

SECTION 34 50 19

ADDFARE MACHINES

PART 1- GENERAL

1.01 SECTION INCLUDES

- A. Addfare Machines

1.02 MEASUREMENT AND PAYMENT

- A. Measurement: Addfare machines will be measured for payment as a lump sum unit acceptably installed and tested for compliance.
- B. Payment: Addfare machines will be paid for at the Contract lump sum price for addfare machines or as part of the lump sum price for Fare Collection System Work, as determined by the lump sum measurement specified above, as indicated in the Bid Schedule of the Bid Form.

1.03 REFERENCES

- A. BART Technical Documents
 - 1. Exhibit D - AFM Master Functionality Flow Diagrams
 - 2. Exhibit G - AFM Customer Interface Screen Flow Diagrams
 - 3. Exhibit I - AFM ticket Processing Requirements

1.04 SUBMITTALS

- A. Refer to Section 34 50 10 - Fare Collection System, for submittal requirements.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Functionality: The AFM shall perform the following functions:
 - 1. Upgrade an undervalued BART Blue ticket to the minimum fare required to exit the station, using cash;
 - 2. Reload Smart Card fare media using cash;
 - 3. Accept one and five dollar bills, and nickels, dimes, quarters coins;
 - 5. Return nickels and quarters coins change;
 - 6. Provide change up to \$4.95. The quantity of change dispensed shall be programmable locally in the service keypad or remotely from DAS;
 - 7. Make change without purchase for one \$1.00 bill;

8. Upgrade an undervalued BART-Plus or Student ticket; and
 9. Be able to perform in the future, all other functions defined in Exhibit D, AFM Master Functionality Flow Diagrams.
- B. Design: The AFM shall be similar in design, construction, software and operating features to the Ticket Vending Machines (TVM) specified in Section 34 50 13 - Ticket Vending Machines, except as modified herein. The total height of the installed free standing AFM cabinet shall not exceed 60 inches above finished floor.
- C. Drawings and Exhibits: The Contract Drawings depict front panel features and equipment dimensions. Exhibit G, AFM Customer Interface Screen Flow Diagrams, provides typical examples of the operating and display features of the AFM. These examples are provided to the Supplier as the basis for developing its design and shall not be construed to be complete. The Supplier shall be responsible for the design of the AFM and their compliance to the requirements specified herein.

2.02 COMPATIBILITY

- A. Functional and physical compatibility requirements with existing AFM shall be the same as those specified for TVM's in Section 34 50 13 - Ticket Vending Machines. The only exception is that AFM are self-standing equipment and TVM are designed for installation in vaults.

2.03 CUSTOMER INTERFACE AND HUMAN FACTORS:

- A. The same requirements as for TVM as specified in Section 34 50 13 - Ticket Vending Machines.

2.04 FRONT PANEL ASSEMBLY

- A. The operating features on the front panel of the AFM are indicated on the Contract Drawings. The requirements for message display unit, soft keys, out-of service annunciator, coin bezel, coin return cup, bill bezel, bill return, ticket slot, access lock, and front panel graphics shall be the same as those for the TVM as specified in Section 34 50 13 - Ticket Vending Machines, except as modified herein.
- B. Message Display Unit (MDU): Messages shall be adapted to the function of the AFM as indicated in Exhibit G.
- C. Numeric Keypad: A numeric keypad is not required. However, provisions shall be made for future installation of an external numeric keypad similar to that for the TVM as specified in Section 34 50 13 - Ticket Vending Machines.
- D. Bill Bezel: AFM shall accept only \$1 and \$5 bills.
- E. Cancellation. The "Transaction Canceled" message shall be displayed on the MDU conditions:
1. Coin or bill escrow capacity has been exceeded.
 2. Power failed before the total amount of money required was inserted.

3. Greater than \$1.00 is inserted for a "Change Only" transaction.
4. Jammed ticket.

F. Front Panel Graphics. The AFM, having different functionality, shall be designed to be sufficiently different in appearance from the TVM to enable customers to readily identify the two types of equipment.

2.05 FUNCTIONALITY

A. The Functionality of the AFM shall be as described in Exhibit I, AFM Ticket Processing Requirements. The Customer Interface Flow Chart shall be as described in Exhibit G.

2.06 TRANSACTION TIMES

A. Transaction times shall be measured based on the total time for ten consecutive identical transactions conducted by trained personnel, divided by the number of transactions.

B. Undervalued Ticket. The AFM shall complete the upgrading of a ticket undervalued by \$2.40 in less than 15 seconds for the following denominations of money inserted:

1. Three one dollar bills (\$0.60 in change returned).
2. Two one dollar bills, one quarter, one dime, and one nickel.
3. One five dollar bill (\$2.60 in change returned).

C. Smart Card. Transaction time for a Smart Card loading shall be the same as for the TVM, as specified in Section 34 50 13 - Ticket Vending Machines.

2.07 MICROPROCESSOR ASSEMBLY

A. The requirements for chip quality, data storage, and data interfaces shall be the same as those for the TVM as specified in Section 34 50 13 - Ticket Vending Machines, except as modified herein.

B. Data Storage.

1. Data to be Stored.
 - a. Cumulative Sales Data: Each storage partition (current and previous) shall maintain a record of cumulative sales data including but not limited to:
 - 1) Total sales revenue data;
 - 2) Total revenue from currency by denomination;
 - 3) Total number of "addfared" tickets by type and value;
 - 4) Total number of change-only transactions;
 - 5) Number of tickets by type addfared/ by currency;
 - 6) Number of tickets addfared by ticket type; and
 - 7) Number of Smart Card reloads.

- b. Individual Ticket Transaction Data: Each storage partition (current and previous) shall maintain a record of each individual addfare and Smart Card reload transaction. For each transaction, the recorded data shall include but not limited to:
- 1) AFM identification number;
 - 2) Station location;
 - 3) Date and time of transaction;
 - 4) Transaction number;
 - 5) Amount of transaction;
 - 6) Identification of change-only transaction;
 - 7) Type and value of ticket/Smart Card addfared/reloaded;
 - 8) Type and value of ticket to be addfared/upgraded;
 - 9) Value of addfare/;
 - 10) Value of addfared/ ticket;
 - 11) Ticket/Smart Card serial number;
 - 12) Currency accepted by denomination;
 - 13) Coins returned by denomination; and
 - 14) Coins returned by hopper by denomination.
- c. Equipment Summary Data: Each storage partition (current and previous) shall maintain a record of Equipment Summary Data including but not limited to:
- 1) Number of failure or malfunction incidents by type
 - 2) Number of access to Bill Vault and Bill Escrow
 - 3) Number of access to Coin Vault, Coin Hoppers, and Coin Magazines
 - 4) Number of access to ticket roll stocks
 - 5) Number of legitimate entries
 - 6) Number of intrusions/manipulation entries
 - 7) Number of bills read but not accepted
 - 8) Number of service and warning incidents by type
 - 9) Amount of money in each revenue service component
 - 10) Number of accesses to ticket handling mechanism
- d. Equipment Event Data: Each storage partition (current and previous) shall maintain a record of each equipment event. The recorded data shall include but not limited to:
- 1) AFM identification number
 - 2) Station location
 - 3) Date and time of event
 - 4) Type of Event
 - 5) Failure Code
 - 6) Operator ID, Security Level (if applicable)
 - 7) Complete financial status of component (if applicable)
2. Storage Capacity. The data storage media (RAM or Harddisk) shall be adequate to store the current and previous Cumulative Sales Data and the Equipment Summary Data for at least 30 days. For the Individual Sales Transaction Data and the Equipment Event Data, the data storage media shall have the capacity to store 10,000 transactions or three days worth of data, whichever is greater, for both the current and previous period. The data storage media shall be adequate for the storage capacity indicated plus a reserve of 300 percent of the capacity used. If RAM storage is used, expansion shall be possible with the simple addition of memory boards or chips.

- C. Data Interface. The data to be transmitted shall include the following as a minimum:
1. Real Time Data: The AFM shall transmit, in real time, the stored Individual Ticket Transaction Data specified above.
 2. Polled Data: The AFM shall transmit, when polled, the following data
 - a. Summary of AFM condition: The stored Equipment Summary Data specified above.
 - b. Summary of Sales Transaction: The stored Cumulative Sales Data specified above.
 - c. Ticket Transaction Data: The stored Individual Ticket Transaction Data specified above.
 - e. Equipment Event Data: The stored Equipment Event Data specified above.

2.08 TICKET TRANSPORT MODULE

- A. Requirements shall be the same as those for the TVM as specified in Section 34 50 13 - Ticket Vending Machines, except that requirements for loss of encoded data shall be the same as those for the fare gates as specified in Section 34 50 16, Fare Gates.

2.09 FARE STRUCTURE

- A. The AFM shall conform to the fare structure requirements specified in Section 34 50 10 - Fare Collection System.

2.10 OTHER REQUIREMENTS

- A. All other requirements for the AFM shall be the same as those for the TVM as specified in Section 34 50 13 - Ticket Vending Machines. This applies to maintenance mode, coin handling assembly, bill handling assembly, audio, contact smart card reader, power supply management, external security and intrusion alarm, and service keyboard.

PART 3 – EXECUTION

Not Used

END OF SECTION 34 50 19