

6.III-9 STAND-ALONE FARE TRANSACTION PROCESSOR

6.III-9.1 Subsystem Description - Stand-Alone FTP

Stand-Alone FTPs (SAFTP) (DR 106) shall be ruggedized devices installed at Sound Transit Stations, and King County Metro and Community Transit bus rapid transit (BRT) stations and stops, and shall be designed for pedestal or wall mounting. Two SAFTP configurations shall be supplied:

1. Configuration 1: An SAFTP equipped with zone/destination buttons for Sound Transit (DR 106.01). Passengers will select the number of zones of travel prior to presenting the fare card for payment.
2. Configuration 2: An SAFTP with no button that supports either “tagon/tag-off” operations, or “tag-on” only operations.

At a minimum, the SAFTP shall consist of the modules listed in Figure III-9.1.

**Figure III-9.1
FTP CONFIGURATION SUMMARY**

Modules	Stand-Alone FTP
* Central Processing Unit	X
* Contactless Card Interface	X
* Customer Display/Indicator	X
Power Supply	X
Ethernet communications port (for network connection to a DAC)	X
Pedestal/wall mount bracket	X
Selection Buttons	X (Configuration 1)

“X” denotes module required by Contract

* Module described in Section 6.III-3

6.III-9.2 Functional Requirements - Stand-Alone FTP

The following functional requirements supplement those stated in Section 6.III-3.2.

- (a) Log-on from Agency personnel shall occur via a log-on smart card, through a command issued through the DACS (to activate all FTPs at a station)..
- (b) Zone selection buttons (Configuration 1) shall allow a customer to select a destination zone. The SAFTP shall calculate the fare based on the origin and destination zones or stations.
- (c) SAFTP (Configuration 1) shall be supplied with up to 10 zone selection buttons. The final number of zone selection buttons shall be determined at PDR (CDRL 2).

- (d) The SAFTP shall support peak and off-peak fare pricing based on time of day and day of week.
- (e) SAFTP's shall be configured for either "tag-on/tag-off" operation or "tag-on" operations only, depending on the service operated on and Agency preferences.
- (f) The location identification and the agency (which indirectly selects the "tag-on/tag-off" or "tag-on" mode) shall be configured during commissioning of the device.
- (g) For tag-on/tag-off operation, the SAFTP shall deduct an initial fare (for stored value operation) upon tag-on, and provide a credit back to the card upon tag-off. For pass-products, tag-ons and tag-offs shall be registered for the purpose of ridership data collection, but no fare shall be deducted.
- (h) For tag-on only operation, a default fare shall be charged for stored value at the time of tag-on, with the amount dependant upon the fare table in effect and customer fare basis information (e.g. adult/concession fare category and any preferred zone presets). For pass products, a tag-on shall be registered for the purpose of ridership data collection but no fare shall be deducted.
- (i) Data shall be written to the card as follows to support inspection using Portable Fare Transaction Processors (PFTP's):
 - i. For tag-on/tag-off operation, the card status shall be set to "tagged in" or tagged out" depending on the action that has occurred, and PFTP devices shall read this status to determine fare payment status.
 - ii. For tag-on only operation, the fare payment transaction details shall be recorded on the card. The PFTP devices shall read these transactions details to determine fare payment status.
- (j) Transfer rules shall be as follows:
 - i. Transfers from a tag-on/tag-off transit service to a tag-on only transit service shall result in the applicable fare being on both services, subject to transfer rules in effect, regardless of whether or not the tag-off occurred on the first service.
 - ii. Transfers from a tag-on service to either another tag-on service (at an SAFTP or OBFTP), or to a tag-on/tag-off service, shall result in the applicable fare being paid on both services, subject to transfer rules in effect.

- iii. If a tag-on occurs on a BRT SAFTP and the customer also tags on to an OBFTP on a bus servicing the route upon boarding, this shall be treated as an intra-service transfer with zero fare deducted but both transactions recorded.

6.III-9.3 Performance Requirements - Stand-Alone FTP

The minimum throughput rate for SAFTPs shall be 45 transactions per minute.

6.III-9.4 Physical Requirements - Stand-Alone FTP

9.4.1 Dimensions and Layout

A sample mockup of each SAFTP configuration and its mounting shall be demonstrated at time of PDR for each mounting location. (DR 106.01 and 106.02)

9.4.2 Structural Features

- (a) The SAFTP pedestal shall be constructed of 14 gauge stainless steel.
- (b) The wall mount shall be designed for outdoor installation at an unattended site, and shall include protection against removal or vandalism
- (c) The structural design shall be such that a force of 250 pounds applied in a horizontal plane at the topmost point of the SAFTP in any of the four mutual sides shall not result in dislodging of the SAFTP, pedestal or wall mount (where installed by the Contractor), and shall not bend or buckle the SAFTP, pedestal or wall mount.

9.4.3 Keypad (zone selection buttons)

The keypad/zone selection buttons shall meet the following requirements:

- (a) All keys or buttons shall have a 10 year service life in normal operation, regardless of number of actuations. In the event that a key or button fails before the 10 year service life, it shall be replaced at no cost to the Agencies per Section 4.1 of Exhibit 14 of the Contract provided such failure does not constitute an Agency responsibility as defined in Section 4.2 of Exhibit 14.
- (b) The keypad shall be designed to be water and liquid resistant.

6.III-9.5 Data Exchange Requirements - Stand Alone FTP

- (a) SAFTPs shall include an Ethernet interface with an RJ45 connection for wired connection to a DAC.
- (b) The SAFTP shall include capabilities to be connected to a PC through a standard RS232 port for diagnostic purposes.
- (c) The Contractor shall provide the software for a PC that allows the use of a PC keyboard to operate the SAFTP and PC monitor to display the card data. This connection from the SAFTP will be provided via an auxiliary serial port that is sealed within the SAFTP mounting pole or wall cradle and accessible at a remote location within visual range of the SAFTP.
- (d) SAFTPs supplied for WSF shall include a standard serial interface, designed for future connection to WSF's new point of sale system. The Contractor shall provide an Interface Control Document (DR 106.02) fully describing this interface.
- (e) SAFTPs and associated DACs installed at Sound Transit rail stations shall communicate through Sound Transit's existing TVM communications network.
- (f) SAFTP's for BRT installations shall communicate via an Agency-supplied communications network to a designated DAC.

6.III-9.6 Installation Requirements - Stand-Alone FTP**9.6.1 Contractor Installed Mounting Hardware**

- (a) SAFTPs shall be designed to be installed freestanding on a pedestal or wall mounted.
- (b) The Contractor shall furnish to the Contract Administrator and affected Agency with bolt pattern mounting requirements, foundation designs, and electrical/communications construction and connection details.
- (c) The Contractor shall furnish one (1) set of anchor bolts and all mounting hardware, including mounting or pedestal base if required, for each SAFTP furnished under this contract.
- (d) The Contractor shall be responsible for mounting the SAFTPs with bolts or other means to a concrete surface. Each unit shall be properly leveled, accommodating station platform slopes of up to 2% traverse and 2.4% longitudinal, prior to being permanently installed.
- (e) Removal of SAFTPs shall be possible without damage to concrete or attachment devices. The attachment devices shall not be exposed to the public after the equipment is installed.
- (f) Conduit, power and communications cables leading from the power and communications sources to the junction box shall be installed by the Agency.

Connections from the junction box to the SAFTP shall be the responsibility of the Contractor.

- (g) The Contractor shall install the SAFTPs over the junction boxes, providing bottom entry of power and communication lines such that no wiring or cabling is exposed outside the SAFTP cabinet or base, and the Contractor shall make final connections (plug-in) to power and communications.
- (h) The Contractor shall perform commissioning/commissioning test services of devices as well as installation testing services.

9.6.2 Agency Installed Mounting Hardware

- (a) SAFTP's shall be designed to be installed freestanding on a pedestal or wall mounted.
- (b) The Contractor shall furnish to the Contract Administrator and affected Agency with bolt pattern mounting requirements, foundation designs, and electrical/communications construction and connection details.
- (c) The Contractor shall furnish one (1) set of anchor bolts and all mounting hardware, including mounting or pedestal base if required, for each SAFTP furnished under this contract.
- (d) The Agency shall be responsible for attaching the mounting hardware with bolts or other means to a concrete surface (pedestal) or wall (wall mount box). Each unit shall be properly leveled, accommodating station platform slopes of up to 2% traverse and 2.4% longitudinal, prior to being permanently installed.
- (e) Conduit, power and communication cables leading from the power and communication sources to the junction box shall be installed and terminated by the Agency.
- (f) The Agency shall be responsible for fitting SAFTP to SAFTP pole or SAFTP wall mount enclosure with three bolts supplied by ERG.
- (g) The Agency shall machine holes into base plates to accommodate surface mount conduit where preferred and shall fit base covers to SAFTP pole where required.
- (h) The Contractor shall perform commissioning/commissioning test services of the Agency installed devices as well as installation testing services.