/dispense a ticket/card using the following source of funds: <ul style="list-style-type: none"> <li>i. U.S. Federal Reserve approved Coins and Notes</li> <li>ii. To provide a BRT-TVM FCS general route information screen</li> </ul> </li> </ul>	A	<p>Under “source of funds,” the RFP lists “to provide a ... general route information screen.” We presume this is a desired TVM function. The Vendstar front panel provides a holder for a printed passenger information card provided by the agency.</p> <p>Accepted by Genfare.</p>

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iii. Transaction receipt printout selection iv. Card Balance v. Cancel function – User interface is to direct the rider via a step-by-step screen process with color coded bezels and matching selection prompts from the start to finish of the rider’s transaction – Soft and or hard keys shall be implemented with screen prompts to the rider instructing them to accomplish the next step		
<b>2.2.9.2 CDS sourced GUI Functions</b> For the GUI layout of the customer user interface, including the touch-screen/hard keys display, the CDS shall provide a downloadable GUI and be able to design/modify in the future, the user interface for the TVMs. The CDS GUI for the TVM customer interface shall provide the following functions: <ul style="list-style-type: none"> <li>• Configuration of screen views;</li> <li>• Colors and operating processes;</li> <li>• Creation of ticket types and ticket layouts; and</li> <li>• Import of prices and relational tables.</li> </ul> – The CDS shall be able to perform the following functions: <ul style="list-style-type: none"> <li>• Obtain status information (cash statuses, paper supply etc.)</li> <li>• Transfer and install fare updates,</li> <li>• Generate sales information,</li> <li>• Set up users and assign roles,</li> <li>• Map and implement role-based actions in accordance with defined hierarchies (e.g. SMS to the service engineer when paper runs out)</li> <li>• Perform remote maintenance access,</li> <li>• Perform software updates,</li> <li>• Conduct problem analyses,</li> <li>• Provide on-line access.</li> <li>• Overview of service removal (status of data queries transferred to the background software);</li> <li>• Cash data (cash statuses of the ticket machine components coin carousel, coin hopper, bill acceptor and coin vault);</li> <li>• Sales data for the TVM(s) within a specified period;</li> <li>• Sales data on ticket level;</li> <li>• Device-related events (e.g. alarm messages, paper empty or print problems, etc.)</li> </ul> – All reports shall be able to be issued in various export formats and transferred to commonly used software tools. Data exchange between the CDS server and the TVMs shall be carried out automatically. Recurring events such as service calculations at the end of the month shall be able to be set up once and be carried out automatically.	A	Configuration of screen views, etc., is done by Genfare system support and pushed to CDS in consultation with agency. TVM works with buttons and not touch screen.  Accepted by FAX.
<b>2.10 Maintenance and Support</b> The TVM will be designed in a manner that provides for easy access to reloadable components and for easy component failure replacement. The goal set forth is to minimize downtime as a result of	A	Unclear what is meant by “60 minutes, 98% of time over a period of 30 days of failure reports.



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<p>a failure reported, to no more than 60 minutes, 98% of time over a period of 30 days of failure reports. General preventative maintenance should not take more than 30 minutes. PM Ticket and receipt paper reloading and cash retrieval shall not exceed 20 minutes once door is open.</p> <ul style="list-style-type: none"> <li>– Low maintenance service and quick site visits to meet FAX serviceability time requirements</li> <li>– Generates audit tickets/CDS reporting to follow module replacement</li> <li>– Easy access to any serviceable air filters</li> </ul>		<p>Compliant in other respects.</p> <p>Accepted by FAX.</p>
<p><b>2.11 Special Features and Considerations</b> These are features/components/devices/media to be provided by the Contractor/Vendor/Contractor:</p> <ul style="list-style-type: none"> <li>– A Wooden or Heavy Canvas covering to protect the TVMs during the initial install period and until the system “Go-live” date. This covering must be non-descriptive and capable of mitigating vandalism and damage to the equipment. This Cover will have a method to locking it preventing easy removal by unauthorized persons</li> <li>– It may be necessary to upgrade the Odyssey farebox smart card reader and control board to achieve a highly-secure fare media implementation that is in compliance with ISO/IEC14443:2016 specifications. (This must be technically explored with Genfare to determine if an upgrade is necessary)</li> </ul>	N	
<p><b>2.12 Station Platform Validator Specifications</b> The Vendor/Contractor will supply sixty (60) Validators (Possibly more than one per stations) and sixty (60) Mounting poles plus spare Validators (See Spares Section-6). The Power used to power the Validators will be low voltage DC to prevent a remote possibility of user electrical shock in case of mounting failures (Vandalism or other). The source of the +36 VDC will be from the TVM or optionally from a separate station DC power source.</p>	A	<p>To reduce cost and simplify installation, we propose to mount validator on one or optionally both sides of TVM. Genfare will be happy to discuss a standalone validator during negotiation.</p> <p>Accepted by FAX.</p>
<p><b>2.12.1 Operational Power</b></p> <ul style="list-style-type: none"> <li>– +24-36 Volts DC (VDC) @ maximum 2.5 Amps with no greater than 1.5 m-volts peak-peak ripple under full load. The Power supply will have an over current and temperature protection circuits.</li> <li>– All power cables and connections will be contained and therefore, routed through the center of the provided mounting pole</li> <li>– Power source must be protected with an uninterruptible power system (UPS) device that will supply no less than 30 minutes of sustained power during a power outage</li> <li>– The 36 VDC will be sourced from the TVM</li> </ul>	A	<p>The design will be consistent with device specification agreed on 2.12</p> <p>Accepted by FAX.</p>
<p><b>2.12.2 Operational Communications</b> The Validator will be capable of communicating with both Ethernet and Wi-Fi. The validator will in addition to its prime validation function, also act in the capacity of a mobile inspection data device download and upload relay station to the TVM.</p> <ul style="list-style-type: none"> <li>- Ethernet type operating with no less than 50 Mb/second</li> </ul>	A	<p>The validator is designed to work with both Ethernet and Wifi, however it is not designed to handle a relay function. The design will be consistent with device specification agreed on</p>

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<ul style="list-style-type: none"> <li>- CAT5E or 6 type (preferred) cable to be used connected via an industrial RJ45 connector</li> <li>- All communications cables to be routed through the center of the mounting pole</li> </ul>		<p>2.12</p> <p>Accepted by FAX.</p>
<p><b>2.12.3 Operational Environmental</b> Validator will operate in an outside semi-sheltered environment with partial sun, rain and wind exposure, meeting the following requirements.</p> <ul style="list-style-type: none"> <li>– Temperature range of +20F to +120F at 95 percent non-condensing humidity</li> <li>– Operate in an outside environment under partial canopy</li> <li>– Designed to operate in partial rain, wind and sun exposure</li> <li>– Water resistant to a minimum of 40psi water spray</li> <li>– MCBF of 30,000</li> <li>– Component life cycle of 10 years</li> </ul>	A	<p>Water resistance and reliability dependent on functionality to be provided. See next section.</p> <p>FAX to hold to 40 PSI test on validator.</p>
<p><b>2.12.4 General Mechanical Features</b> The Validator shall be designed in a manner that is suited for a permanent outdoor top-sheltered placement and use environment. The design should support under normal outside use conditions, a minimum 10 year life cycle before replacement (Individual internal components will have a lesser life cycle expectancy).</p> <ul style="list-style-type: none"> <li>– Read/Write and Validation of a ISO/IEC 14443:2016 compliant smart card within 350 milliseconds. (Value to be deducted and event time and date stamped, transaction considered complete before final transmission to either the station platform computer (TVM actor) or the CDS</li> <li>– Designed to be easily upgraded to support Near Field Communications (NFC) per the latest ISO/IEC 18092 standard</li> <li>– Each validation transaction to be assigned a unique ID number with transaction data and sent to the back office (CDS)</li> <li>– Read/Write and Validation of a magnetic ticket in compliance with existing Odyssey™ farebox magnetic ticket acceptance</li> <li>– The actual Validator cabinet to be constructed of high-impact plastic with a protective metal bumper frame</li> <li>– Cabinet dimension shall be in excess of the following dimensions:                             <ul style="list-style-type: none"> <li>• Height: 11.0 inches</li> <li>• Width: 6.0 inches</li> <li>• Depth: 5.0 inches</li> <li>• Weight: less than 6.0 lbs</li> </ul> </li> <li>– Protective bumper frame shall extent no more than 1.0 inches from any edge of the Validator cabinet</li> <li>– Graphics at the smart card Validator active touch area will be clearly marked with FAX provided pre-approved graphics</li> <li>– The active touch area and labeling graphics will not exceed the ISO-7810-1 "ID1" dimensions by more than 10% nor be any smaller than the dimension of an ID1 card dimension</li> </ul>	A	<p>Smart card validation requires 500 milliseconds.</p> <p>We propose that magnetic read/write validation be provided by TVM only, not validator. Incorporating TRiM into validator would increases bulk and expense, reduce reliability and water resistance due to mechanical complexity and need for card slot.</p> <p>Validator to be mounted to side of TVM, eliminating need for mounting pole.</p> <p>FAX will accept auto load at 500 max milliseconds and 350 milliseconds for all other transactions.</p>

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<ul style="list-style-type: none"> <li>– Each Validator will be pole mounted on the station’s concrete platform and will be designed in a manner to comply with the U.S. American with Disabilities Act:2010</li> <li>– Each mounting pole will be constructed of 10 gauge 304 stainless Steel with a surface finish resistant to vandalism/graffiti (Powder coated if color is pre-approved by FAX)</li> <li>– Each mounting pole will be no less than 6.0 inches in diameter</li> <li>– Transactions batched or not will be sent to the back office CDS no more than once each 5 minutes</li> <li>– The Validator will store no less than 500 complete transaction events in case of a communication outage</li> <li>– The Validator will have a LCD display no less than 2 inches by 4 inches and visible with indirect sunlight and nighttime viewing</li> <li>– Having no less than three auditable (adjustable) tones at a sound level of no less than 65db</li> </ul>		
<p><b>2.12.5 Functional Features</b> The Validators will be of one type having full ADA compliance and capable of reading a smart card of multiple types. Having the following functional requirements:</p>	Y	
<ul style="list-style-type: none"> <li>– The validator will read and write multiple smart cards types per the Fare Media section of this document and perform a validation of each card presented in the active field.</li> <li>– Passback usage will be supported allowing for the 10 Ride and value based riders to retouch allowing additional riders (family &amp; friends) to gain system access. Each touch will deduct one-ride value</li> <li>– The Validator shall read the smart card presented in the active field by no less than 5.0cm or 2.0 inches in distance from the card’s surface to the Validator’s surface (parallel to each other)</li> <li>– Card validation will be performed once a patron/rider brings card into the active field, as follows: (Contractor/Vendor may execute this validation transaction sequence differently)               <ol style="list-style-type: none"> <li>i. Initialization of ISO/IEC 14443 communications protocol (Verify the CID)</li> <li>ii. Mutual authentication of the security keys (Does the card belong to the read)</li> <li>iii. Issue patron audio signal that card was read</li> <li>iv. Verification Application executed;</li> <li>v. Read card UID</li> <li>vi. Read card stored date (If stored Value)</li> <li>vii. Deduct one ride (Value)</li> <li>viii. Rewrite card with new value deducted</li> <li>ix. Verify read/write new value</li> <li>x. Issue patron message (completed or failure) to Validator’s display with audio tone</li> <li>xi. Terminate validation transaction</li> <li>xii. Report transaction to CDS if no other card in the active field activity</li> </ol> </li> </ul>	Y	<p>Last 10 card uses encoded in card journal file; if passback protection disabled for stored ride/value cards, journal can be checked by inspector using HTID to confirm multiple riders were tapped on using same card.</p>

RFP REQUIREMENT	Comply ?	Remarks
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occurs within 3 seconds of the previous transaction		
<p><b>2.13 Handheld Ticket Inspection Device (HTID)</b> The BRT-TVM FCS system requires the Limited Use Card purchased by the rider to be pre-validated on the Station Platform prior to boarding the BRT-TVM FCS. This procedure is being implemented to improve upon bus boarding time. Since this is a non-gated, non-farebox system the card/ticket validation step is for the most part based on the “honor system”. To ensure that the honor system stays relevant and that revenue earned is collected, it is essential to randomly inspect the smart cards for pre-validation once on the BRT-TVM FCS bus. This task of inspection will be transit police, outsourced police/sheriff or outsourced security inspectors. Each inspector will be equipped with a handheld inspection device (HTID) capable of reading a smart card. The magnetic and paper tickets will be visually inspected and punched (if required). All Paper tickets and magnetic tickets will be visually inspected.</p> <p>The Contractor/Vendor is to supply a quantity of twelve (12) HTIDs including twelve (12) charge stations operating from 117 VAC to sufficiently staff the fare enforcement inspectors on the BRT-TVM FCS system. These unites will only be repaired and or refurbished by the Contractor/Vendor or its supplier. Therefore, no repairs will be done in the field outside of replaceable batteries. The Contractor/Vendor will supply spares (See Spares Section-6).</p>	A	<p>The design will be based on a cell phone product, therefore capability is governed by commercially available cell phone product. While the necessary operational requirements would be met, the details will need to agreed on during design review</p> <p>Accepted by FAX.</p>
<p><b>2.13.1 The HTID device will include the following configuration and features</b></p> <ul style="list-style-type: none"> <li>– HTID will be constructed from high-impact plastic resistant to a 36" drop onto a concrete surface, protecting the device from any form of failure or damage.</li> <li>– HTID shall have an integrated daylight viewable 2.25 inch diagonal LCD color display</li> <li>– Shall integrate a keyboard/control pad capable of supporting all inspection features specified</li> <li>– Shall have trained agency staff replaceable Ni-Cad or standard Lithium-Ion batteries capability</li> <li>– Shall have Wi-Fi internet and Bluetooth wireless connectivity (Backup USB port may be required);               <ul style="list-style-type: none"> <li>i. The Wi-Fi will have the ability to communicate bi-directionally with the Validator and or TVM at each BRT-TVM FCS station</li> <li>ii. A Wi-Fi connection established at the platform stations will permit the downloading and uploading of data, configuration and general image and data information to and from the HTID</li> </ul> </li> <li>– Shall have an integrated color camera of no less than 5 mega pixels capable of focusing between 5.0 inches and 144.0 inches with a night photo capability</li> <li>– HTID will operate on rechargeable batteries with a operational cycle duration of 12.0 hours on a full charge or 1,000 transactions from a</li> </ul>	A	<p>The HTID will be based on a commercially available smart phone and its capabilities will be consistent with those of the selected device. Core operational requirements will be met but details will need to be agreed on during design review</p> <p>Accepted by FAX.</p>

RFP REQUIREMENT	Comply ?	Remarks
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<p>power plug in cradle (Charge stations).</p> <ul style="list-style-type: none"> <li>– An off/on power switch, as well as, a card/ticket inspection read enable switch will be included</li> <li>– A minimum of three audible tones will be provided to signify an inspection transaction has occurred, passed or failed.</li> </ul>		
<ul style="list-style-type: none"> <li>– HTID will not weigh more than 14.0 ounces and will have cabinet/case dimensions of no greater in any axis, as follows: X: Height:6.0 inches Y: Width: 3.0 inches Z: Depth: 1.0 inches</li> <li>– Shall have an integrated fully compliant ISO/IEC 14443 reader(PCD) that will accept and process newly implemented FAX smart cards issued from the BRT-TVM FCS-TVM</li> <li>– HTID will have sufficient memory/storage to hold no less than 1,500 inspection transactions before an uploading event is performed to the CDS system</li> <li>– Shall have an optional 4g/5g cellular mechanism to communicate if Wi-Fi connections are not available</li> <li>– Shall have an integrated or remote portable wired or Bluetooth (preferred) connected printer unit, printer shall be thermal type with a standard paper width of no less than 1.75 inches and no greater than 2.25 inches, weighing no more than 0.75 lbs and small enough to be securely belt clipped.</li> </ul>	A	<p>5g not yet commercially available. Accepted by FAX. 5G is available.</p>
<p><b>2.13.2 HTID Inspection Functions</b></p> <p>The HTID will not have the ability to write data to a rider's contactless card/ticket and therefore, will only read the card to determine if it has sufficient fare and that card/ticket was pre-validated, as follows:</p> <ol style="list-style-type: none"> <li>i. Initialization of ISO/IEC 14443 communications protocol (Verify the CID)</li> <li>ii. Mutual authentication of the security keys (Does the card belong to the read)</li> <li>iii. Issue inspector audio signal that card was read</li> <li>iv. Verification Application executed;</li> <li>v. Read card UID</li> <li>vi. Read card stored date (If stored value)</li> <li>vii. Issue inspector message (completed or failure) to HTID's display with audio tone</li> <li>viii. Terminate validation transaction</li> <li>ix. Report transaction activity file to CDS via the Wi-Fi at the station or relayed from the platform Validator's or TVM's</li> <li>x. Having a printer selected feature to command the printer to print the following: receipt, transfer or one ride/one day paper ticket.</li> </ol>	Y	
<p><b>2.14 Point of Sale Machine/Printer Encoder Machine (PEM)</b></p> <p>A desk top standalone Point of Sale (POS) system to enables service agents/operators to issue and upgrade both smart cards and magnetic</p>	A	<p>We will provide PEM similar to those now in service at FAX.</p>

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<p>tickets/cards; prints sales receipts, and prints on magnetic ticket stock the time/date and type of fare product information. FAX is presently using a limited number of Genfare PEM systems and would like to continue to use a system either the same or highly similar in size, functionality and user interface, as follows:.</p>		
<p><b>2.14.1 Operational Power</b> The primary source of AC power will be from Pacific Gas and Electric Company (PG&amp;E) whereby, the PEM/PoS system must operate within all PG&amp;E power tolerances. – General environmental, footprint, operational, storage and security requirements:</p> <ul style="list-style-type: none"> <li>• 117 VAC/60 Hz single phase at 15 Amps maximum (1,775 watts) at a VAC tolerance of +/- 5%</li> <li>• Storage Temperature: -20o F to +150o F</li> <li>• Operating Temperature: 32o F to +120o F</li> <li>• Humidity (Operation): 10% to 95% (non-condensing)</li> <li>• IP 54 Rated</li> <li>• Vibration Testing: 3 axis testing, 24 hours</li> <li>• Electromagnetic Interference: FCC, Part 15 A and B</li> <li>• Markings: shall meet EN 12414-compliant</li> <li>• Money Storage: minimum EN 14450 Level 2 certified</li> <li>• Fraud-resistant providing user unique recorded ID login-in</li> <li>• Separate access to cash and maintenance/service compartments</li> </ul>	A	<p>PEM environmental and other characteristics would reflect those of commercial off-the-shelf hardware used for the device. Posiflex TP8300 series unit would provide functionality substantially the same as FAX's current PEMs – see data sheet included with exhibits at end of this submittal.</p> <p>Genfare to upgrade PEM readers and software.</p>
<p><b>2.14.2 Functionality Requirements</b> The existing and added Pos/PEM units will require interface connectivity to the CDS. A set of no less than four ( 4) reports are to be supported that maintain card type, quantity, encoded value, failed or rejected cards. However, the specific report definition requirement will be pre-approved at the Preliminary Design Review (PDR) Phase by FAX IT staff. Other functionality requirements, as follows:</p> <ol style="list-style-type: none"> <li>i. Allows agents to issue and upgrade smart cards</li> <li>ii. Touch-screen display for ease of use</li> <li>iii. Prints receipts and audits tickets</li> <li>iv. Allows batch mode for bulk issuance of magnetic and smart cards</li> <li>v. System designed to assist off-board sales at designated transit agency locations</li> <li>vi. The customizable system comes standard with the user friendly, color touch screen Printer Encoder Module</li> <li>vii. The system is customizable with a smart card encoder, Limited Use smart card or magnetic dispenser and cash drawer.</li> <li>viii. The customized encoding machine's compact size allows agencies to perform a wide range of activities based upon transit agency needs and operators' request.</li> <li>ix. Supports individual card issuance and batch mode</li> </ol>	A	<p>Unit has been priced on assumption that PEM will be provided with one magnetic TRiM. Development at additional expense needed if LUCG TRiM to be substituted or if both LUCG TRiM and magnetic TRiM to be provided. PEM to be equipped with color touch screen, cash drawer.</p> <p>Genfare to upgrade readers and software.</p>



RFP REQUIREMENT	Comply ?	Remarks
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x. Password-protected login for security xi. Roll-fed printer provides receipts and sales reports		
<b>2.14.3 Sales Functions</b> i. Initialize new card ii. Recharge existing card iii. Record type of payment iv. Record check number and authorization codes v. Review card data vi. Batch encoding vii. Void cards i. Replace lost cards ii. Service and Configuration iii. System status iv. Configuration settings v. Create badges vi. Print reports vii. Communications viii. Ethernet ix. USB memory stick	Y	
<b>2.15 Fare Media Printer/Encoder</b> FAX requires a quantity of four (4) fare media/encoder printers to provide FAX with the ability to issue individual customized magnetic or smart card printing capabilities. The printers must print on standard ID-1 ISO 7810-1 and ANSI 410 Limited Use physical format cards of no less than two thicknesses. The printer must also encode cards that support the Genfare magnetic tickets used by FAX presently and ISO/IEC 14443:2016 compliance including such cards types such as those provided by NXP and CIPURSE specifications. The Specification below was extracted from a well-known printer type (Datacard SR300) that meets FAX's requirements however, another printer type from another vendor if highly similar in feature and function may be acceptable if, pre-approved by FAX management. The following requirements are required:	A	Development to enable Datacard SR300 or other third-party device to produce Genfare-formatted cards would require significant time and expense. Alternatives include (a) bulk encoding of magnetic cards and LU smart cards on PEM – PEM supports manual encoding of 30-mil smart cards only; or (b) bulk smart card encoding using Genfare Link cloud-based central data system. We are happy to discuss alternatives during negotiations.  FAX to buy printer from other supplier.
<b>2.15.1 Datacard SR300 w/ Lam Description</b> Printer/Encoder designed for a desktop or table top secure facility providing: ID card printer, photo ID software, a web camera, cards, consumables ribbon, factory loaded encoding software and a minimum of a two (2) year warranty with life time print head and consumables coverage (Lifetime defined as no less than 20 years).	A	N/A
<b>2.15.1.1 Operational and Foot Print Requirements</b> <ul style="list-style-type: none"> <li>• 117 VAC/60 Hz single phase at 15 Amps maximum (1,755 watts) at a VAC tolerance of +/- 5%</li> </ul>	A	N/A

RFP REQUIREMENT	Comply ?	Remarks
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<ul style="list-style-type: none"> <li>• Storage Temperature: -20o F to +150o F</li> <li>• Operating Temperature: 30o F to +120o F</li> <li>• Humidity (Operation): 10% to 95% (non-condensing)</li> <li>• IP 54 Rated</li> <li>• Electromagnetic Interference: FCC, Part 15 A and B</li> <li>• Markings: shall meet EN 12414-compliant</li> <li>• Foot Print:               <ul style="list-style-type: none"> <li>o Weight: less than 30.0 lbs</li> <li>o Depth: 15.0"</li> <li>o Width: 20.0"</li> <li>o Height: 17.0" with standard tilt, 19.0" full tilt</li> <li>o Angle: 270° monitor swivel</li> </ul> </li> </ul>		
<p><b>2.15.1.2 Functional Requirements</b></p> <ul style="list-style-type: none"> <li>i. Dual-sided reverse transfer ID card printer with lamination ideal for durable, multi-function cards offering vivid image quality</li> <li>ii. Prints and encodes 10 mil to 35 mil ID-1 “X-Y-Z” type card types</li> <li>iii. Print custom holographic lamination for security measures of the card by making it difficult to counterfeit.</li> <li>iv. Print high-quality images on a range of card materials, including PVC, ABS, PET, PET-G, composites and polycarbonate</li> <li>v. The Print laminator provides for: one-sided lamination for 1 mil and 0.5 mil clear laminates, and 1 mil and 0.6 mil custom holographic laminates, as well as applying a clear or custom topcoat to the card to manage the coefficient of friction parameter</li> <li>vi. Security; password login protection</li> <li>vii. Provides encoding of both magnetic and smart cards of two types each (Pre-approved types by FAX)</li> <li>viii. The card printer/encoder will offer the ability to add optional contact, contactless, proximity, magnetic stripe or dual-interface smart cards</li> <li>ix. A system that provides for making secure photo IDs and customized “special” rider card types by training FAX staff</li> </ul> <p>Note: These additional encoding options are ok to be either field upgradeable or factory installed. However, the initial encoding types (pre-approved by FAX) of two magnetic types and two smart card types must be installed before the initial installation at FAX facilities.</p>	A	N/A
<p><b>2.15.1.3 Core Usage/Interface Requirement</b></p> <ul style="list-style-type: none"> <li>i. Interface type: USB cable</li> <li>ii. Operating System: Microsoft Windows drivers CD</li> <li>iii. Power: Provided with cord operational at 117VAC @ 60 Hz, consuming less than 15 amps (1760 watts)</li> <li>iv. Instructional manual</li> </ul>	A	N/A
<p><b>2.15.1.4 Specific Example Datacard SR300 w/ Lam Specifications</b></p> <ul style="list-style-type: none"> <li>• Printing Capability: Single-sided &amp; dual-sided printing</li> <li>• Printing Speeds: (sec/card): &lt;30 seconds (full-color (YMCK) single-</li> </ul>	A	N/A



RFP REQUIREMENT	Comply ?	Remarks
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<p>sided card) &lt;75 seconds per dual-sided full-color (YMCKK) card</p> <ul style="list-style-type: none"> <li>• Input Hopper Capacity: 100</li> <li>• Output Hopper Capacity: 100 100-card reject hopper (required same-side input/output card hopper)</li> <li>• Card Sizes Accepted: CR80 - standard PVC or PET (CR80 is the size of a standard credit card)</li> <li>• Card Thickness Accepted: 10-40 mil</li> <li>• Interface: USB 2.0 &amp; Ethernet • Software Drivers: Microsoft® Windows® 2000, XP, Vista (32-bit) compatible</li> <li>• Warranty: 2 years on printer with lifetime printhead coverage</li> <li>• Weight &amp; Dimensions: 29.5 lbs (13.4 kg), 12.7" x 13.5" x 13.2" (343mm x 322mm x 335mm)</li> <li>• Printer Includes: USB cable Microsoft Windows drivers CD Power cord Instructional manual</li> </ul> <p>Printer Options: Encoding -</p> <ul style="list-style-type: none"> <li>- ISO magnetic stripe</li> <li>- Smart card encoder</li> </ul> <p>Datacard Bend Remedy module (536963-001) [Card cost table omitted]</p>		
<p><b>2.16 (Optional) Mobile Ticketing</b></p> <p>A Brief on implementing a Mobile Ticketing solution is provided in Appendix-C, as a general mobile technology and market awareness document explaining FAX’s present understanding of this new type of ticketing option. This brief is to be considered solely background information to assist the Contractor/Vendor as to FAX’s future intentions. However, the Contractor/Vendor is open to submitting their specific solution to providing a mobile ticketing application that is both technically achievable (by late 2017) and would benefit both the FAX operator and its ridership. The mobile ticketing option for the BRT-TVM FCS-TVM FCS may be considered for implementation as part of this initial RFP implementation or for future implementation. The following is at minimum a specific set of requirements the mobile ticketing solution should consider in providing a solution:</p> <ul style="list-style-type: none"> <li>– A FAX pre-approved mobile ticket application that supports the following functions: <ul style="list-style-type: none"> <li>i. Operationally available for both iOS and Android operating environment and can be easily downloaded by your riders directly from their phone’s App store</li> <li>ii. Mobile Link App, set-up (rider’s account) providing for a simple and intuitive App interface (with the rider having the option to register or not)</li> <li>iii. Trip planning through Google Trip Planner or similar accepted navigation software, which provides point-to-point navigation, geo-location and leads the rider through a trip itinerary</li> <li>iv. Provides real-time schedules and traffic alerts for rider predicted arrival times of the next bus</li> </ul> </li> </ul>	A	<p>We are happy to offer mobile ticketing capability substantially compliant with the indicated requirements as a future option. Mobile tickets would be visually validated by drivers. Electronic validation by farebox would require Odyssey upgrade. NFC validation of mobile tickets not contemplated at this time.</p> <p>Genfare to provide a web application to reload smart card value based on the subset of e-fare.</p>

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<p>v. Provides for personalization of the rider’s mobile app dashboard with rider’s ticket types, schedules, maps and alerts. All the information the rider would need through the use of his/her Smartphone keyboard</p> <p>vi. The minimum ticket functionality will include the ability to:</p> <ul style="list-style-type: none"> <li>a. Download the FAX ticket App</li> <li>b. Register and personalize the App by the rider</li> <li>c. To use the App to plan a trip or journey</li> <li>d. To select a ticket type</li> <li>e. To purchase/pay for a ticket via; PayPal, Master Card, Visa, etc.</li> <li>f. Rider selected activation of his/her ticket(s) for electronic or visual validation by the station platform Validator, Odyssey- farebox or by the enforcement inspectors HTID or visually</li> <li>g. The App and communications will be securely encrypted</li> <li>h. Contractor/Vendor will test and demo to FAX the ticket App operating on both a iOS and Android Smartphone</li> </ul> <ul style="list-style-type: none"> <li>– The mobile ticketing solution is designed/architected in a manner that supports both a Near Field Communications (NFC) electronic ticket acceptance per ISO/IEC 18092 standard and or a QR code for visual inspection</li> <li>– The Contractor/Vendor should consider an established NFC electronic payment approached/method such as; Apple Pay and Samsung Pay</li> </ul>		
<p><b>PART 3 - SPARE CORE EQUIPMENT AND MODULES</b></p> <p>The Contractor/Vendor shall furnish new or pre-approved refurbished spare TVM, Validators and HTID units and modules (Where applicable) for FAX’s use and or that of the contracted maintenance contractor. The Contractor/Vendor shall supply spares modules for a term of not less than ten (10) years from the program scheduled “Go-live” date. The number of spares being required is per the following requirements:</p>	Y	
<p><b>3.1 TVM Spares</b></p> <p>The TVM units having only one TVM per station will require locally in stock spare module availability to ensure reduced down time.</p> <ul style="list-style-type: none"> <li>– Complete TVM unit; One (1) complete and functional spare TVM is to be supplied in case of a catastrophic failure or other unforeseen incurred damage to a TVM, requiring full replacement.</li> <li>– TVM modules shall be equal to five (5) percent of the total quantity of modules for all TVMs furnished under this Contract, rounded up, with a minimum quantity of one. As a minimum, these modules shall consist of:</li> </ul> <ul style="list-style-type: none"> <li>i. CPUs</li> <li>ii. Ticket dispensers with Magazines</li> <li>iii. Front Panel Displays</li> <li>iv. Front Panel keypads</li> <li>v. Bank Card Reader and Pin pads</li> </ul>	Y	

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vi. Power Supplies (of all types) vii. Bill Acceptors (including validators) viii. Coin Acceptors (including verifiers) ix. Coin Dispensers x. Heaters (only 2 spares required) xi. Cooling Fans xii. Network routers xiii. Hard key switches (if implemented) xiv. Customer Information top display unit xv. UPS power units (only 2 spares required due to shelf life) xvi. Bezels (only 3 sets of spares required) – During the design review, the contractor shall submit the final quantity of modules to be provided for approval.		
<b>3.2 Validator Spares</b> The Validator units having only one per station (in most cases), will require locally stocked spare units availability to ensure reduced down time. The validators outside of basic cosmetic repairs will be repaired offsite therefore, requiring complete unit replacement spares availability, as follows: – Complete Validator unit; eight (8) complete and functional spare Validators are to be supplied in case of a any failure including catastrophic failure or other unforeseen incurred damage to a Validator, requiring replacement – Graphics; front face place label spares in a quantity of twenty (20) shall be provided – All other modules and components necessary to repair and or refurbish failed or damaged Validator units will be done at the manufacturer’s facilities and or its supplier of the units. All such modules and cabinet casings must be made available for no less than ten (10) years. – During the design review, the contractor shall submit the final quantity of modules to be provided for approval.	Y	
<b>3.3 Validator Mounting Poles</b> The Validator units having only one per station (in most cases), will require locally stocked spare mounting poles availability to ensure reduced down time. The validators mounting poles outside of basic cosmetic repairs will be repaired offsite therefore, requiring complete unit replacement spares availability, as follows: – Complete Validator mounting poles with new attachment hardware quantity six (6) complete with color coating (if applicable) are to be supplied in case of a any failure including catastrophic failure or other unforeseen incurred damage to a Validator, mounting pole requiring replacement – During the design review, the contractor shall submit the final quantity of modules to be provided for approval.	A	Proposed validator may not use poles. To be discussed during negotiations.  Poles are removed from contract.
<b>3.4 HTID Spares</b>	Y	

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<p>The HTID units having only 6-8 active units in the field per eight (8) hour inspectors shift (while remaining units are being recharged), will require locally stocked spare units availability to ensure reduced down time. The HTIDs outside of basic cosmetic and or battery repairs/replacement will be repaired offsite therefore, requiring complete unit replacement spares availability, as follows:</p> <ul style="list-style-type: none"> <li>– Complete HTID units; for (4) complete and functional spare HTIDs are to be supplied in case of a any failure including catastrophic failure or other unforeseen incurred damage or lost to an HTID unit, requiring full replacement</li> <li>– HTID charge station units; (4) complete and functional spare HTIDs charge stations are to be supplied in case of a any failure including catastrophic failure or other unforeseen incurred damage or lost to an HTID charge unit, requiring full replacement</li> <li>– During the design review, the contractor shall submit the final quantity of modules to be provided for approval</li> </ul>		
<p><b>3.5 Fare Media Spares</b> (See Section-2.2.3).</p>	Y	
<p><b>3.6 Additional Spares Required</b> The following spares if applicable to the stated equipment being supplied will be in a quantity of the (10) percent of the specific core equipment type (TVM, Validators or HTIDs being supplied).</p> <ul style="list-style-type: none"> <li>– TVM Air Filters</li> <li>– HTID battery sets</li> <li>– During the design review, the contractor shall submit the final quantity of modules to be provided for approval</li> </ul>	A	<p>Battery used for HTID may not be replaceable depending on device selected.</p> <p>Accepted by FAX.</p>
<p><b>PART 4 – DOCUMENTATION AND TRAINING</b> All documentation must be written in a manner that is concise and to the point for easy comprehension and implementation. Providing as many illustrations and draws necessary to support the training and ongoing maintenance of the system. The documentation will cover in detail the TVM, Validators, Inspection Mobile Devices, Fare Media, CDS added transaction reporting events and Installation Procedures with illustrations. In addition, the training manuals shall be written in a manner that will quickly and precisely convey the necessary information to both comprehend and implement the operational and maintenance aspects of this BRT-TVM FCS fare collection equipment.</p>	Y	
<p><b>4.1 Documentation</b></p> <ul style="list-style-type: none"> <li>– The Contractor/Vendor shall provide a System Operation Manual and System Maintenance Manual implemented using U.S. English language. The System Operations Manual and System Maintenance Manual shall include Manufacturer’s Standard documentation and reference materials, where appropriate</li> <li>– The Draft System Operations Manual and Draft System Maintenance Manual shall be submitted for FAX’s final review</li> <li>– System documentation shall be provided in the following quantities:</li> </ul>	Y	

RFP REQUIREMENT	Comply ?	Remarks
Y = compliant; N = noncompliant; A = alternative		
<ul style="list-style-type: none"> <li>i. Ten (10) complete System Operations Manuals printed and properly bound in three-ring binders or other equivalent</li> <li>ii. Ten (10) complete System Maintenance Manuals printed and properly bound in three-ring binders or other equivalent</li> <li>iii. Electronic copies of the System Operations Manual and System Maintenance Manual in PDF format on DVD discs and or on a virus free and file protected read only USB memory stick.</li> </ul>		
<p><b>4.2 Training Materials and Instructor(s)</b></p> <ul style="list-style-type: none"> <li>– The Contractor shall provide an instructor who is experienced and qualified in the troubleshooting and maintenance of the TVM, Validator, Mobile Inspection Device and CDS hardware equipment and related software</li> <li>– The Contractor's instructor(s) shall instruct FAX staff, instructors and technicians who will be responsible for maintenance of the equipment</li> <li>– Maintenance technician training shall commence during the time when equipment is installed in, or at Agency facilities, including bus stations, transit terminals, and FAX maintenance facilities, to be coordinated with the FAX Program Manager no less than 45 days in advance on final installation</li> <li>– The Contractor shall conduct troubleshooting and repair tests to demonstrate the competency of the training participants in the maintenance of the equipment at the completion of the training</li> <li>– The Contractor shall prepare training materials as specified herein.</li> <li>– Course Outlines. Course outlines with learning objectives shall be provided for each training course. The course outline shall provide a topic outline for each major operating function. Maintenance courses shall include a section devoted to system fault analysis and troubleshooting:               <ul style="list-style-type: none"> <li>i. Lesson Plans. A set of lesson plans shall be developed for each topic outline, and shall contain the following information:</li> <li>ii. Lesson title,</li> <li>iii. Lesson objectives,</li> <li>iv. Training aids required,</li> <li>v. Sequence of Instruction.</li> </ul> </li> <li>– Training Aids. Visual aids shall be developed for each topic</li> <li>– Instructional Material. The primary source of instructional material shall be the applicable equipment operating and maintenance manuals. In addition, the Contractor shall develop, for each course, notebooks containing such additional drawings, descriptive information and procedures necessary to ensure that all learning objectives are met in an orderly and timely manner</li> <li>– Instructional Equipment. Training shall be conducted utilizing equipment that is identical to field equipment in normal operating condition. All operating equipment, tools, and test equipment needed for the training program shall be furnished by the Vendor/Contractor</li> <li>– All System Training documentation (including presentations) shall be</li> </ul>	Y	

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<p>provided in the following quantities:</p> <ul style="list-style-type: none"> <li>– Ten (10) complete System Instructional/Training Material Documentation and or Manuals printed and properly bound in three-ring binders or other equivalent. Inclusive of the following:               <ul style="list-style-type: none"> <li>i. Lesson Plans; A set of lesson plans shall be developed for each topic outline, and shall contain the following information:                   <ul style="list-style-type: none"> <li>a. Lesson title,</li> <li>b. Lesson objectives,</li> <li>c. Training aids required,</li> <li>d. Sequence of Instruction.</li> </ul> </li> </ul> </li> <li>– Electronic copies of the System Instructional/Training Material Documentation and or Manuals in PDF format on DVD discs and or on a virus free and file protected read only USB memory stick</li> </ul>		
<p><b>PART 5 – INSTALLATION</b></p> <p>The Contractor/Vendor shall furnish, install, configure, and connect computer hardware and software for processing, displaying, communicating, and printing fare collection equipment data and information for security, maintenance, revenue, accounting, fare collection data analysis, and bank card transaction clearing purposes. Installation will include the hardware and software per the FAX installation plan. Installation will be accomplished in a manner that is in conformance with California OSHA rules and regulations by licensed, insurance and bonded contractors.</p> <ul style="list-style-type: none"> <li>– TVM and Validators and their installation shall comply with the latest federal, state and local seismic requirements and the applicable requirements of the latest Building Officials and Code Administrators (BOCA) National Building Code, the National Earthquake Hazards Reduction Program, and the US DOT final rule on Seismic Safety of Federal and Federally Assisted or Regulated New Building Construction</li> <li>– Provide any if required/needed additional: monitors, keyboards and pointing devices and storage with the CDS server hardware to accommodate all TVM system requirements for clean operational use</li> <li>– Any installation requiring construction support, such as new conduit, and/or construction shall result with schedule negotiation</li> <li>– The TVM and Validators and their installation shall conform to the following electrical requirements:               <ul style="list-style-type: none"> <li>i. The TVMs shall not be affected by or generate measurable amounts of Electromagnetic Interference (EMI) and Radio Frequency Interference (RFI) from sources in the general vicinity of the station locations that can cause interference with other electronic devices Each TVM will be provided power from a dedicated, separate circuit</li> <li>ii. The equipment shall be designed to comply with UL Standard 751, “Vending Machines,” NFPA 70, “National Electric Code,” and applicable local requirements</li> <li>iii. The TVM and all of its components shall be grounded. The TVM</li> </ul> </li> </ul>	A	<p>Vendstar generally compliant with requirements but differs in matters of detail. For UL standard we are compliant with UL60950, which is more appropriate for computer equipment. UL751 is applicable to food service vending machines, which have a different operating environment.</p> <p>Accepted by FAX.</p>



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<p>cabinet assembly shall prevent electrical leakage or static charge. The TVM shall be designed to comply with UL Standard 751, “Vending Machines,” NFPA 70, “National Electric Code,” and applicable local requirements</p> <p>iv. High voltage transients, on power and/or signal interface lines, including those due to nearby lightning strikes, shall not damage the equipment. Voltage transient suppression shall be provided for the protection of components and circuitry</p> <p>The contractor shall perform all manufacturers recommended equipment and cable testing. All available equipment built-in unit and communications paired tests shall be performed. All equipment configuration, management, and diagnostic functions shall be exercised and demonstrated as operational. Contractor shall supply acceptance testing checklists and documentation for all testing performed.</p>		
<p><b>5.1 Operational Test</b></p> <p>The Contractor/Vendor shall perform all manufacturers recommended equipment and cable testing. All available equipment built-in unit and communications paired tests shall be performed. All equipment configuration, management, and diagnostic functions shall be exercised and demonstrated as operational. The Contractor shall check all AC or DC voltages and communications for compliance in advance of connecting any equipment. Contractor shall supply acceptance testing checklists and documentation for all testing performed.</p> <ul style="list-style-type: none"> <li>– The Contractor shall provide an Operational Test Plan for review and approval at least thirty (30) days prior to the commencement of the Operational Tests</li> <li>– The Contractor shall conduct an Operational Test for the communications equipment installed under this Contract prior to installation. The Operational Test shall be conducted to verify that each component or subsystem of the communications functions in accordance with the Specifications and as required for a fully operational communications system</li> <li>– The Contractor shall prepare and submit the Operational Test Results Data for Review</li> <li>– The Contractor shall conduct an Operational Test on each communications unit installed at a station. The Operational Test shall demonstrate each functional component of each communications and including the ability of each communications to communicate its functionality to the FAX Administration Building</li> <li>– The Contractor shall conduct an Operational Test on each power outlet whether AC or DC type. Including Ground Fault Interrupter (GFI) testing.</li> </ul>	Y	
<p><b>5.1.1. System Acceptance Test</b></p> <p>The System Acceptance Testing shall consist of testing the following</p>	Y	

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<p>links:</p> <ul style="list-style-type: none"> <li>– Station Communication cabinet to Station equipment (TVM, CCTV, lighting, DMS, Wi-Fi, as applicable)</li> <li>i. Station Communication to the FAX Administration Building; The Contractor shall conduct a System Acceptance Test for the Systems furnished and installed under this Contract. The System Acceptance Test shall be conducted to verify that installed equipment and station systems function in accordance with the Specifications and as required for a fully operational communications System the Contractor shall provide a System Acceptance Test Plan to FAX for review and approval at least thirty (30) days prior to the commencement of the System Acceptance Test</li> <li>ii. The System Acceptance Test shall be performed after all communication links, station equipment, and communications Management Software has been implemented and completed operational testing</li> <li>iii. The System Acceptance Test shall be performed over a period of ninety (90) days and shall, at FAX's sole discretion, be re-started if the combined TVM System does not operate in accordance as intended.</li> </ul>		
<p><b>5.2 System Design Report</b></p> <p>The Contractor shall submit a Fare Collection System Design Report for review. The System Design Report shall describe the TVM components, subsystems, functions, system interfaces, and user interfaces. This report shall include but be not limited to the following:</p> <ul style="list-style-type: none"> <li>– System Operations and Management               <ul style="list-style-type: none"> <li>i. Fare Collection Management System</li> <li>ii. Fare Collection System Operations</li> </ul> </li> <li>– TVM Report Generation               <ul style="list-style-type: none"> <li>i. Components</li> <li>ii. Functions</li> <li>iii. Communications</li> </ul> </li> <li>– Validator Report Generation               <ul style="list-style-type: none"> <li>i. Components</li> <li>ii. Functions</li> <li>iii. Communications</li> </ul> </li> </ul>	Y	
<p><b>5.3 Detailed Data Analysis and Report Generation</b></p> <p>The newly added TVM system devices in support of the BRT-TVM FCS stations will utilize the existing Central Data System (CDS) back office server/processor system to process data analysis and to generate reports in the following manner:</p> <p>The CDS shall be modified to provide for data analysis and reporting for the new TVM BRT-TVM FCS System, added fare collection equipment capabilities. A database of all pre-existing FAX records and transaction data, smart card records, and data transferred from the ticket vending machines (TVM), fareboxes and Validators, as well as, the HTID's to the CDS shall be available for the production of reports</p>	A	<p>Vendstar reporting capability generally compliant with requirements but differs in matters of detail – e.g., origin/destination reporting, maintenance tracking system not supported.</p> <p>To be addressed during PDR.</p>



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<p>according to the user’s access authorization level. Menu driven report generation software shall be provided to allow the user to design, store and edit an unlimited number of report formats to be used for generation of system reports. The database engine shall be what is presently implemented in the existing CDS system. If expanded server- CDS facilities such as memory need to be upgraded or enhanced it is the responsibility of the Contractor/Vendor to justify and provide a written report to FAX as a optional consideration, no less than 120 days previous to the scheduled “Go-Live” date.</p> <p>Note: All existing reports, system data and history files must be unaffected by any modifications being made to the CDS reports environment to support this new BR-TVM System.</p> <p>The newly added TVM system related devices shall support the same daily, weekly, monthly, quarterly, and annual data and shall be maintained by the system for printing periodic reports, as presently implemented. It shall be possible to designate any established report to automatically be generated and printed by the CDS at the CDS following data uploads from the TVMs, Validators, HTID’s and fareboxes, or at any other specified intervals, based upon calendar date and time of day.</p> <p>The FAX Fare Collection System shall continue to provide a suite of preprogrammed reports, which shall provide all the basic information necessary to operate, maintain and analyze the combined existing Bus and BRT-TVM FCS fare collection systems. Where applicable, all reports shall be designed with the option to provide the relevant detail on all records selected by type, machine and in total or by the report requested criteria, with summary statistics for each parameter—or to simply provide the summary statistics without the supporting detail records. The user shall have the option of sending reports to the screen, a downloadable file in database format, or a selection of printers. At a minimum, reports shall be able to track the following items:</p> <ul style="list-style-type: none"> <li>i. In service and out of service, and the percentage of the total Machine Availability—showing the total number of pieces of equipment that is in service;</li> <li>ii. Transaction Summary—showing the total number of customer and service transactions, by transaction type;</li> <li>iii. Transaction Detail—lists all transactions by category, merchant ID, payment method;</li> <li>iv. Failure Report—lists all failures by unique identification;</li> <li>v. Service History—lists all failures and service events;</li> <li>vi. Employee Activities—all employee interactions with the fare collection system;</li> <li>vii. Reconciliation—showing the total sales by machine, expected vault contents, actual counts and variance;</li> <li>viii. Sales—total dollar value of ticket sales, etc.;</li> </ul>		

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<p>ix. Ticket Use Report—showing all transactions for a given ticket serial number, list of serial numbers, or range of serial numbers;                      x. Fraudulent Ticket Use—lists ticket usage which violates system standards;                      xi. Ridership—total ridership by category;                      xii. Origin/Destination—ticket serial numbers and multiple origins information should be used to produce origin/destination pairs;                      xiii. Link Volumes Report—a summation of origin/destination pairs over a link or set of links between stations which will show the volume traveling over that link for a given time period;                      xiv. Entry and Exit Report—showing entrances at a station;                      xv. Maintenance Management Reports—showing planned preventative and corrective maintenance work by Maintenance Tracking System;                      xvi. Revenue Collection Facility Vault Activity—all transactions into or out of the FAX's vaults;                      xvii. Access Violation reports;                      xviii. User Access listings;                      xix. Audit Logs of user access;                      xx. Transaction usage report by fare media; and                      xxi. Variances - Showing of all shortages and or all overages in the reconciliation process                      xxii. Tracking of fare media inventory by UID and or serial number                      xxiii. Tracking and notification of smart card UID number duplication for fraudulent activity monitoring                      The reports should be available as a real-time picture of the system's status, and also an historical picture for a user selected time period (including selection of time of day for a given period).</p>		
<p><b>PART 6 – CONTRACT TERMS</b>                      The terms of this contract are structured to provide reasonable coverage of the BRT-TVM FCS equipment with appropriate payment terms, as follows:  <b>6.1 Contract Structure and Contract Term</b>                      The Contracted/Vendor shall be completely responsible for the equipment design construction, implementation, and testing of a comprehensive, end-to-end BRT-TVM FCS devices and equipment, as well as, supporting the maintenance of all systems and equipment associated with the BRT-TVM FCS system <del>and existing based Odyssey™ Farebox Bus system</del> for the duration of the Term. Responsibilities are included in a performance-based Contract. This Contract will include all systems and activities related to collecting accurate electronic toll transactions, and for all elements necessary to support cash, bank card and FAX ticket collection. The Contractor/ Vendor is not responsible for operating the BRT-TVM FCS facility or the media and paper reloading and coin/note collection or security</p>	Y	

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<p>operations. The Contract Term includes two (2) year of Warranty Period after system acceptance date and an additional three (3) years of Maintenance Period, totaling five (5) years.</p> <p>If the Contractor/Vendor is incapable of providing on sight or remote maintenance of all systems and equipment associated with the BRT-TVM FCS system and existing based Odyssey™ Farebox Bus system for the duration of the Term, it will be permitted with the pre-approval of FAX management that a sub-contractor to the Contractor/Vendor be considered for approval to perform these functions.</p>		
<p><b>6.2 Work Plan Execution</b></p> <p>Vendor shall perform and execute the following work plans as approved during Design Reviews any subsequently FAX approved updates:</p> <ul style="list-style-type: none"> <li>– Program Management Plan</li> <li>– Service Period QA/QC Plan</li> <li>– Software Development Plan (for system changes)</li> <li>– Software Configuration Management Plan</li> <li>– Hardware Configuration Management Plan</li> <li>– Performance Assurance and Monitoring Plan</li> <li>– Support Services Plan</li> <li>– Documentation Updates; Contractor/Vendor shall be responsible for maintaining and updating the documentation throughout the Support Services Plan/Period. Any required changes shall be submitted to FAX for approval and implemented on the same day as the procedural or system change deployment.</li> </ul> <p><b>6.2.5 DAMAGE FOR DELAY</b></p> <p>The Contractor’s obligation to perform hereunder within the time provided for herein is of the essence. The Contractor has agreed to complete such delivery and performance by the times required herein, except for the warranty period performance, or within the time. Inasmuch as the damage and loss to FAX which will result from delay in completing the delivery and performance within the time herein stipulated will include items of loss whose amount will be incapable or very difficult of accurate estimation, the damages to FAX for each calendar day by which the Contractor does not complete delivery and performance within the time stipulated, or within such time or times as extended in accordance with the paragraph immediately following shall be liquidated in the sum of the following amounts per calendar day which will be applied separately. The cumulative amount of such liquidated damages owing to FAX relating to the completion of performance for the milestone set forth below; ‘Start of Full System Operational Acceptance Test’, and any liquidated damages owing shall be limited to a maximum of 10% of the Lump Sum Contract Price, without inclusion of the cost of options, at the time of the</p>	Y	

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<p>execution of this Contract. This limitation shall be fixed, and will be adjusted as the Lump Sum Contract Price is adjusted by Change Orders or Options Exercised during the course of performance of this Contract.</p> <p>For the Start of Full System Operational Acceptance Test: \$5,000 per calendar day after November 17, 2017</p>		
<p><b>6.3 Maintenance Period</b></p> <p>The Contract/Vendor shall provide all routine and scheduled maintenance, on-call maintenance, and Support Services during a Maintenance Period extending three (3) years following completion of the two (2) year Warranty Period through Final Contract Completion. During this Maintenance Period the Vendor shall continue to correct any problems identified during live operations. This phase is time bound and is three (3) full calendar years of providing maintenance services. A full description of Maintenance Period services is included in the Schedule B - Special Specification (SS) Section B and elsewhere.</p> <p>Additionally, task oriented modifications and improvements shall be made to the system as directed by FAX and individual tasks may have their own time constraints.</p> <p>The Contractor/Vendor shall be completely responsible for the planning, design, construction, implementation, and testing of a comprehensive, end-to-end FCS, as well as, supporting the maintenance of all systems and equipment associated with the FCS for the duration of the Term. Responsibilities are included in a performance-based Contract. This Contract will include all systems and activities related to collecting accurate electronic fare transactions, and for all elements necessary to support cash fare collection. The Contract Term includes two (2) years of Warranty Period and an additional three (3) years of Maintenance Period, totaling five (5) years.</p> <p>Task oriented modifications and improvements” must be defined. Modifications exceeding scope are subject to change order.</p>	Y	
<p><b>6.4 Warranty Period</b></p> <p>The Contractor/Vendor shall provide all routine and scheduled Warranty related maintenance/repair, on-call maintenance/repair, and associated Support Services as described in Schedule A - Special Specification (SS) Section A and elsewhere during the Warranty Period of two (2) calendar years following final System Acceptance at the end of BRT-TVM FCS-TVM FCS install and acceptance period. During the Warranty Period, the Contractor/Vendor shall provide any and all equipment and hardware replacement and repair necessary for the BRT-TVM FCS equipment/devices to operate as designed and intended. During this period, Contractor/Vendor shall be responsible for equipment warranty field repair, warranty shop repair, warranty replacement, and software warranty changes and corrections.</p>	Y	



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<p>During the Warranty Period, the Contractor/Vendor shall provide any and all warranty repair and correction services for all software, interfaces, and databases necessary for the BRT-TVM FCS to operate accurately and efficiently, and as originally designed and intended. During this period the Contractor/Vendor shall continue to correct any problems identified during live operations and provide essential software and or hardware updates.</p>		
<p><b>6.5 Service Levels</b> The BRT-TVM FCS-TVM Fare Collection System (FCS) shall provide maximum availability during the scheduled hours of operation as measured over the course of each calendar year. The availability characteristics will be defined and a mutually agreed to availability percentage shall be established during the design review phase. The measurement of availability shall be determined during the Performance Assurance and Monitoring Plan development, and approved by FAX. Any systems or components dependent upon FAX or City of Fresno infrastructure shall be negotiated with vendor during integration and testing. The Contractor/Vendor shall respond to all reported problems associated with the BRT-TVM FCS-TVM FCS in a timely fashion. The Vendor shall further meet the service levels stated below.</p> <ul style="list-style-type: none"> <li>– FCS Availability and Performance               <ul style="list-style-type: none"> <li>i. The FCS shall be fully and accurately functioning 24 hours per day, 7 days per week. The FCS shall also be available for backups, interfaces with other jobs, FCS maintenance, etc.</li> </ul> </li> <li>– Contractor/Vendor shall provide Service Levels (Performance Assurance and Monitoring) as described below:               <ul style="list-style-type: none"> <li>– The Vendor shall perform Performance Assurance and Monitoring during the Service Period. Performance Assurance and Monitoring includes the Vendors monitoring of performance, reliability, and maintainability requirements as set forth in the Contract. The purpose is to assure that the furnished equipment and software has a high level of availability and minimum maintenance costs. This goal shall be achieved by designing and manufacturing the equipment and software for dependability maintainability, and quality. The Vendor shall implement the Performance Assurance and Monitoring Plan to measure the reliability and maintainability of the equipment during the tests on the production equipment once revenue operation has started. Data should be obtained from as many sources as practical and be processed to produce computer generated reports. The reports shall be submitted during the reliability and maintainability tests on revenue service equipment, in addition;</li> <li>– Vendor shall perform the following tasks:                   <ul style="list-style-type: none"> <li>i. Assigning individuals responsible for adhering to the purpose of the plan;</li> <li>ii. Scheduling and performing reliability review;</li> </ul> </li> </ul> </li> </ul>	Y	

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iii. Resolving performance issues; iv. Developing, implementing, and managing an Action Reporting System;		
<b>6.5.1 Equipment Availability</b> All aspects of the deployed equipment shall at minimum, include: – All equipment are fully functional and able to record all types of fare transactions accurately – All equipment have two way communication with the primary or secondary Host and are properly exchanging data – All transactions are posting to the proper accounts at the proper fare rates in accordance with business rules and approved system design – FAX has full and unencumbered access to all system interfaces in accordance with the design, and – The equipment design shall minimize lost revenue or potential for lost revenue due to software, hardware, or equipment malfunctions. In the event of lost revenue due to the above, the Contractor will provide support to FAX to validate where and why revenue loss(es) occurred as per Warranty and Maintenance Contractual Terms.	Y	
<b>6.5.2 The Online Transaction Times</b> Online transactions are defined as any user or system initiated activity that causes the FCS to execute an instruction, either at the server or the client, and results in an identifiable change in the screen being used by the user. – Transaction times shall have an end-to-end transaction response time of 2.5 seconds or less (excluding network time) – Vendor shall respond to all incidents reported to Vendor by FAX within 72 hours excluding weekends (except for Priority Service Requests which are handles per Section 6.6.3). – Response time shall be measured for all client and server transactions – If credit/debit services are through FAX or City of Fresno infrastructure, then online transaction times will be negotiated with vendor upon integration and testing - Bank card clearing time is a function of financial gateway are not within contractor's control and are therefore excluded from the above.	Y	
<b>6.5.3 Equipment and System Repairs</b> Field Warranty repair and Maintenance repair and or refurbishment shall be per the following: – The Contractor/Vendor shall perform Field Warranty Repairs within the Response and Resolution Time associated with the appropriate Service Request level – All Shop Warranty Repairs or Inventory Replacement as follows; – Shop Warranty Repairs shall be completed within five (5) business days from the date the faulty part is delivered to the Vendor or removed by the Vendor from the equipment. As a goal, components that require repair by 3rd party Vendors, they shall be repaired and	Y	

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<p>returned within 30 days. These timeframes shall not relieve the Contractor/Vendor of meeting Routine and Priority Service Request Response Time or Resolution Time requirements discussed above provided that the Contractor is supplied with adequate spare parts by FAX. FAX must purchase spare parts list which are itemized in Contractor's Spare Parts List in this Contract to satisfy Contractor's requirement to repair parts in timeframe listed above.</p> <ul style="list-style-type: none"> <li>– Permanent Software Repairs as follows;               <ul style="list-style-type: none"> <li>i. Routine and Priority Service Requests that require additional time for a permanent fix shall remain the highest priority for the Vendor until permanently resolved. A software correction plan shall be provided within five (5) business days from the date FAX gives the Vendor notice of software failure, or the Vendor observes the failure. Software Repairs shall include the planning, development, testing, and deployment of software to resolve the issue. Resolution with a permanent repair or correction shall occur within 60 days of the Routine or Priority Service Request</li> <li>ii. The timeframe requirements for Permanent Software Repair shall not relieve the Vendor of meeting Routine and Priority Service Request Response Time or Resolution Time requirements</li> <li>iii. All components of the application solution provided by the Vendor, both proprietary and third party components, shall be included in the plan and subject to the performance requirements above</li> </ul> </li> </ul>		
<p><b>6.5.4 Software Services</b></p> <ul style="list-style-type: none"> <li>– Security and Operational Patches, and Service packs;               <ul style="list-style-type: none"> <li>i. Vendor shall offer all critical security and operational patches to FAX within 36 hours of Availability and installed/deployed within 36 hours after Approval by FAX</li> <li>ii. Vendor shall offer all other patches and service packs to FAX within 10 business days of Availability and installed/deployed within 10 business days after Approval by FAX</li> </ul> </li> <li>– Software Version Upgrades               <ul style="list-style-type: none"> <li>i. Vendor shall perform patch, version maintenance, and version upgrades for all software provided within the Work</li> <li>ii. Vendor shall perform patch, version maintenance, and version upgrades within six (6) months of Availability. All deployments shall be at the approval of FAX</li> </ul> </li> <li>– Software Required Maximum Repair or Inventory Replacement if applicable is sixty (60) days</li> <li>– Other Patches and Service Packs</li> <li>– Patches and upgrades presented to FAX Within 10 business days of availability for install approval</li> <li>– Installed/Deployed within ten (10) business days of FAX approval</li> <li>– Software Version Upgrades upon presentation to FAX and approved;               <ul style="list-style-type: none"> <li>i. Installed/Deployed within six (6) months of Availability</li> </ul> </li> </ul>	Y	

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<p><b>6.6 Liquidated Damaged for Non-Performance/Compliance</b> Liquidated Damages are structured to be a last resort measure for system deliverables that fail or continue to fail, or are defined by FAX as being non-compliant to the specifications defined in this document. FAX will work with the Contractor to identify any such areas and come to resolution pursuant to an Action Plan to be developed within five (5) days. Any reported equipment failure or non-compliant attribute of this specification after a period of five (5) consecutive days after the Action Plan has been approved by FAX will be assessed by FAX at its discretion for the damages as listed below and preceded by a declaration of breach, and actual damages arising from the breach suffered by the FAX after the declaration of breach, as follows:</p> <ul style="list-style-type: none"> <li>– Two hundred fifty dollars (\$250.00) maximum penalty per day per defined non-performance system failure or a portion thereof, until the problem is resolved</li> <li>– In the event FAX staff or a contracted sub-contractor is called upon to address or mitigate a system failure not resolved by the Contractor/Vendor within 24 hours, a rate of one hundred dollars (\$100) per hour will be assessed for such downtime</li> <li>– If the such problems continue to be unresolved after thirty (30) days, FAX has the option at their discretion to assess the Contractor/Vendors an additional two-hundred dollars (\$200.00) per day penalty</li> <li>– After sixty (60) days FAX reserves the right to terminate the contract based on performance or convenience with substantial penalties to recover system revenue and expended contractual funds</li> </ul>	Y	
<p><b>6.6.1 Liquidated Damaged for Non-Performance/Compliance On-Time Routine and Scheduled Maintenance</b> Vendor shall initiate and complete all routine and scheduled maintenance within five (5) business days of the scheduled maintenance event as indicated in the approved Support Services Plan or the following assessed penalties will be incurred:</p> <ul style="list-style-type: none"> <li>– \$500 per calendar day (24 hour period) over five (5) Business Days</li> <li>– Unlimited Phone and Remote Support               <ul style="list-style-type: none"> <li>i. Vendor shall provide unlimited phone and remote support between the hours of 8:00AM and 5:00 PM (Pacific Time), Monday through Friday, excluding U.S. Holidays. Vendor shall be available and provide a qualified and knowledgeable representative to answer calls or return a call within two (2) hours.</li> </ul> </li> <li>– Vendor shall respond to the request within one (1) business day, and complete the repair, restoration, or remediation of equipment, hardware, and software, as necessary to resolve the issue within two (2) business days of being notified by either phone or email. Any remediation or workaround proposed shall be subject to FAX 's approval and permanently repaired within 60 days of the original Service Request</li> </ul>	Y	



RFP REQUIREMENT	Comply ?	Remarks
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<ul style="list-style-type: none"> <li>– Examples of Routine Service Requests include non-critical problems in which revenue loss is not immediately at risk or expected to be at risk within the next 72 hours</li> <li>– During the Warranty period, Routine Service Requests may include Warranty Field Repairs, which also shall be completed within the Routine Service timeframes</li> <li>– If damages are accessed after the two (day) period, a one-hundred (\$100.00) per day charge will be charged until the problem is resolved and Contractor/Vendor provides a qualified individual to work with FAX</li> </ul>		
<p><b>6.6.2 Liquidated Damages for Non-Performance</b></p> <ul style="list-style-type: none"> <li>– 5% of total monthly payment for each month (pro-rata) delayed, per component upgrade</li> <li>– The FAX shall actively monitor the Contractor/Vendor’s performance and enforce Contracted non-compliance and non-performance clauses by assessing liquidated damages. However, the FAX shall not assess liquidated damages if non-compliance and non-performance result from events or activities for which the Contractor/Vendor is not responsible, or could not have anticipated or are outside the Contractors control</li> <li>– The Vendor shall track, calculate, monitor and report on performance against Service Levels above and shall adjust invoices accordingly</li> <li>– Repeated failures to meet the above Service Levels on the part of the Vendor constitutes a material breach of the Contract Documents and shall be cause for Vendor to be declared in breach of Contract</li> <li>– Documents regardless of the existence of liquidated damages provisions. In the event the Vendor is declared in breach of Contract, FAX shall be entitled to collect liquidated damages up to the time of the</li> <li>– Liquidated Damages for Non-Performance/Compliance for Software, as follows;               <ul style="list-style-type: none"> <li>i. One hundred twenty-five dollars (\$125.00) per day or portion thereof until the problem is resolved</li> </ul> </li> <li>– Liquidated Damages for Non-Performance of Software, as follows;               <ul style="list-style-type: none"> <li>i. 5% of total monthly payment for maintenance per each 24 hour period, or portion thereof, patch is not installed after initial 72 hours from availability.</li> </ul> </li> </ul>	Y	
<p><b>6.6.3 Priority Service Requests</b></p> <ul style="list-style-type: none"> <li>– Vendor shall respond to the Priority Service Request within four (4) hours, and complete the repair, restoration, or remediation of equipment, hardware, and software, as necessary to resolve the issue within eight (8) hours of being notified by either phone or email. Should a Priority Service Request be the result of Equipment vandalism, improper customer use or other factors not under the control of the Contractor and agreed to by FAX, such events will not be chargeable against the Contractor and parts will be charged back to FAX. Any</li> </ul>	Y	

RFP REQUIREMENT	Comply ?	Remarks
Y = compliant; N = noncompliant; A = alternative		
<p>remediation or workaround proposed shall be subject to FAX Approval and permanently repaired within sixty (60) days of the original Service Request</p> <p>– Examples of Priority Service Requests include:</p> <p>i. Critical problems in which revenue loss has occurred, is imminent, or is reasonably expected to occur if repair, restoration, or remediation is not completed.</p> <p>ii. Problems with interfaces between the FCS and external entities for scheduled production or data exchange.</p> <p>– During the Warranty period, Priority Service Requests may include Warranty Field Repairs, which also shall be completed within the Priority Service timeframes</p>		
<p><b>6.6.4 Response Time Measurement</b></p> <p>Response time shall be measured from the call or email notifying the Contractor/Vendor PoC of the problem or a potential problem to when a qualified Contractor/Vendor representative has begun troubleshooting or repair as appropriate, inclusive of travel time. The Contractor/Vendor shall not be responsible for delays incurred waiting for FAX personnel where security keys are required to gain access to the equipment.</p>	Y	
<p><b>6.6.4.1 Resolution Time measurement requirements</b></p> <p>– Unlimited Phone and Remote Support required</p> <p>– Critical/Priority Call Required Maximum Response Time of one (1) Hour subject to exclusions noted in 6.6.3</p> <p>– Routine Service Requests Required Maximum Response Time one (1) Business Day subject to exclusions noted in 6.6.3</p> <p>– For any standard equipment failure call; the Required Maximum Response Time of four (4) hours subject to exclusions noted in 6.6.3</p> <p>– For any equipment failure call; the Required Maximum Resolution Time of eight (8) hours subject to exclusions noted in 6.6.3</p> <p>– Required Maximum Resolution Time in no case shall exceed two (2) Business Days subject to exclusions noted in 6.6.3</p> <p>– Resolution Time shall be measured from the call or email notifying the Vendor of the problem or a potential problem to when the problem has been resolved</p> <p>– Resolution Time is inclusive of travel, gaining problem understanding, defining problem, troubleshooting, repair/restoration/remediation, testing, and deployment</p> <p>– Resolution is defined as the repair, restoration, or remediation of components of the FCS system so that the FCS returns to full Availability and is accepted by FAX. Acceptance by FAX does not release the Vendor from obligations to complete permanent repair when a work-around has been implemented.</p>	Y	

RFP REQUIREMENT	Comply ?	Remarks
Y = compliant; N = noncompliant; A = alternative		
<p><b>6.6.5 Performance Monitoring</b></p> <ul style="list-style-type: none"> <li>– Maintaining proper allocation of resources – the Contactor/Vendor shall monitor CPU, memory, application and data base servers, file distribution on direct access storage devices and, as warranted, make recommendations to maintain adequate FCS performance, FAX’s concurrence, implement these recommendations to maintain adequate FCS performance</li> <li>– Annual testing to validate performance not readily or reliably measured through regular KPI and system monitoring reporting</li> <li>– Establishing a Failure Review Team to evaluate which failures are chargeable against the Contractor/Vendor’s reliability requirements; and               <ul style="list-style-type: none"> <li>i. The Failure Review Team shall be comprised of one member from FAX’s reliability staff and one member from the Contractor/Vendor reliability staff, as a minimum</li> <li>ii. Responsible parties within these two staff shall initially attempt to settle disputes</li> </ul> </li> <li>– Monitoring the FCS’s performance to ensure that performance and response meets the operational needs of the users</li> <li>– The Contractor/Vendor shall take measures to ensure the continued effective operation of the FCS through accepted industry capacity management and performance monitoring procedures, including recommending corrective actions to correct capacity and performance inadequacies.</li> </ul>	Y	
<p><b>6.7 Contract Closeout</b></p> <p>The Work shall be considered complete allowing the Contract to be closed at the end of the Contract, term upon:</p> <ul style="list-style-type: none"> <li>– Contractor/Vendor delivery and FAX’s acceptance of all required deliverables</li> <li>– All required Work under the Contract has been completed</li> <li>– Maintenance Period and Support Services Period has ended</li> <li>– Contractor/Vendor has completed all outstanding repairs, replacements, and corrections required</li> <li>– All equipment, hardware, and software under the maintenance of the Contractor/Vendor is considered fully operational and in a state of good repair</li> <li>– FAX accepts the FCS for maintenance</li> <li>– The Contractor/Vendor shall provide all updated BRT-TVM FCS-TVM FCS documentation per Schedule-B, Special Specification (SS) Section-B, Maintenance. The Contractor/Vendor shall provide closeout training to convey current state of the system, maintenance schedule, and other information as required.</li> </ul>	Y	
<p><b>6.8 Financial Terms and Payment Structure</b></p> <p>The Contractor/Vendor shall be compensated through lump sum milestone payments based on final acceptance of each milestone deliverable under this contract. The contract lump sum prices for of the</p>	A	See below

RFP REQUIREMENT	Comply ?	Remarks
Y = compliant; N = noncompliant; A = alternative		
various pay items shall be full payment for all labor, materials, supplies, equipment, tools and all other items required to completely incorporate the item into the work as though the item were to read "In Place." The Contractor/Vendor shall deliver and perform the requirements of this Request for Proposals (RFP) to achieve the following delivery and completion dates, where Contractor/Vendor Notice to Proceed (NTP) represents the date FAX issues a NTP.		

<p><b>6.8.1 FAX Fare Collection System Milestone Payment Schedule</b></p> <table border="1"> <thead> <tr> <th>Milestone</th> <th>Payment</th> <th>Cumulative</th> </tr> </thead> <tbody> <tr> <td>Project Plan and Schedule</td> <td>5%</td> <td>5%</td> </tr> <tr> <td>Completion of Preliminary Design Review</td> <td>5%</td> <td>10%</td> </tr> <tr> <td>Completion of Final Design Review</td> <td>15%</td> <td>25%</td> </tr> <tr> <td>Completion of First Article Inspection Test</td> <td>10%</td> <td>35%</td> </tr> <tr> <td>Completion of Production Acceptance</td> <td>15%</td> <td>50%</td> </tr> <tr> <td>Completion of Installation Acceptance Test</td> <td>10%</td> <td>60%</td> </tr> <tr> <td>Completion of In-Service Test</td> <td>10%</td> <td>70%</td> </tr> <tr> <td>Completion of Operational Acceptance Test</td> <td>15%</td> <td>85%</td> </tr> <tr> <td>Warranty Period</td> <td>Start 5%, End 5%</td> <td>95%</td> </tr> <tr> <td>Completion of Contract Close Out</td> <td>5%</td> <td>100%</td> </tr> </tbody> </table> <p>Note – As used above, “Completion” is defined as FAX’s acceptance and approval of related deliverables. Warranty and Ongoing Maintenance fees shall be paid monthly, in accordance with Contract provisions.</p>	Milestone	Payment	Cumulative	Project Plan and Schedule	5%	5%	Completion of Preliminary Design Review	5%	10%	Completion of Final Design Review	15%	25%	Completion of First Article Inspection Test	10%	35%	Completion of Production Acceptance	15%	50%	Completion of Installation Acceptance Test	10%	60%	Completion of In-Service Test	10%	70%	Completion of Operational Acceptance Test	15%	85%	Warranty Period	Start 5%, End 5%	95%	Completion of Contract Close Out	5%	100%	A	<p>Alternate proposal:</p> <table border="1"> <thead> <tr> <th>Milestone</th> <th>Payment</th> <th>Cumulative</th> </tr> </thead> <tbody> <tr> <td>Project Plan and Schedule</td> <td>5%</td> <td>5%</td> </tr> <tr> <td>Completion of Preliminary Design Review</td> <td>5%</td> <td>10%</td> </tr> <tr> <td>Completion of Final Design Review</td> <td>15%</td> <td>25%</td> </tr> <tr> <td>Completion of First Article Inspection Test</td> <td>10%</td> <td>35%</td> </tr> <tr> <td>Completion of Production Acceptance</td> <td>10%</td> <td>45%</td> </tr> <tr> <td>Completion of Installation Acceptance Test</td> <td>25%</td> <td>70%</td> </tr> <tr> <td>Completion of In-Service Test</td> <td>10%</td> <td>80%</td> </tr> <tr> <td>Completion of Operational Acceptance Test</td> <td>15%</td> <td>95%</td> </tr> <tr> <td>Warranty Period - End</td> <td>5%</td> <td>100%</td> </tr> </tbody> </table>	Milestone	Payment	Cumulative	Project Plan and Schedule	5%	5%	Completion of Preliminary Design Review	5%	10%	Completion of Final Design Review	15%	25%	Completion of First Article Inspection Test	10%	35%	Completion of Production Acceptance	10%	45%	Completion of Installation Acceptance Test	25%	70%	Completion of In-Service Test	10%	80%	Completion of Operational Acceptance Test	15%	95%	Warranty Period - End	5%	100%
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<p><b>6.8.2 BRT-TVM FCS-TVM System Price Table</b></p> <p>The Contractor/Vendor (C/V) is to provide a price for each of the listed equipment/items quantities in the following “Price Table” plus the noted required Spares quantity in the “Note” column, and in the additional “Spares” for 6.1 table, as well as, any other C/V items necessary to fulfill the requirements of this Contract.</p> <p>[table omitted]</p>	Y																																																																
<p><b>Section 6.8.2 TVM Spares Table</b></p> <p>[table omitted]</p>	A	See below																																																															

**6.8.2 BRT-TVM FCS-TVM System Price Table**

**BRT-TVM FCS-TVM System Price Table**

<b>Equipment/Items</b>	<b>Quantity</b>	<b>C/V Each Price (\$)</b>	<b>C/V Total Price (\$)</b>	<b>Notes</b>
Ticket Vending Machines (TVM)	54	\$51,773.00	\$2,795,742	2 spares
Platform Validators	68	\$2,950.00	\$200,600	8 spares
Platform Validator Stanchions (66)	0	\$1,890.00	\$0	6 spares
HTID with Charger	16	\$3,845.00	\$61,520	4 spares
Fare Media, magnetic	250,000	\$0.15	\$37,500	all spares
Fare Media, Limited Use SC	500,000	\$0.35	\$175,000	all spares
Receipt Paper rolls	260	\$2.00	\$520	all spares
Software Licenses	n/a	Included	Included	all equipment
Software Applications (Clearinghouse)	n/a	\$25,512.00	\$25,512	all required
Maintenance (years) (option)	0	\$201,000.00	\$0	all inclusive
Misc/other Items - See below	n/a			
TVM Installation	54	\$1,850.00	\$99,900	
Platform Validator Installation	66	\$550.00	\$62,700	
Change Card Feature	n/a	\$16,123.00	\$16,123	
Initial Maintenance Set-up Costs	n/a	\$101,000.00	\$101,000	
1st - 2 Years Warranty/Maintenance	2	\$201,000.00	\$402,000	
Printer Encoding Machine (PEM)	0	\$17,860.00	\$0	
<b>Total Equipment/Items Price</b>			\$3,978,117	
<b>Total Spare Parts</b>	lot		\$283,027	
<b>Grand Total with Spares</b>			<b>\$4,261,144</b>	

Submitted by Genfare, a division of SPX Corporation

\_\_\_\_\_  
Kim R. Green, Executive Director

\_\_\_\_\_  
Date

6.8.2 TVM Spares Table

Recommended Spare Parts

Kit No.	Description	Genfare P/N	Qty	Unit Price	Extension
<b>A27838-0001</b>	<b>TVM 3 Spares Kit 1 (basic replacement)</b>				
	BANKNOTE BOX BNK-60A4G W/ LOCK	C24351-0001A	1	1,234.20	1,234.20
	S/A CABLE, DOCKING-HOPPERS & BILL VAL.	C27010-0001	2	91.80	183.60
	S/A CABLE, DOCKING-COIN MECH.	C27010-0002	2	91.80	183.60
	S/A, AUXILIARY DOCKING, BILL MECH.	C27136-0001	1	520.20	520.20
	BANKNOTE VALIDATOR BV-6200 W/LOCK	C27506-0003A	1	5,223.22	5,223.22
	SYS CONTROLLER-TVM3-CCP33	C28171-0001	1	1,446.36	1,446.36
	S/A, ELONGATED CARD CASSETTE	D23395-0001	1	397.80	397.80
	S/A TRIM, TVM3- TALL	D23888-0006	1	3,971.88	3,971.88
	S/A, TRIM SHELF CONNECTORS	D25595-0002	1	379.44	379.44
	S/A, COIN HOPPER, \$0.25	D26563-0001	1	860.52	860.52
	S/A, COIN HOPPER, \$1.00	D26563-0003	1	1,025.79	1,025.79
	S/A, COIN MECHANISM (TEKPAK)	D26575-0001	1	1,265.82	1,265.82
	S/A, UPS POWER SUPPLY	D27345-0001	1	1,679.94	1,679.94
	<b>Total Price Kit 1</b>				<b>18,372.37</b>
	<b>5% discount for complete kit purchase</b>				<b>918.62</b>
	<b>Net Total Price for Kit No. 1 purchase</b>				<b>\$17,453.75</b>

<b>A27839-0001</b>	<b>TVM 3 Spares Kit 2 (2nd level maintenance, purchase with basic replacement)</b>				
	S/A PCB, UNIVERSAL SENSOR	B26868-0001	3	55.08	165.24
	S/A, PCB, POWER DISTRIBUTION	B27409-0001	1	924.12	924.12
	S/A, PCB, MEDIA CONVERTER	B27410-0001	1	1,296.42	1,296.42
	LENS, LEXAN	C23835-0001	1	44.37	44.37
	S/A PCB, TEMP/AMB LIGHT SENSOR -TEMP	C26802-0001	1	112.46	112.46
	S/A PCB, TEMP/AMB. LIGHT SENSOR -TEMP/LT	C26802-0002	1	124.73	124.73
	S/A, POWER SUPPLY	C26957-0001	1	479.40	479.40
	BATTERY, 12 VOLT DRY CELL	C26971-0001	2	48.96	97.92
	S/A PCB, LAMP	C27073-0001	2	35.96	71.92
	S/A, LCD DISPLAY, INSYNC LED (TVM3)	D24361-0006	1	1,776.43	1,776.43
	S/A PCB, DOOR COMPONENT INTERFACE	D26814-0001	1	776.73	776.73
	S/A PRINTER, RECEIPT-TVM3	D26963-0001	1	734.40	734.40
	<b>Total Price Kit 2</b>				<b>6,604.14</b>
	<b>5% discount for complete kit purchase</b>				<b>330.21</b>
	<b>Net Total Price for Kit No. 2 purchase</b>				<b>\$6,273.93</b>

<b>A28809-0001</b>	<b>TVM 3 Spares Kit 4 (revenue only)</b>				
	BANKNOTE BOX BNK-60A4G W/ LOCK	C24351-0001A	1	1,234.20	1,234.20
	S/A, COIN CASHBOX	D25031-0002	1	1,097.52	1,097.52
	S/A, COIN HOPPER, \$0.25	D26563-0001	1	860.52	860.52
	S/A, COIN HOPPER, \$1.00	D26563-0003	1	1,025.79	1,025.79
	S/A, COIN MECHANISM	D26575-0001	1	1,265.82	1,265.82
	<b>Total Price Kit 4</b>				<b>5,483.85</b>
	<b>5% discount for complete kit purchase</b>				<b>274.19</b>
	<b>Net Total Price for Kit No. 4 purchase</b>				<b>\$5,209.66</b>

Description	Quantity	Unit Price	Extension
Spare Parts Kits #1	6	\$17,453.75	\$104,723
Spare Parts Kits #2	6	\$6,273.93	\$37,644
Revenue Servicing Kits	27	\$5,209.66	\$140,661
<b>Total Spare Parts</b>			<b>\$283,027</b>

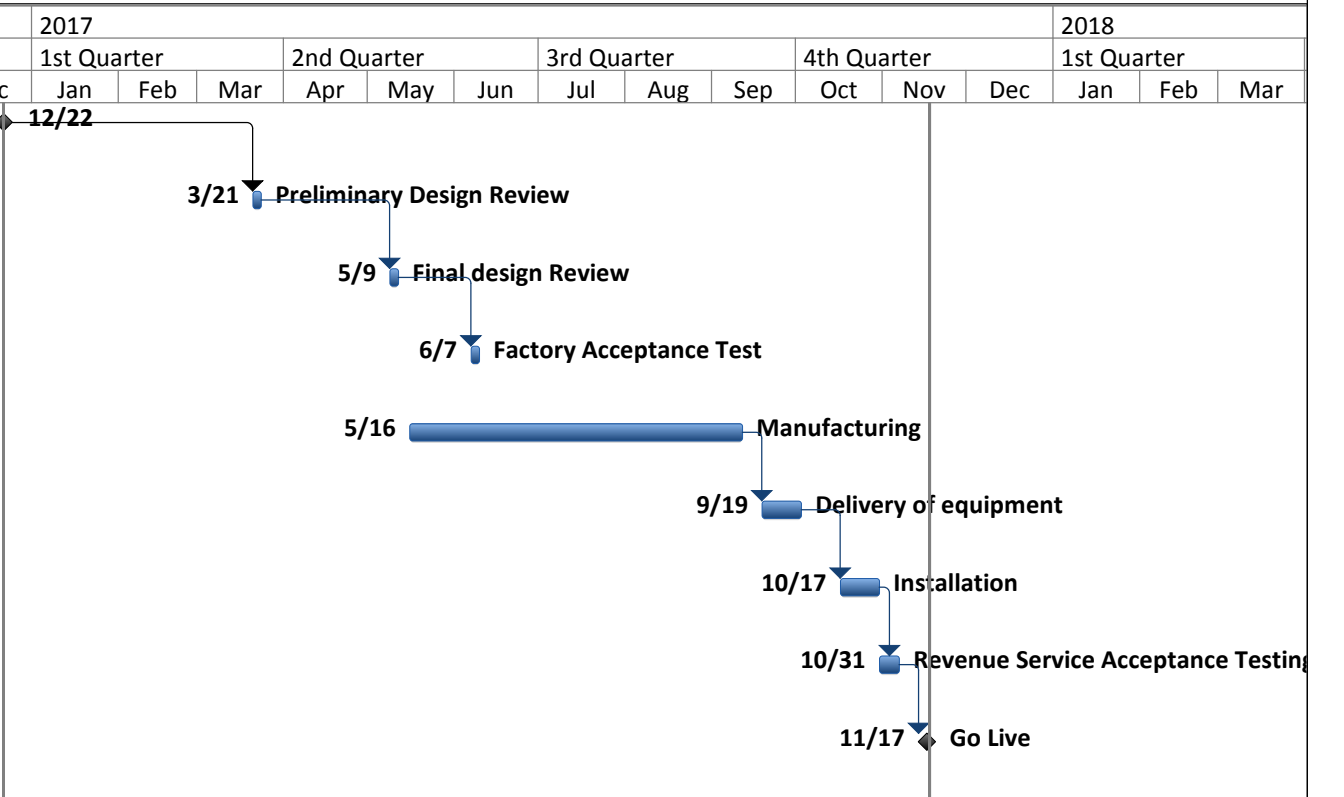
Submitted by Genfare, a division of SPX Corporation

Kim R. Green, Executive Director

Date

## FAX BRT-TVM FCS-TVM SYSTEM PRELIMINARY INSTALLATION SCHEDULE

ID	Task Name	Duration	Start	Finish	2017												2018					
					1st Quarter		2nd Quarter			3rd Quarter			4th Quarter			1st Quarter						
					Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	
1	NTP	0 days	Thu 12/22/16	Thu 12/22/16																		
2	Preliminary Design Review	3 days	Tue 3/21/17	Thu 3/23/17																		
3	Final design Review	3 days	Tue 5/9/17	Thu 5/11/17																		
4	Factory Acceptance Test	3 days	Wed 6/7/17	Fri 6/9/17																		
5	Manufacturing	85 days	Tue 5/16/17	Mon 9/11/17																		
6	Delivery of equipment	10 days	Tue 9/19/17	Mon 10/2/17																		
7	Installation	14 days	Tue 10/17/17	Mon 10/30/17																		
8	Revenue Service Acceptance Testing	7 days	Tue 10/31/17	Mon 11/6/17																		
9	Go Live	0 days	Fri 11/17/17	Fri 11/17/17																		





## **EXHIBIT B**

**INSURANCE REQUIREMENTS**  
**Agreement between City of Fresno (“CITY”) and SPX**  
**Corporation (“CONTRACTOR”)**  
Ticket Vending Machine Purchase and Installation  
PROJECT TITLE

### **MINIMUM SCOPE OF INSURANCE**

Coverage shall be at least as broad as:

1. The most current version of Insurance Services Office (ISO) Commercial General Liability Coverage Form CG 00 01, providing liability coverage arising out of your business operations. The Commercial General Liability policy shall be written on an occurrence form and shall provide coverage for “bodily injury,” “property damage” and “personal and advertising injury” with coverage for premises and operations (including the use of owned and non-owned equipment), products and completed operations, and contractual liability (including, without limitation, indemnity obligations under the Agreement) with limits of liability not less than those set forth under “Minimum Limits of Insurance.”
2. The most current version of ISO \*Commercial Auto Coverage Form CA 00 01, providing liability coverage arising out of the ownership, maintenance or use of automobiles in the course of your business operations. The Automobile Policy shall be written on an occurrence form and shall provide coverage for all owned, hired, and non-owned automobiles or other licensed vehicles (Code 1- Any Auto). If personal automobile coverage is used, the CITY, its officers, officials, employees, agents and volunteers are to be listed as additional insureds.
3. Workers’ Compensation insurance as required by the State of California and Employer’s Liability Insurance.
4. Technology Liability (Errors and Omissions) insurance appropriate to CONTRACTOR’S profession. Coverage shall be sufficiently broad to respond to duties and obligations as is undertaken by Contractor in this agreement and shall include but not be limited to, claims involving infringement of intellectual property, including but not limited to infringement of copyright, trademark, trade dress, invasion of privacy violations, information theft, damage to or destruction of electronic information, release of private information, alteration of electronic information, extortion and network security. The policy shall provide coverage for breach response costs as well as regulatory fines penalties and credit monitoring expenses with limits sufficient to respond to these obligations.

### **MINIMUM LIMITS OF INSURANCE**

CONTRACTOR, or any party the CONTRACTOR subcontracts with, shall maintain limits of liability of not less than those set forth below. However, insurance limits available to CITY, its officers,

officials, employees, agents and volunteers as additional insureds, shall be the greater of the minimum limits specified herein or the full limit of any insurance proceeds available to the named insured:

1. **COMMERCIAL GENERAL LIABILITY:**

- (i) \$1,000,000 per occurrence for bodily injury and property damage;
- (ii) \$1,000,000 per occurrence for personal and advertising injury;
- (iii) \$2,000,000 aggregate for products and completed operations; and,
- (iv) \$2,000,000 general aggregate applying separately to the work performed under the Agreement.

2. **COMMERCIAL AUTOMOBILE LIABILITY:**

\$1,000,000 per accident for bodily injury and property damage.

3. **WORKERS' COMPENSATION INSURANCE** as required by the State of California with statutory limits.

4. **EMPLOYER'S LIABILITY:**

- (i) \$1,000,000 each accident for bodily injury;
- (ii) \$1,000,000 disease each employee; and,
- (iii) \$1,000,000 disease policy limit.

5. **TECHNOLOGY PROFESSIONAL LIABILITY** insurance with limits of not less than:

- (i) \$1,000,000 per claim/occurrence; and,
- (ii) \$2,000,000 policy aggregate

**UMBRELLA OR EXCESS INSURANCE**

In the event CONTRACTOR purchases an Umbrella or Excess insurance policy(ies) to meet the "Minimum Limits of Insurance," this insurance policy(ies) shall "follow form" and afford no less coverage than the primary insurance policy(ies). In addition, such Umbrella or Excess insurance policy(ies) shall also apply on a primary and non-contributory basis for the benefit of the CITY, its officers, officials, employees, agents and volunteers.

**DEDUCTIBLES AND SELF-INSURED RETENTIONS**

CONTRACTOR shall be responsible for payment of any deductibles contained in any insurance policy(ies) required herein and CONTRACTOR shall also be responsible for payment of any self-insured retentions. Any deductibles or self-insured retentions must be declared to on the Certificate of Insurance, and approved by, the CITY'S Risk Manager or his/her designee. At the option of the CITY'S Risk Manager or his/her designee, either:

- (i) The insurer shall reduce or eliminate such deductibles or self-insured retentions as respects CITY, its officers, officials, employees, agents and volunteers; or

- (ii) CONTRACTOR shall provide a financial guarantee, satisfactory to CITY'S Risk Manager or his/her designee, guaranteeing payment of losses and related investigations, claim administration and defense expenses. At no time shall CITY be responsible for the payment of any deductibles or self-insured retentions.

### **OTHER INSURANCE PROVISIONS/ENDORSEMENTS**

The General Liability and Automobile Liability insurance policies are to contain, or be endorsed to contain, the following provisions:

1. CITY, its officers, officials, employees, agents and volunteers are to be covered as additional insureds. CONTRACTOR shall establish additional insured status for the City and for all ongoing and completed operations by use of ISO Form CG 20 10 11 85 or both CG 20 10 10 01 and CG 20 37 10 01 or by an executed manuscript insurance company endorsement providing additional insured status as broad as that contained in ISO Form CG 20 10 11 85.
2. The coverage shall contain no special limitations on the scope of protection afforded to CITY, its officers, officials, employees, agents and volunteers. Any available insurance proceeds in excess of the specified minimum limits and coverage shall be available to the Additional Insured.
3. For any claims relating to this Agreement, CONTRACTOR'S insurance coverage shall be primary insurance with respect to the CITY, its officers, officials, employees, agents and volunteers. Any insurance or self-insurance maintained by the CITY, its officers, officials, employees, agents and volunteers shall be excess of CONTRACTOR'S insurance and shall not contribute with it. CONTRACTOR shall establish primary and non-contributory status by using ISO Form CG 20 01 04 13 or by an executed manuscript insurance company endorsement that provides primary and non-contributory status as broad as that contained in ISO Form CG 20 01 04 13.

The Workers' Compensation insurance policy is to contain, or be endorsed to contain, the following provision: CONTRACTOR and its insurer shall waive any right of subrogation against CITY, its officers, officials, employees, agents and volunteers.

If the Technology Liability insurance policy is written on a claims-made form:

1. The retroactive date must be shown, and must be before the effective date of the Agreement or the commencement of work by CONTRACTOR.
2. Insurance must be maintained and evidence of insurance must be provided for at least five (5) years after completion of the Agreement work or termination of the Agreement, whichever occurs first, or, in the alternative, the policy shall be endorsed to provide not less than a five (5) year discovery period.

3. If coverage is canceled or non-renewed, and not replaced with another claims-made policy form with a retroactive date prior to the effective date of the Agreement or the commencement of work by CONTRACTOR, CONTRACTOR must purchase "extended reporting" coverage for a minimum of five (5) years completion of the Agreement work or termination of the Agreement, whichever occurs first.
4. A copy of the claims reporting requirements must be submitted to CITY for review.
5. These requirements shall survive expiration or termination of the Agreement.

All policies of insurance required herein shall be endorsed to provide that the coverage shall not be cancelled, non-renewed, reduced in coverage or in limits except after thirty (30) calendar days written notice by certified mail, return receipt requested, has been given to CITY. CONTRACTOR is also responsible for providing written notice to the CITY under the same terms and conditions. Upon issuance by the insurer, broker, or agent of a notice of cancellation, non-renewal, or reduction in coverage or in limits, CONTRACTOR shall furnish CITY with a new certificate and applicable endorsements for such policy(ies). In the event any policy is due to expire during the work to be performed for CITY, CONTRACTOR shall provide a new certificate, and applicable endorsements, evidencing renewal of such policy not less than fifteen (15) calendar days prior to the expiration date of the expiring policy.

Should any of these policies provide that the defense costs are paid within the Limits of Liability, thereby reducing the available limits by defense costs, then the requirement for the Limits of Liability of these policies will be twice the above stated limits.

The fact that insurance is obtained by CONTRACTOR shall not be deemed to release or diminish the liability of CONTRACTOR, including, without limitation, liability under the indemnity provisions of this Agreement. The policy limits do not act as a limitation upon the amount of indemnification to be provided by CONTRACTOR. Approval or purchase of any insurance contracts or policies shall in no way relieve from liability nor limit the liability of CONTRACTOR, its principals, officers, agents, employees, persons under the supervision of CONTRACTOR, vendors, suppliers, invitees, Contractors, sub-Contractors, subcontractors, or anyone employed directly or indirectly by any of them.

SUBCONTRACTORS - If CONTRACTOR subcontracts any or all of the services to be performed under this Agreement, CONTRACTOR shall require, at the discretion of the CITY Risk Manager or designee, subcontractor(s) to enter into a separate side agreement with the City to provide required indemnification and insurance protection. Any required side agreement(s) and associated insurance documents for the subcontractor must be reviewed and preapproved by CITY Risk Manager or designee. If no side agreement is required, CONTRACTOR shall require and verify that subcontractors maintain insurance meeting all the requirements stated herein and CONTRACTOR shall ensure that CITY, its officers, officials, employees, agents, and volunteers are additional insureds. The subcontractors' certificates and endorsements shall be on file with CONTRACTOR, and CITY, prior to commencement of any work by the subcontractor.

## **VERIFICATION OF COVERAGE**

CONTRACTOR shall furnish CITY with all certificate(s) and **applicable endorsements** effecting coverage required hereunder. All certificates and **applicable endorsements** are to be received and approved by the CITY'S Risk Manager or his/her designee prior to CITY'S execution of the Agreement and before work commences. All non-ISO endorsements amending policy coverage shall be executed by a licensed and authorized agent or broker. Upon request of CITY, CONTRACTOR shall immediately furnish City with a complete copy of any insurance policy required under this Agreement, including all endorsements, with said copy certified by the underwriter to be a true and correct copy of the original policy. This requirement shall survive expiration or termination of this Agreement.

**EXHIBIT C  
FEDERAL PROVISIONS  
PURCHASE AND INSTALLATION OF  
TICKET VENDING MACHINES**

**FEDERAL REQUIREMENTS**

**1. Access to Records**

The Contractor agrees to maintain all books, records, accounts and reports required under this Contract for a period of not less than three years after the date of termination or expiration of this Contract, except in the event of litigation or settlement of claims arising from the performance of this Contract, in which case Contractor agrees to maintain same until the City, the FTA Administrator, the Comptroller General or any of their duly authorized representatives have disposed of all such litigation, appeals, claims or exceptions related thereto. Reference 49 CFR 18.39(i)(11).

The following access to records requirements apply to this Contract:

**1.1. Local Governments**

In accordance with 49 CFR 18.36(i), the Contractor agrees to provide the City, the FTA Administrator, the Comptroller General of the United States or any of their authorized representatives access to any books, documents, papers and records of the Contractor that are directly pertinent to this Contract for the purposes of making audits, examinations, excerpts and transcriptions. Contractor also agrees, pursuant to 49 CFR 633.17 to provide the FTA Administrator or his authorized representatives including any PMO Contractor access to Contractor's records and construction sites pertaining to a major capital project, defined at 49 USC 5302(a)1, which is receiving federal financial assistance through the programs described at 49 USC 5307, 5309 or 5311.

**1.2. State Governments**

In accordance with 49 CFR 633.17, the Contractor agrees to provide the City, the FTA Administrator or his authorized representatives, including any PMO Contractor, access to the Contractor's records and construction sites pertaining to a major capital project, defined at 49 USC 5302(a)1, which is receiving federal financial assistance through the programs described at 49 USC 5307, 5309 or 5311. By definition, a major capital project excludes contracts of less than the simplified acquisition threshold currently set at \$100,000.

The Contractor agrees to permit any of the foregoing parties to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.

## 2. Federal Funding, Incorporation of FTA Terms and Federal Changes

The preceding provisions include, in part, certain standard terms and conditions required by the Department of Transportation, whether or not expressly set forth in the preceding Contract provisions. All contractual provisions required by DOT, as set forth in FTA Circular 4220.1F or its successors are hereby incorporated by reference. Anything to the contrary herein notwithstanding, all FTA mandated terms shall be deemed to control in the event of a conflict with other provisions contained in this agreement. The Contractor shall not perform any act, fail to perform any act or refuse to comply with any **City of Fresno** requests that would cause **City of Fresno** to be in violation of the FTA terms and conditions.

The Contractor shall at all times comply with all applicable FTA regulations, policies, procedures and directives, including without limitation those listed directly or by reference in the Master Agreement between City and FTA, as they may be amended or promulgated from time to time during the term of this Contract. Contractor's failure to so comply shall constitute a material breach of this Contract.

## 3. Federal Energy Conservation Requirements

The Contractor agrees to comply with mandatory standards and policies relating to energy efficiency that are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act.

## 4. Civil Rights Requirements

The following requirements apply to the underlying Contract:

4.1. **Nondiscrimination:** In accordance with Title VI of the Civil Rights Act, as amended, 42 USC § 2000d, section 303 of the Age Discrimination Act of 1975, as amended, 42 USC § 6102, section 202 of the Americans with Disabilities Act of 1990, 42 USC § 12132, and federal transit law at 49 USC § 5332, the Contractor agrees that it will not discriminate against any employee or applicant for employment because of race, color, creed, national origin, sex, age, or disability. In addition, the Contractor agrees to comply with applicable federal implementing regulations and other implementing requirements FTA may issue.

4.2. **Equal Employment Opportunity:** The following equal employment opportunity requirements apply to the underlying Contract:

4.2.1. **Race, Color, Creed, National Origin, Sex:** In accordance with Title VII of the Civil Rights Act, as amended, 42 USC § 2000e, and federal transit laws at 49 USC § 5332, the Contractor agrees to comply with all applicable equal employment opportunity requirements of U.S. Department of Labor (U.S. DOL) regulations, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor," 41 CFR Parts 60 *et seq.*, (which implement Executive Order No. 11246, "Equal Employment Opportunity," as amended by Executive Order No. 11375, "Amending Executive Order 11246 Relating to Equal

Employment Opportunity,” 42 USC § 2000e note), and with any applicable federal statutes, executive orders, regulations, and federal policies that may in the future affect construction activities undertaken in the course of the Project. The Contractor agrees to take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, creed, national origin, sex, or age. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

4.2.2. **Age:** In accordance with section 4 of the Age Discrimination in Employment Act of 1967, as amended, 29 USC §§ 623 and federal transit law at 49 USC § 5332, the Contractor agrees to refrain from discrimination against present and prospective employees for reason of age. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

4.2.3. **Disabilities:** In accordance with section 102 of the Americans with Disabilities Act, as amended, 42 USC § 12112, the Contractor agrees that it will comply with the requirements of U.S. Equal Employment Opportunity Commission, “Regulations to Implement the Equal Employment Provisions of the Americans with Disabilities Act,” 29 CFR Part 1630, pertaining to employment of persons with disabilities. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

4.3. The Contractor also agrees to include these requirements in each subcontract financed in whole or in part with federal assistance provided by FTA, modified only if necessary to identify the affected parties.

## 5. No Government Obligation to Third Parties

The City and Contractor acknowledge and agree that, notwithstanding any concurrence by the federal government in or approval of the Solicitation or award of the underlying Contract, absent the express written consent by the federal government, the federal government is not a party to this Contract and shall not be subject to any obligations or liabilities to the City, Contractor, or any other party (whether or not a party to that Contract) pertaining to any matter resulting from the underlying Contract.

The Contractor agrees to include the above clause in each subcontract financed in whole or in part with federal assistance provided by FTA. It is further agreed that the clause shall not be modified, except to identify the Subcontractor who will be subject to its provisions.



## 6. Program Fraud and False, Fraudulent Statements or Related Acts

The Contractor acknowledges that the provisions of the Program Fraud Civil Remedies Act of 1986, as amended, 31 USC §§ 3801 *et seq.* and U.S. DOT regulations, "Program Fraud Civil Remedies," 49 CFR Part 31, apply to its actions pertaining to this Project. Upon execution of the underlying Contract, the Contractor certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, it may make, or it causes to be made, pertaining to the underlying Contract or the FTA-assisted project for which this Contract Work is being performed. In addition to other penalties that may be applicable, the Contractor further acknowledges that if it makes, or causes to be made, a false, fictitious or fraudulent claim, statement, submission or certification, the federal government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986 on the Contractor to the extent the federal government deems appropriate.

The Contractor also acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification to the federal government under a Contract connected with a project that is financed in whole or in part with Federal assistance originally awarded by FTA under the authority of 49 USC § 5307, the government reserves the right to impose the penalties of 18 USC § 1001 and 49 USC § 5307(n)(1) on the Contractor, to the extent the federal government deems appropriate.

The Contractor agrees to include the above two clauses in each subcontract financed in whole or in part with federal assistance provided by FTA. It is further agreed that the clauses shall not be modified, except to identify the Subcontractor who will be subject to the provisions.

## 7. Suspension and Debarment

This Contract is a covered transaction for purposes of 49 CFR Part 29. As such, the Contractor is required to verify that none of the Contractor, its principals, as defined at 49 CFR 29.995, or affiliates, as defined at 49 CFR 29.905, are excluded or disqualified as defined at 49 CFR 29.940 and 29.945.

The Contractor is required to comply with 49 CFR 29, Subpart C, and must include the requirement to comply with 49 CFR 29, Subpart C, in any lower-tier covered transaction it enters into.

By signing and submitting its bid, the Bidder certifies as follows:

The certification in this clause is a material representation of fact relied upon by **City of Fresno**. If it is later determined that the Bidder knowingly rendered an erroneous certification, in addition to remedies available to **City of Fresno**, the federal government may pursue available remedies, including but not limited to suspension and/or debarment. The Bidder agrees to comply with the requirements of 49 CFR 29, Subpart C, while this Bid is valid and throughout the period of any Contract that may arise from this Bid. The Bidder further agrees to

include a provision requiring such compliance in its lower tier covered transactions.

#### **8. Disadvantaged Business Enterprise (DBE)**

This Contract is subject to the requirements of Title 49, Code of Federal Regulations, Part 26, Participation by Disadvantaged Business Enterprises in Department of Transportation Financial Assistance Programs.

The Contractor shall maintain compliance with “DBE Approval Certification” throughout the period of Contract performance.

The Contractor shall not discriminate on the basis of race, color, national origin or sex in the performance of this Contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of this DOT-assisted Contract. Failure by the Contractor to carry out these requirements is a material breach of this Contract, which may result in the termination of this Contract or such other remedy as **City of Fresno** deems appropriate. Each subcontract the Contractor signs with a Subcontractor must include the assurance in this paragraph (see 49 CFR 26.13(b)).

The prime contractors is requires to pay subcontractors for satisfactory performance of their contracts no later than 30 days from receipt of each payment from the grantee. Contractor shall comply with all applicable requirement of Disadvantaged Business Enterprise rule 49 CFR § 26.29 and the Best Practices Procurement Manual requirement in Chapter 7, Section 7.2.4 - Prompt Payment Mechanisms.

#### **9. Clean Water Requirements**

The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 USC 1251 *et seq.* The Contractor agrees to report each violation to the City and understands and agrees that the City will, in turn, report each violation as required to ensure notification to FTA and the appropriate EPA Regional Office.

The Contractor also agrees to include these requirements in each subcontract exceeding \$100,000 financed in whole or in part with federal assistance provided by FTA.

#### **10. Clean Air Requirements**

The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 USC §§ 7401 *et seq.* The Contractor agrees to report each violation to the City and understands and agrees that the City will, in turn, report each violation as required to ensure notification to FTA and the appropriate EPA Regional Office.

The Contractor also agrees to include these requirements in each subcontract exceeding \$100,000 financed in whole or in part with federal assistance provided by FTA.

## **11. Compliance with Federal Lobbying Policy**

Contractors who apply or bid for an award of \$100,000 or more shall file the certification required by 49 CFR Part 20, "New Restrictions on Lobbying." Each tier certifies to the tier above that it will not and has not used federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any City, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any federal Contract, grant or any other award covered by 31 USC 1352. Each tier shall also disclose the name of any registrant under the Lobbying Disclosure Act of 1995 who has made lobbying contacts on its behalf with non-federal funds with respect to that federal Contract, grant or award covered by 31 USC 1352. Such disclosures are forwarded from tier to tier up to the recipient.

## **12. Buy America**

The Contractor agrees to comply with 49 USC 5323(j) and 49 CFR Part 661, which provide that federal funds may not be obligated unless steel, iron and manufactured products used in FTA-funded projects are produced in the United States, unless a waiver has been granted by FTA or the product is subject to a general waiver. General waivers are listed in 49 CFR 661.7. A general public interest waiver from the Buy America requirements applies to microprocessors, computers, microcomputers, software or other such devices, which are used solely for the purpose of processing or storing data. This general waiver does not extend to a product or device that merely contains a microprocessor or microcomputer and is not used solely for the purpose of processing or storing data.

Separate requirements for rolling stock are set out at 49 USC 5323(j)(2)(C) and 49 CFR 661.11. Rolling stock must be assembled in the United States and have a 60 percent domestic content.

A Bidder must submit to the City the appropriate Buy America Certification with all offers on FTA-funded contracts, except those subject to a general waiver. Bids that are not accompanied by a properly completed Buy America certification are subject to the provisions of 49 CFR 661.13 and may be rejected as nonresponsive.

## **13. Cargo Preference**

The Contractor agrees to the following:

13.1. To use privately owned U.S.-flag commercial vessels to ship at least fifty (50) percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners and tankers) involved, whenever shipping any equipment, material or commodities pursuant to the underlying Contract to the extent such vessels are available at fair and reasonable rates for U.S.-flag commercial vessels;

13.2. To furnish within twenty (20) working days following the date of loading for

shipments originating within the United States or within thirty (30) working days following the date of leading for shipments originating outside the United States, a legible copy of a rated, "on-board" commercial ocean bill of lading in English for each shipment of cargo described in the preceding paragraph to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590 and to the FTA recipient (through the Contractor in the case of a Subcontractor's bill-of-lading.)

- 13.3. To include these requirements in all subcontracts issued pursuant to this Contract when the subcontract may involve the transport of equipment, material or commodities by ocean vessel.

#### **14. Fly America**

The Contractor agrees to comply with 49 USC 40118 (the "Fly America" Act) in accordance with the General Services Administration's regulations at 41 CFR Part 301-10, which provide that recipients and sub recipients of federal funds and their Contractors are required to use U.S. flag air carriers for U.S. government-financed international air travel and transportation of their personal effects or property, to the extent such service is available, unless travel by foreign air carrier is a matter of necessity, as defined by the Fly America Act. The Contractor shall submit, if a foreign air carrier was used, an appropriate certification or memorandum adequately explaining why service by a U.S.-flag air carrier was not available or why it was necessary to use a foreign air carrier and shall, in any event, provide a certificate of compliance with the Fly America requirements. The Contractor agrees to include the requirements of this section in all subcontracts that may involve international air transportation.

#### **15. Disputes**

Disputes arising in the performance of this Contract which are not resolved by agreement of the parties shall be decided in writing by the authorized representative of the City. This decision shall be final and conclusive unless within ten (10) days from the date of receipt of its copy, the Contractor mails or otherwise furnishes a written appeal to the City. In connection with any such appeal, the Contractor shall be afforded an opportunity to be heard and to offer evidence in support of its position. The decision of the City shall be binding upon the Contractor and the Contractor shall abide by the decision.

- 15.1. Performance During Dispute - Unless otherwise directed by the City, Contractor shall continue performance under this Contract while matters in dispute are being resolved.
- 15.2. Claims for Damages - Should either party to the Contract suffer injury or damage to person or property because of any act or omission of the party or of any of his employees, agents or others for whose acts he is legally liable, a claim for damages therefor shall be made in writing to such other party within a reasonable time after the first observance of such injury or damage.

- 15.3. Remedies - Unless this contract provides otherwise, all claims, counterclaims, disputes and other matters in question between the City and the Contractor arising out of or relating to this agreement or its breach will be decided by arbitration if the parties mutually agree, or in a court of competent jurisdiction within the State in which the City is located.
- 15.4. Rights and Remedies - The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law. No action or failure to act by the City or Contractor shall constitute a waiver of any right or duty afforded any of them under the Contract, nor shall any such action or failure to act constitute an approval of or acquiescence in any breach thereunder, except as may be specifically agreed in writing.

## **16. Termination**

- 16.1.** Termination for Convenience (General Provision) - The City of Fresno may terminate this contract, in whole or in part, at any time by written notice to the Contractor when it is in the City of Fresno best interest. The Contractor shall be paid its costs, including contract close-out costs, and profit on work performed up to the time of termination. The Contractor shall promptly submit its termination claim to City of Fresno to be paid the Contractor. If the Contractor has any property in its possession belonging to City of Fresno, the Contractor will account for the same, and dispose of it in the manner City of Fresno directs.
- 16.2.** Termination for Default [Breach or Cause] (General Provision) - If the Contractor does not deliver supplies in accordance with the contract delivery schedule, or if the contract is for services, the Contractor fails to perform in the manner called for in the contract, or if the Contractor fails to comply with any other provisions of the contract, the City of Fresno may terminate this contract for default. Termination shall be effected by serving a Notice of Termination on the Contractor setting forth the manner in which the Contractor is in default. The Contractor will be paid only the contract price for supplies delivered and accepted, or services performed in accordance with the manner of performance set forth in the contract. If it is later determined by the City of Fresno that the Contractor had an excusable reason for not performing, such as a strike, fire, or flood, events which are not the fault of or are beyond the control of the Contractor, the City of Fresno, after setting up a new delivery of performance schedule, may allow the Contractor to continue work, or treat the termination as a Termination for Convenience.
- 16.3.** Opportunity to Cure (General Provision) - The City of Fresno, in its sole discretion may, in the case of a termination for breach or default, allow the Contractor [an appropriately short period of time] in which to cure the defect.

In such case, the Notice of Termination will state the time period in which cure is permitted and other appropriate conditions. If Contractor fails to remedy to City of Fresno satisfaction the breach or default of any of the terms, covenants, or conditions of this Contract within [10 days] after receipt by Contractor of written notice from City of Fresno setting forth the nature of said breach or default, City of Fresno shall have the right to terminate the contract without any further obligation to Contractor. Any such termination for default shall not in any way operate to preclude City of Fresno from also pursuing all available remedies against Contractor and its sureties for said breach or default.

- 16.4.** Waiver of Remedies for any Breach - In the event that City of Fresno elects to waive its remedies for any breach by Contractor of any covenant, term or condition of this contract, such waiver by City of Fresno shall not limit City of Fresno remedies for any succeeding breach of that or of any other covenant, term, or condition of this contract.
- 16.5.** Termination for Default (Supplies and Service) - If the Contractor fails to deliver supplies or to perform the services within the time specified in this contract or any extension, or if the Contractor fails to comply with any other provisions of this contract, the City of Fresno may terminate this contract for default. The City of Fresno shall terminate by delivering to the Contractor a Notice of Termination specifying the nature of the default. The Contractor will only be paid the contract price for supplies delivered and accepted, or services performed in accordance with the manner or performance set forth in this contract. If, after termination for failure to fulfill contract obligations, it is determined that the Contractor was not in default, the rights and obligations of the parties shall be the same as if the termination had been issued for the convenience of the City of Fresno.

## **17. Recycled products**

- 17.1.** The Contractor agrees to provide a preference for those products and services that conserve natural resources, protect the environment, and are energy efficient by complying with and facilitating compliance with Section 6002 of the Resource Conservation and Recovery Act, as amended, 42 U.S.C. § 6962, and U.S. Environmental Protection Agency (U.S. EPA), "Comprehensive Procurement Guideline for Products Containing Recovered Materials," 40 C.F.R. part 247.