



Greater Cleveland Regional Transit Authority

REQUEST FOR PROPOSAL

Ticket Vending Machines

RFP NO. 2025-135



Due Date: Tuesday, October 28, 2025
11:00 a.m. Official Time



Greater Cleveland
Regional Transit Authority

1240 West 6th Street
Cleveland, Ohio 44113-1302
Phone: 216-566-5100
riderta.com

NOTICE TO PROPOSERS

September 28, 2025

To: Prospective Proposers

Re: **Ticket Vending Machines**
RFP No. 2025-135

The Greater Cleveland Regional Transit Authority (GCRTA) hereby transmits a Request for Proposals (RFP) for the procurement referenced above.

GCRTA reserves the right to award this contract to one or more proposers, or to cancel this procurement without any award.

The Request for Proposal package is available to download on the GCRTA Website at www.riderta.com. Select the Doing Business tab, and then select Contract Opportunities. You will be required to enter your name and email address. This is so that we can contact you if there are amendments or clarifications to the RFP documents.

There is a **Zero Percent (0%)** DBE goal for this procurement.

Proposals for this procurement will be accepted until **11:00 A.M., Official Time, Tuesday, October 28, 2025**. As stated in the Instructions to Proposers, any proposal received after the designated time or via any means other than that designated below, will not be accepted.

Please submit your proposals to the Dropbox link noted below.

<https://www.dropbox.com/request/LUVJPcH28CloTEeFZ0PC>

Please direct all communications regarding this procurement, including requests for clarification to the contract administrator, Drew Dimmick | 216-356- 3132 | drew.dimmick@gcrt.org. Questions will be accepted until close of business on **Friday, October 17, 2025**. Any questions submitted after this time will not be accepted. All questions must be submitted in writing, in a word formatted document.

Sincerely,

Drew Dimmick
Contract Administrator II

GREATER CLEVELAND REGIONAL TRANSIT AUTHORITY

REQUEST FOR PROPOSALS

Ticket Vending Machines RFP No. 2025-135

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I. INTRODUCTION

The Greater Cleveland Regional Transit Authority (GCRTA) is seeking qualified vendors to submit proposals for a modern Ticket Vending Machine (TVM) system. This initiative is part of GCRTA's ongoing commitment to enhancing customer experience, improving operational efficiency, and embracing innovative technologies that support seamless fare collection across our transit network.

Established in 1974, GCRTA serves as the primary public transportation provider for Cuyahoga County, Ohio. With a service area covering over 460 square miles, GCRTA operates a comprehensive network that includes bus, rail, paratransit, and trolley services. Each year, GCRTA facilitates millions of passenger trips—averaging over 30 million annually in recent years—connecting residents and visitors to employment centers, educational institutions, healthcare facilities, and cultural destinations throughout Greater Cleveland.

As part of our strategic modernization efforts, GCRTA seeks to replace its aging TVM infrastructure with a robust, user-friendly, and secure system. We are looking for vendors with proven experience in deploying scalable fare collection solutions in transit environments, and who can partner with us to deliver a system that meets the needs of today's riders while preparing for tomorrow's mobility innovations.

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1. SYSTEM GENERAL REQUIREMENTS

1.1 EXISTING SYSTEM DESCRIPTION

Today, GCRTA has 117 Ticket Vending Machines (TVMs) and 13 Customer Service Kiosks (CSKs) that provide fare media to customers at various locations throughout GCRTA's system. Implemented in 2007, the current units' hardware and software are coming to their end of life as well as end of support. Repair parts are becoming difficult to obtain. Soon, some units may have to be taken offline to provide parts to other machines. Continued software updates and patches will eventually become unavailable.

The current TVM and CSK units are stocked with blank magnetic fare media. They encode, print, and activate the stock based on the fare product purchased. Currently, TVMs only sell one-ride proof of payment and all-day passes. CSKs issue the same material as the TVMs plus five-trip cards, weekly passes and monthly passes (calendar-based). All fare media sold from the CSK (with the exception of the one-ride proof of payment product) allow the customer to choose to issue the pass not yet activated. An inactivated pass would then become valid when used at a farebox.

On revenue vehicles all fareboxes currently accept cash and magnetic fare media. Fareboxes sell and issue proof of payment and all-day passes (on magnetic fare media). GCRTA's current fare media information can be found at <https://www.riderta.com/fares>.

1.2 NEORIDE ACCOUNT-BASED FARE COLLECTION

1.2.1 Background

In 2022, GCRTA became the 14th public transit authority to join NEORide, a consortium of transit authorities in the U.S. that collaborate to improve public transportation across multiple regions. NEORide has partnered with Masabi to provide and implement EZfare, a mobility ticketing system that allows riders to pay for transit fares across the participating agencies with a single app. As part of this continued partnership between NEORide and Masabi, the GCRTA is planning to implement an account-based transaction (ABT) system through Masabi's Justride Platform.

1.2.2 Masabi Components

As part of the NEORide agreement, Masabi has supplied the following fare collection components to the Authority:

- Justride Hub – Masabi's responsive web back-office system whose functionality encompasses tariff setup and administration, customer services handling, validation device management and reporting and analytics.
- Justride Validator (JRV)/Justride Platform Validator (JRPV) – A contactless card reader that is PCI-PTS certified as well as EMV contactless Level 1 and Level 2 for various card payment brands. The validator is capable of accepting taps from both open- and closed-loop cards and is equipped with a scanner capable of reading barcodes and QR codes either physically (e.g., printed on paper) or virtually (e.g., displayed on a mobile device). The JRV will be installed aboard buses and rail cars, and the JRPV will be installed on platforms and faregates.
- EZfare - A mobility ticketing system, which enables riders to pre-purchase their fare media products for use within participating NEORide transit authorities.
- Justride Inspect – A software component, which runs on handheld Android, and is used to verify the validity of fare media used by riders to access the transit system.

Additionally, Masabi will be providing the Contractor with a set of Application Program Interfaces (APIs) to enable the TVM to interface with the Masabi system as needed. For more details on the APIs and overall interface with Masabi, refer to section 6.10.1.

1.3 NEW TICKET VENDING MACHINE SYSTEM DESCRIPTION

GCRTA ("the Authority") envisions the New TVM System to include a common solution that will provide **seventy-five (75) new TVMs**. These new TVMs will incorporate modern user interfaces and payment methods. Additionally, the

TVMs will dispense and read contactless smartcard media in lieu of the existing magnetic fare media and allow users to replenish stored value accounts linked to Authority-issued smartcards and mobile apps.

The New TVM System will also include a cloud-hosted Back Office System (BOS) to manage, configure, and monitor the TVMs. The new BOS will also interface with a third-party back-office system to support sales of new media and replenishment of accounts linked to the media.

1.4 EQUIPMENT AND SERVICES TO BE PROVIDED

- Design, test, manufacture, install new TVMs
- Remove existing TVMs and CSKs and deliver to GCRTA-specified location(s)
- Design, test, configure, deploy cloud-hosted Back Office System (BOS), including integration with the Masabi APIs
- Supply initial stock of Limited-Use Fare Media (LUM)
- Supply initial stock of thermal paper required for receipt printing
- Provide documentation and training
- Provide project management as required
- Provide BOS hosting, software support, and technical support for three years with Authority-exercisable options for additional years
- Option for purchase of additional units beyond the stated seventy-five (75) units

1.5 PROJECT SCHEDULE

The Authority prefers the project to require no more than 18 months from Notice to Proceed (NTP) to full revenue service. Within six months after full revenue service, the Contractor shall satisfy all requirements to achieve Final Acceptance. (See Section 13.)

1.6 TRANSITION TO NEW SYSTEM

Deployment of the New TVM System will occur in three stages:

1. Deployment, test, and configuration of the Production Back Office System and the installation and configuration of two TVMs in the Authority's Test Facility.
2. A limited Pilot Test, consisting of 10 TVMs installed at locations defined by the Authority. To prepare for the Pilot Test, the Contractor will replace 10 existing Authority TVMs or CSKs with 10 new TVMs. The Pilot Test will commence after the Contractor commissions the 10 new TVMs.
3. Upon successful completion of the Pilot Test, the replacement of 55 existing Authority TVMs and CSKs with new TVMs.

1.7 RESPONSIBILITIES OF THE AUTHORITY

- Provide required infrastructure at TVM installation locations
- Provide required business rules, fare policies, and operating parameters for system configuration
- Coordinate integration efforts between the Contractor and Masabi
- Provide Authority project manager and identify key project stakeholders

2. COMMON REQUIREMENTS

2.1 SERVICE-PROVEN DESIGN

Req. #	Requirement
2.1-1	Software and hardware provided under this Contract shall provide a minimum useful life of 12 years.
2.1-2	The Authority prefers a TVM solution that is derived from a service-proven design.
2.1-3	The Contractor shall provide TVMs that have been deployed and met system acceptance requirements at a minimum of two transit agencies.
2.1-4	The Contractor shall provide a Back-Office System that has been deployed and accepted at a minimum of two transit agencies.

During the Design Review, the Contractor may offer, for approval, a design that is largely unchanged from a service-proven design, but which varies slightly in design or manufacture to meet the requirements of these specifications, including newer generations of service-proven equipment.

2.2 SUPPLY AND AVAILABILITY

Req. #	Requirement
2.2-1	At the time of delivery, equipment, and all associated components and software shall contain no non-standard, prototype, obsolete, or discontinued products.
2.2-2	The Contractor shall select and supply devices, components, parts, modules, assemblies, and subassemblies, as well as software and other essential elements of the system, based on projected availability and long-term original equipment manufacturer (OEM) support commensurate with the required useful life of the system.
2.2-3	The Contractor shall supply the initial stock of Limited-Use Fare Media to be dispensed from the TVM, which shall be either MIFARE Ultralight EV1 or MIFARE Ultralight C smartcards.
2.2-4	The Contractor shall supply the initial stock of thermal paper required to print receipts upon completion of a transaction.
2.2-5	All devices, components, parts, modules, assemblies, and subassemblies shall be available for purchase for a minimum of the service life of the system.

2.3 MATERIALS AND WORKMANSHIP

Req. #	Requirement
2.3-1	The Contractor shall be certified as compliant with the ISO 9001 quality assurance standard promulgated by the International Organization for Standardization.
2.3-2	The workmanship employed by the Contractor shall be of the best quality and of the highest standard of commercially acceptable practice for the class of work, and shall result in the equipment having a neat, clean, and finished appearance.
2.3-3	All Contractor-provided equipment shall be free from safety hazards and shall be designed to comply with relevant Underwriters Laboratory (UL) Standards.
2.3-4	All interior and exterior surfaces shall be free from sharp edges, protrusions, exposed bare wires and terminals, or other safety hazards.

2.4 SOFTWARE DESIGN PRINCIPLES

Req. #	Requirement
2.4-1	The Contractor shall supply all necessary software applications and shall design and configure all device and Back Office System (BOS) software applications for optimal system performance.

Req. #	Requirement
2.4-2	The Contractor shall install all software that is necessary for system operation and to successfully meet the operational and performance requirements in these specifications.
2.4-3	The Back Office System shall centrally manage TVM software and firmware upgrades
2.4-4	The Contractor shall load all software upgrades to the Authority's test environment for testing and verification prior to before deploying to the production system.
2.4-5	The system shall be able to roll back to previous software versions without adversely impacting operations.
2.4-6	The TVM operating system and all BOS software must be fully supported by the OEM supplier for a minimum of five years after commencement of revenue service.
2.4-7	The Contractor shall provide software upgrades as necessary to ensure full compliance with PCI and EMV standards while the software support O&M services are in force. If an upgrade is necessary after O&M services are no longer in effect, the Contractor must support GCRTA's purchase of the upgrade for the required useful life.

2.5 MAINTAINABILITY AND SERVICEABILITY

Req. #	Requirement
2.5-1	System equipment shall provide reliable operation over its design life and shall require minimal scheduled and unscheduled maintenance.
2.5-2	To the extent possible, modular construction techniques shall be employed in the manufacture of the TVM.
2.5-3	Each module shall be self-contained and shall be inserted in a singular, correct fashion by means of guides and electrically connected by means of polarized plugs.
2.5-4	All electronic circuit boards shall be modular (e.g., plug connected) and removable for inspection and/or maintenance.
2.5-5	The TVM interior shall allow easy and safe access to all serviceable components. Adequate space shall be available to insert keys; grasp, lift, and turn internal components; and remove and replace components, connections, and consumables.
2.5-6	As appropriate, the TVM interior shall include guides, rails, tracks, handles, and captive fasteners to facilitate module installation and removal.
2.5-7	Excluding the use of keys to secure modules to the enclosure, the coin and bill modules, printers, media dispensers, and logic boards or assemblies, shall be readily accessible when the service entry (i.e., lid or door) is opened and shall be removeable and/or replaceable without the use of tools.
2.5-8	The TVM shall include automatic diagnostic test routines (and equipment if necessary) to aid in troubleshooting malfunctions. These test routines shall provide the ability to isolate defects down to the Lowest Level Replaceable Unit (LLRU).
2.5-9	The Mean Time to Repair (MTTR) an inoperative TVM shall not exceed ten minutes.

2.6 OPERATING ENVIRONMENT

2.6.1 Environmental Conditions

Most TVMs will be installed in sheltered locations that may not be environmentally conditioned. Some TVMs will be on platforms that have overhead shelter, but may be exposed to wind-driven precipitation and unfiltered sunlight. Some TVMs may be installed in glass-enclosed areas exposed to unfiltered sunlight.

Req. #	Requirement
2.6.1-1	The Ticket Vending Machines (TVMs) shall tolerate and operate reliability in an open-air environment with temperature range, wind, precipitation, dust (including dust generated by brakes, wheels, and rails), heat, humidity, sunlight, electromagnetic interference, vibration, and other environmental conditions of the Authority's facilities and the greater Cleveland metropolitan area.
2.6.1-2	All TVMs shall operate reliability in the following environmental conditions, singularly and in any combination: 1. Sunlight: Direct sun, maximum daily heat gain of 5.7 kWh/m² 2. Ambient Temperature -20°F to 120°F 3. Temperature Fluctuation: Up to 30°F in 2 hours 4. Relative Humidity: 30% to 99%, non-condensing 5. Rainfall: Up to 6 inches per hour 6. Freezing Precipitation: Up to 3 inches per hour 7. Wind: Up to 80 mph, any direction
2.6.1-3	TVM enclosures shall prevent water ingress during driving rainstorms and conform to UL testing for water ingress.
2.6.1-4	TVMs installed at bus and rail stations shall withstand structure-borne stresses and vibrations caused by passing trains and vehicles.

2.6.2 Electrical

2.6.2.1 *Printed Circuit Boards*

Req. #	Requirement
2.6.2.1-1	Electronics shall be of the solid-state type, assembled on glass/epoxy printed circuit boards.
2.6.2.1-2	No harness wiring shall be directly connected by means of solder to any board which is intended to be removed for maintenance or inspection.
2.6.2.1-3	All printed circuit boards shall be conformal coated to resist the effects of moisture.

2.6.2.2 *Power and Voltage Requirements*

Req. #	Requirement
2.6.2.2-1	The Contractor shall design, supply, install, test, and commission all internal system components necessary to provide the required electrical power to the Contractor-supplied equipment.
2.6.2.2-2	The TVM shall receive power from existing commercial power sources and shall filter, transform, convert, store, and distribute power as required.

2.6.2.3 *Electromagnetic Interference*

Req. #	Requirement
2.6.2.3-1	The TVM shall suffer no degradation in operation or performance when exposed to ambient electromagnetic interference (EMI) present at Authority bus and rail platforms.
2.6.2.3-2	The TVM shall not emit levels of EMI that exceed allowable limits as set forth by applicable regulations (e.g., FCC).
2.6.2.3-3	TVMs shall not interfere with the transmission and reception of the following established frequencies: 1. Audio frequencies for overlay track circuits, highway crossing approach and island circuits, and electrical lock circuits 2. Audio frequency code overlay for Automatic Train Control (ATC) 3. Track signal power 4. Cab signals 5. Radio frequencies (MHz)

Req. #	Requirement
2.6.2.3-4	All TVM components shall include protection against external EMI and Radio Frequency Interference (RFI) emissions, as well as internal conductive or inductive emissions.
2.6.2.3-5	TVMs shall tolerate (without adverse operational effect) the electromagnetic fields generated by the 600 Volt DC overhead contact wire traction power system.

2.6.2.4 Grounding

Req. #	Requirement
2.6.2.4-1	All TVM enclosures, chassis, assemblies, panels, switch boxes, and terminal boxes shall be grounded. Protective grounding shall be provided to ensure that exposed metal on all system components is connected to a common ground point.
2.6.2.4-2	The Contractor shall meet safety requirements for the grounding that conforms to the National Electric Code (NEC) and UL, SAE, and local codes where applicable.

2.7 LICENSING AND DATA OWNERSHIP

Req. #	Requirement
2.7-1	The Authority shall own all data generated by the equipment, systems, and software delivered under this Contract.
2.7-2	The Authority shall be able to freely access and distribute all data free of charge.
2.7-3	The Authority shall retain ownership of all data in perpetuity with no restrictions or additional cost.
2.7-4	All documentation described in these specifications shall become the property of the Authority or provided under a perpetual license to enable internal use and distribution to third parties at no additional cost.
2.7-5	All system and software interfaces shall be defined and documented and shall be provided to the Authority under a perpetual license to enable internal use and distribution to third parties at no additional cost.
2.7-6	All open architecture APIs, open-source code, libraries, and Intellectual Property (IP), including data exchange formats and algorithms, shall be provided to the Authority under a perpetual license to enable internal use and distribution to third parties at no additional cost.

2.8 ACCESSIBILITY

Req. #	Requirement
2.8-1	All equipment, software, and customer interfaces shall comply with Americans with Disabilities Act (ADA) standards to maximize ease of use.
2.8-2	The system equipment shall comply with the most recent version of the ADA Accessibility Guidelines (ADAAG) at the time of Final Acceptance.

2.9 CODE AND REGULATION COMPLIANCE

Req. #	Requirement
2.9-1	The Contractor shall design the system to be compliant with relevant standards, laws, and regulations.

2.10 TVM PERFORMANCE REQUIREMENTS

2.10.1 Reliability

Req. #	Requirement
2.10.1-1	Ticket Vending Machines shall experience no more than one chargeable failure per 8,000 transactions when measured across the installed fleet of TVMs.

2.10.2 Accuracy

Req. #	Requirement
2.10.2-1	Each TVM shall maintain accurate counts of all coins and bills in storage containers, including recycling containers (if applicable) and coin and bill vaults, within $\pm 0.1\%$ for amounts greater than \$100.

2.11 BACK OFFICE SYSTEM PERFORMANCE REQUIREMENTS

2.11.1 Availability

Req. #	Requirement
2.11.1-1	The Back Office System (BOS) shall satisfy availability requirements defined in Section 12.1.5.

2.11.2 Accuracy

Req. #	Requirement
2.11.2-1	The Back Office System shall accurately account for all bankcard transactions, measured against daily reports from the Authority's Payment Services Provider (PSP) of completed transactions.
2.11.2-2	BOS daily bankcard revenue shall match the PSP's reported total within $\pm 0.01\%$.

2.12 STANDARDS COMPLIANCE

The system shall be compliant with the following standards at minimum:

Req. #	Standard/Protocol	Application
2.12-1	Payment Card Industry Data Security Standards (PCI DSS), Payment Application Data Security Standard (PA-DSS)	Contractor-provided devices and systems processing bankcards and other electronic payments. Such devices and systems shall be certified as PCI-compliant by a qualified security assessor (QSA), which shall conduct periodic audits. Payment systems embedded in Contractor-provided devices shall be certified as PA-DSS-compliant as required.
2.12-2	Europay, Visa, MasterCard (EMV) standard	The TVM and Back Office System (BOS) shall be EMV-certified for the acceptance of bank-issued credit and debit cards using all common formats based on the latest version of the standards at the time of Final Acceptance
2.12-3	Ethernet	Communication between TVMs and Authority-provided devices or networks as specified herein.
2.12-4	ISO/IEC 7810 ID-1	Dimensions of the fare media dispensed by the TVM. For card type ID-1, the expected dimensions are 85.60 x 53.98 mm.
2.12-5	ISO/IEC 14443	Type A or Type B contactless smartcards that communicate with readers via radio frequency (RF) with an operating frequency of 13.56 MHz.

3. FARE POLICIES AND BUSINESS RULES

The Authority's existing fare policies include all products shown in Table 3-1 (excluding stored value).

Req. #	Requirement
3-1	The new TVM System shall support all fare products, fare media, and transactions shown in Table 3-1, but as delivered, only those products shown as enabled shall be available for customer purchase.
3-2	As shown in Table 3-1, as delivered: 1. The TVM shall dispense 1-Trip fares and All-Day Passes on Limited Use Media only 2. Fare products shall be dispensed either pending (to be activated upon first use) or active for validity periods shown 3. The TVM shall dispense new smartcard media with stored value 4. The TVM shall enable customers to replenish accounts (linked to smartcards and the mobile application) with stored value
3-3	The TVM System shall enable the Authority to add new fare products (such as a 30-Day Pass), change prices of existing products, add and delete fare categories, and enable and disable transaction types.
3-4	The TVM System shall support future fare policies that enable customers purchasing multiple tickets in a single transaction to select whether the dispensed tickets are active or pending (to be activated upon first use).

Fare Product	Fare Category	Price	Status / Validity	LUM	Smartcard	Replenish
1-Trip	Full Fare	\$2.50	Active / 2.5 hours	Enabled	N/A	N/A
	Senior / Disabled	\$1.25		Enabled	N/A	N/A
	Student	\$1.75		Enabled	N/A	N/A
All-Day Pass	Full Fare	\$5.00	Active / Through transit day	Enabled	N/A	N/A
	Senior / Disabled	\$2.50		Enabled	N/A	N/A
	Student	\$4.25		Enabled	N/A	N/A
Smartcard Purchase	Full Fare	\$5.00	Active / N/A	N/A	Enabled	N/A
	Senior / Disabled	\$5.00		N/A		N/A
	Student	\$5.00		N/A		N/A
Stored Value	Full Fare	Varies	Active / N/A	N/A	N/A	Enabled
	Senior / Disabled	Varies		N/A	N/A	Enabled
	Student	Varies		N/A	N/A	Enabled

Table 3-1

4. TICKET VENDING MACHINE

4.1 TVM GENERAL REQUIREMENTS

Req. #	Requirement
4.1-1	The Ticket Vending Machine (TVM) shall be easy to use to enable first-time and regular riders to purchase tickets and new Authority-issued smartcards, and to reload accounts linked to Authority-issued smartcards.
4.1-2	The TVM shall enable a customer to purchase a new Authority-issued smartcard (associated with a new transit account) with initial value.
4.1-3	The TVM shall enable a customer to load stored value to an existing transit account.
4.1-4	The TVM shall enable a customer to purchase in a single transaction one or more tickets with short-duration fare products on limited-use smartcard media
4.1-5	The TVM shall accept valid U.S. coins and bills.
4.1-6	The TVM shall accept authorized magnetic stripe, contact, and contactless bankcards, mobile wallets (including Apple Pay, Google Pay, and Samsung Pay)
4.1-7	The TVM shall return deposited cash or reverse an approved bankcard transaction if a transaction is canceled or the TVM fails to issue all purchased media.
4.1-8	The TVM shall print and issue receipts.
4.1-9	The TVM shall display instructions and notices in English and Spanish (as selected by user).
4.1-10	The TVM shall provide audio output of messages and instructions, in volume and language selected by the user.
4.1-11	The TVM shall contain an intrusion alarm system which emits an audible alarm.
4.1-12	The TVM shall communicate over an Authority-supplied network to send and receive transaction data and machine status in real-time.
4.1-13	The TVM shall issue no change when a customer overpays using cash.
4.1-14	The TVM shall be modular and capable of replacing, activating, or deactivating modules individually.
4.1-15	If a component or function is enabled/disabled, the TVM shall automatically adjust its display, operation and maintenance status according to the active components.

4.2 TVM HARDWARE

4.2.1 Enclosure

Req. #	Requirement
4.2.1-1	The overall dimensions of the TVM enclosure shall not exceed 80 inches high, 36 inches wide, and 21 inches deep.
4.2.1-2	All external surfaces of TVM cabinets shall be constructed of stainless steel with no visible fasteners.
4.2.1-3	To resist corrosion caused by snow and ice melting chemicals, at minimum, the lower portion of the cabinet (approximately 6 inches) shall be constructed of 304 grade stainless steel.

4.2.2 TVM Customer Display

Req. #	Requirement
4.2.2-1	The TVM customer display shall include an integrated touch screen interface suitable for outdoor application.
4.2.2-2	The customer display screen shall consist of a color, flat panel display that is clearly viewable in daytime and nighttime conditions.
4.2.2-3	The customer display screen shall measure at least 15 inches diagonally.

Req. #	Requirement
4.2.2-4	The customer display screen shall display characters and symbols compliant with all ADA requirements.
4.2.2-5	The visibility and usability of the customer display shall be unaffected by precipitation, temperature, sunlight, and other environmental conditions typical of the Cleveland operating region.

4.2.3 Bill Handling Unit

Req. #	Requirement
4.2.3-1	The TVM Bill Handling Unit (BHU) shall accept paper currency and include a bill validator, a bill vault, and other modules as necessary to escrow inserted bills.
4.2.3-2	The bill validator shall be capable of accepting all variations of \$1, \$2, \$5, \$10, \$20, \$50, and \$100 bills in widespread circulation at the time of Final Acceptance.
4.2.3-3	The BHU shall identify valid acceptable bills with at least 99.999% accuracy. (That is, the BHU shall properly identify the denomination of 99.999% of accepted bills.)
4.2.3-4	Each time the BHU rejects an inserted bill, the BHU shall inform the ECU of the event and the reason for the rejection.
4.2.3-5	The BHU shall inform the ECU whenever the BRU detects an operational failure, and whenever the BHU detects that a failure has been resolved. These messages shall include accompanying data to identify the failure mode.
4.2.3-6	The BHU may reject bills with excessive physical defects and bills with attached foreign material (e.g., tape), faded or worn ink, or defacements (e.g., permanent marker).
4.2.3-7	The BHU shall detect counterfeit bills, including copies made in either single or double-sided printing on an electronic copier and those made with color printers.
4.2.3-8	If the BHU deems the inserted document to be invalid, the BRU shall return the document and retain hold of the item until the user retrieves it, or until an Authority-configurable time elapses, at which time the BHU shall fully eject the item.
4.2.3-9	If the BHU fully ejects an inserted item, the BRU shall inform the ECU of the event.
4.2.3-10	The BHU shall reject or expel pieces of paper or other foreign material that can be introduced into the bill insertion slot.
4.2.3-11	If the customer inserts an Authority-configurable limit of bills for a transaction, the BHU shall cease accepting bills, and the TVM shall display an Authority-configurable warning message on the customer screen.
4.2.3-12	If bills are to be returned to the customer due to transaction cancellation, the BHU shall return from escrow the same bills inserted for the transaction.
4.2.3-13	When returning bills from escrow, the BHU shall return all bills in a single stack and retain hold of the stack until the user retrieves it, or until an Authority-configurable time elapses, at which time the BHU shall fully eject the stack.
4.2.3-14	When a transaction completes, the BHU shall transport all bills in the bill escrow module to the bill vault.
4.2.3-15	The Back Office System shall provide the ability for the Authority to configure the TVMs to independently accept or reject selected bill denominations and varieties of bill denominations.
4.2.3-16	As the U.S. Treasury releases new designs of bills, the BHU shall be capable of being programmed to accept the new designs while continuing to accept the current designs.
4.2.3-17	The BHU shall be able to accept bills inserted in any of the four possible lengthwise orientations.
4.2.3-18	The BHU shall accept one bill at a time and shall determine the denomination and validity of the currency.
4.2.3-19	The BHU shall determine the denomination and validity of both sides of a document by a combination of some or all of the following: dimension checks, pattern and color recognition, and magnetic ink detection.

Req. #	Requirement
4.2.3-20	The BHU shall meet the following acceptance rates: - At least 98% of valid bills are accepted upon initial insertion - At least 99% of valid bills are accepted in no more than two insertion attempts.
4.2.3-21	After acceptance of a valid bill, the BHU shall be ready to accept a subsequent bill in no more than two seconds.
4.2.3-22	The BHU shall escrow no less than 10 inserted bills so that upon cancellation of the transaction, the inserted bills are returned to the customer in a single stack. The BHU shall hold returned bills until the customer retrieves them.
4.2.3-23	The BHU shall include a removable bill vault. The bill vault shall have a capacity of no less than 1,000 stacked bills in street condition and weigh no more than 20 pounds when full.
4.2.3-24	The bill vault shall be constructed of durable material such that after being dropped three times from a height of five feet onto a concrete floor, a full bill vault will remain fully functional, sustain no more than cosmetic damage, and securely retain all contents.
4.2.3-25	The bill vault lock (see Section 4.5.1) shall secure the contents of the vault while the vault is installed in the BHU and when removed from the BHU.

4.2.4 Coin Handling Unit

Req. #	Requirement
4.2.4-1	TVMs shall include a Coin Handling Unit (CHU) consisting of a coin acceptor/verifier, a coin vault, and recirculator containers for at least four denominations or a coin escrow module.
4.2.4-2	The coin acceptor/verifier shall accept all variations of nickels, dimes, quarters, and dollar coins in widespread circulation at the time of Final Acceptance.
4.2.4-3	The Back Office System shall provide the ability for the Authority to configure the TVMs to independently accept or reject selected coin denominations and varieties of coin denominations.
4.2.4-4	The CHU shall accept one coin at a time and shall determine the denomination and validity of coin types and identify invalid or counterfeit objects (“slugs”).
4.2.4-5	The CHU shall meet the following acceptance rates: - At least 97% of valid coins are accepted upon initial insertion - At least 98% of valid coins are accepted in no more than two insertion attempts. - All known counterfeit coins, common slugs, foreign coins, and coins of denominations not accepted by the CHU are rejected upon every insertion.
4.2.4-6	After acceptance of a valid coin, the CHU shall be ready to accept a subsequent coin in no more than one second.
4.2.4-7	The coin acceptor/verifier shall identify valid acceptable U.S. coins with at least 99.99% accuracy. (That is, the CHU shall properly identify the denomination of 99.99% of accepted coins.)
4.2.4-8	As the U.S. Treasury releases new designs of coins, the coin acceptor/verifier shall be capable of being programmed to accept the new designs while continuing to accept the current designs.
4.2.4-9	If the customer inserts an Authority-configurable limit of coins for a transaction, the CHU shall cease accepting coins, and the TVM shall display a configurable warning message on the customer screen.
4.2.4-10	Upon acceptance of each inserted coin, the CHU shall forward the coin to a recirculating container assigned to the inserted coin’s denomination, or to the coin escrow.
4.2.4-11	Each recirculating module or the coin escrow shall have capacity to store a minimum of 50 coins.
4.2.4-12	When a recirculating container is full, the CHU shall direct any additional inserted coins of the corresponding denomination to the coin vault.
4.2.4-13	If the CHU employs a coin escrow, upon completion of the transaction, the CHU shall deposit the contents of the escrow into the coin vault.

Req. #	Requirement
4.2.4-14	If the CHU employs coin recirculator containers, upon transaction cancellation, the CHU shall return from the recirculating containers the same number of coins of each denomination inserted.
4.2.4-15	If the CHU employs a coin escrow, upon transaction cancellation, the CHU shall return all contents of the coin escrow.
4.2.4-16	The CHU shall be equipped with a removable coin vault that has a capacity of at least 300 cubic inches and weighs no more than 40 pounds when full.
4.2.4-17	The coin vault shall be constructed of durable material such that after being dropped three times from a height of five feet onto a concrete floor, a full coin vault will remain fully functional, sustain no more than cosmetic damage, and securely retain all contents.
4.2.4-18	The coin vault lock (see Section 4.5.1) shall secure the contents of the vault while the vault is removed from the CHU.
4.2.4-19	The contents of any coin recirculating or escrow modules shall be secured by a separately keyed high-security lock.

4.2.5 Bankcard Processing Unit

Req. #	Requirement
4.2.5-1	The TVM shall include a Bankcard Processing Unit (BPU) to process bankcard payments (credit and debit) and mobile wallet applications including Apple Pay, Google Pay, and Samsung Pay.
4.2.5-2	The BPU shall include a magnetic stripe reader that complies with ISO/IEC 7810.
4.2.5-3	The BPU shall include a contactless bankcard reader that complies with the Europay MasterCard Visa (EMV) standards in effect at the time of Final Acceptance.
4.2.5-4	The BPU shall include an EMV-compliant contact (or chip) bankcard reader.
4.2.5-5	The BPU shall include a PIN keypad that complies with the Payment Card Industry PIN Transaction Security (PCI-PTS) standards in effect at the time of Final Acceptance.
4.2.5-6	TVMs and the BPU shall be capable of recertification with newer versions of the PCI and EMV standards via software upgrades, as necessary.
4.2.5-7	The PIN keypad shall be vandal resistant, weather-resistant, and be easily replaceable from inside the TVM.
4.2.5-8	The PIN keypad shall have a life expectancy of 5 million cycles.
4.2.5-9	The PIN keypad shall employ encryption as required in accordance with banking requirements.
4.2.5-10	The Contractor shall supply all PIN keypads with production encryption keys injected in a secure, PCI-compliant manner.
4.2.5-11	If necessary for the TVM to comply with the ADA, the PIN keypad shall be capable of operating in both an encrypting and non-encrypting or "clear" mode so that it can be used for data entry and customer selection by the visually impaired.
4.2.5-12	The PIN keypad shall support PIN entry when magnetic stripe debit cards are used, whenever EMV-enabled cards are used, and transaction procedures dictate.
4.2.5-13	The PIN keypad shall support entry of ZIP codes to satisfy address verification service (AVS) requirements, as a system configurable parameter.

4.2.6 Closed-Loop Smartcard Reader

Req. #	Requirement
4.2.6-1	The TVM front door shall include a customer-facing contactless Smartcard Reader (SCR) compliant with both Type A and B variants of the ISO/IEC 14443 standard.
4.2.6-2	The SCR shall read Authority-issued contactless smartcard media.

Req. #	Requirement
4.2.6-3	The SCR shall be active (i.e., ready to read a card) while the TVM is in the idle state (to allow initiation of an account status check or replenishment transaction via a contactless read), and during those portions of transactions where reading a contactless card is necessary.

4.2.7 Barcode Scanner

Req. #	Requirement
4.2.7-1	The TVM front door shall include a Barcode Scanner to enable customers to scan barcode media and barcodes shown on mobile devices.
4.2.7-2	The Barcode Scanner shall read industry-standard linear and 2D barcode formats, including but not limited to UPC, QR Code, and Aztek.
4.2.7-3	The Barcode Scanner shall be active (i.e., ready to read a barcode) while the TVM is in the idle state (to allow initiation of an account status check or replenishment transaction via a barcode scan), and during those portions of transactions where reading a barcode is necessary.
4.2.7-4	The Authority prefers the Barcode Scanner to be the type where scanning the media requires users place the barcodes against the reader.

4.2.8 Limited Use Smartcard Dispenser

Req. #	Requirement
4.2.8-1	The TVM shall include a Limited Use Smartcard Dispenser (LUSD), which shall produce thermally-printed limited use contactless smartcard media from a roll or fan-fold stack.
4.2.8-2	The LUSD shall produce a limited use smartcard, nominally credit-card sized, within one second of receiving the request from the TVM computer.
4.2.8-3	The LUSD shall read the card's Unique ID (UID) and encrypted token prior to dispensing and confirm that the encoded content is readable and valid.
4.2.8-4	The LUSD shall capture in an internal storage bin any media that is unreadable or invalid.
4.2.8-5	The LUSD shall support dispensing from two separate rolls or fan-fold stacks, either by employing a dual stock feeding mechanism or fully redundant LUSD modules.
4.2.8-6	Each roll or stack shall in the LUSD contain a minimum of 1,000 limited use smartcards; the Authority prefers the LUSD to support rolls or stacks of up to 2,000 tickets.
4.2.8-7	The LUSD shall monitor the amount of remaining stock in each roll or stack, enabling the TVM to send event messages for low and depleted stock conditions.
4.2.8-8	The BOS shall enable the Authority to configure the threshold at which the LUSD reports a low ticket stock alarm.
4.2.8-9	The LUSD shall provide thermal printing with resolution of at least 200 dots per inch.
4.2.8-10	The LUSD shall be capable of printing text and graphics, including Aztek and QR codes.
4.2.8-11	The LUSD shall separate cards from the roll or stack prior to reading and printing using either a bursting mechanism (which separates perforated media) or a self-sharpening cutter mechanism capable of producing 1 million cuts.

4.2.9 Extended Use Smartcard Dispenser

Req. #	Requirement
4.2.9-1	The TVM shall incorporate an internal ISO/IEC 14443 contactless Smartcard Reader/Dispenser (SRD).
4.2.9-2	The SRD shall read and dispense Authority-issued contactless media.
4.2.9-3	The SRD shall utilize one or more removable cassettes to store the contactless media card stock.
4.2.9-4	The cassettes shall securely hold cards and enable service staff to replenish or exchange cassettes quickly and securely.

Req. #	Requirement
4.2.9-5	In total the installed cassettes shall have a capacity of no less than 1,000 cards.
4.2.9-6	The SRD shall dispense cards into a media dispense tray or slot no more than three seconds after commencing the read/dispense process.
4.2.9-7	Prior to dispensing a new card, the SRD shall read the card and confirm that the card is functioning properly.
4.2.9-8	If the SRD cannot read the card's Unique ID (UID) or verify all other card data is encoded correctly, the SRD shall capture the card in a card reject bin and attempt to read/dispense another card.
4.2.9-9	The card reject bin shall have a capacity of no less than 10 cards and shall send rejected card information to the Back Office System for tracking and inventory.

4.2.10 Receipt Printer

Req. #	Requirement
4.2.10-1	The TVM shall include a printer to print and issue receipts for fare transactions and audit tickets for maintenance activities.
4.2.10-2	The Receipt Printer shall employ thermal printing technology to produce receipts printed on separate receipt stock.
4.2.10-3	Receipt stock shall be plain paper rolls that are commercially available in the U.S.
4.2.10-4	The receipt printer shall include a cutting mechanism to cut individual receipts from the roll supply.
4.2.10-5	The Receipt Printer cutter shall require no adjustment to the cutting mechanism and shall perform at least one million cuts without requiring replacement or sharpening.

4.2.11 TVM Electronic Control Unit

Req. #	Requirement
4.2.11-1	The TVM Electronic Control Unit (ECU) shall be a solid-state device with sufficient computing power, memory, and interfaces to provide the functions and performance required.
4.2.11-2	The ECU shall be easily replaceable without the use of tools
4.2.11-3	The ECU shall use solid-state drive (SSD) technology for software and data storage
4.2.11-4	The ECU shall include an easily accessible removable static memory device, such as a flash drive, that shall store status information (such as the TVM ID, content of all cash containers, ticket and card stocks, and other dynamic data that is unique to an operating TVM)
4.2.11-5	If an ECU requires replacement, the technician shall be able to easily remove the static memory device from the inoperative ECU and insert it into the replacement ECU module.
4.2.11-6	Upon replacing the ECU and restarting the TVM, the new ECU shall retrieve data from the static memory device and configure itself with the contents from the memory device. Thereafter, the TVM shall resume operations without requiring configuration, resetting registers, exchanging money containers, or any other such actions.

4.2.12 Power Supply

Req. #	Requirement
4.2.12-1	The TVM shall include a modular, filtered power supply which shall be connected to the incoming grounded electrical service.
4.2.12-2	The power supply shall connect to the incoming electrical service (nominally 125 VAC) and deliver all necessary operating voltages for the machine.
4.2.12-3	Voltages internal to the TVM shall not exceed 125 V.
4.2.12-4	A power switch shall turn the power supply on or off and shall be separate from the main circuit breaker that disconnects all power to the TVM.
4.2.12-5	There shall be no electrical safety risks to maintenance personnel when the TVM power is off.

Req. #	Requirement
4.2.12-6	The TVM shall include a GFCI duplex convenience outlet within the interior of the cabinet. A separate circuit breaker internal to the TVM enclosure shall protect the GFCI outlet.

4.2.13 Supplemental Battery Power Supply

Req. #	Requirement
4.2.13-1	The TVM shall include a supplemental battery power supply.
4.2.13-2	This battery power supply shall sustain all TVM operations during power outages for at least five minutes, limited by an Authority-configurable interval, default three minutes.
4.2.13-3	If commercial power is unavailable after the configurable period, the TVM shall complete all transactions in progress before commencing an orderly shutdown
4.2.13-4	Upon restoration of power, the TVM shall automatically resume operations and recharge the backup battery.
4.2.13-5	The supplemental battery shall provide a useful life of four years or 500 discharge and charge cycles, whichever occurs first.

4.3 CUSTOMER INTERFACE

In addition to the display and other modules described in Section 4.2, several elements on the front of the TVM shall comprise the customer interface including, but not limited to:

1. Physical pushbuttons (at minimum for cancel and audio functions)
2. Voice Audio System
3. Audio output
4. Media dispense tray/slot
5. Instructional graphics and text
6. Information sign
7. Fisheye mirror

4.3.1 Physical Pushbuttons

Req. #	Requirement
4.3.1-1	The TVM shall include at least two physical buttons that provide the Cancel function and operate the Voice Audio System (VAS).
4.3.1-2	Additional buttons may duplicate touchscreen selections or provide other functions, if necessary.

4.3.2 Voice Audio System

Req. #	Requirement
4.3.2-1	The TVM shall include a Voice Audio System (VAS) to provide configurable audio tones and voice messages.
4.3.2-2	The default volume of audio tones shall be remotely and field adjustable for each TVM.
4.3.2-3	The volume of the Voice Audio System (VAS) shall be user controllable, per ADA regulations.
4.3.2-4	After a configurable timeout period, the VAS shall reset to a default volume, which shall be determined and controlled by the Authority.

4.3.3 Audio Output Devices

Req. #	Requirement
4.3.3-1	The TVM shall include a vandal-resistant speaker internally mounted to the front door.

Req. #	Requirement
4.3.3-2	The speaker shall be capable of providing sound levels of sufficient volume to clearly audible in ambient sound conditions within five feet of the TVM front door.
4.3.3-3	The TVM shall provide a standard jack for headphone use.
4.3.3-4	Whenever headphones are plugged into the jack, the external speaker shall be disabled, and all tones and messages shall be directed to the headphone jack.
4.3.3-5	The TVM shall provide Bluetooth audio output such as Auracast™.

4.3.4 Media Dispense Tray

Req. #	Requirement
4.3.4-1	The TVM shall include a media dispense tray or bin that shall safely hold returned coins, dispensed media, and receipts.
4.3.4-2	The media dispense tray shall be recessed and covered with a clear polycarbonate spring-loaded or weighted door. The dispense tray and its door shall be robust, scratch-resistant, visually prominent, and resistant to intrusion from the outside.
4.3.4-3	The media dispense tray shall drain to outside the TVM any liquids that enter the tray.

4.3.5 Instructional Graphics and Labels

Req. #	Requirement
4.3.5-1	The TVM door shall include graphics and labels for all user-operable elements.
4.3.5-2	TVM instruction text shall include raised lettering and Braille instructions in conformance with ADA requirements.
4.3.5-3	The TVM door shall include instructional graphics and diagrams that clearly depict proper insertion orientation of bills and bank cards into their respective slots.

4.3.6 Informational Signage Holder

Req. #	Requirement
4.3.6-1	The TVM shall incorporate a removable information signage holder in a prominent position to display Authority-provided printed information
4.3.6-2	The information holder shall include a clear panel to protect the displayed printed material.

4.3.7 Fisheye Mirror

Req. #	Requirement
4.3.7-1	The TVM front panel shall include a convex “fisheye” mirror, which shall enable a customer using the TVM to see behind them.
4.3.7-2	The mirror shall be approximately 54 inches from the floor, and in proximity to the Bankcard Processing Unit.
4.3.7-3	The mirror shall be made of shatter-resistant material such tempered glass or polycarbonate.
4.3.7-4	The mirror’s glazing shall be “two-way,” which shall enable a security camera to provide images from behind the mirror.

4.4 SERVICE INTERFACE

Authorization to access the TVM shall occur prior to opening the outer door. (See Section 4.8.8.)

Req. #	Requirement
4.4-1	To support maintenance and service activities (including secondary access authorization methods), if necessary, the TVM may include an internal service interface consisting of a keypad and display for use by maintenance and revenue service personnel while the outer door is open.
4.4-2	The customer display may be used for maintenance purposes if viewable while using the service keypad.

4.5 SECURITY

4.5.1 Locks

Req. #	Requirement
4.5.1-1	The TVM outer door lock, bill vault and coin vault shall utilize an electronic high-security lock such as Videx® or CyberLock®.
4.5.1-2	Sensors shall detect the status of the outer door lock. The TVM door shall be considered open and unsecure if the outer door lock is not in the fully locked position.
4.5.1-3	All security locks shall capture and hold the key whenever the lock is open.

4.5.2 Alarms

Req. #	Requirement
4.5.2-1	Each TVM shall include an Alarm Unit that shall have the ability to monitor machine security conditions and provide alerts to the Back Office System in real-time.
4.5.2-2	The TVM shall include adjustable sensors that detect direct physical impacts to the TVM enclosure, breakage of the customer display, and attempts at unauthorized or forced entry.
4.5.2-3	If the TVM does not have power or is disabled for any reason, the alarm unit shall continue to operate independently for a minimum of 24 hours to monitor the machine for security breaches and impacts.
4.5.2-4	The Alarm Unit shall be disarmed during an authorized entry.
4.5.2-5	Immediately upon detection of an unauthorized entry or impact, the alarm unit shall activate its siren and activate the associated relay(s) defined in Section 4.5.3.
4.5.2-6	The siren shall shut off and re-arm after an adjustable time period unless continued impacts or attempts at intrusion are detected.
4.5.2-7	Each time the Alarm Unit detects a security event, the Alarm Unit shall record the date and time of the event.
4.5.2-8	If the TVM is operational when the Alarm Unit detects an event, the Alarm Unit shall inform the TVM's ECU of the event. If the TVM is not operational at the time of the event, the Alarm Unit shall inform the TVM's ECU of the event when the TVM resumes operation.
4.5.2-9	Whenever the Alarm Unit's siren is active, the TVM shall go out of service.
4.5.2-10	When an alarm condition ends, the TVM shall perform self-diagnostics, and resume normal operations.
4.5.2-11	The Alarm Unit shall monitor a momentary "silent alarm" pushbutton located inside the TVM. The pushbutton shall be easily accessible when the door is open and protected against accidental activation.
4.5.2-12	Upon pressing the button, the TVM shall transmit a corresponding alarm event but shall not activate the siren.

4.5.3 Alarm Relay Contacts

Req. #	Requirement
4.5.3-1	The TVM shall provide at least four dry-contact relays to report alarm conditions.
4.5.3-2	Relay operations shall be Authority-configurable and managed by the TVM's Alarm Unit.
4.5.3-3	Alarm Relays shall return to their default position upon clearance of the alarm.
4.5.3-4	By default, the relays shall operate as shown in Table 4-1.

#	Function	Default Position	Operation
1	Power Status	Powered Closed	Opens upon power loss
2	Intrusion / Silent Alarm	Normally Closed	Opens upon detected intrusion or silent alarm
3	Impact Sensor	Normally Closed	Opens upon detected impact
4	Service Status	Normally Closed	Opens upon out-of-service condition

Table 4-1

4.5.4 Internal Closed-Circuit Camera

Req. #	Requirement
4.5.4-1	The TVM shall support installation of a closed-circuit camera (supplied by others), mounted behind the fisheye mirror described in Section 4.3.7.
4.5.4-2	The TVM shall include mounting studs on the inside surface of the TVM door, adjacent to the hole through which the camera will view outside.
4.5.4-3	The TVM shall also support installation of an Authority-provided Ethernet switch/router to interface with the camera.

4.6 **COMMUNICATIONS**

Req. #	Requirement
4.6-1	To send and receive data, the TVM shall communicate real-time with the Back Office System through a secure communications interface.
4.6-2	All communications between the TVMs and Back Office System shall be via a hardwired Ethernet connection.
4.6-3	The TVM cabinets shall be capable of housing a network switch (provided by others) to enable nearby devices to communicate through a single connection to the station communications room.

4.7 **SOFTWARE**

4.7.1 Transaction Records

Req. #	Requirement
4.7.1-1	TVMs shall generate, store, and transmit a discrete data record for each transaction performed.
4.7.1-2	Each transaction record shall include a unique identifier.
4.7.1-3	TVMs shall maintain local data records in non-volatile memory in the event that communications to the Back Office System are unavailable.

4.7.2 Audit Registers

Req. #	Requirement
4.7.2-1	All TVMs shall provide audit register counts for purposes of data tracking and analysis.
4.7.2-2	The audit registers shall store counts of specific events, including access logs of maintenance personnel logging into the TVM, in non-volatile memory, and shall not be able to be modified or erased.
4.7.2-3	The TVM shall transmit audit register records to the Back Office System at the end of service day for reconciliation or based on a configurable time period.

4.7.3 Events and Alarms

Req. #	Requirement
4.7.3-1	TVMs shall provide real-time status of device events and alarms through the System Monitoring and Management Application (SMMA, see Section 6.8).
4.7.3-2	The TVM shall also maintain local event and alarm logs in the event that communications to the Back Office System are unavailable.
4.7.3-3	In addition to transmitting real-time events and alarms, the TVM shall transmit periodic "heartbeat" messages that confirm communication with Back Office System and basic status. The "heartbeat" frequency shall be adjustable per TVM.
4.7.3-4	Events shall be considered alarm conditions of varying severity. The assigned priority of all alarms shall be configurable by the Authority.
4.7.3-5	For each alarm event, a corresponding event to clear the alarm shall be transmitted by the TVM as soon as the alarm condition is no longer present.
4.7.3-6	Alarm conditions shall be cleared either automatically by the TVM or manually by service staff.
4.7.3-7	The TVM shall store all events and alarms locally in the event that communication with the TVM Back Office System is down. Once communication is restored, the TVM shall transmit all stored events and alarms to the Back Office System.

4.8 OPERATIONS

4.8.1 Voice Audio System

Req. #	Requirement
4.8.1-1	The Voice Audio System (VAS) shall satisfy ADA requirements for accessible use by visually impaired users and those who are not proficient at reading.
4.8.1-2	The VAS shall provide context-sensitive voice messages, in audio form, conveying information shown on the Customer Display.
4.8.1-3	To assist the visually impaired, the VAS shall also provide event-driven messages for conditions not shown on the customer display. Such event messages include: "Bill Rejected," "Bills Returned," "Coin Rejected," "Remove Bankcard from Reader," "Collect Media in Tray," etc.
4.8.1-4	The VAS shall utilize Text To Speech (TTS) technology, which shall enable the Authority to create and modify VAS audio content without the use of recorded human voice talent.
4.8.1-5	Each voice audio message shall occur as close as possible to the event or change in transaction status as possible and be as brief as possible to convey the necessary information.
4.8.1-6	To ensure proper pronunciation, the VAS shall support the use of phonetic spelling of the text shown on the Customer Display. To do so, each message shall have dual configurable parameters: displayed text and its corresponding phonetic spelling for the TTS feature.
4.8.1-7	The Voice Audio System shall support multiple languages in concert with the multi-lingual capabilities in Section 4.8.2. Required languages shall be finalized by the Authority during design review.

4.8.2 Multi-Lingual Capabilities

Req. #	Requirement
4.8.2-1	The TVM shall include a physical or selection screen button or buttons to change the displayed and the VAS language between English and five other available languages.
4.8.2-2	English shall be the default language while the TVM is in idle mode.
4.8.2-3	Upon completion or cancellation of a transaction, the TVM shall return to English.
4.8.2-4	The alternate language button or buttons shall be active at all times and available on all screens while the TVM is in service.
4.8.2-5	Pressing an alternate language button at any time shall cause the display and audio messages to convert to the selected language.
4.8.2-6	As delivered the TVM shall support English and Spanish.
4.8.2-7	During the Design Reviews, the Contractor shall submit translations for all non-English text and audio messages for use on the customer display and for the Text To Speech function of the VAS.

4.8.3 Customer Operations

Req. #	Requirement
4.8.3-1	The operating status, configuration, and active fare table for each TVM shall determine the available transaction selections. The TVM shall provide customers only those selections enabled in the active fare table.
4.8.3-2	For all transactions, the TVM shall display a progression of screens to the customer that shall be easy to understand and intuitive.
4.8.3-3	The TVM shall go out of service whenever it loses communication with the Back Office System.
4.8.3-4	Authority staff shall be able to configure all information presented by the TVM Customer Display.
4.8.3-5	While in the idle state, the TVM shall be ready to respond to customer input. Input may be a button press, touching the Customer Display, or presenting fare media to the contactless Smartcard Reader.
4.8.3-6	The TVM shall employ an adjustable timeout period to return the TVM to the idle state if no input is received between transaction steps. The timeout period shall be Authority adjustable.
4.8.3-7	Prior to authorizing a bank card transaction, the TVM shall prompt the customer to choose whether the purchase is a credit or debit transaction.
4.8.3-8	For debit transactions, the TVM shall prompt the customer for PIN entry.
4.8.3-9	The TVM shall support Address Verification Service (AVS) for bank card payments in a configurable manner that allows the AVS feature to be turned on or off by the Authority and accommodates acceptance of both U.S. and non-U.S. issued cards.
4.8.3-10	When a U.S. bankcard is used for payment and AVS is active, the TVM shall prompt the customer to enter the billing address ZIP code.
4.8.3-11	All bankcard transactions shall be authorized prior to dispensing media or loading value to a user's account.

4.8.4 Customer Transactions

The TVM shall support the following customer transactions:

4.8.4.1 Ticket Purchase Transactions

Req. #	Requirement
4.8.4.1-1	The TVM shall enable customers to purchase Limited Use Media for fare products such as single-trip tickets and all-day passes.
4.8.4.1-2	The TVM shall enable customers to purchase any ticket with cash or bankcard.

Req. #	Requirement
4.8.4.1-3	The TVM shall enable customers to purchase tickets in any fare category (e.g., full fare, senior/disabled fare, student fare).
4.8.4.1-4	The TVM shall enable customers to purchase one or more tickets of any type in a single transaction.
4.8.4.1-5	If necessary, the TVM shall encode the card with data in a format defined by Masabi.
4.8.4.1-6	Before dispensing the card, the TVM shall verify the functionality of the card, including requesting confirmation from the Masabi back-office system (via communication with the TVM Back Office System) that it has properly registered the card.
4.8.4.1-7	If a multiple-ticket purchase transaction fails after dispensing one or more tickets, the TVM shall not return inserted cash (for cash transactions) nor reverse the bankcard transaction (for bankcard payments). Instead, the TVM shall dispense a voucher receipt indicating the value of tickets not dispensed. The Contractor may propose alternative solutions for this scenario during Design Reviews.
4.8.4.1-8	The maximum number of tickets purchasable per transaction shall be configurable by the Authority.
4.8.4.1-9	The Authority shall be capable of configuring a dollar limit for cash transactions.
4.8.4.1-10	The Authority shall be capable of configuring a dollar limit for bankcard transactions.

4.8.4.2 *Purchase New Masabi Closed-Loop Smartcard*

Req. #	Requirement
4.8.4.2-1	The TVM shall enable customers to purchase a new Masabi closed-loop smartcard.
4.8.4.2-2	Purchase of a new card shall be at a price configured by the Authority.
4.8.4.2-3	The Back Office System shall enable the Authority to configure the TVM to require the customer to add an initial value to the account, with a configurable minimum value.
4.8.4.2-4	Before dispensing a new card, the Smartcard Reader-Dispenser (SRD) shall read the card data as necessary to capture account numbers and initialize the media.
4.8.4.2-5	The TVM shall send the purchased card's data to the TVM Back Office System, which shall forward the information to the Masabi Justride back-office system.

4.8.4.3 *Check Transit Account Status*

Req. #	Requirement
4.8.4.3-1	When a customer presents a Masabi card or limited use smartcard to the SCR, the SCR shall read the card and request the Masabi Justride back-office system (via communication with the TVM Back Office System) to provide the status and content of the account linked to the card.
4.8.4.3-2	Upon receipt of the information from the Masabi Justride back-office system, the TVM shall display the account's status and content (i.e., account balance or active pass status).

4.8.4.4 *Add Value to Transit Account Linked to Closed-Loop Smartcard*

Req. #	Requirement
4.8.4.4-1	Only the closed-loop Masabi cards will support account reloading. To reload an account, the user will first present the card to the SCR.
4.8.4.4-2	Upon displaying the results discussed for the Transit account status check in Section 4.8.4.3, the Customer Display shall include a prompt that allows the user to select to add value to the account.
4.8.4.4-3	If the user opts to add value to the account, the TVM shall default to cash payment and enable the user to alternatively select credit or debit payment.
4.8.4.4-4	If the user opts to pay with a bankcard, the TVM shall display a menu of values to add to the account. Upon selection of the desired value to add, the TVM shall commence the payment process.

Req. #	Requirement
4.8.4.4-5	If the user opts to pay with cash, the TVM shall activate the cash acceptance modules and prompt the user to insert cash. Upon insertion of any cash, the TVM shall add a “Finish” button on the Customer Display. The user may continue to insert cash or press “Finish.” Upon pressing “Finish,” the TVM shall complete the cash transaction process.
4.8.4.4-6	Upon completion of payment, the TVM shall inform the Masabi Justride back-office system (via communications with the TVM BOS) of the value to add to the account.

4.8.4.5 *Add Value to Mobile App Account*

Req. #	Requirement
4.8.4.5-1	The TVM shall enable EZFare mobile app users to use the TVM’s payment modules to replenish their mobile app transit account.
4.8.4.5-2	To initiate this transaction, the customer will cause their mobile app to display the user’s account number as a UPC barcode.
4.8.4.5-3	Upon presenting the UPC barcode to the Barcode Scanner, the TVM shall read the barcode, send an account status request to the BOS, and then display the received results of the Transit account status check as shown in Section 4.8.4.3. The TVM Customer Display shall include a prompt that allows the user to commence adding value to the account.
4.8.4.5-4	If the user opts to add value to the account, the TVM shall prompt the user to select the payment method.
4.8.4.5-5	If the user opts to pay with a bankcard, the TVM shall display a menu of values to add to the account. Upon selection of the desired value to add, the TVM shall commence the payment process. (Note: the mobile app allows users to replenish their accounts using a bankcard, so bankcard payments will likely be uncommon.)
4.8.4.5-6	If the user opts to pay with cash, the TVM shall activate the cash acceptance modules and prompt the user to insert cash. Upon insertion of any cash, the TVM shall add a “Finish” button on the Customer Display. The user may continue to insert cash or press “Finish.” Upon pressing “Finish,” the TVM shall complete the cash transaction process.
4.8.4.5-7	Upon completion of payment, the TVM shall inform the Masabi Justride back-office system (via communications with the TVM BOS) of the value to add to the account.

4.8.5 Degraded Operating Modes

Req. #	Requirement
4.8.5-1	The TVM customer display shall indicate degraded operating conditions on all transaction screens requiring customer input.
4.8.5-2	Because multiple degraded operating conditions can occur simultaneously, the TVM shall be able to simultaneously display at least three degraded conditions on the customer display.
4.8.5-3	The TVM shall go out of service if it loses communication with the TVM Back Office System.

4.8.6 Receipts

Req. #	Requirement
4.8.6-1	The TVM shall provide configurable receipt operations, offering at least four different operating modes for receipt issuance.
4.8.6-2	The TVM shall be configurable to dispense a receipt only upon customer request.
4.8.6-3	The TVM shall be configurable to dispense a receipt automatically for all transactions that equal or exceed a configurable value, and at the customer’s request for all transactions that are less than the configurable value.

Req. #	Requirement
4.8.6-4	The TVM shall be configurable to dispense a receipt for all transactions with cash overpayments that exceed a configurable value.
4.8.6-5	The TVM shall be configurable to automatically dispense a receipt for all transactions.
4.8.6-6	The TVM shall monitor the status of the Receipt Printer and the receipt stock.
4.8.6-7	If the TVM is unable to issue a receipt, the TVM shall prompt the customer to acknowledge the lack of a receipt prior to commencing a transaction.

4.8.7 Cash Overpayments

Req. #	Requirement
4.8.7-1	The TVM shall not dispense change.
4.8.7-2	If a customer pays in cash and overpays for the transaction, the TVM shall compare the overpaid amount to the maximum overpayment parameter.
4.8.7-3	If the overpaid amount equals or exceeds the maximum overpayment parameter, the TVM shall cancel the transaction, return the inserted cash, and display a message indicating the reason for the cancellation.
4.8.7-4	If the overpaid amount is less than the maximum overpayment parameter, the TVM shall prompt the customer to choose whether to continue the transaction without change or cancel the transaction.
4.8.7-5	If the customer opts to accept the cash overpayment, the TVM shall complete the transaction and, if the receipt operations are configured as such, issue a receipt indicating the overpaid amount.
4.8.7-6	If the customer declines to accept the cash overpayment, the TVM shall cancel the transaction and return inserted cash.

4.8.8 TVM Interior Access Procedure

Req. #	Requirement
4.8.8-1	The TVM shall enforce entry by authorized personnel only.
4.8.8-2	Any entry to the TVM interior or any reduction in the TVM's physical security (such as removal of a lock cylinder or partial opening of the outer door) without proper authorization shall cause the TVM to declare an intrusion.
4.8.8-3	To reduce false alarm incidents, all entry authorizations occur prior to the door being opened.

The following requirements reflect a possible solution for the entry authorization process. During the design reviews, the Contractor may provide a functionally equivalent alternative solution for Authority review and approval.

Req. #	Requirement
4.8.8-4	To authorize entry, authorized users will present an employee ID card to the TVM Smartcard Reader, at which time the TVM will go out of service and prompt the employee to enter their PIN on the Customer Display touch screen or the Bankcard Processing Unit's PIN pad.
4.8.8-5	Upon valid employee login, the TVM shall display a service menu that conveys detailed status information about each module to enable the technician to identify and assess any issues with the TVM.
4.8.8-6	A valid employee login shall also deactivate the TVM intrusion alarm, enabling the technician to open the door without triggering the alarm.
4.8.8-7	The technician may log out of the session at any time; doing so shall reactivate the TVM alarm and restore the TVM to operation.
4.8.8-8	If the TVM or modules required to authorize access are inoperative, the TVM shall support a secondary secure method of gaining access to the interior without triggering the intrusion alarm.

4.8.9 Service Operations

Req. #	Requirement
4.8.9-1	Each TVM shall be capable of performing diagnostic tests that are manually initiated by service staff while the TVM is out of service and the front door is open.
4.8.9-2	The TVM shall not commence in-service operation until the outer door is closed, and the outer door lock is returned to its fully secured position.
4.8.9-3	All access shall be traceable through the System Monitoring and Management Application (see Section 6.8), and all access transactions shall be individually recorded and transmitted to the SMMA at the time of occurrence.
4.8.9-4	To support revenue servicing and maintenance authorized technicians, the TVM shall automatically produce audit tickets for all revenue servicing activities, and upon technician demand, maintenance activities.
4.8.9-5	The TVM shall restrict access such that only Supervisory and Revenue personnel shall be able to perform revenue servicing activity after authorized entry into the device is granted.

5. FARE MEDIA

5.1 AUTHORITY-ISSUED CONTACTLESS SMARTCARDS (JISTRIDE MEDIA)

5.1.1 Physical Characteristics

The Masabi closed-loop smartcards (provided by others) will be standard sized cards, compliant with ISO/IEC 7810 ID-1 in length and width, and with a nominal thickness of 30 mil. The cards also comply with 14443-1 for physical characteristics and will be a version of the MIFARE DESFire.

5.1.2 Fare Media Format

The fare media format shall support a 7-byte smartcard UID.

Other data encoded on the card will include a unique encrypted token in a format provided by Masabi.

5.1.3 Security

Req. #	Requirement
5.1.3-1	The TVM shall not alter the encoded contents of the Masabi cards.

5.1.4 Packaging

Masabi smartcards will be delivered in boxes or wrapped bundles of 100 cards.

Each box or bundle shall include a printed label that includes text and machine-readable (e.g., barcode) information including a unique serial number for the box or bundle, and the range of smartcard serial numbers included in the box or bundle.

Req. #	Requirement
5.1.4-1	The Authority desires a solution where the TVM service technician can scan the barcode data from the box's or bundle's barcode and transmit that information to the TVM BOS. Thereafter, the TVM BOS would automatically record the location of the cards (i.e., TVM number), indicating in the BOS media inventory database that the cards are now ready for sale.

5.2 LIMITED USE SMART CARD MEDIA

Req. #	Requirement
5.2-1	The Contractor shall supply limited use smartcard media compatible with the TVM's Limited Use Smartcard Dispenser (LUSD) module.
5.2-2	The limited use media shall incorporate a MIFARE Ultralight C chip (or equivalent) and antenna
5.2-3	Limited use media shall be in roll or fan-fold format
5.2-4	Each roll or fanfold stack shall contain the quantity of tickets equal to the capacity of the LUSD, with each ticket nominally sized in compliance with ISO/IEC 7810 ID-1.
5.2-5	Limited use media shall be coated with thermally-sensitive material on one side
5.2-6	Limited use media shall be pre-printed with Authority-designed graphics in at least two colors and black on the thermal side, and black on the back side
5.2-7	Limited use media design shall include features that thwart photocopying, such as the use of muted pastel colors or features that change appearance depending on the angle of view
5.2-8	Limited use media rolls or stacks shall be delivered with a removable band or other wrapping to prevent unintended unwinding

5.3 RECEIPT STOCK

Req. #	Requirement
5.3-1	The Contractor shall supply rolls of receipt stock for use in the TVM.
5.3-2	Each roll shall produce at least 1,000 receipts, nominally credit card sized and a minimum of 1.5 mil (40µm) thick.

6. BACK-OFFICE SYSTEM

6.1 BACK OFFICE SYSTEM GENERAL REQUIREMENTS

Req. #	Requirement
6.1-1	The Contractor shall design, develop, and implement a TVM Back Office System, which shall manage and monitor all contractor-supplied devices and their associated inventories, events and alarms generated by the TVMs, communications interfaces and bankcard payments performed at the TVMs.
6.1-2	The TVM Back Office System shall interface with the Masabi Justride Platform utilizing Masabi-provided APIs to update the rider's corresponding Transit Account based on the results of successful transactions performed at the TVM.
6.1-3	The interface between the BOS and the Masabi Justride platform shall enable riders to immediately use their newly purchased fare media to gain entry into the system.
6.1-4	Details of the Masabi interface shall be determined as part of Design Review.
6.1-5	The BOS shall incorporate and support the Authority's Single Sign On capability for user credentials.

6.2 BACK OFFICE SYSTEM HOSTING AND ARCHITECTURE

6.2.1 Cloud-Hosted Environment

Req. #	Requirement
6.2.1-1	The Contractor shall deploy the TVM Back Office System in a commercially-available cloud-hosted environment.
6.2.1-2	The cloud hosting service shall support both static and dynamic resource allocation with the ability to assign a base allocation of compute, memory, and storage resources, and scale dynamically as processing load increases.
6.2.1-3	The Contractor shall be responsible for all Back Office System operations, monitoring, and maintenance under the Back Office System operations agreement (see Section 12.1).
6.2.1-4	The TVM BOS shall include two distinct environments: production and test.

6.2.2 Production Environment

Req. #	Requirement
6.2.2-1	The production BOS shall interface with all installed TVMs and other external data systems defined herein.
6.2.2-2	The production BOS shall be a High Availability architecture with built-in redundancy at the physical, logical, and network layers, that guarantees availability (i.e., up time) of the production environment as defined in Section 12.1.5
6.2.2-3	The production BOS shall provide sufficient computing power, database capacity, and memory storage to meet the performance requirements within the times defined within this specification.
6.2.2-4	The production BOS shall provide secure storage of all Authority data with backups and redundancy to protect against data loss.
6.2.2-5	The production BOS shall provide all required external interfaces, such as to the Internet, the Justride Back Office System, other Authority data systems as identified herein, and the Payment Services Provider.

6.2.3 Test Environment

Req. #	Requirement
6.2.3-1	The hosted test BOS shall interface with TVMs installed in the Authority's test facility and simulated or test environments of other data systems defined herein.
6.2.3-2	The hosted test BOS shall functionally replicate the production environment and shall at minimum enable Authority staff to evaluate software updates, new features, configuration and fare table changes.

6.2.4 Disaster Recovery

Req. #	Requirement
6.2.4-1	The TVM BOS shall protect against data loss and system failure.
6.2.4-2	The TVM BOS system design shall include means to ensure complete recovery of operations and recorded data from the loss of any system components at any point during operation.
6.2.4-3	The Contractor shall conduct a disaster recovery test at least once per year and submit test results documentation to the Authority within 30 days of the test.

6.3 **ENCRYPTION**

Req. #	Requirement
6.3-1	Any elements of the Back Office System database that contain Personally Identifiable Information (e.g., the Customer Accounts) shall be encrypted using strong cryptography such as TDEA or AES.

6.4 **BANKCARD PAYMENT PROCESSING**

Req. #	Requirement
6.4-1	The TVM BOS shall initiate processing of payments for bankcard sales transactions at the TVM.
6.4-2	Masabi will be the Merchant of Record. As such, all TVM transactions that process electronic payments, including credit cards and debit cards, shall interface with one of the following processors for the processing of those payments: Chase, Worldpay, Evopay, or Payroc. Authority's processor for the processing of those payments.
6.4-3	Bankcard transaction processing shall default to EMV processing and fall back to non-EMV processing only when it is not supported by the card being used for payment.
6.4-4	The system shall maintain payment records to support the auditing of all payments processed and to support payment dispute and chargeback resolution.
6.4-5	The Contractor shall be fully responsible for acquiring all required bank certifications, including PCI and EMV certifications, for the interfaces to the payment processor and the system as a whole.

6.5 **PAYMENT TOKENIZATION**

Req. #	Requirement
6.5-1	The system shall securely tokenize (i.e., encrypt) all payment data covered by PCI.
6.5-2	At no time shall non-tokenized (i.e., unencrypted) data covered by PCI be present within any element of the system, including but not limited to databases, networks, and memory.
6.5-3	Separate payment tokens may be used for internal fare validation processing and for authorization with the payment processor.
6.5-4	Tokenization of payment data may be performed internally within the system by the Contractor, or by the payment processor, as defined in technical approach proposed by the Contractor.

6.6 FRAUD MITIGATION

Req. #	Requirement
6.6-1	The TVM system shall support fraud prevention policies, including the ability to automatically identify suspect usage patterns based on sales data and configurable fraud rules.
6.6-2	The TVM system shall support Authority-configurable velocity checks, and other fraud prevention measures, that identify excessive or potentially fraudulent use of stolen or compromised bankcards.
6.6-3	The Contractor may define additional fraud prevention policies during design review

6.7 CONFIGURATION MANAGEMENT

6.7.1 Fare Table Management

Req. #	Requirement
6.7.1-1	The TVM Back Office System shall provide the ability to modify the fare table, which defines and assigns product types and the value of all transactions.
6.7.1-2	Using the TVM Back Office System, it shall be possible to download new fare tables to the TVMs.
6.7.1-3	When downloading an updated fare table, the Authority shall have the ability to define the date and time at which the new fare table will become effective.
6.7.1-4	The TVM BOS shall support one current fare table and at least two future fare tables.
6.7.1-5	The TVM BOS shall provide the ability to configure the fare products available for sale and fare product pricing.
6.7.1-6	The TVM BOS shall support configuration of available fare products and pricing by location and individual TVM.
6.7.1-7	All fare table configurations described in this section shall be able to be performed by the Authority, as well as by the Contractor during implementation and throughout the warranty and software support agreement terms (see Section 0).
6.7.1-8	The Authority prefers that the TVM System receive and automatically implement fare product availability and pricing changes from the Masabi back-office system via a Masabi-supplied API. However, the TVM BOS shall support the ability to manage all fare table changes independent of the Masabi API.

6.7.2 Configurable Parameter Management

Req. #	Requirement
6.7.2-1	The TVM system shall provide numerous configurable parameters that are device-specific or system-wide.
6.7.2-2	The TVM Back Office System shall provide intuitive menu-driven interfaces to enable authorized users to establish and modify all configurable parameters.
6.7.2-3	At minimum, the system shall support the configurable parameters described throughout this Scope of Work.

6.8 SYSTEM MONITORING AND MANAGEMENT APPLICATION

6.8.1 General Requirements

Req. #	Requirement
6.8.1-1	The TVM Back Office System shall include a System Monitoring and Management Application (SMMA) that provides real-time monitoring of all devices down to the component level.
6.8.1-2	The SMMA shall enable authorized users to issue commands to remotely control the TVMs, which shall include the ability reboot the unit, restart the application, and begin a diagnostic cycle.

Req. #	Requirement
6.8.1-3	For each remote command issued, the TVM BOS shall record the date, time, TVM number, command, and ID of the user who issued the command.
6.8.1-4	The SMMA shall include a web-based tool that provides real-time access to all monitoring and management functions
6.8.1-5	The SMMA shall store and provide historical performance and status monitoring statistics for all devices, and network nodes for a period of not less than seven years. This data shall, at a minimum, be available via on-demand reports. Report design and reported metrics shall be determined and approved by the Authority in design review.
6.8.1-6	The SMMA shall automatically generate alerts via email and text message. The trigger, frequency, and cancellation of these alerts shall be configurable.

6.8.2 Device and System Monitoring

Req. #	Requirement
6.8.2-1	The SMMA shall provide real-time performance and status monitoring for all devices and network nodes.
6.8.2-2	Using color graphics and text, the SMMA shall provide an organized dashboard to display real-time system and device operating status.
6.8.2-3	The SMMA dashboard shall include a system map that displays the status of all TVMs at each location (i.e., station or stop). That is, for each location with TVMs, the system map shall convey distinct icons or colors that indicate the lowest operating condition of TVMs at that location. For example, if a station has three TVMs, one in full operation, one with a minor alert (such as low ticket stock), and one out of service, the map icon for that station shall indicate an out-of-service condition.
6.8.2-4	By intuitive selection of icons, the SMMA system shall enable users to “drill down” to individual locations and then individual TVMs.
6.8.2-5	Upon selection of an individual TVM from the SMMA system map, the SMMA shall display detailed information about the operational status of the TVM and its components.

6.8.3 Device Management and Control

Req. #	Requirement
6.8.3-1	The SMMA shall support the issuance of device commands system-wide and by location and individual device.
6.8.3-2	Device commands shall include configuration, maintenance (e.g., reset a module), revenue, and customer service functions.
6.8.3-3	The SMMA shall support the setting and distribution of all configuration parameters stored locally at the devices.

6.9 REVENUE MANAGEMENT SYSTEM

Req. #	Requirement
6.9-1	As part of the Back Office System, the Contractor shall deploy a Revenue Management System (RMS) that maintains a general ledger of all financial activity within the system, tracks fare revenue and receivables, and supports the settlement of funds between all participating entities.
6.9-2	The RMS shall support the full auditing of all system financial activity, including reconciliation of all system accounts, and end-to-end tracking of revenue as it is generated and recognized by the Authority.

Req. #	Requirement
6.9-3	The Contractor shall design the RMS to follow best practices for revenue management, accounting reports, general ledger interfaces, and reconciliation.

6.10 SYSTEM INTEGRATION

6.10.1 Masabi Integration

Req. #	Requirement
6.10.1-1	The Contractor shall utilize Masabi's set of Retail Sales APIs (shown in Table 6-1 below) to enable the sales of fare media, interact with smartcards, and relay account-related updates to the Justride Platform, which is responsible for maintaining the riders' Stored Value Accounts (SVAs).
6.10.1-2	Use of Masabi's APIs shall enable the TVM to check the balance and product status (e.g., expiration date of active monthly pass) on supported tokens (i.e., smartcards, mobile barcodes, etc.) as well as displaying warning messages associated with the accounts (i.e., low balance, insufficient funds, account blocked, etc.)
6.10.1-3	Use of Masabi's APIs shall enable the TVM to add funds to a rider's SVA from supported tokens, including but not limited to Authority-issued smartcards and the Authority's mobile ticketing app.
6.10.1-4	Use of Masabi's APIs shall enable the TVM to dispense extended use smartcards (as described in Section 5.1).
6.10.1-5	Use of Masabi's APIs shall enable the TVM to sell limited-use media (described in Section 5.2) for short duration fare products such as single-trips and all-day passes.
6.10.1-6	The Contractor shall work with Masabi and present finalized use cases for the Masabi APIs as part of the Design Review process.

Table 6-1 below describes the key Masabi APIs expected to be used by the TVM system and their purpose. Upon the Contractor's execution of a Non-Disclosure Agreement with Masabi, the Authority shall provide detailed documentation regarding these APIs to the Contractor.

Further details including API method/endpoint, expected responses, and sequence of calls shall be provided and finalized as part of Design Review. Please note that the APIs may be referred to differently within official Masabi documentation and that additional APIs not listed in the table may be required as determined during Design Review.

ID	API	Purpose
1	issueAuthToken	Authenticates the TVM with the Masabi Justride platform
2	getConfig	Retrieves details from the Masabi back office needed to configure the TVM
3	getTokenSchemes	Retrieves agency tariff details needed by the TVM to issue stored value and pass products
4	getTokenId	Utilizes the fare media UID (scanned internally or externally by the TVM) to query the rider's account (based on the token ID) from the Masabi back office
5	getProducts	Displays a list of valid pass products based on the account/token ID
6	getSvaBalance	Displays the rider's stored value balance and associated details
7	addTokenPass	Adds a valid pass product to the rider's account upon successful payment
8	addTokenFunds	Loads stored value funds to the rider's account upon successful payment
9	updateToken	Marks fare media that cannot be dispensed as unusable and updates status to blocked
10	issueMedia	Dispenses valid fare media
11	createToken	Registers a LUM token in the Masabi back office and associates it with a valid pass product
12	addEntitlement	Adds or renews an entitlement to an account

Table 6-1

6.10.2 Data Warehouse

Req. #	Requirement
6.10.2-1	The TVM Back Office System shall interface with the Authority's future data warehouse.
6.10.2-2	As delivered, the BOS shall have the ability to automatically upload data from its databases to a data warehouse based on queries defined by the Authority.

6.10.3 General Ledger

Req. #	Requirement
6.10.3-1	At least once per day, the BOS shall upload data from its databases to the General Ledger based on queries defined by the Authority.

6.11 **REPORTING SYSTEM**

Req. #	Requirement
6.11-1	The BOS shall include a Commercial off-the-Shelf (COTS) browser-based Reporting System that interfaces with the BOS database and other systems as necessary, that generates canned and custom queries and reports.
6.11-2	The primary data source for the reporting system shall be the Back Office System database.
6.11-3	The Reporting System shall enable users to view query and report results using a web browser interface.
6.11-4	The Reporting System shall run pre-defined and custom queries and reports.
6.11-5	The Contractor shall provide a minimum of 30 canned reports; the list of reports shall be defined and developed with the Authority during design review.
6.11-6	Canned or predefined reports shall include, but are not limited to:

Req. #	Requirement
	1. Sales reports 2. Maintenance reports 3. Device status and configuration reports, including software/firmware versions, date/time/version of configuration and fare tables, etc. 4. Device and system performance reports 5. Financial reconciliation reports 6. Financial settlement reports 7. Exception reports 8. Fraud detection reports
6.11-7	The Reporting System shall allow Authority users to design and run custom reports.
6.11-8	The Reporting System shall allow users to save user-developed custom reports and to share such saved custom reports with other users.
6.11-9	The Reporting System shall allow users to save and export query and report results in standard file formats, including but not limited to Adobe Acrobat, MS Excel, MS Word, CSV, and plain ASCII text. All file formats shall include the same data and general layout where possible.
6.11-10	The Reporting System shall generate exported data files (e.g., Excel and CSV) that support extraction and importation into third-party tools without manipulation.
6.11-11	The Reporting System shall enable users to configure reports to run immediately through the web interface and on a scheduled basis that automatically delivers the results to one or multiple email addresses.
6.11-12	The Reporting System shall allow users to schedule email report deliveries on a daily, weekly, and monthly basis, and in any of the available file formats.
6.11-13	The Reporting System shall provide web-based dashboards to display real-time system usage statistics and real-time system performance against required performance metrics.
6.11-14	The Reporting System web interface shall be mobile-optimized and support all desktop and mobile browsers in widespread use at the time of Final Design Review.
6.11-15	Access to the Reporting System web interface shall be password controlled.
6.11-16	The Reporting System shall provide the ability to define not less than five categories of user accounts.
6.11-17	The Reporting System shall support configurable restrictions on access to reports and data types based on user category.

7. PROJECT MANAGEMENT

7.1 PROJECT MANAGEMENT GENERAL REQUIREMENTS

The TVM System represents a vital component within the Authority's fare collection system, and while the Project Schedule is not driven by any milestone or event, the Authority seeks to implement the new TVMs as quickly as practicable without assuming undue risk. Therefore, the Authority prefers that the Contractor use a streamlined approach to project management that enables the Authority and the Contractor to manage and monitor the project efficiently with minimally burdensome and time-consuming administrative overhead.

7.2 CONTRACTOR PROJECT MANAGER

Req. #	Requirement
7.2-1	The Contractor shall designate a responsible and experienced individual to serve as the Project Manager (PM) for the entire term of the contract.
7.2-2	The Contractor's PM shall: 1. Be the primary point of contact between the Contract and the Authority's identified point of contact 2. Have authority to allocate Contractor resources as needed to satisfy the project's demands 3. Excluding events outside the Contractor's control, remain on the project through Final Acceptance 4. Have sufficient available time to dedicate to the project 5. Attend the Kick-Off Meeting and lead all monthly Project Review Meetings (with reasonable exceptions)
7.2-3	Upon written notice that the Authority deems the performance of the Contractor's PM to be unacceptable, the Contractor shall replace the PM within no less than 30 days.
7.2-4	All replacements for the Contractor's PM shall be subject to the Authority's approval.

7.3 PROJECT MANAGEMENT PLAN

Req. #	Requirement
7.3-1	The Contractor shall submit a draft of the Project Management Plan for Authority review at the Kick-Off Meeting and a final copy for Authority review and approval at the first monthly Progress Review Meeting.
7.3-2	The Project Management Plan shall be approximately 20 pages long and shall summarize the following: 1. The Contractor's project team and their roles 2. Project management approach 3. Project Schedule, highlighting the critical path and any major parallel tasks 4. Methodology to control project schedule, scope, cost and risk 5. Quality assurance processes and procedures to ensure that the requirements of the contract are being met 6. Software development plan 7. Change management plan and procedures 8. Manufacturing plan 9. Testing methodology 10. Transition & implementation plan 11. Operations & Maintenance Services plan 12. Time-sensitive decisions, documentation or actions required from the Authority

7.4 DESIGN REVIEW PLAN

Req. #	Requirement
7.4-1	No later than 30 days after Notice to Proceed, the Contractor shall submit a Design Review Plan for Authority review and approval.
7.4-2	The Design Review Plan shall document the Contractor's chosen Design Review approach.
7.4-3	The Design Review Plan shall include a list of all Design Review documents to be submitted for approval by the Authority.
7.4-4	The Design Review Plan shall identify system components and applications that the Contractor could present to the Authority prior to the submission of Design Review deliverables, either through demonstrations of existing solutions or detailed screen flows.

7.5 PROJECT SCHEDULE

Req. #	Requirement
7.5-1	The Contractor shall provide and maintain a detailed Project Schedule, developed using Microsoft Project or equivalent.
7.5-2	The Contractor shall construct the Project Schedule using best practices including sufficient detail and logic (e.g., predecessors and successors) to enable both the Contractor and the Authority to identify the critical path, monitor the project's progress, and identify risks of schedule slippage.
7.5-3	The Project Schedule shall identify all project activities, deliverables and key milestones (including those owned by the Authority and third-party contractors) with the expected and actual completion dates.
7.5-4	The Contractor shall present the initial Project Schedule at the Kick-Off Meeting and provide an update to the Project Schedule at every monthly Progress Review Meeting.

7.6 PROJECT RISK REGISTRY

Req. #	Requirement
7.6-1	The Contractor shall provide and maintain a Project Risk Registry that identifies project risks, their associated severity and potential impacts, and actions required to mitigate those risks.
7.6-2	The Contractor shall present the initial Project Risk Registry at the Kick-Off Meeting and provide an update to the Project Risk Registry at every monthly Progress Review Meeting.

7.7 ACTION ITEM REGISTRY

Req. #	Requirement
7.7-1	The Contractor shall provide and maintain a project Action Item Registry to track items requiring attention from the Contractor or Authority.
7.7-2	The Action Item Registry shall be in electronic form (preferably as part of a project management tool suite), shall be searchable, and shall be sortable by any data field.
7.7-3	The Action Item Registry shall contain at least the following data fields for each item: 1. Item number 2. Date opened 3. Severity 4. Due date 5. Status (e.g., open / closed / deferred) 6. Assigned party 7. Affected device or system element 8. Description

Req. #	Requirement
	9. Progress description and comments 10. Resolution 11. Date closed
7.7-4	The Contractor may assign action items to the Authority, but the Authority shall have the right to refuse the assignment if the Authority believes the item is not the Authority's responsibility per terms of the contract.
7.7-5	The Contractor shall present the initial Action Item Registry at the first monthly Progress Review Meeting and provide the current Action Item Registry at every subsequent monthly Progress Review Meeting.

7.8 PROJECT MEETINGS

7.8.1 Kick-Off Meeting

Req. #	Requirement
7.8.1-1	No later than 21 calendar days following NTP, the Contractor shall schedule and participate in a Project Kick-Off Meeting to be held at the Authority's facilities. A virtual meeting may be used in lieu of an in-person meeting at the discretion of the Authority.
7.8.1-2	The Contractor shall work with relevant Authority staff to assemble an agenda for the Project Kick-Off Meeting.
7.8.1-3	At minimum, the Kick-Off Meeting shall discuss all topics from the Project Management Plan described in Section 7.3 and the Project Risk Registry described in Section 7.6.
7.8.1-4	During the Kick-Off Meeting, the Contractor and Authority shall jointly schedule the first monthly Progress Review Meeting (discussed in Section 7.8.2) and establish the schedule for the recurring monthly Progress Review Meetings (PRMs).
7.8.1-5	The Contractor shall provide minutes for the Kick-Off Meeting and submit those minutes for Authority review within 3 business days following the meeting.

7.8.2 Monthly Project Review Meetings

Req. #	Requirement
7.8.2-1	As scheduled during the Kick-Off Meeting, the Contractor shall attend a monthly Project Review Meeting (PRM) and every month until Final System Acceptance.
7.8.2-2	Approximately once per quarter (or less frequently per Authority direction), the monthly PRM shall be held at the Authority's facilities. All other monthly PRMs shall be video conference calls.
7.8.2-3	At a minimum, during each PRM the Contractor shall present and discuss: 1. Progress since the last PRM 2. Updated Action Item Registry 3. Updated Project Schedule 4. Updated Project Risk Registry including risk mitigation strategies 5. Any new or pending contract changes 6. Planned activities for the next two months
7.8.2-4	The Contractor shall prepare and submit for Authority review an agenda for the monthly PRM. The Contractor shall include required Authority staff and resources for each topic on the agenda.
7.8.2-5	No less than three business days prior to the scheduled meeting, the Contractor shall submit the meeting agenda and updated versions of the Action Item Registry, and Project Schedule, and Project Risk Registry.
7.8.2-6	In addition to the Contractor's PM, Contractor subject matter experts (SMEs) and other project staff needed to discuss agenda topics shall also attend the meeting.

Req. #	Requirement
7.8.2-7	The Contractor shall provide minutes for all monthly Project Review Meetings and submit those minutes for Authority review within 3 business days following each meeting.

7.8.3 Informal Project Meetings

The Authority welcomes and encourages informal meetings to enable all parties to remain informed between the monthly status review meetings and to foster cooperation and timely responses to issues as they arise. When the Contractor identifies a need for a meeting, the Contractor PM may request a meeting. Authority staff shall make every effort to be available for such impromptu meetings. Likewise, the Authority may identify topics or issues that require timely attention. In such cases, the Authority shall contact the Contractor PM to arrange the meeting.

With the mutual consent of the parties, some informal meetings may become recurring.

Generally, the Authority requires no formal agendas or meeting minutes for these informal meetings.

Req. #	Requirement
7.8.3-1	The Contractor shall support and attend (as requested) informal meetings related to the TVM System.
7.8.3-2	The Contractor's PM and other designated staff shall participate as required in ad-hoc, informal meetings to facilitate project coordination and decision making.
7.8.3-3	All informal project meetings shall be video conference calls.
7.8.3-4	Results from these informal project meetings may affect the Action Item Registry and Project Schedule and may require other formal actions. In such cases, the Contractor shall document the results from informal project meetings for the monthly Project Review Meeting, update the Action Item Registry as required, update the Project Schedule if necessary, and take any other needed steps.

7.9 **TVM PRODUCTION MANAGEMENT**

Req. #	Requirement
7.9-1	The Contractor's project schedule should indicate production of only First Article TVMs (see Section 9.4.1) prior to the Authority issuing an authorization to commence production of the remaining TVMs included in this contract.
7.9-2	The Contractor may commence production of TVMs prior to the Authority's production authorization, but the Contractor will do so at its own risk.
7.9-3	Upon successful completion of the Factory Acceptance Tests described in Section 9.4 and the successful completion or waiver of the Environmental Test described in Section 9.5, the Authority shall grant the Contractor authorization to commence production of the remaining TVMs.
7.9-4	To expedite production, after successful completion of the Design Reviews, the Contractor may request Authority authorization to procure TVM components that are not subject to further change. (Such components may include the cabinet, payment processing modules, power supplies, electronic components and circuit boards, customer display, etc.)
7.9-5	Any expedited component procurement is at the Contractor's risk.
7.9-6	The Authority shall respond to requests for expedited component procurement within 7 days of receipt.
7.9-7	Before shipping, the Contractor shall perform post-production Quality Assurance and functional tests of every TVM to ensure that the TVM will function upon arrival.
7.9-8	Documentation accompanying every shipped TVM shall include the post-production test results.
7.9-9	Upon delivery of any batch of TVMs, the Contractor shall supply an electronic file containing the serial numbers of all serialized components in every TVM in the shipment.

8. DESIGN REVIEWS

8.1 DESIGN REVIEW APPROACH

The Authority wishes to balance its need to understand the Contractor's solution and compliance with the contract, and its desire to deploy the new Ticket Vending Machines as expeditiously as possible while minimizing risk.

Req. #	Requirement
8.1-1	The Contractor shall conduct and collaborate with the Authority, and any relevant third party, in an iterative design process that includes formal Design Reviews to evaluate the overall design as it relates to the technical, functional, programmatic adequacy and ability to meet the System requirements.
8.1-2	The Contractor shall conduct Design Reviews in one of two approaches: 1. Conventionally, with two design reviews (Preliminary and Final), both of which shall include complete submittal packages as described below 2. In an 'agile' method where Design Reviews are continuous, which shall result in a series of two or more iterative submittals for each topic as described below
8.1-3	Regardless of the chosen Design Review approach, the Contractor's schedule shall complete the Design Reviews according to the Project Schedule while allocating sufficient time for the Authority to review each submittal package or individual, incremental submittal.
8.1-4	The Contractor shall submit All applicable documents in a searchable, electronic format (e.g., PDF, Word) that shall be shared and stored within the Authority's preferred document control system.
8.1-5	The Authority shall have up to 14 calendar days to review and provide comments on the Design Review submittals prior to the submittal's associated Design Review Meeting. The Contractor may work with the Authority on a mutually-agreed alternative timeline if the Contractor prefers to organize required submittals into smaller, partial Design Review packages during Design Review.
8.1-6	The Contractor shall provide a written response to Authority comments not more than 10 calendar days after their receipt by the Contractor.
8.1-7	The Contractor shall resubmit relevant submittals to address all comments and feedback on the Design Review packages throughout the Design Review process.

8.2 DESIGN REVIEW SUBMITTALS

Req. #	Requirement
8.2-1	For the Design Reviews, the Contractor shall submit a series of documents that provide sufficient, but not excessive, detail for the Authority to comprehend the design of the Contractor's solution and to verify the solution's compliance with the contract.
8.2-2	The Contractor shall submit the following design documents for the Back Office System: 1. User Interfaces 2. Network Architecture and Hosting Environment 3. Cybersecurity Methods 4. Fare Table and Configuration Management 5. System Monitoring and Management 6. Queries and Reports 7. System Administration
8.2-3	The Contractor shall submit the following design documents for Back Office System Integrations: 1. Masabi Justride Back-Office System 2. GCRTA General Ledger 3. GCRTA Data Warehouse 4. Payment Services Provider
8.2-4	The Contractor shall submit the following design documents for Transaction Processing:

Req. #	Requirement
	- Extended-Use Media Purchase Transactions - Limited-Use Media Purchase Transactions - Account Status Transactions - Account Reload Transactions (Extend Use Media and mobile app)
8.2-5	The Contractor shall submit the following design documents for Fare Media: - Extended-Use Media (EUM) - Limited-Use Media (LUM) - Receipt Stock - Fare Media Inventory Control
8.2-6	The Contractor shall submit the following design documents for the Ticket Vending Machine: - TVM Hardware Components and Assembly - TVM Software and Operations - TVM User Interfaces and ADA Compliance - TVM Service Access Procedure - TVM Revenue Servicing Procedures - TVM Recommended Spare Parts - TVM Components for Expedited Procurement
8.2-7	The Contractor shall provide one or more documents that describe the approach, objectives, sequence, duration, and other aspects of the Acceptance Testing programs (not individual test procedures), including: - Factory Acceptance Test Program - Factory Integration Test Program - Production Environment Test Program - Pilot Test Program - Revenue Service Acceptance Test Program
8.2-8	The Contractor shall submit a sample Acceptance Test Plan that complies with the requirements set forth in Section 9.2.
8.2-9	In collaboration with the Authority, the Contractor shall submit a Transition Plan that defines: - Transition Approach - Transition Preparations and Prerequisites - Transition Steps and Sequence - Transition Schedule
8.2-10	The Contractor shall submit an Installation Plan that defines: - Installation Mobilization and Readiness Plan - Equipment, Supplies, and Tools Staging Location - Staffing - Installation Schedule (Pilot Test and remaining fleet) - Detailed Installation Procedures and Drawings - Safety Plan and Procedures (public and installation staff)
8.2-11	For each training course listed in Section 10.2, the Contractor shall submit a comprehensive course syllabus.

8.3 DESIGN REVIEW MEETINGS

Req. #	Requirement
8.3-1	The Contractor, in collaboration with the Authority, shall schedule Design Review meetings with no less than 21 days' advance notice.
8.3-2	All Design Review meetings shall occur over remote video conference. The Contractor may choose to conduct one or more Design Review meetings on-site at one of the Authority's facilities.

8.4 DESIGN REVIEW APPROVALS

The Authority shall review each Contractor Design Review submittal and respond with comments and with one of the following assessments:

- Rejected – requires further action per Authority comments
- Conditionally Approved – pending Contractor response to Authority comments
- Approved – no further action required

Req. #	Requirement
8.4-1	The Contractor shall continue to resubmit a Design Review document until the Authority has granted approval.
8.4-2	The Design Review shall be considered complete when the Authority has approved all corresponding Design Review submittals.
8.4-3	Unless a Contractor submittal explicitly requests a contract change and the Authority explicitly accepts the Contractor's request in the form of a written contract change order with a corresponding amended contract Scope of Work, Authority approval of a Design Review submittal shall not relieve the Contractor of any contract requirements.

9. ACCEPTANCE TESTING

9.1 ACCEPTANCE TESTING GENERAL REQUIREMENTS

Acceptance testing shall serve to confirm that the Contractor has designed, built, and installed the entire system with sufficient quality to meet the requirements of this specification. To do so, the Contractor shall conduct a series of sequential tests as described below.

Req. #	Requirement
9.1-1	The Contractor shall plan and execute Acceptance Tests in a logical sequence, where each step consists of one or more tests.
9.1-2	The Contractor shall support the testing of all hardware and software individually and within integrated environments to ensure that they meet all technical, functional, and performance requirements in these specifications.
9.1-3	All test cases not passing shall be corrected and retested by the Contractor within the agreed upon response time after the defect is identified.
9.1-4	Prior to the start of formal testing, the Contractor shall conduct internal 'dry run' reviews for all hardware and software components to identify and resolve any issues that arise before formal testing commences. Any and all hardware or software not passing shall be replaced, or otherwise corrected by the Contractor and retested.
9.1-5	The Contractor shall perform full financial reconciliation testing to demonstrate the financial integrity of the TVM System from purchase to settlement, including all supported payment types.
9.1-6	The Contractor shall coordinate testing with the Authority and all third-party Contractors providing services or solutions for the overall system.
9.1-7	The Authority shall be entitled to witness all Acceptance Testing.
9.1-8	For no less than 60 days after completion of each test, the Contractor shall preserve evidence of test results, such as printed or electronic reports and dispensed fare media and receipts, and shall provide such evidence to the Authority upon request.
9.1-9	The Contractor shall provide the Authority no less than 30 days' notice before commencing any Acceptance Testing.
9.1-10	Except where noted, all Acceptance Testing shall occur at the Contractor's facility in the United States.

9.2 TEST PLANS

Req. #	Requirement
9.2-1	For each test, the Contractor shall develop a comprehensive Test Plan that: 1. Defines all steps of the test procedure(s) 2. Defines quantities of all required test supplies such as cash, bankcards, fare media, receipt stock, etc. 3. Identifies the entry and exit criteria (i.e., prerequisites and success criteria)
9.2-2	For each test, the Contractor shall submit a Test Plan for Authority review and approval no less than 30 days prior to the scheduled start of the test.
9.2-3	The Authority shall complete its review of all Test Plans not less than 14 days prior to the scheduled start of the subject test.
9.2-4	If the Authority approves a submitted Test Plan or if the Authority approves the plan pending identified changes, the Contractor may conduct the formal test as scheduled.
9.2-5	If the Authority rejects a submitted Test Plan, the Contractor shall correct and resubmit the Test Plan for Authority review and reschedule the subject test for no less than 30 days after the resubmittal.

Req. #	Requirement
9.2-6	The Authority shall review resubmitted Test Plans in the same manner as original Test Plan submittals.

9.3 TEST RESULTS REPORTS

Req. #	Requirement
9.3-1	Within 7 days of completion of each test, the Contractor shall submit for Authority review a Test Report that documents all test results and assesses the test results based on the approved Test Plan's exit criteria.
9.3-2	If the Authority deems the Test Report to be inadequate, the Contractor shall correct the report and resubmit the Test Report for Authority approval.
9.3-3	If within 7 days of receipt of the submitted Test Report the Authority determines that the test results do not satisfy the approved Test Plan's exit criteria, the Authority shall notify the Contractor that the Authority rejects the results of the test.
9.3-4	If the Authority rejects the test results, the Contractor shall: 1. Reschedule and repeat the test according to the approved Test Plan, or 2. Submit a new Test Plan for Authority approval and schedule and conduct the modified test, or 3. Provide additional information (including test results evidence) to justify why the Authority should accept the test results.

9.4 FACTORY ACCEPTANCE TESTING

Req. #	Requirement
9.4-1	All Factory Acceptance Tests shall utilize equipment, software, configurations, network interfaces, third party integrations (or equivalent simulations), fare tables, and fare media that accurately represent the production environment.

The Contractor shall conduct Factory Acceptance Tests in the following sequence.

9.4.1 First Article Inspection (FAI)

Req. #	Requirement
9.4.1-1	For the FAI, the Contractor shall produce at least one First Article TVM.
9.4.1-2	During the FAI, the Contractor shall inspect and verify that the First Article TVM accurately represents the approved Final Design.
9.4.1-3	The Contractor shall supply any supplemental materials needed to successfully complete the inspection, such as any tools or measuring equipment.
9.4.1-4	The Contractor shall conduct all remaining pre-production Acceptance Tests using the approved First Article TVM(s).

9.4.2 Unit Functional Tests (UFTs)

Req. #	Requirement
9.4.2-1	The Unit Functional Tests (UFTs) shall separately verify that the TVM and Back Office System function as intended and satisfy all functional requirements set forth herein.
9.4.2-2	The Contractor shall install software that can demonstrate all functions required for the TVM and Back Office System, and which closely reflects the final production software.
9.4.2-3	Where necessary to confirm TVM functionality, the Contractor shall interface the TVM with a Back-Office System test environment or simulator.

Req. #	Requirement
9.4.2-4	Where necessary to confirm Back Office System functionality, the Contractor shall interface the Back Office System with a test TVM or simulator and test versions or simulators of all other third-party integrations (including the Masabi Back-Office System, the Payment Services Provider, the Authority's General Ledger, and the Authority's data warehouse).

9.4.3 Unit Cycle Test (UCT)

Req. #	Requirement
9.4.3-1	Unless waived as described in Section 9.10, for the Unit Cycle Test (UCT), the Contractor shall perform quantities of transactions on a single TVM to verify that the TVM will satisfy accuracy and reliability requirements set forth herein.
9.4.3-2	UCT transactions shall represent a mix of payment types for all transaction types supported by the TVM (including those supported by the TVM software but not active in the production fare table configuration).
9.4.3-3	The UCT shall consist of no less than 2,000 transactions.
9.4.3-4	The UCT shall include a transaction mix of approximately 40% cash and 60% bankcard payments.
9.4.3-5	The UCT shall include a transaction mix of approximately 40% Limited Use Media purchases, 20% Extended Use Smartcard purchases, 30% smartcard account replenishments, and 10% mobile app account replenishments.
9.4.3-6	The Contractor shall manually record in an Excel spreadsheet the payment method (including details of coins and bills inserted or the bankcard used) and results of each UCT transaction (including account identifier and any dispensed media details such as serial number).
9.4.3-7	For each 100 transactions, the Contractor shall cause the TVM to issue an audit ticket indicating the contents of the cash containers and the quantity and value of all transactions. Alternatively, the Contractor may provide equivalent reports from the Back Office System. The Contractor shall use the audit tickets or BOS reports to verify that the reported transaction quantity, type, and value matches the recorded information in the test spreadsheet.
9.4.3-8	For each 500 transactions, the Contractor shall perform a revenue service of the TVM to empty the coin and bill vaults and verify that the physical contents of the vaults match the reported tallies.
9.4.3-9	To be considered successful, the UCT shall result in: 1. No more than two hardware anomalies per 1,000 transactions 2. No previously undocumented software anomalies 3. No discrepancies between actual and reported transaction quantities and values.

9.5 ENVIRONMENTAL TESTING

Req. #	Requirement
9.5-1	Unless waived as described in Section 9.10, coincident with any of the Factory Acceptance Tests, the Contractor shall perform Environmental Testing at a certified test laboratory to confirm the TVM can tolerate the environmental conditions defined in Section 2.6.
9.5-2	If performed, the Environmental Test shall utilize equipment that accurately represents the production environment.

9.6 FACTORY INTEGRATION TEST (FIT)

Req. #	Requirement
9.6-1	The Contractor shall conduct the Factory Integration Test (FIT) only upon successful completion of the Factory Acceptance Tests described in Section 9.4 and successful completion or waiver of the Environmental Test described in Section 9.5.

Req. #	Requirement
9.6-2	Prior to conducting the FIT, the Contractor shall integrate the test Back-Office System environment with approved First Article TVMs and any relevant networking and software systems (or simulators) necessary to replicate the production environment.
9.6-3	Prior to conducting the FIT, the Contractor shall configure the BOS and the TVMs to fully replicate the production environment, including fare tables, menus, and all other configurable parameters.
9.6-4	The Contractor shall then conduct an extensive exercise involving all transaction types to confirm that the entire system will function as required when deployed to the field.
9.6-5	The FIT shall include tests to demonstrate TVM operation with inoperative communications and other anomalous conditions.
9.6-6	The FIT shall exercise a representative sample of the Back-Office Systems reports, including reconciliation and audits of all transaction values and types between the test records, device-level logging, and the Back-Office System reports.
9.6-7	The FIT shall demonstrate functionality of the BOS System Monitoring and Management System described in Section 6.8.

9.7 PRODUCTION ENVIRONMENT TEST (PET)

Req. #	Requirement
9.7-1	The Contractor shall conduct the Production Environment Test (PET) only upon successful completion of the Factory Integration Test discussed in Section 9.6.
9.7-2	Prior to commencing installation of equipment and systems, the Contractor shall deploy, configure, and commission the production environment for the Back-Office System, two production TVMs in the Authority's Test Facility, and all networking and BOS interfaces required to complete the TVM system's full production environment.
9.7-3	The Contractor shall then conduct a series of tests that confirm the production environment is fully functional, including all network communications, and interfaces to the Authority's Test Facility TVMs and all external systems.
9.7-4	The Contractor shall also demonstrate that all configurations, especially those regarding the fare table and fare products, accurately reflect the Authority's business rules in effect at the time.

9.8 PILOT TESTING

Req. #	Requirement
9.8-1	Upon successful completion of the Production Environment Test, the Contractor shall prepare for the Pilot Test by installing and commissioning Pilot Test TVMs (quantified in Section 1.6) at Authority-specified locations.
9.8-2	The Pilot Test shall exercise both the Back Office System and the TVMs to verify all functionality in preparation for installation of the remaining TVMs.
9.8-3	Upon completing installation of the Pilot Test TVMs, the Pilot Test shall run for 21 days.
9.8-4	During the Pilot Test, Contractor and Authority staff shall meet daily to review Pilot Test results.
9.8-5	If after 21 days the Pilot Test satisfies Authority-approved success criteria (as defined in the approved Pilot Test Plan), the Pilot Test shall conclude.
9.8-6	If the Pilot Test fails to satisfy the success criteria, the test shall continue in increments of 7 days until the test satisfies the success criteria.

9.9 REVENUE SERVICE ACCEPTANCE TEST (RSAT)

Req. #	Requirement
9.9-1	When all TVM System elements are in revenue service, the Contractor shall conduct a Revenue Service Acceptance Test for the equipment and Back Office System.
9.9-2	The RSAT shall consist of a Reliability and Availability Test and an Accuracy Test.
9.9-3	While the two RSAT tests shall commence concurrently, each test shall run independently, allowing one test to conclude while the other continues (if necessary).
9.9-4	Following an initial settling period not longer than 14 days after the TVM System enters full revenue service, the RSAT shall take place over a period of 28 days.
9.9-5	For the purposes of the RSAT, the Contractor and the Authority shall convene a Failure Review Board (FRB) consisting of at least one representative from the Contractor and one from the Authority.
9.9-6	For each week of the Revenue and Availability Test component of the RSAT, the FRB shall review reported failures and malfunctions to determine whether they are chargeable or non-chargeable.
9.9-7	For each week of the Accuracy Test component of the RSAT, the FRB shall review revenue reports to assess the accuracy of the TVM System.

9.9.1 Reliability and Availability Test

Req. #	Requirement
9.9.1-1	Using the results of the FRB analysis of reported failures and malfunctions and the duration of each incident as reported by the Back Office System, the FRB shall calculate the relevant reliability and availability statistics for the associated devices and software systems.
9.9.1-2	When assessing TVM reliability, the FRB shall reference TVM reliability requirements defined in Section 2.10.1.
9.9.1-3	When assessing BOS availability, the FRB shall reference BOS availability requirements defined in Section 12.1.5
9.9.1-4	At the conclusion of the 28-day test period, if reliability and availability calculations satisfy the requirements stated herein, the Authority shall declare the Reliability and Availability Test portion of the RSAT successful for the equipment and systems, and the Reliability and Availability Test shall conclude.
9.9.1-5	If either reliability or availability fail to satisfy contract requirements, the Contractor shall assess the cause for the failures and make any needed corrections. Thereafter, the Reliability and Availability Test shall continue seven days at a time until the results of the previous 28 days satisfy both the reliability and availability requirements for the TVM and BOS.

9.9.2 Accuracy Test

Req. #	Requirement
9.9.2-1	Concurrently with the Reliability and Availability Test, the RSAT shall include an Accuracy Test.
9.9.2-2	The Accuracy Test shall confirm TVM accuracy by auditing 5 randomly selected TVMs per day.
9.9.2-3	The selected TVMs shall each contain coin and bill vaults with a minimum combined total of \$100.00 in collected revenue. The vaults shall be emptied separately, and the revenue counted.
9.9.2-4	TVM accuracy shall be measured by comparing revenue as determined by physical count to revenue as reported by the Back-Office System.
9.9.2-5	When assessing TVM accuracy, the FRB shall reference TVM accuracy requirements defined in Section 2.10.2
9.9.2-6	The Accuracy Test shall confirm system-wide daily bankcard transaction revenue as reported by the BOS also matches bankcard revenue totals reported by the Authority's Payment Services Provider.

Req. #	Requirement
9.9.2-7	When assessing BOS accuracy, the FRB shall reference BOS accuracy requirements defined in Section 2.11.2.
9.9.2-8	At the conclusion of the 28-day test period, if accuracy calculations satisfy the requirements stated herein, the Authority shall declare the Accuracy Test portion of the RSAT successful for the TVM and BOS, and the Accuracy Test shall conclude.
9.9.2-9	If accuracy calculations fail to satisfy contract requirements, the Contractor shall assess the cause for the failures and make any needed corrections. Thereafter, the Accuracy Test shall continue seven days at a time until the results of the previous 28 days satisfy the accuracy requirements for the TVM and BOS.

9.10 TEST WAIVERS

Req. #	Requirement
9.10-1	The Contractor may request waivers for Unit Cycle Tests (see Section 9.4.3) and Environmental Tests (see Section 9.5) if the equipment to be tested is derived from equipment that has previously been subjected to similar testing.
9.10-2	All test waiver requests shall include comprehensive documentation of: 1. The tested device, detailing any differences between the tested device and those to be supplied under this contract 2. Test procedures performed 3. Test results 4. Test date 5. Organization that conducted the test
9.10-3	The Contractor shall submit requests for test waivers no later than the conclusion of Design Reviews.
9.10-4	The Authority shall respond to the waiver request no more than 14 days after receipt.
9.10-5	The Authority may grant or reject the waiver in whole or agree to waive only those parts of the test that the Authority in its sole discretion deems unnecessary.

10. SYSTEM SUPPORT

10.1 DOCUMENTATION

Req. #	Requirement
10.1-1	The Contractor shall supply complete documentation for the equipment and systems provided.
10.1-2	The Contractor shall supply all documentation in searchable electronic files such as PDF with hyperlinks (e.g., from the Table of Contents and cross references).
10.1-3	The Contractor shall deliver all electronic documentation on one or more USB flash drive.
10.1-4	The Authority shall have the right to duplicate the electronic files for distribution to Authority staff and subcontractors.
10.1-5	Documentation shall include operation and service manuals, schematics, and parts guides and at minimum shall include the following: 1. Ticket Vending Machine Operating Manual 2. Ticket Vending Machine Revenue Servicing Manual 3. Ticket Vending Machine Maintenance Manual 4. Back Office System User Manual 5. Back Office System Administration Manual 6. Owner and Maintenance Manuals for OEM components (where available)

10.2 TRAINING

Req. #	Requirement
10.2-1	The Contractor shall provide training based on content in the manuals described in Section 10.1.
10.2-2	The Contractor's instructors shall have sufficient subject matter expertise to provide effective training and to answer relevant questions.
10.2-3	As appropriate, the Contractor shall utilize PowerPoint or similar presentation tools to guide the class. (The Authority shall provide the projection equipment.)
10.2-4	The Contractor shall provide handout materials that complement the presented course content.
10.2-5	The Contractor shall schedule training to occur approximately two to four weeks prior to the entry into service for the subject device or system
10.2-6	For each course, the Contractor shall train up to 10 Authority and Authority-authorized third-party staff.
10.2-7	The Contractor shall use experienced and qualified instructors
10.2-8	The Contractor shall provide the following training courses: 1. Ticket Vending Machine Maintenance 2. Ticket Vending Machine Revenue Servicing 3. Back Office System Queries, Reports, and Dashboards 4. Back Office System TVM Status Monitoring and Remote Controls 5. TVM and Fare Table Configuration 6. Back Office System Administration

10.3 INSTALLATION SERVICES

10.3.1 Removal of Existing Equipment

Req. #	Requirement
10.3.1-1	The Contractor shall remove existing GCRTA TVMs and CSKs in accordance with Authority-provided schedule and instructions.
10.3.1-2	Upon removal of a TVM or CSK, the Contractor shall either install a new TVM or make the site safe and secure by means of protective cover, steel plate, or similar.

Req. #	Requirement
10.3.1-3	The Contractor shall deliver removed TVMs and CSKs to an Authority-operated facility.
10.3.1-4	Because TVMs and CSKs are in public facilities, the Contractor shall ensure that public safety is always protected during TVM and CSK removal.

10.3.2 [Ticket Vending Machines](#)

Req. #	Requirement
10.3.2-1	The Contractor shall install TVMs on station platforms, sidewalks, and other paved surfaces, which by their nature are public ways. Therefore, the Contractor shall ensure that public safety is always protected during TVM installation, including while delivering and moving TVMs to the installation site.
10.3.2-2	Prior to each installation, the Contractor shall inspect the site to ensure the location is ready for TVM installation.
10.3.2-3	The Contractor shall install TVMs in accordance with the Authority-approved installation plans.
10.3.2-4	The Contractor shall connect installed TVMs to power and data cabling (provided by others).
10.3.2-5	The Contractor shall establish communication with the Back Office System to configure the TVM in preparation for revenue service.
10.3.2-6	The Contractor shall perform post-installation testing to verify that the TVM functions as intended.
10.3.2-7	Upon successful completion of the Authority's post-installation inspection, the Contractor shall commission the TVM (including loading ticket stock, smartcards, and receipt paper) and make it ready for revenue service.
10.3.2-8	At the Authority's direction (which may be at a later date), the Contractor shall place the TVM into revenue service.

10.3.3 [Back Office System](#)

Req. #	Requirement
10.3.3-1	The Contractor shall deploy the production and test environments for the Back Office System to the Contractor's selected commercial cloud hosting services provider.
10.3.3-2	The Back Office System production environment shall be fully operational as a prerequisite to the Factory Integration Test described in Section 9.6 and shall be used for the Pilot Test and all subsequently installed devices.
10.3.3-3	The Contractor shall deploy the Back Office System test environment prior to commencing the Pilot Test to enable the Authority to conduct tests, verify reported anomalies, and perform other assessments without affecting the production environment or the integrity of the Pilot Test.

10.4 **SPARE PARTS**

10.4.1 [Initial Parts Supply](#)

Req. #	Requirement
10.4.1-1	During the Preliminary Design Review, the Contractor shall submit a list for Authority review of the spare parts to be delivered using the Spare Parts Allowance defined on the contract pricing form.
10.4.1-2	The Contractor shall submit a final list of spare parts at the Final Design Review, which shall be subject to Authority review and approval.
10.4.1-3	Upon approval of the spare parts, the Contractor shall procure the parts and deliver sufficient quantities to support the equipment for the Pilot Test.
10.4.1-4	The Contractor shall deliver all other spare parts prior to commencing installation of the remaining TVMs.

10.4.2 Proprietary Parts Availability

Req. #	Requirement
10.4.2-1	For a period of not less than 10 years from the date of Final System Acceptance, the Contractor shall make available parts, components, devices and assemblies used in the equipment that the Contractor designed, fabricated or commissioned.

10.4.3 Commercial Parts Availability

Req. #	Requirement
10.4.3-1	For those parts purchased by the Contractor from commercial sources and over which the Contractor has no control, the Contractor shall monitor the availability of such parts for a period of not less than 10 years from the date of Final System Acceptance.
10.4.3-2	If a commercially-sourced part is to be discontinued and no longer available from the original source, the Contractor shall notify the Authority not less than six months prior to the date of discontinuance to enable the Authority to procure an adequate supply of the discontinued part.

11. WARRANTY SERVICES

11.1 HARDWARE WARRANTY

Req. #	Requirement
11.1-1	The Contractor shall repair or replace all defective hardware components at no cost to the Authority commencing with the Pilot Test and continuing for one year after all TVMs have entered revenue service, or at the conclusion of all options exercised to extend the Hardware Warranty.
11.1-2	For parts repaired or replaced during the warranty, the Contractor shall warrant all such parts against defects for 6 months or until the end of the Hardware Warranty period, whichever is greater.
11.1-3	For parts the Authority purchases after the warranty expires, the Contractor shall repair or replace defective parts at no cost to the Authority for one year after delivery of the purchased part.
11.1-4	The Contractor shall pay for all shipping costs for parts returned under warranty, provided the Authority follows the Contractor's Returned Material Authorization process.
11.1-5	The warranty shall not apply to parts damaged due to Authority maintenance procedures contrary to the Contractor's documented instructions, misuse, or vandalism.

11.2 SOFTWARE WARRANTY

Req. #	Requirement
11.2-1	The Contractor shall repair software defects under terms of the Software Support Services described in Section 12.1.7. No separate Software Warranty services are required.

12. OPERATIONS AND MAINTENANCE SERVICES

The Contractor shall provide Operations and Maintenance (O&M) Services for:

1. Back Office System hosting
2. Software Support
3. Technical Support

Req. #	Requirement
12-1	The Contractor shall provide O&M services for periods defined below, subject to extension by the Authority's exercise of one or more options.
12-2	For each month of O&M services, the Contractor shall submit an invoice for payment, based on the monthly pro-rated contract price for the corresponding services, net of any payment deductions defined herein.
12-3	Each monthly invoice shall also include documentation described below.

12.1 BACK OFFICE SYSTEM HOSTING

Commencing with the start of the Pilot Test described in Section 9.8 and continuing for three years after the start of full TVM System revenue service, the Authority shall compensate the Contractor for hosting the Back Office System in a commercial cloud environment.

The Authority may extend the Contractor's Back Office System Hosting services via one or more options for additional periods of one year each.

For the duration of the Operations and Maintenance services provided under this contract and any Authority-exercised options, the Contractor shall provide the following:

12.1.1 Hosted Operations Services

Req. #	Requirement
12.1.1-1	The Contractor shall provide a scalable hosting environment for the Back Office System to ensure adequate capacity at all times.
12.1.1-2	Hosted Operations Services shall include all software costs, licenses, and support related to the Back-Office Systems.
12.1.1-3	The Contractor shall be responsible for PCI compliance and annual audits of the Hosting facility and Contractor-supplied networking infrastructure in accordance with the PCI standards.
12.1.1-4	The Contractor shall notify the Authority of all incidents, outages, or failures affecting the hosted Back Office System immediately upon identification of the issue, and on an ongoing basis until resolved. Notification shall be via a mutually agreed email distribution list, which may be updated from time to time.
12.1.1-5	The Contractor shall notify the Authority of scheduled Back Office System downtime no less than 7 days in advance.
12.1.1-6	To the extent practical, the Contractor shall limit scheduled downtime to off-peak hours, preferably between 2:00 AM and 4:00 AM.

12.1.2 Hosted Security Services

Req. #	Requirement
12.1.2-1	The hosted environment shall provide Network Intrusion Detection (IDS) support and operations monitoring.
12.1.2-2	The hosted environment shall provide Vulnerability Assessment services for the server images and volumes.

Req. #	Requirement
12.1.2-3	The hosted environment shall provide Payment Card Industry (PCI) compliance scanning services as required, including periodic scanning, Network Intrusion Detection (IDS), and Vulnerability Assessment services.
12.1.2-4	The hosted environment shall provide Anti-Virus, Anti-Spyware, and Anti-Malware agents for server image volumes.
12.1.2-5	The Contractor's hosted services provider shall provide Annual Security Risk assessment and Audit support services.
12.1.2-6	The Contractor shall assist the Authority with completion of the AOC (Attestation of Compliance) as needed
12.1.2-7	The Contractor shall provide Annual audit of PCI compliance and a Common Services Attestation of Compliance (AOC) report of the hosting facility in accordance with the PCI standards.

12.1.3 Management and Execution

Req. #	Requirement
12.1.3-1	The Contractor's hosted services provider shall backup data on daily basis and when necessary, restore data from the back up in accordance with the Disaster Recovery Plan discussed in Section 12.1.4.
12.1.3-2	In case of failure due to an unforeseen incident, the Contractor and the hosted services provider shall manage and resolve the Incident and mitigate impact to TVM System operations.
12.1.3-3	The Contractor's hosted services provider shall provide monitoring and support services for all levels of incident severity (typically called L1, L2, and L3).
12.1.3-4	The hosted environment shall provide the necessary hardware, software, networking, and connection to the Authority's Payment Services Provider to process bankcard transactions that originate at the Ticket Vending Machines.

12.1.4 Disaster Recovery

Req. #	Requirement
12.1.4-1	In collaboration with the Authority, the Contractor shall develop and submit a Disaster Recovery plan to the Authority for approval.
12.1.4-2	The Contractor shall test the Disaster Recovery plan annually, including the Service Continuity Exercise Services, and shall submit documented results to the Authority.
12.1.4-3	The Contractor shall provide Service Continuity Planning Services.
12.1.4-4	The Contractor shall provide appropriate backup service with Recovery Point Objective (RPO) of no more than 12 hours and Recovery Time Objective (RTO) of no more than 36 hours.

12.1.5 Hosting Service Level Agreements

Back-office availability shall be calculated periodically based on the total out of service hours and operating hours for the system during the period:

$$\text{Back Office Availability} = 1 - \frac{\text{Out of Service Hours}}{\text{Total Operating Hours}}$$

Out of service hours are defined as all hours during which the system is not in a fully operational state and includes all time necessary for the Contractor to respond to the Incident and recover the system. Out of service hours caused by non-chargeable incidents are excluded from the out of service hours total.

Total operating hours are defined as the number of hours in a day (24) multiplied by the number of days in the period of measurement (i.e., days in the calendar month or year). Scheduled maintenance hours are excluded from operating hours.

Req. #	Requirement
12.1.5-1	Excluding scheduled downtime for system maintenance, the Back Office Systems shall operate 24 hours per day, 7 days per week and shall satisfy the following availability requirements: 99.9% calculated monthly (per invoice period), which is equivalent to 44 minutes of downtime per 30 days, assuming 24/7 operations 99.95% calculated on a rolling 12-month basis, which is equivalent to 4.4 hours of downtime per 365 days, assuming 24/7 operations
12.1.5-2	For each monthly invoice, the Contractor shall calculate Cloud Hosting availability for the calendar month and for the preceding 12-month period. (The 12-month calculation takes effect only after the 12 th month of service.) The Contractor shall round all availability calculations to four significant digits (e.g., 99.947% rounds to 99.95%, 99.943% rounds to 99.94%).
12.1.5-3	For the first 11 months of hosted services, any deduction applied to Cloud Hosting Services monthly invoice payment shall be determined by Table 12-1.
12.1.5-4	After the 12 th month of service, both Table 12-1 and Table 12-2 determine whether any deduction applies to the monthly invoice for Cloud Hosting Services. Any monthly invoice deduction is determined by whichever deduction is greater between the monthly and the 12-month availability calculations. For example, if an invoice month had availability of 99.97% (i.e., subject to no deduction) but the 12-month availability (the availability over the invoice month and the prior 11 months) was 99.92% (i.e., subject to a 1% deduction), the monthly invoice for Cloud Hosting Services would be subject to a 1% payment deduction.

Monthly Cloud Hosting Availability	100% - 99.90%	99.89% - 99.00%	98.99% - 97.00%	Less than 97.00%
Monthly Invoice Deduction for Cloud Hosting Services	0%	2%	6%	10%

Table 12-1

12-Month Cloud Hosting Availability	100% - 99.95%	99.94% - 99.80%	99.79% - 99.50%	Less than 99.50%
Monthly Invoice Deduction for Cloud Hosting Services	0%	1%	3%	5%

Table 12-2

12.1.6 Cloud Hosting Services Monthly Report

Req. #	Requirement
12.1.6-1	As an attachment to the monthly invoice, the Contractor shall submit a monthly report to the Authority describing the Cloud Hosting Services performed during the billing period.
12.1.6-2	The format and contents of the monthly report shall minimally include: - A brief narrative summarizing the month's major activities for the Cloud Hosting Services - A summary of the overall Back-Office System availability for the month and the prior 12 months, comparing those results to the required availability levels - The identified root causes of issues that affected Back-Office System availability

Req. #	Requirement
	4. Steps taken or planned to address root causes of outages and other issues that negatively affected Back Office System availability

12.2 SOFTWARE SUPPORT

12.2.1 Software Patches and Updates

Req. #	Requirement
12.2.1-1	Commencing with the start of revenue service and for three years thereafter, the Authority shall compensate the Contractor for Software Support Services. The Authority may extend the Contractor's Software Support services via one or more options for additional periods of one year each.
12.2.1-2	The Contractor shall provide the following Software Support services: 1. Develop, test, and deploy fixes to software errors (software "Updates") found by the Contractor, the Authority, and other Contractor customers 2. Test and deploy software Updates to OEM software included in the TVM System 3. Test and deploy Upgrades to (i.e., new "point" releases of) Contractor-developed software to ensure the Authority's software remains current 4. Upgrade software and firmware as necessary to retain TVM System compliance with PCI security standards and EMV bankcard processing requirements
12.2.1-3	For routine (Medium and Low Severity) software patches and updates, the Contractor shall provide software releases for the TVM and BOS on a periodic basis, typically every three to six months, and in compliance with the Software Support Service Level Agreement defined in Section 12.2.3.
12.2.1-4	For Critical Severity software defects, the Contractor shall provide updated software according to the Software Support Service Level Agreement defined in Section 12.2.3.
12.2.1-5	For all software and firmware changes, the Contractor shall submit documentation (i.e., "Release Notes") detailing the content of the release, the issues being resolved, test results confirming the efficacy of the change, deployment instructions, and instructions to reverse the change (restore to prior state) if deemed necessary. The Contractor shall deliver the Release Notes with the software update.
12.2.1-6	The Contractor shall deploy all software and firmware updates to the Authority's BOS Test Environment and test facility TVMs, and provide sufficient time for the Authority to verify the functionality of the update prior to deploying the update to the Authority's BOS Production Environment and equipment.
12.2.1-7	The Contractor shall deploy software and firmware updates to the Authority's BOS Production Environment and installed TVMs only upon receiving approval from the Authority.

12.2.2 Software Development Services

Req. #	Requirement
12.2.2-1	While the Software Support Services contract remains in effect, the Contractor shall make software developers available to provide additional software labor, priced separately upon mutual agreement between the Authority and the Contractor, for services such as: 1. Development of new software features 2. Modification of existing reports or creation of new reports 3. Integration with legacy or third-party systems through the Back Office System

12.2.3 Software Support Service Level Agreement

Req. #	Requirement
12.2.3-1	For Critical Severity software incidents, the Contractor shall provide Recovery Time of no more than four hours
12.2.3-2	For Critical Severity software incidents, the Contractor shall provide Repair Time of no more than 48 hours
12.2.3-3	For Medium Severity software incidents, the Contractor shall provide Recovery Time of no more than 72 hours
12.2.3-4	For Medium Severity software incidents: - As agreed between the Authority and the Contractor, the Contractor shall Repair the Software Incidents with the deployment of the next available mutually agreed scheduled Software Release or Update - The Authority and the Contractor shall work in good faith to mutually determine Content and Schedule for Software Releases - The Contractor shall Repair all Medium Severity software incidents no later than 150 days after the Incident
12.2.3-5	The Contractor shall Repair Low Severity software defects on schedules mutually agreed upon with the Authority. However, if a Low Severity software incident remains unresolved after 270 days, the incident will be reclassified as a new Medium Severity software incident.
12.2.3-6	For each monthly invoice for Software Support Services, the Contractor shall determine the number of Critical and Medium Severity software Incidents with Recovery or Repair Times that exceed the requirements herein. This number shall include incidents resolved in the month and those that remain unresolved.
12.2.3-7	The Contractor's monthly invoice for Software Support Services shall reflect any deductions according to Table 12-3.

# of Critical and Medium Severity Software Incidents Not Satisfying Recovery or Repair Time Requirements	Up to 2	3 or 4	5 to 7	8 to 10	More than 10
Monthly Invoice Deduction for Software Support Services	0%	2%	5%	10%	20%

Table 12-3

12.2.4 Software Support Monthly Report

Req. #	Requirement
12.2.4-1	As an attachment to the monthly invoice, the Contractor shall submit a monthly report to the Authority describing the Software Support Services performed during the billing period.
12.2.4-2	The format and contents of the monthly report shall minimally include: - List of open (unresolved, not Repaired) software Incidents, including those opened in the current month - List of resolved (Repaired) software incidents, including those resolved in the current month

Req. #	Requirement
	3. Schedule for resolving (Repairing) open software Incidents (as mutually agreed to by the Contractor and the Authority) 4. List of incidents reported, including a calculation of Recovery Time and Repair Time for each incident and an explanation of each time exceeding the Service Level Agreements (SLAs) set forth herein. 5. Summary of SLA Time Targets not met and the corresponding payment deduction

12.3 TECHNICAL SUPPORT

Req. #	Requirement
12.3-1	Commencing with the start of revenue service and for three years thereafter, the Authority shall compensate the Contractor for technical support services. The Authority may extend the Contractor's Technical Support services via one or more options for additional periods.

12.3.1 Assistance Queries

Req. #	Requirement
12.3.1-1	The Contractor shall provide technical assistance during the Contractor's normal business hours for questions regarding operations and maintenance of the TVM System.
12.3.1-2	The Contractor shall provide a telephone number and email address that the Authority may use to contact the Contractor's technical support staff.

12.3.2 System Obsolescence Monitoring

Req. #	Requirement
12.3.2-1	Once per year (on or about the anniversary of the start of revenue service), the Contractor shall provide an Obsolescence Report documenting any commercially-sourced parts, components, or software applications that are nearing obsolescence or discontinuation.
12.3.2-2	If, while Technical Support Services are in effect, a commercially-sourced element is nearing obsolescence or discontinuation, the Contractor shall identify a compatible part, component, or software application that the Authority may procure in place of the discontinued element. If no such compatible replacement is available, the Obsolescence Report shall include a recommended approach to address the issue.

13. FINAL SYSTEM ACCEPTANCE

The Authority shall grant Final System Acceptance upon satisfaction of the following conditions.

1. The Authority approves the Revenue Service Acceptance Test described in Section 9.9
2. The Contractor has delivered all documentation described in Section 10.1
3. The Contractor has completed all training described in Section 10.2
4. The Contractor has delivered all fare media and receipt stock
5. The Contractor has delivered all spare TVMs and other components (e.g., vaults) defined on the Price Forms
6. The Contractor has delivered all spare parts defined during the Design Review (see Section 8.2)
7. The Contractor has resolved all punchlist items from the TVM installation campaign
8. The Contractor has established all procedures to provide the Hardware Warranty services described in Section 11.1
9. The Contractor has fully implemented all Operations and Maintenance Services described in Section 12
10. The Contractor has installed all available software patches and updates
11. No Critical-Severity software defects (described in Section 12.1.7) remain unresolved

14. DEFINITIONS

14.1 TERMS

Availability – Calculated as a percentage, the ratio of time a device or system is fully operational compared to the total time the device or system is required to be fully operational. See Section 12.1.5 for a complete definition of availability for the Back Office System.

Cycle (also Operating Cycle) – A complete transaction: for the TVM, the purchase of one or more cards or tickets by a patron in a single operation (e.g., the purchase of two single-trip tickets is one operating cycle) or a completed smartcard replenishment transaction.

Failure – The inability of a component or equipment to function or perform its intended function as designed or specified.

Failure Rate – The frequency of failure, expressed as failures per unit of time (in days) or failures per number of cycles (number of transactions). Failure rate is the mathematical reciprocal of MTBF and MCBF.

Incident – Any behavior in the TVM production environment, whether hardware, Software, or unknown, that does not meet the scope of work requirements.

Independent Failure – A failure that is not the result of another failure, either directly or indirectly.

Lowest Level Replaceable Unit – The lowest unit (component) of a system or subsystem that is removable and replaceable from an installed position by standard attachments (e.g., bolts and nuts, quick disconnects, units such as printed circuit boards, displays, keypads, wiring harnesses, and complete electromechanical assemblies sold by the Contractor or OEM suppliers as spare parts, etc.).

Maintainability – The ability of the Fare Collection System to be maintained by the Authority's maintenance staff, including enhancement of access to equipment and components that require maintenance.

Mean Cycles Between Failures (MCBF) – The mean number of operating cycles between successive independent failures.

Mean Time Between Failures (MTBF) – The mean operating time interval between successive independent failures.

Modular – Composed of standardized, interchangeable units, designed to facilitate maintenance and repair.

Module – A standardized, interchangeable unit, designed to facilitate maintenance and repair.

Non-Relevant Failure – A malfunction caused by conditions external to the machine or subsystem or caused by out of scope conditions.. Non-relevant failures include incidents caused by:

- Accident or vandalism
- Authority-conducted maintenance procedures that do not comply with Contractor-provided procedures and documentation
- Damage due to acts of nature (force majeure)
- Insertion of bent coins, coins with adhered foreign matter, defective or damaged bills, or other customer-induced errors
- Loss of service from Authority-provided data networks
- Loss of communications with third party data systems and service providers due to external causes unrelated to Contractor-supplied services, hardware, software, or network infrastructure
- Errors due to Authority-directed Back Office System configurations
- Failure of expendable items that have exceeded specified life.
- Dependent or secondary failures resulting from an independent or primary failure.

Priority – The level of importance given to an Incident based on business impact. Priority determines the order of analyzing and implementing solutions.

- **Urgent**: Immediate and sustained effort using all available resources until resolved.
- **Normal**: Response using standard procedures and operating within normal supervisory management structures.
- **Low**: Response using standard operating procedures and as time allows.

Programming Error – An error resulting from software code which produces an erroneous result. Programming Errors are classified as a Critical or non-critical Programming Error.

Recovery Time – The period of time between the earlier of (a) BOS detection of the issue, (b) Authority Customer Service report, (c) Authority staff member report, or (d) the issue is reported by the Contractor's support hotline; and the time the system or device is returned to service.

Relevant Failure – A malfunction that prevents a fare collection device or computer system from performing its intended function within the performance criteria specified. Relevant failures include: verified failures including intermittent failures, not excluded under non-relevant failure types; and failures due to design errors or manufacturing defects.

Reliability – The probability of performing a specified function without failure and within design parameters for the period of time or the number of cycles specified under service conditions.

Repair – The diagnosis, removal and replacement of one or more defective assemblies (such as a coin mechanism, bill transport, electronic board, etc.), or other action (such as clearing a jam), to restore the device to working condition. Repair of the defective assembly is not included in mean time to repair.

Repair Time – The period of time between the earlier of an issue being (a) detected by the BOS, reported by Authority Customer Service, or an Authority staff member or (b) the issue is reported by the Contractor; and the point in time the issue is permanently fixed by the Contractor, subject to Approval by the Authority.

Service-Proven – Identical or near identical equipment which has demonstrated successful operation in a transit industry environment similar to that anticipated for the Authority.

Severity – The level of impact an incident has on the business, categorized as:

- **Critical** – “Urgent Priority,” a Programming Error or other cause of Systemic (i.e., system-wide) or Widespread outage or failure in the licensed Software attributable to the Contractor that results in any one or more of the following:
 - Loss of the Authority's or the public's ability to:
 - Access and utilize the Software
 - Purchase or reload media
 - Access account information
 - Utilize the published APIs for access to the licensed software
 - Failure of the Software systems that provide system redundancy
 - Loss of the capability of the licensed Software to communicate with the Authority's systems
 - Loss of the Authority's ability to access data from or enter data into the licensed Software using the Authority's terminals locally or remotely attached to the Authority's systems, which terminals are designed to accommodate such access and entry of data
 - A recurrence of any of the above problems
- **Medium** – “Normal Priority,” a Programming Error or other cause of outage or failure in the licensed Software attributable to the Contractor that does not prevent the licensed Software from operating, however the software does not operate at full capacity. Non-Critical programming errors will have workarounds that will not prevent the customer from utilizing the system. Examples include: transaction or account issues with a subset of users; performing a task manually when the automated process does not function or produces an error; and financial adjustments when an error is deemed to be due to the software.

- **Low** – “Low Priority”
 - No impact to quality, performance, or functionality of the software, or
 - Cases of general information requests, such as usage and configuration.

Software – The firmware and software being provided by the Contractor that encompasses the Back Office System and the firmware and software running on the TVM. Software is supported with Updates, Upgrades as defined herein, and support services.

Software Issue – An Incident where the Authority knows or believes is caused by Software behavior that does not meet the scope of work requirements.

Software Release – Distribution of newly developed Software using the Test Process. A software release includes changes to the system and all applicable documentation.

Systemic – An Incident affecting all users of any element of the system. A system-wide Incident.

Ticket Vending Machine (TVM) System – All Contractor-supplied hardware, software, and firmware, including interfaces with third party systems (such as Masabi back office, Payment Service Provider, Authority general ledger)

Transaction – See Operating Cycle.

Update – Correction in the version of the Software provided to the Authority, changes and/or modifications to existing configurations (for example, changes to fare tables), security patches and code changes necessary for the system to function as intended.

Upgrade – New or increased system functionality or enhancements to the Software at the request of the Authority, or required to maintain compliance with PCI or EMV standards.

Widespread – An Incident affecting at least 25% of devices or users of any system element.

14.2 ACRONYMS

ABT = Account-Based Transaction
 ADA = Americans with Disabilities Act
 ADAAG = ADA Accessibility Guidelines
 AES = Advanced Encryption Standard
 AOC = Attestation of Compliance
 API = Application Programming Interface
 AVS = Address Verification Service
 BHU = Bill Handling Unit
 BPU = Bankcard Processing Unit
 BOS = Back-Office System
 CHU = Coin Handling Unit
 COTS = Commercial-off-the-Shelf
 CSK = Customer Service Kiosk
 ECU = Electronic Control Unit
 EMI = Electromagnetic Interference
 EMV = Europay, Mastercard, Visa
 EUM = Extended-Use Fare Media
 FAI = First Article Inspection
 FAT = Factory Acceptance Test
 FIT = Factory Integration Test
 FRB = Failure Review Board
 GCRTA = Greater Cleveland Regional Transit Authority

GFCI = Ground Fault Circuit Interrupter
IDS = Intrusion Detection System
IP = Intellectual Property
ISO = International Organization for Standardization
LLRU = Lowest Level Replaceable Unit
LUM = Limited-Use Fare Media
LUSD = Limited-Use Smartcard Dispenser
MOR = Merchant of Record
MCBF = Mean Cycles Between Failures
MTBF = Mean Time Between Failures
MTTR = Mean Time to Repair
NEC = National Electric Code
NTP = Notice to Proceed
OEM = Original Equipment Manufacturer
PCI = Payment Card Industry
PDR = Preliminary Design Review
PET = Production Environment Test
PIN = Personal Identification Number
PM = Project Manager
PRM = Project Review Meeting
PSP = Payment Service Providers
QSA = Qualified Security Assessor
RFI = Radio Frequency Interference
RMS = Revenue Management System
RPO = Recovery Point Objective
RSAT = Revenue Service Acceptance Test
RTO = Recovery Time Objective
SAE = Society of Automotive Engineers
SCR = Smartcard Reader
SLA = Service Level Agreement
SME = Subject Matter Expert
SMMA = System Monitoring and Management Application
SRD = Smartcard Reader-Dispenser
SSD = Solid-State Drive
SVA = Stored Value Account
TDEA = Triple Data Encryption Algorithm
TTS = Text To Speech
TVM = Ticket Vending Machine
UCT = Unit Cycle Test
UFT = Unit Functional Test
UID = Unique ID
UL = Underwriters Laboratories
UPC = Universal Product Code
VAS = Voice Audio System

III. INSTRUCTIONS TO PROPOSERS

Responses to this Request for Proposals (“RFP”) shall be made in accordance with the requirements stated herein.

Form of Response

Each Proposer must submit **two distinct volumes, a Technical Proposal** and a **Pricing/Cost Proposal**. Proposals shall be submitted via the method identified within the Notice to Proposers contained in this RFP. The contents of the Technical and Pricing/Cost Proposals will be organized as follows:

A. Technical Proposal

1. Front Cover

Ticket Vending Machines
RFP No. 2025-135

GREATER CLEVELAND REGIONAL TRANSIT AUTHORITY

(NAME OF FIRM OR FIRMS OFFERING PROPOSAL)
TECHNICAL PROPOSAL

2. Transmittal Letter

Address to:

Shawn Becker
Director of Procurement
Greater Cleveland Regional Transit Authority
1240 West Sixth Street, 5th Floor
Cleveland, Ohio 44113-1331

3. Experience

Submit a statement of relevant experience involving assignments of similar size and scope including the involvement and responsibility of the personnel to be identified under Section 5 below.

4. References

Provide a statement listing the names, titles, firms, contact persons, addresses, telephone number and email address of three (3) recent clients that the Authority may contact regarding the firm. For each referenced client there should be a description of the scope of work and achieved results.

5. Staffing

Provide a plan for staffing the work, including a management plan to control this project, and provide resumes of key personnel.

6. Technical Data

- a. The technical proposal, which will be important in the selection for award of a contract, must be specific and complete, and your proposal must demonstrate a thorough understanding of the requirements of the Scope of Services. Legibility, clarity and completeness of the technical approach are important. **The Technical Proposal must not contain any reference to cost or prices.**
- b. The technical proposal should respond to all questions identified in Section III, Scope of Services, and include all Required Submittals identified in Section 8 below.
- c. The proposal should also include a project completion schedule that includes milestone dates that are clearly defined.

7. Authorized Negotiators

Provide a statement identifying persons who will represent the proposer in contract negotiations as follows:

“The proposer represents that the following persons are authorized to negotiate on its behalf with the Authority in connection with this request for proposals: (list names, titles, and telephone numbers of the authorized negotiators).”

8. Required Submittals

The following attachments are included in this RFP and should be completed, signed, and returned as part of the proposal:

Attachment A-1	Declaration of Proposed DBE Utilization*
Attachment A-2	DBE Affidavit*
Attachment A-3	DBE Participation Plan*
Attachment A-4	Letter of Intent to Perform as a DBE Subcontractor*
Attachment A-5	Requirements Concerning Prime & Sub-Contractors
Attachment A-6	Guidance Concerning Good Faith Efforts*
Attachment A-7	Good Faith Efforts – Documentation Form*
Attachment A-8	Contract Compliance Payment Report*
Attachment B	Non-Discrimination Affidavit
Attachment C	Delinquent Tax Certificate
Attachment D	Certification Regarding Debarment
Attachment E	Certification Regarding Procurement Integrity

For proposals exceeding \$100,000

Attachment F	Certification Regarding Restrictions on Lobbying
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For proposals exceeding \$150,000

Attachment G	Buy America Compliance/Non-Compliance
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* These are required to be submitted with the Proposal or, at least within five (5) calendar days of submission of the Proposal, if the DBE Goal, as identified in the Notice to Proposers, exceeds 0%.

B. Pricing/Cost Proposal

1. Front Cover

**Ticket Vending Machines
RFP No. 2025-135**

GREATER CLEVELAND REGIONAL TRANSIT AUTHORITY

**(NAME OF FIRM OR FIRMS OFFERING PROPOSAL)
PRICING/COST PROPOSAL**

2. Form of Response

The Cost Proposal must be priced on the basis of the Scope of Services and your Technical Proposal. To comply with federal guidelines, the Authority will require each proposer to provide cost and pricing data to support its price prior to the start of negotiations. This cost and pricing data should be submitted in a format which will allow for analysis of individual elements of cost including labor, materials, overhead, other direct costs, etc. It is mandatory that profit be identified as a separate element of cost.

C. Procedural

1. Clarity and Completeness

The Authority seeks solid information about the proposer's capability to perform the services required. Unnecessarily elaborate brochures or other presentations beyond that required to provide a complete and effective response to this solicitation are not desired and may be construed as an indication of the proposer's lack of understanding of these requirements and cost consciousness. The proposal is expected to fully address all the requirements of Section II, Scope of Services.

2. Confidential Information

The Authority is subject to federal and state public records provisions. Proposers that include, within the proposal, information that the Proposer deems confidential must mark each page containing that material with an appropriate statement as to what should not be disclosed and why.

The Authority will use its best efforts to comply with and enforce such restrictions within the confines of the public records acts. The Authority will use its best efforts to notify affected proposers of any public records requests within a time that will allow the proposer an opportunity to seek protection of such information against disclosure.

3. Amendment to Solicitation

Any amendment or modification to this RFP shall be by addendum issued by the Director of Procurement.

Any such addendum shall be acknowledged by each proposer as part of the proposal, on the forms provided. All terms and conditions of this solicitation not modified by an addendum remain unchanged.

4. Late submissions, Modifications, and Withdrawal of Proposals

- a. Any proposal received after the time specified in the Notice to Proposers or any addendum thereto will not be considered.
- b. Proposals may be modified at any time prior to the submission deadline established in the Notice to Proposers.
- c. Proposals may be withdrawn by written notice to the Director of Procurement at the address identified in Section A.2 herein.

5. Protest Procedures

Interested parties aggrieved by this solicitation or the award of any resulting contract may file a written protest with the Authority's Director of Procurement who will consider all protests.

All protests must include at least the following information:

- a) Name, address and telephone number of protester
- b) A statement of the relief is requested
- c) Identification of the solicitation under protest
- d) A detailed statement of the legal and factual grounds of protest.

Protests Prior to Receipt of Proposals Protests addressing the adequacy of this RFP, including any inequity or inadequacy in the Scope of Services, the Instructions to Proposers, and the Evaluation Criteria, must be filed at the Procurement Department no later than five (5) working days before proposal due date. Thereafter, such issues are deemed waived by all interested parties.

Notice of protest and the basis, therefore, will be given to all proposers. The proposal date will be extended, unless the Director of Procurement determines that:

- a) There are no facts demonstrating that the protest will be successful; or
- b) The items or services to be procured are urgently required; or
- c) Delivery or performance will be unduly delayed by failure to make the award promptly, or
- d) Failure to make prompt award will otherwise cause undue harm to GCRTA.

Protests After Proposal Receipt. Following completion of proposal evaluations and prior to award of contract, a proposer or subcontractor with a substantial economic interest in the award may submit a protest against the award. Such protest would generally address inequities in the evaluation process. Following receipt of a protest, the Director of Procurement may determine there is sufficient cause to delay award or, alternately, determine that there is no reasonable basis for delay of award.

Decision on Protest. The Director of Procurement shall render a decision in writing within fourteen (14) working days from receipt of the written protest.

6. Contract Award

The Authority intends to award a contract to the proposer(s) whose proposal is deemed most advantageous to the Authority, cost and other factors considered. The award will be in accordance with the intent of this solicitation -- to provide the Authority with the required services in a timely manner at a reasonable cost.

The Authority reserves the right to (1) reject any or all proposals as it considers in its best interest; (2) accept a proposal other than that lowest in price; and (3) waive informalities and minor irregularities in proposals. **The Authority also may award a contract on the basis of initial proposals received;** therefore each initial proposal should contain the proposer's best terms from a financial and technical viewpoint.

The Authority encloses, within this RFP, its Agreement Between Owner & Contractor ("ABOC"), its Services Agreement and insurance requirements. If the Proposer anticipates changes to the ABOC, Services Agreement or insurance, those changes should be submitted with the proposal.

7. Compensation

The manner of Compensation, if applicable, will be specified in the Services Agreement Enclosure B.

8. DBE Participation

All Proposers must comply with and, where applicable, submit forms demonstrating compliance with, the requirements of the Authority's "DBE PARTICIPATION" section within this RFP.

IV. CRITERIA FOR PROPOSAL EVALUATION

GCRTA will evaluate all proposals received and rank them in order of preference.

The panel will identify those firms, which based on the ranking, have a reasonable possibility of obtaining the award. It may seek additional information from, or conduct interviews with, the firms so identified prior to the establishment of a final ranking and the initiation of negotiations with one or more firms based on those rankings.

Award will also be contingent on acceptance of the Authority's Services Agreement and compliance with DBE participation requirements (if applicable) and other required submittals.

GCRTA reserves the right to award a contract on the basis of proposals submitted without negotiation, or reject any or all proposals.

Evaluation is based on the following criteria weighted according to importance.

No	CRITERIA	Description	Weight
1	Technical Qualifications and Experience	Demonstrated history of successful TVM system implementation for transit agencies, including 5+ years' experience with smartcard-based fare collection, account-based ticketing integration, and references from at least 2 transit agencies within the past 3 years.	30%
2	System Design and Technical Approach	Quality of proposed TVM hardware design, Back Office System architecture, integration approach with Masabi APIs, and compliance with ADA, PCI, EMV, and environmental requirements. Completeness and accuracy of Requirements Traceability Matrix demonstrating how each specification requirement (2.1-1 through 12.3.2-1) is addressed with clear Yes/No/Maybe responses and supporting comments.	30%
3	Project Management and Implementation	Comprehensive project management approach, realistic schedule to meet potential/proposed timeline, installation methodology, design, testing protocols, and transition planning. Quality of risk management and change control processes.	20%
4	Operations & Maintenance Capabilities	Proposed approach to 3-year hosting services, software support capabilities, technical support structure, and long-term system maintainability. Evidence of ability to provide required service level agreements.	10%
5	Cost Proposal	Reasonableness and completeness of TVM System Price Form worksheets A through H. Worksheets detail breakdown of System Equipment, Fare Media, Back Office System, Operation & Maintenance Services, and Project Services. Clarity of pricing structure including optional items and as-needed rates.	10%
	TOTAL		100%

V. ADDENDA ACKNOWLEDGMENT

To: Director of Procurement
The Greater Cleveland Regional Transit Authority
1240 West Sixth Street
Cleveland, OH 44113-1331

From: _____
(Name of individual or firm)

(Place of business – City, State)

Reference: **RFP No. 2025-135 Ticket Vending Machines**

The undersigned acknowledges receipt of the following addenda (list by number and date appearing on addenda):

<u>ADDENDUM NO.</u>	<u>DATE</u>	<u>ADDENDUM NO.</u>	<u>DATE</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Signature

Title

Date

VI. SAMPLE DOCUMENTS

- AGREEMENT BETWEEN OWNER & CONTRACTOR
("ABOC")
 - SERVICES AGREEMENT
 - INSURANCE REQUIREMENTS

Project Name:

Purchase Order Number:

Funding Source:

Surety:

Resolution Number:

Contract Term:

AGREEMENT BETWEEN OWNER AND CONTRACTOR

This Agreement, made as of Date, between the **Greater Cleveland Regional Transit Authority** (Owner) and **Contractor Name** (Contractor) with an office at Contractor Address, City, State, Zip.

In consideration of the promises and the mutual obligations of the parties contained in the Contract Documents, which are incorporated herein by reference, the Contractor agrees to perform and the Owner agrees to pay all in accordance with the provisions of the said Contract Documents.

The contract price is not-to-exceed \$Dollar Amount for the base Number of Years years and in an amount not-to-exceed \$Dollar Amount for each option year for a total contract amount not-to-exceed \$Dollar Amount for the Contract Term of Number of Years years. The date of commencement of the Contractor's performance thereunder shall be as stated in the Notice to Proceed.

All legal notices to be given pursuant to this Agreement shall be sufficient if given in writing, delivered in person, delivered by bonded delivery service or sent by registered or certified mail, postage prepaid, and in any case addressed to the respective party at its postal address or at such other address or addresses each may hereafter designate in writing. Notices sent by delivery service or commercial carrier shall be deemed effective and complete at the time of delivery. Notice shall be delivered or mailed to the parties at the addresses below:

To Contractor Name
Attn: Contact Name
Title: Contact Title
Address: Contractor Address
City, State, Zip: City, State, Zip
Contact Email: Contact E-mail

To: GCRTA
Attn: India L. Birdsong Terry
Title: General Manager, CEO
1240 West 6th Street
Cleveland, OH 44113-1331
cc: Janet E. Burney, General Counsel

CONTRACTOR

(Signature)

(Printed Name and Title)

OWNER

The undersigned, pursuant to Resolution(s) duly adopted by the Authority's Board of Trustees, hereby executes this Agreement on behalf of the Authority and hereby certifies that there is now on deposit in the treasury of said Authority or in the process of collection to the credit of an appropriate fund and not encumbered for any other purpose, sufficient moneys to meet the obligations of the Authority during the current fiscal year under this Agreement and that such moneys have been appropriated for the purpose of this Agreement.

India L. Birdsong Terry
General Manager, Chief Executive Officer

Approved for Legal Form & Correctness:

Janet E. Burney, General Counsel
Deputy General Manager for Legal Affairs

SERVICES AGREEMENT

THIS AGREEMENT is entered into as of the date established on the Agreement Between Owner and Contractor.

WITNESSETH: THAT

WHEREAS, the Greater Cleveland Regional Transit Authority ("GCRTA" or "Authority" or "Owner") desires to enter into an agreement with the Contractor to render certain products and/or services as hereinafter described in Enclosure A, attached hereto and incorporated herein.

WHEREAS, the Contractor is willing to provide such product(s) and/or service(s) on the basis of compensation set forth in Enclosure B, attached hereto and incorporated herein.

NOW, THEREFORE, the parties hereto do mutually agree as follows:

1. Contract with Contractor.

- a) GCRTA hereby agrees to engage the Contractor and the Contractor agrees to provide the product(s) and/or service(s) hereinafter set forth in conformity with all applicable Federal, State, and Local laws to which GCRTA and the Contractor, and their respective employees, are subject.
- b) The Contract consists of:
 - i) Agreement Between Owner and Contractor ("ABOC");
 - ii) Form of Bid, if applicable;
 - iii) This Services Agreement; and
 - iv) Enclosures:
 - (a) Enclosure A - Scope of Services
 - (b) Enclosure B – Compensation & Method of Payment
 - (c) Enclosure C - Insurance Requirements & Certificates; and
 - (d) Enclosure D – Required Submittals
- c) The Contract shall not be amended or modified except by properly authorized, written change order. Refer to Enclosure B – Compensation & Method of Payment for details.

2. Scope of Services.

- a) The Contractor shall do, perform, and carry out in a satisfactory, proper, and timely manner the rendering of product and services (hereinafter called the "Services") set forth in the attached Scope of Services (Enclosure A), Compensation Schedule (Enclosure B), and Insurance Requirements (Enclosure C), all of which are attached hereto and incorporated herein by this reference.
- b) The Contractor shall report not less than monthly, if requested, the progress of the Services. The Contractor shall, at the request of the Authority, be available to report to the Authority's staff, Board of Trustees, or any committee thereof, progress reports, recommendations and any other information prepared, developed, obtained or related to the Services or the subject matter thereof.

- c) It is specifically understood and agreed that time is of the essence and goes to the heart of this contract and each and every element thereof; a breach of the time of performance is a breach of this Contract.
 - d) The Contractor shall perform its Services under the direction of the Authority's Project Manager assigned to this Contract, or otherwise as directed in the Notice to Proceed.
3. Data to be Furnished to Contractor. The Authority shall provide the Contractor with such access to its records, files, facilities, and personnel as may be reasonably necessary for the performance of the Services.
4. Personnel.
- a) The Contractor shall utilize personnel suitable and appropriate to the subject matter of the Contract and the specific portion of the Services involved. Personnel so employed shall be considered employees of the Contractor; under no circumstances shall any such personnel be considered employees of the Authority or as having any contractual relationship therewith.
 - b) None of the Services hereunder shall be subcontracted without prior notice to the Authority.
 - c) Contractor represents and warrants that neither it nor its personnel to be employed hereunder are under obligation to any other individual, firm, or other entity, which would conflict with or impair their ability to fully perform their services and other obligations hereunder. Contractor further represents and warrants that, if it or any of its personnel to be employed hereunder possess trade secrets or other confidential information of any other individual, firm or other entity under obligation of non-disclosure, they shall perform their services and other obligations hereunder in full compliance with the terms of such obligation.
5. Time of Performance. The term of this Contract shall be identified in the Notice to Proceed and/or the Agreement Between Owner and Contractor (ABOC). Any extension of this Contract or Services performed after the end of such term may be authorized in writing only by the CEO/General Manager of the Authority.
6. Compensation and Method of Payment.
- a) The Authority agrees to pay the Contractor in accordance with Enclosure B of this Contract. The Authority is exempt from all State, excise, and transportation taxes, except the State of Ohio gasoline tax. All prices and rates hereunder shall be exclusive of all such taxes and shall be so construed. All other taxes and governmental impositions upon the product and services, labor and material furnished hereunder shall be paid by the Contractor.
 - b) Payments hereunder will only be made upon invoices properly submitted in accordance with this Contract.
 - c) Each invoice submitted shall identify the contract purchase order number. Each invoice shall be supported by a statement of services rendered by the Contractor, identifying the specific services performed, the time involved, the classification of the individual or group performing the Services, and the rate associated therewith.

- d) Final payment shall be made by the Authority only upon satisfactory completion of each and every obligation of the Contractor hereunder and the submittal of all necessary and appropriate documentation required hereunder.
 - e) Payments will generally be made within thirty (30) days following approval of the invoice. Such approval or payment shall not constitute acceptance or approval of the product and/or services invoiced. Late payments shall accrue no interest.
 - f) Payment will only be made for goods and services accepted. For goods and services accepted which acceptance is later revoked prior to payment, the payment will be withheld until defects in the nonconforming goods or services are cured and accepted. In the case of serial deliveries and serial invoicing, GCRTA reserves the right to deduct overpayments from current invoice amounts.
 - g) The Contractor agrees to pay each subcontractor under this contract for satisfactory performance of its contract no later than ten (10) calendar days from receipt of each payment the prime receives from the Authority. The Contractor agrees further to release retainage payments (if applicable) to each subcontractor within ten (10) calendar days after the subcontractor's work is satisfactorily completed. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval from the Contracting Officer.
 - h) If a contractor is found by the Authority to have failed to comply with the requirements of the DBE Program, or the prompt payment provisions of this Contract, the Contractor will be required to take corrective action. If corrective action is not promptly taken by the offending contractor, the following sanctions may be imposed (singularly, or in any combination, and in addition to any other remedies by law or equity):
 - (i) The Authority may withhold all further payments under the contract.
 - (ii) The contractor may be ordered to stop work.
 - (iii) The contractor may be terminated for breach.
 - (iv) Suspension or debarment proceedings may be commenced in accordance with 49 CFR, Part 29.
 - (v) The Director of Procurement may find the defaulting contractor non-responsible in respect to other solicitations for a stated period of time.
 - (vi) Any relevant performance bond(s) may be enforced.
7. Limitation of Costs. The parties agree that the services hereunder, as presently contemplated, will not cost the Authority more than the amount specified in Paragraph 6(a) above. The Contractor shall notify the Authority in writing whenever the total billings reach eighty-five percent (85%) of the total estimated costs; or the total cost for the performance of this contract, exclusive of any fee, will be either greater or substantially less than had been previously estimated. As part of the notification, the Contractor shall provide the Authority with a revised estimate of the total cost of performing this contract.
8. Indemnification. To the fullest extent permitted by law and to the full extent of Contractor's intentional, reckless or negligent acts or omissions, the Contractor shall, at its sole cost and expense, indemnify, defend, satisfy all judgments, and hold harmless the Authority and its officials, agents, representatives, and employees from and against all claims, actions, judgments, costs, penalties, liabilities, damages, losses and expenses, including but not limited to attorney's fees and worker's compensation benefits, for Contractor's intentional, reckless or negligent acts or omissions arising out of or resulting from the performance of this

Contract, or the acts or omissions of any person or contracted entity directly or indirectly employed or contracted by Contractor.

In the event of negligence or intentional acts or omissions by more than one entity, responsibility for such negligence or intentional acts or omissions will be allocated in accordance with the proportionate share of such entity(ies)' negligence or intentional acts or omissions. Nothing herein shall be construed as making Contractor liable for any claims, actions, judgments, costs, penalties, liabilities, damages or losses and expenses caused by the sole negligence and/or misconduct of GCRTA.

To the extent that any portion of this provision is found to be in violation of any applicable law, said portion(s) of this provision are stricken but all remaining portions of this provision shall remain in full force and effect.

9. Insurance. Contractor shall obtain, at its own expense, the insurance specified in Enclosure C and shall maintain said insurance in full force and effect at all times during the term of this Contract, including any extensions thereof.
10. Notice to Proceed. The Authority shall furnish the Contractor with written direction to commence performance hereunder entitled "Notice to Proceed" within ten (10) days after receipt of the required evidence of insurance and such other documentation as the Contractor may be required to provide prior to commencement of performance. The Authority shall not be responsible for any services performed or costs incurred prior to issuance of such Notice to Proceed.
11. Contract Changes. The Contract shall not be amended or modified except by written agreement of the parties.
12. Termination.
 - a) Should the Contractor through negligent action or inaction fail to perform its Services hereunder in accordance with accepted professional standards or in any manner imperil the Authority's right and ability to successfully pursue the subject matter of this Contract through negligent action or actions, or breach any duty hereunder, and fail to remedy such failure or breach in a timely manner as directed by the Authority, the Authority may terminate this Contract and hold the Contractor responsible for any and all costs and liabilities arising as a direct or proximate result of such failure.
 - b) The performance of the services hereunder may be terminated in whole or, from the time, in part by the Authority whenever the Authority determines it is in the best interest of the Authority to do so. Such termination shall be written notice to the Contractor specifying the extent and the effective date of the termination.
 - c) Any damages assessed to the Contractor as a result of termination pursuant to Paragraph 12 (a) above, or any claim by the Contractor for costs resulting from a termination pursuant to Paragraph 12(b) above will be computed and allowed in accordance with federal regulations in effect at the time of termination.
13. Warranties. Contractor warrants that for a period of one (1) year (or for such longer period prescribed by the specifications) following acceptance of goods and services delivered hereunder, the goods and services are free of defects in materials and workmanship and further warrants that such goods and service are suited for the purpose(s) intended and are of merchantable quality. Contractor further warrants that it holds good and marketable title in

the goods delivered, and that such goods are free of all liens, security interests or other encumbrances. Contractor agrees that in the event the goods or services are not as warranted, Contractor will promptly cure the defect at its sole cost and expense. Contractor further agrees to indemnify GCRTA for all costs and damages, both incidental and consequential, resulting from the delivery of goods and services which fail to meet the aforesaid warranties. It is agreed that the goods and services provided hereunder are regarded as consumer goods and services.

14. Confidentiality. The Contractor shall hold as confidential all information and data transmitted to it by, through or on behalf of the Authority, and shall not disclose such information or data in whole or in part to any third party except as may be specifically directed or approved by the Authority's CEO/General Manager or designee.
15. Assignment. The Contractor shall not assign, transfer, convey, sublet, or otherwise dispose of the Contract or its right, title, or interest in or to the same or any part thereof without prior written consent of the Authority endorsed thereon or attached thereto, and any such attempt at assignment shall be void.
16. Approval of Contract. This contract is subject to the written approval of the CEO/General Manager of the Authority and shall not be binding until so approved.
17. Integrated Agreement. This Contract, as specified in Section 1(b) of this Services Agreement, constitutes the entire agreement of the parties. No prior agreements or understandings, or oral modifications or representations are enforceable hereunder unless reduced to written form, signed by both parties, and incorporated herein by amendment prior to performance of the affected Services.
18. Governing Law/Venue. This Contract shall be governed by and interpreted pursuant to the laws of the United States and of the State of Ohio, and the Courts of Cuyahoga County, as appropriate, notwithstanding any provisions of such laws relating to jurisdiction. Should any part or parts of this Contract be held unenforceable by any court of competent jurisdiction, such determination shall not affect the remainder thereof and the balance of this Contract shall remain in full force and effect.
19. Notification of Proceedings. The GCRTA will give the Contractor prompt notice in writing of the institution of any suit or proceeding and permit the Contractor to defend same and will give all needed information, assistance, and authority to enable the Contractor to do so. The Contractor will similarly give the GCRTA immediate notice of any suit or action filed or prompt notice of any claims made against the Contractor arising out of the performance of this contract. The Contractor shall furnish immediately to the GCRTA copies of all pertinent papers received by the Contractor.
20. Compliance with Laws and Regulations. All materials and supplies furnished pursuant to the specifications shall be in compliance with the laws and regulations of the State of Ohio. Contractor shall, if requested by the GCRTA, supply certification and evidence of such compliance. The contract shall be construed pursuant to the laws of the State of Ohio.
21. Hazardous Materials. Where the goods or services procured involve the delivery of hazardous materials through the City of Cleveland, Contractor agrees to meet the requirements of Cleveland Codified Ordinance Section 394.

22. Reporting of Improper Acts. If Contractor suspects or has knowledge of unethical, improper and/or fraudulent acts by GCRTA personnel, including, but not limited to, conflicts of interest, bribery, fraud, waste, abuse, extortion, and kickbacks, the Contractor shall contact the GCRTA Executive Director of Internal Audit on the GCRTA Fraud Hotline (216-350-5130).
23. Documents and Records (Paper and Electronic). Documents and records, including electronic records, created and maintained by the Contractor under this Contract may be subject to the Ohio Public Records Act, Ohio Rev. Code § 149.43 et seq. The Contractor shall maintain all documents and records related to this Contract, including electronic records, for seven (7) years.

To the extent that the Contractor becomes aware of actual or potential litigation related to this Contract, the Contractor shall immediately notify the Authority's Deputy General Manager for Legal Affairs. The Contractor shall preserve any and all records, including electronic records, created or maintained under this contract until advised by the GCRTA's Legal Department, in writing, that they are no longer needed. Any court order related to litigation shall supersede any previously or subsequently established destruction schedule for such records.

24. Right to Audit and Access to Third Party Records. Contractor shall maintain books, records, documents, and other evidence directly pertinent to the performance of the Work under this Contract in accordance with generally accepted accounting principles and practices consistently applied and Federal Acquisition Regulations, Parts 30 and 31, as applicable. GCRTA and its authorized representatives shall have the right to audit, to examine and to make copies of or extracts from all financial and related records (in whatever form they may be kept, whether written, electronic, or other) relating to or pertaining to this Contract kept by or under the control of the Contractor, including, but not limited to those kept by the Contractor, its employees, agents, assigns, successors and subcontractors. Such records shall include, but not be limited to, accounting records, written policies and procedures; subcontract files; all paid vouchers including those for out-of-pocket expenses; other reimbursement supported by invoices; ledgers; cancelled checks; deposit slips; bank statements; journals; original estimates; estimating work sheets; contract amendments and change order files; back charge logs and supporting documentation; insurance documents; payroll documents; timesheets; memoranda; and correspondence. Contractor shall, at all times during the term of this Contract and for a period of three years after the completion of this Contract, maintain such records, together with such supporting or underlying documents and materials. The Contractor shall at any time requested by GCRTA, whether during or after completion of this Contract, and at Contractor's own expense make such records available for inspection and audit (including copies and extracts of records as required) by GCRTA. Such records shall be made available to GCRTA during normal business hours at the Contractor's office or place of business. In the event that no such location is available, then the financial records, together with the supporting or underlying documents and records, shall be made available for audit at a time and location that is convenient for GCRTA. Contractor shall ensure GCRTA has these rights with Contractor's employees, agents, assigns, successors, and subcontractors, and the obligations of these rights shall be explicitly included in any subcontracts or agreements formed between the Contractor and any subcontractors to the extent that those subcontracts or agreements relate to fulfillment of the Contractor's obligations to GCRTA. If the audit discovers substantive findings related to fraud, misrepresentation, or non-performance, GCRTA may recoup the costs of the audit work from the Contractor. Any adjustments and/or payments that must be made as a result of any such audit or inspection of the Contractor's invoices and/or records shall be made within a reasonable amount of time (not to exceed 90 days) from presentation of GCRTA's findings to Contractor.

If this Contract is, in whole or in part, federally funded, Contractor agrees to require, and assures that its subcontractors require, their third party contractors and third party subcontractors at each tier to provide to the US Secretary of Transportation and the Comptroller General of the United States or their duly authorized representatives, access to all third party contract records as required by 49 USC 5325(g). The Contractor further agrees to require, and assures that its subcontractors require, their third party contractors and third party subcontractors, at each tier, to provide sufficient access to third party procurement records as needed for compliance with federal laws and regulations or to assure proper Project management as determined by FTA.

25. Federal Clauses. If this Contract is funded, in whole or in part, with federal grant dollars, then Contractor agrees to abide by federal funding requirements, as may be amended.
26. Federal Assistance. This Contract may be subject to one or more financial assistance contracts between GCRTA and the US Department of Transportation, Federal Transit Administration (FTA), which incorporate the current FTA Master Agreement and Circular 4220.1F (as may be amended). Contractor is required to comply with all terms and conditions prescribed for third party contracts in these documents. Federal laws, regulations, policies, and administrative practices may be modified or codified after the date this Contract is established and may apply to this Contract. To ensure compliance with changing federal requirements, Contractor acknowledges and agrees to accept all changed requirements that apply to this Contract.

Contractor and GCRTA agree that, notwithstanding any concurrence by the federal government in or approval of the solicitation or award of the Contract, absent the express written consent of 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 GCRTA, the Contractor or any other party pertaining to any matter resulting from the underlying Contract; Contractor further agrees to include this clause, without modification, in any subcontract issued hereunder.

27. Non-Discrimination and Veteran's Preference. Contractor agrees that it will not discriminate against any employee or applicant for employment because of race, color, creed, national origin, sex (including sexual orientation and gender identity), age or disability in accordance with the following federal statutes and regulations, and any other implementing regulations issued pursuant to the: Civil Rights Act as amended, Titles VI (42 U.S.C. 2000d) and VII (42 U.S.C. 2000e); Age Discrimination Act of 1975, as amended (42 U.S.C. 6102); Age Discrimination in Employment Act of 1967 as amended, (29 U.S.C. 623); Americans with Disabilities Act of 1990, as amended, (42 U.S.C. 12132 and 42 U.S.C. Sec. 12112) and implementing regulations (29 C.F.R. Part 1630); federal transit law (49 U.S.C. 5332) and related guidelines (FTA C 4702.1B). Contractor also agrees to include these requirements in each subcontract financed in whole or in part with federal assistance provided by the Federal Transit Administration.

Contractor agrees that it must carry out applicable requirements of 49 C.F.R. Part 26 pertaining to the Disadvantaged Business Enterprise (DBE) program in the award and administration of federally funded contracts. 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 GCRTA deem appropriate, including, but not limited to: withholding payments, assessing sanctions, and disqualifying Contractor from future contracting, as non-responsible.

Pursuant to 49 USC 5325(k), Contractor and any subcontractors shall give a hiring preference as defined under 5 U.S.C. 2108, to the extent practicable, to veterans who have the requisite skills and abilities to perform the construction work required under the contract. This provision does not require the contractor to give preference to any veteran over any equally qualified applicant who is a member of any racial or ethnic minority, female, an individual with a disability, or former employee.

28. Restrictions on Lobbying. For contracts over one hundred thousand dollars (\$100,000.00) funded with federal grant dollars, the Contractor agrees that:

- a) In compliance with 31 U.S.C. 1352(a), limitation on use of appropriated funds to influence certain federal contracting and financial transactions, it will not use federal funds to pay any person for influencing or attempting to influence an officer or employee of any federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with making or extending the Contract or any other federal contract, grant, loan, or cooperative agreement ;
- b) It will comply with other applicable federal laws and regulations prohibiting the use of federal assistance for activities designed to influence Congress or a State legislature with respect to legislation or appropriations, except through proper, official channels; and
- c) It will comply, and will assure the compliance of each subcontractor, lessee, third-party contractor, or other participant at any tier of the Project with the implementing regulations, 49 C.F.R. Part 20, New Restrictions on Lobbying, modified as necessary by 31 U.S.C. 1352.

29. Debarment & Suspension. For any transaction of twenty-five thousand dollars (\$25,000) and above, Contractor must disclose to GCRTA any debarment, suspension, and/or exclusion from the System for Award Management. Contractor must also ensure any transaction of twenty-five thousand dollars (\$25,000) and above at any tier contains provisions requiring compliance with federal debarment and suspension requirements

30. Covenant Against Contingent Fees and Gratuities. For contracts over two hundred fifty thousand dollars (\$250,000.00) funded with federal grant dollars, the Contractor warrants that no person or selling agencies has been employed or retained to solicit or secure this Contract upon an agreement or understanding for a commission or bonafide established commercial or selling agencies maintained by the Contractor for the purpose of securing business. For breach or violation of this warranty, the Authority shall have the right to annul this Contract without liability or at its discretion, to deduct from the Contract price, or otherwise recover the full amount or such commission, percentage, brokerage, or contingent fees. Contractor further warrants that it, its agent, and/or its subcontractor, have not and will not accept a gratuity in relation to this agreement.

31. Social Security Act. The Contractor shall be and remain an independent Contractor with respect to all Services performed hereunder and agrees to and does hereby accept full and exclusive liability for the payment of any and all contributions or taxes for social security, unemployment insurance, or old age retirement benefits, pensions, or annuities now or hereafter imposed under any state or federal law which are measured by the wages, salaries or other remuneration paid to persons employed by the Contractor for work performed under the terms of this contract and further agrees to obey all lawful rules and regulations and to meet all lawful requirements which are now or hereafter may be issued or promulgated under said respective laws by all duly authorized State or federal law officials, and said Contractor

agrees to indemnify and save harmless the Authority from any such contributions or taxes or liability therefore.

32. Mitigation of Adverse Environmental Effects and Energy Conservation. Contractor agrees to comply with 49 U.S.C. § 303. Contractor further agrees to comply with the requirements of Section 6002 of the Resource Conservation and Recovery Act, as amended (42 U.S.C. 6962), including but not limited to the regulatory provisions of 40 C.F.R. Part 247, as they apply to the subject matter of this Contract and where applicable purchases exceed ten thousand dollars (\$10,000.00). Contractor further agrees to comply with applicable mandatory energy efficiency standards and policies of applicable state energy conservation plans issued pursuant to 42 U.S.C. 6321 et seq and 49 C.F.R. Part 622.
33. Clean Air Act and Clean Water Act. Where the price of this procurement exceeds one hundred fifty thousand dollars (\$150,000.00), Contractor agrees to comply with the requirements of the Clean Water Act and the Clean Air Act, 33 U.S.C. 1251 et seq. and 42 U.S.C. 7401 seq., respectively. Contractor agrees to report and require each subcontractor at any tier to report any violation of these requirements resulting from any implementation activity of a subcontractor or itself to FTA and the appropriate U.S. EPA Regional Office.
34. Hazardous Materials. Where the goods or services procured involve the delivery or use of hazardous materials through the City of Cleveland, Contractor agrees to meet the requirements of any applicable local, state, or federal regulations including but not limited to the Cleveland Codified Ordinances.
35. Fair Labor Standards and Trafficking in Persons. Contractor agrees to comply with the Fair Labor Standards Act (FLSA), 29 U.S.C. § 201, et seq. Contractor further agrees that it will comply with 22 U.S.C. § 7104(g).
36. Wage and Hour. For contracts over One Hundred Thousand Dollars (\$100,000), all contractors and subcontractors must compute wages based on a standard workweek of 40 hours. Work in excess of 40 hours must be paid at a rate not less than one and one-half times the basic rate of pay. Compliance with 40 U.S.C. 3701, 40 U.S.C. 3702, and 29 C.F.R. Part 5 is required of all contractors and subcontractors for contracts over One Hundred Thousand Dollars (\$100,000).
37. Program Fraud and Federal Reporting. The Contractor acknowledges and agrees that:
 - a) Civil Fraud. The Program Fraud Civil Remedies Act of 1986, as amended, and 49 C.F.R. 31, Program Fraud Civil Remedies, apply to the Contractor's activities in connection with the Project. By executing the Contract, the Contractor certifies or affirms the truthfulness and accuracy of each statement it has made, it makes, or it may make in connection with the Project. In addition to other penalties that may apply, the Contractor also acknowledges that if it makes a false, fictitious, or fraudulent claim, statement, submission, certification, assurance, or representation to the federal government, the federal government reserves the right to impose on the Contractor the penalties of 31 U.S.C. 3801 et seq., as implemented in 49 C.F.R. 31, to the extent the federal government deems appropriate.
 - b) Criminal Fraud. If the Contractor makes a false, fictitious, or fraudulent claim, statement, submission, certification, assurance, or representation to the federal government or includes a false, fictitious, or fraudulent statement or representation in any agreement with the federal government in connection with a Project authorized under 49 U.S.C. Chapter 53 or any other federal law, the federal government reserves the right to impose on the

Contractor the penalties of 49 U.S.C. 5323(l)(1), 18 U.S.C. 1001, or other applicable federal law to the extent the federal government deems appropriate.

- c) If the Contractor has knowledge of potential fraud, waste, or abuse occurring on a Project receiving assistance from FTA, Contractor shall promptly notify the US DOT Inspector General in addition to the FTA Chief Counsel or Regional Counsel for the Region V. The notification provision applies if a person has or may have submitted a false claim under the False Claims Act, 31 U.S.C. 3729 et seq., or has or may have committed a criminal or civil violation of law pertaining to such matters as fraud, conflict of interest, bid rigging, misappropriation or embezzlement, bribery, gratuity, or similar misconduct involving federal assistance. This responsibility occurs whether the Project is subject to this Agreement or another agreement between GCRTA and FTA. It also applies to subcontractors at any tier. Knowledge, as used in this paragraph, includes, but is not limited to, knowledge of a criminal or civil investigation by a federal, state, or local law enforcement or other investigative agency, a criminal indictment or civil complaint, or probable cause that could support a criminal indictment, or any other credible information in the possession of the Contractor. In this paragraph, "promptly" means to refer information without delay and without change.

38. Drug and Alcohol Testing. Contractor is responsible for establishing and maintaining a drug-free workplace program, which applies to all Contractor personnel participating in a construction project. The program will define the criteria regarding mandatory testing for drug and alcohol according to local, state, and federal regulations, including, but not limited to, the Drug Free Workplace Act of 1988 (41 U.S.C. 81), 49 U.S.C. § 5331 and FTA regulations, "Prevention of Alcohol Misuse and Prohibited Drug Use in Transit Operations," 49 C.F.R. Part 655.

39. Safe Operation of Motor Vehicles. The Contractor acknowledges and agrees that:

- a) Seat Belt Use. Pursuant to Federal Executive Order No. 13043, Contractor is encouraged to adopt and promote on-the-job seat belt use for its employees and other personnel operating vehicles involved in the project.
- b) Distracted Driving. Pursuant to Federal Executive Order No. 13513 and U.S. DOT Order 3902.10, Contractor agrees to adopt and enforce workplace safety policies to decrease crashes caused by distracted drivers, including policies to ban text messaging while driving.

40. Buy America & Fly America. For contracts over one hundred fifty thousand dollars (\$150,000.00) funded with federal grant dollars, Contractors must comply with 49 U.S.C. 5323(j), "Buy America Requirements" 49 C.F.R. Part 661, and Build America, Buy America Act, Pub. L. 117-58, div. G, tit. IX, §§ 70911 – 70927 (2021), as implemented by the U.S. Office of Management and Budget, the U.S. Department of Transportation, and FTA.

Contractor agrees that to the extent this contract is federally-funded, Contractor will not utilize international air transportation for any persons involved in or property acquired for work under this contract, unless such air transportation is provided by U.S.-flag air carriers if available, in accordance with the International Air Transportation Fair Competitive Practices Act of 1974 ("Fly America Act" 49 U.S.C. § 40118), as amended, GSA regulations, "Use of United States Flag Air Carriers," 41 C.F.R. Sections 301-10.131 through 301-10.143, and implementing regulations.

41. Federal Funding Requirements & Required Provisions Deemed Inserted. The Contractor agrees to comply with applicable third-party procurement requirements of 49 U.S.C. Chapter 53, Public Transportation, and federal laws in effect now or subsequently enacted; with applicable USDOT third party procurement regulations at 49 CFR 18.36, and with other applicable federal regulations pertaining to third party procurements and later amendments thereto.

Each and every clause required by federal or state statute or regulation to be inserted into this Contract is deemed to be inserted herein and this Contract shall be read and enforced as though it were included herein. If through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party the Agreement shall forthwith be amended to make such insertion or correction.

ENCLOSURE C

INSURANCE REQUIREMENTS & CERTIFICATES

The Contractor shall purchase and maintain from the date of commencement of the work until the date of final payment the following minimum insurance coverages. Such insurance shall protect the contractor from claims which may arise out of or result from the Contractor's operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone employed directly or indirectly by any of them, or by anyone for whose acts any of them may be liable.

Approval by the GCRTA: Approval of the insurance by the GCRTA shall not relieve or decrease the liability of the Contractor hereunder. It is to be understood that the GCRTA does not in any way represent that the insurance or the limits of insurance specified herein are sufficient or adequate to protect the Contractor's interests or liabilities.

In the event the Contractor neglects, refuses or fails to provide the insurance required under the contract documents, or as such insurance is cancelled for any reason, the GCRTA shall have right but not the duty to procure the same, and costs thereof shall be deducted from monies then due or thereafter to become due to the Contractor.

GCRTA reserves the right to request a copy of all policies and endorsements prescribed herein.

- a. **Commercial General Liability (CGL) Insurance** in the amount of \$2,000,000 combined single limit each occurrence for bodily injury and/or property damage and with a \$2,000,000 annual aggregate.
- b. **Business Automobile Liability (BAL) Insurance** in the amount of \$1,000,000 combined single limit each accident for bodily injury and/or property damage. Said policy shall apply to all owned, leased, hired and non-owned vehicles used in connection with the work.
- c. **Statutory Workers' Compensation Coverage** in compliance with all applicable state workers' compensation laws to cover all employees furnishing labor under the terms of this contract and under the control of the Contractor. Employers' Liability coverage in the amount of \$1,000,000 per accident / \$1,000,000 per employee for disease will also be included, either under the Workers' Compensation policy or under the Commercial General Liability policy (Stop Gap) referenced under a. above. In Ohio, a copy of a certificate of premium payment from the Industrial commission and Bureau of Workers Compensation, or a copy of the Certificate of Employer's Right to Pay Compensation Directly.
- d. **Professional Liability / Errors & Omissions Insurance** in the amount of \$2,000,000 per claim. The definition of wrongful acts must be applicable to the work performed hereunder.

- If the Contract involves receipt of personally identifiable information (PII) or other confidential information, Contractor's professional liability insurance must include cyber risk coverage, including network and internet security liability coverage, privacy liability coverage, and media coverage.
 - To the extent that any subcontractor provides professional services, Contractor is responsible for ensuring that subcontractor has obtained adequate coverage, as required herein.
- e. **Property Insurance** covering contractors' own business personal property and equipment to be used in performance of this Agreement, materials or property to be purchased and/or installed, and builders risk for property in the course of construction (if applicable). Coverage shall be written on a "Special Form" policy that includes theft, but excludes earthquake, with limits at least equal to the replacement cost of the property. Such policy shall contain a Waiver of Subrogation in favor of GCRTA.

General Requirements: The Contractor shall not commence work herein until it has obtained the required insurance and has received written approval of such insurance by the GCRTA. ***Contractor shall furnish evidence of such insurance in the form of a certificate (Accord or similar form).***

GCRTA will accept any combination of primary CGL along with Excess or Umbrella policies, as well as primary BAL along with Excess or Umbrella, policies to meet the minimum coverage requirements contained herein.

The certificate shall provide the following:

- The policy shall be written on an occurrence basis. If any insurance specified above is written on an "Claims Made" (rather than an "occurrence" basis), then, in addition, to the coverage requirements stated herein, Contractor shall:
 - (a) Ensure that the Retroactive Date is shown on the policy, and such date shall be before the date of the Contractor or any work beginning under the contract.
 - (b) Maintain and provide evidence of similar insurance for at least three (3) years following project completion, including the requirement of adding all additional insureds; and
 - (c) If insurance is cancelled or non-renewed and not replaced with another claims-made policy form with a Retroactive Date prior to the contract effective date, Contractor shall purchase "extended reporting" coverage for a minimum of three (3) years after completion of the work.
- Name the GCRTA as an additional insured for all CGL, BAL, and, if applicable, CPL liability coverage for claims arising out of operations in conjunction with the contract
- Contain a waiver of subrogation in favor of the GCRTA.
- Specify that the insurance is primary and non-contributory as respects any insurance or self-insurance programs maintained by GCRTA.
- Contain a specific reference to the subject contract.

- Specify all deductibles & Self-Insured Retentions (SIR), as applicable.
- In the event the insurance should be changed or cancelled, such change or cancellation shall not be effective until 15 days after the GCRTA has received written notice of such change or cancellation from the Contractor. Such notice shall be mailed by certified mail, return receipt requested, to the GCRTA's Director of Procurement.
- An insurance company having less than an A-X rating by The A. M. Best Company will not be considered acceptable. All certificates are subject to acceptance by the GCRTA. The GCRTA shall be entitled to receive a full copy of the insurance policy(ies) upon request and reserves the right to review financial statements and approve any deductibles or SIR.



ENCLOSURE D

REQUIRED SUBMITTALS

Attachment Title	Description/Purpose
	DBE Participation Requirements
Attachment A	Requirements Concerning DBE
Attachment A1	*DBE Utilization Form*
Attachment A2	*DBE Affidavit*
Attachment A3	*DBE Participation Plan*
Attachment A4	*Letter of Intent to Perform as a DBE Sub-Contractor*
Attachment A5	Requirements for Prime & Sub-Contractors (required for all)
Attachment A6	*Guidance Concerning Good Faith Efforts*
Attachment A7	*Good Faith Efforts Documentation Form*
Attachment A8	*Payment Compliance Report*
Attachment B	Non-Discrimination Affidavit (required for all)
Attachment C	Delinquent Tax Certification (required for all)
Attachment D	Certification Regarding Debarment (required for all)
Attachment E	Certification Regarding Procurement Integrity (required for all)
Attachment F	Certification Regarding Restrictions on Lobbying (For proposals exceeding \$100k)
Attachment G1	Buy America Certificate Compliance (For proposals exceeding \$150k)
Attachment G2	Buy America Certificate Non-Compliance (For proposals exceeding \$150k)

Required if the DBE Goal, as identified in the Notice to Proposers, exceeds 0%

DISADVANTAGED BUSINESS ENTERPRISE (DBE) PARTICIPATION REQUIREMENTS

In accordance with the provisions of this solicitation, the GCRTA will determine if an otherwise eligible Proposer/Bidder is responsible with regard to the Disadvantaged Business Enterprise (DBE) requirements contained herein.

Proposers/Bidders are required to furnish information demonstrating satisfaction of the DBE requirements of this solicitation in their proposal. The documents which must be completed are more fully described in the attachments hereto.

The GCRTA may at any time prior to award seek clarification or additional information bearing upon Proposer/Bidder responsibility with respect to DBE involvement with this procurement. If sought, such information must be strictly confined to matters of Proposer/Bidder responsibility and must be received by the GCRTA within two (2) days of the date request is made.

Disadvantaged Business Enterprise (DBE) Policy and Procedures. The GCRTA is committed to encouraging participation by Disadvantaged Business Enterprises (DBE) in contracts let by the GCRTA. It is the policy of the United States Department of Transportation, as adopted by the GCRTA that socially and economically disadvantaged business enterprises, as defined at Title 49, Code of Federal Regulations, Part 26, shall be afforded an equal opportunity in the performance of the GCRTA's contracts or subsequent subcontracts resulting from this solicitation. In this regard, the Proposers/Bidders shall take all necessary and reasonable steps in accordance with 49 CFR Part 26, and the GCRTA's DBE Program to ensure that the DBE obligation is met. The selected contractor shall not discriminate based on race, color, national origin or sex in the performance of a resulting DOT-assisted contract.

Definitions.

- a. "Disadvantaged Business Enterprise (DBE)" means a small business concern, which is at least 51 percent owned by one or more socially and economically disadvantaged persons or, in the case of a publicly owned business, at least 51 percent of the stock of which is owned by one or more socially and economically disadvantaged individuals and whose management and daily business operation are controlled by one or more of the socially and economically disadvantaged individuals who own it.
- b. "Socially and economically disadvantaged persons" mean citizens of the United States (or lawfully admitted permanent residents) who meet the criteria set forth in 49 C.F.R. Section 26.5.
- c. "Certified DBE" is a socially and economically disadvantaged firm that submitted a certification application and the appropriate forms to and received subsequent approval from the RTA Office of Business Development.

Contract Goals and DBE Participation. If the GCRTA has established a contract DBE goal for this procurement, the forms specified and attached in Attachment A are required submittals. If there is a 0% goal or no DBE goal has been established for the procurement, then the attached "A" forms are not required for submission. In order to meet the DBE requirements of 49 CFR Part 26, disadvantaged business enterprises will be afforded an

opportunity to participate, to an extent reflective of their availability in the community, in the performance of contracts financed in whole or part with Federal funds under this agreement. Consequently, GCRTA determines a DBE participation goal in contracts with potential subcontracting opportunities. This DBE goal will remain applicable to the total contract dollar amount including any modifications.

As noted in these instructions, Proposers/Bidders are required to disclose their proposed level of DBE participation (expressed as a percentage of the proposed bid price) in the space designated on the Form of Bid. DBE firms and their subcontractors are encouraged, but not required, to utilize the Business 2 Government Now (B2G) software and the LCP Tracker Labor Compliance ("LCP") that GCRTA utilizes to log payments made to employees and subcontractors on the project.

- a. **DBE Firm Eligibility.** The DBE entities utilized toward the DBE participation goal on a contract should be certified by the GCRTA's Office of Business Development. The firms eligible for inclusion in the contractor's DBE plan must be certified under the classification code associated with the work scope that the firm is assigned to perform on this project prior to bid submission or the determination of best and final offer in an RFP process. Consult the DBE Directory at www.riderta.com or the Office of Business Development (OBD) of the GCRTA for assistance in ascertaining certified status of DBEs.
- b. **Counting DBE Participation.** When a DBE participates in a contract, you count only the value of the work performed by the DBE toward DBE goals.
 1. Count the entire amount of that portion of a construction contract (or other contract not covered by Paragraph (B)(2) of this section) that is performed by the DBE's own forces. Include the cost of supplies and materials obtained by the DBE for the work of the contract, including supplies purchased or equipment leased by the DBE (except supplies and equipment the DBE subcontractor purchases or leases from the prime contractor its affiliate).
 2. Count the entire amount of fees or commissions charged by a DBE firm for providing a bona fide service, such as professional, technical, consultant, or managerial services, or for providing bonds or insurance specifically required for the performance of a DOT-assisted contract, toward DBE goals, provided you determine the fee to be reasonable and not excessive as compared with fees customarily allowed for similar services.
 3. When a DBE subcontracts part of the work of its contract to another firm, the value of the subcontracted work may be counted toward DBE goals only if the DBE's subcontractor is itself a DBE. Work that a DBE subcontracts to a non-DBE firm does not count toward DBE goals.
 - a) When a DBE performs as a participant in a joint venture, count a portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work of the contract that the DBE performs with its own forces toward DBE goals.
 - b) Count expenditures to a DBE contractor toward DBE goals only if the DBE is performing a commercially useful function on that contract.
 4. A DBE performs a commercially useful function when it is responsible for execution of the work of the contract and is carrying out its responsibilities

by performing, managing, and supervising the work involved. To perform a commercially useful function, the DBE must also be responsible, with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material, and installing (when applicable) and paying for the material itself. To determine whether a DBE is performing a commercially useful function, you must evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the contract is commensurate with the work it is performing, the DBE credit claimed for its performance of the work, and other relevant factors. A DBE does not perform a commercially function if its role is limited to that of an extra participant in a transaction, contract, or project through which funds are passed to obtain the appearance of DBE participation.

5. To determine whether a DBE trucking company is performing a commercially useful function: The DBE must be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract, and there cannot be a contrived arrangement for the purpose of meeting the DBE goals.
 - a) The DBE must itself own and operate at least one fully licensed, insured, and operational truck used on the contract.
 - b) The DBE receives credit for the total value of the transportation services it provides on the contract using the trucks it owns, insures, and operates using the drivers it employs.
 - c) The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases the trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the contract.
 - d) The DBE may also lease trucks from a non-DBE firm, including an owner-operator. The DBE who leases trucks from a non-DBE is entitled to credit only for the fee or commission it receives as a result of the lease arrangement. The DBE does not receive credit for the total value of the transportation services provided by the lessee, since these services are not provided by the DBE.
6. If the materials or supplies are obtained from a DBE manufacturer, count 100 percent of the cost of the materials or supplies toward the DBE goal. A manufacturer is a firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles, or equipment required under the contract and of the general character described by the specifications.
7. Sixty percent of the total dollar value will be counted in the case of a DBE regular dealer that is not a manufacturer, provided that the DBE regular dealer performs a commercially useful function in the supply process to include brokers etc. in accordance with 49 CFR 26.55 Paragraph 2b. To be a regular dealer:
 - a) The firm must be an established, regular business that engages, as its principal business and under its own name, in the purchase and sale or lease of the products in question.
 - b) A person may be a regular dealer in such bulk items as petroleum

- products, steel, cement, gravel, stone, or asphalt without owning, operating, or maintaining a place of business; if the person both
- c) Packagers, brokers, manufacturers', representatives, or other persons who arrange or expedite transactions are not regular dealers within the meaning of this paragraph.
 - d) With respect to materials or supplies purchased from a DBE which is neither a manufacturer nor a regular dealer, count the entire amount of fees or commissions charged for the delivery of materials or supplies required DBE goals, provided you determine the fees to be reasonable and not excessive as compared with fees customarily allowed for similar services. Do not count any portion of the cost of the materials and supplies themselves toward DBE goals.

Solicitation DBE Requirements, Terms & Conditions. In addition to all other requirements stated within this RFP, the following DBE Program requirements must be satisfied and include a representation that:

1. The Proposer/Bidder has met the goal established by the GCRTA for this procurement, or
2. The Proposer/Bidder has made a good faith effort to attain the level of DBE participation sought by the GCRTA for this procurement

On the Form of Bid, Proposer/Bidder must specify the level of DBE participation. Failure to fill out the DBE participation level on the Form of Bid may result in the bid being rejected as non-responsive. Any award resulting from this procurement shall be and is conditioned upon the attainment of the aforesaid goals or the satisfactory showing of good faith efforts to attain said goals.

DBE Participation Plan. Each Proposer/Bidder should also prepare a complete DBE Participation Plan that sets forth the extent of DBE involvement in this procurement. Proposer's/Bidder's Plan will be considered in determining Proposer's/Bidder's responsibility. DBE participation plans shall include the following minimum information:

- DBE Affidavit (Attachment B-2) which includes:
 - names and addresses of the DBE entities that will participate in the contract.
 - the dollar amount of the participation of each named DBE.
 - a description of the work each named DBE will perform.
 - DBE Participation Plan (Attachment B-3) from each DBE whose participation is proposed for the performance of this contract as a subcontractor or joint venture partner.

The following standards shall be applied in assessing the responsibility of the DBE plan submitted:

- Whether the participation plan contains capable currently certified DBE firms.
- Whether the firms listed in the plan are performing a commercially useful function
- Whether the listed firms are sharing monetary benefit in proportion to their share of the work of the project.
- Whether the plan exhibits a likelihood of goal attainment.
- Whether the prime/sub relationships are firm, i.e., whether conditional subcontractors have been entered.

Good Faith Efforts. The Proposer/Bidder is required by federal regulations to make a good faith effort to achieve the DBE participation goal established on a contract. If the DBE goal is not met, the Proposer/Bidder must submit documentation supporting the good faith efforts it made to include DBE participation in the contract. (See Attachment B-5 "Guidance Concerning Good Faith Efforts").

The standard used to determine good faith efforts is whether the efforts to solicit DBE participation made by the bidder (prior to bid submission or submission of the best and final offer on a proposal) could reasonably be expected to produce sufficient DBE participation to meet the established goal.

In general, the Proposer/Bidder is required to provide the following documentation to support its good faith efforts:

- Each DBE firm contacted about participating on the project.
- Name, telephone number, and email address for the person(s) contacted.
- Nature and dollar amount of the work each DBE firm was solicited to perform.
- Date contact was made with DBE firm.
- Each DBE firm response to solicitation; and
- Reason any DBE firms contacted were not used.

The GCRTA may consider all efforts advanced by the Proposer/Bidder, including the following: which must be sufficiently documented in writing:

- Did the Proposer/Bidder attend any scheduled pre-solicitation or pre-proposal meetings to inform DBEs of contracting and subcontracting opportunities?
- Did the Proposer/Bidder solicit DBE firms through sufficient and responsible means such as advertising in general circulation, trade association and minority-focus media concerning the subcontracting opportunities?
- Did the Proposer/Bidder provide written notice to a reasonable number of DBEs that their interest in the contract was being solicited, and provide in sufficient time to allow the DBEs to respond to the solicitation before the bid due date?
- Did the Proposer/Bidder follow up with the DBE firms solicited and/or that expressed an interest in participating?
- Did the Proposer/Bidder adequately identify portions of work that could be performed by DBEs (including dividing contracts into economically feasible units to facilitate participation)?
- Did the Proposer/Bidder provide DBE firms adequate information about plans, specifications, and/or contracting requirements?
- Did the Proposer/Bidder negotiate in good faith with interested DBEs and have sound reasons for rejecting DBE firms?
- Did the Proposer/Bidder make efforts to provide assistance to obtain bonding, lines of credit, or insurance (if applicable)?
- Did the Proposer/Bidder effectively use the services of available minority and female organizations, contractor groups, state and local offices, etc., to locate DBE firms?

Adherence to all the above requirements is necessary for bid and contract compliance.

ATTACHMENT A

REQUIREMENTS CONCERNING DISADVANTAGED BUSINESS ENTERPRISES (DBEs) CONSTRUCTION AND SERVICES CONTRACTS AND SUBCONTRACTS

The GCRTA Office of Business Development is eager to assist you in fully completing the requirements of this Notice and the Authority's Equal Employment Opportunity Program. If you have any questions, please call the Office of Business Development at 216-356-3127.

Proposers/Bidders are cautioned, however, that oral representations may not be relied upon. Such representations must be confirmed by specific writing issued by the Director of Procurement as an addendum or as a clarification of this solicitation document.

I. Declaration of Proposed DBE Utilization - Attachment A-1

Demonstrates the amount of DBE participation.

II. DBE Affidavit – Attachment A-2

To be completed by the DBE Contractor.

III. DBE Participation Plan – Attachment A-3

Contractor's plan for DBE participation.

IV. Letter of Intent to Perform as a DBE Subcontractor – Attachment A-4

DBE Subcontractor's signed notice of intent to perform.

V. Requirements Concerning Prime and Sub-Contractors – Attachment A-5

All Contractors and their subcontractors bidding on a contract must complete this.

VI. Guidance Concerning Good Faith Efforts – Attachment A-6

Documents Bidder's Good Faith Efforts.

VII. Good Faith Efforts - Documentation Form – Attachment A-7

Appendix A to CFR 49 Part 26

VIII. Payment Compliance Report – Attachment A-8

This must be submitted with each payment application.

ATTACHMENT A-1
DECLARATION OF PROPOSED DISADVANTAGED BUSINESS ENTERPRISE UTILIZATION

THIS PAGE MUST BE COMPLETED BY PRIME PROPOSER/BIDDER TO INDICATE THE PERCENTAGE OF DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION

The undersigned, as a representative of the entity, _____, submitting a bid/proposal for the _____ project, hereby acknowledges that the DBE Goal established for this project is %.

Note: Proposer/Bidder shall make one of the two certifications noted below:

1. ☐ The Proposer/Bidder further represents that the proposed level of DBE participation as set forth in the enclosed Schedule of DBE participation for this project is % and represents attainment of the DBE participation goal Letters of Intent confirming the proposed participation of the DBEs set forth on the Schedule of DBE participation are attached.
2. ☐ The Proposer/Bidder further represents that the proposed level of DBE participation as set forth in the enclosed Schedule of DBE participation for the project is %. However, this level of DBE participation is less than the goal established for this project. The Proposer/Bidder has attached:
 - a. the DBE Participation Plan showing the level of DBE participation the Proposer/Bidder has been able to obtain, supplemented with Letters of intent confirming the proposed participation of the DBEs set forth on the Schedule of DBE Participation; and
 - b. documentation of the Proposer's/Bidder's good faith efforts to achieve the goal established for this project. This documentation shall include Certificates of DBE Unavailability for each contacted by the prime Proposer/Bidder, which will not be participating in performance of the contract.

Date

Proposer/Bidder

Title

ATTACHMENT A-2

DBE AFFIDAVIT

THIS PAGE TO BE COMPLETED BY DISADVANTAGED BUSINESS ENTERPRISE CONTRACTOR

I hereby declare and affirm that I am the _____ (title)
and duly authorized representative of the (firm of) _____, a
_____, (type of entity) whose address is

and _____.
(Telephone Number)

I HEREBY DECLARE AND AFFIRM THAT I AM A DISADVANTAGED BUSINESS ENTERPRISE
(DBE) AS DEFINED BY THE GREATER CLEVELAND REGIONAL TRANSIT AUTHORITY IN THE
SPECIFICATIONS FOR

(RFP number and name)

AND THAT I WILL PROVIDE INFORMATION AND/OR THE CERTIFICATION TO DOCUMENT THIS
FACT.

I DO SOLEMNLY SWEAR OR DECLARE AND AFFIRM THAT THE CONTENTS OF THE FOREGOING
STATEMENT ARE TRUE AND CORRECT, AND I AM AUTHORIZED, ON BEHALF OF THE ABOVE
FIRM, TO MAKE THIS AFFIDAVIT.

(Affiant)

(Date)

State of _____)

City and County of _____)

On this ____ day of _____, 20____, before me, the undersigned officer personally
appeared _____, known to me to be the person described in the foregoing
Affidavit, and acknowledged that he (she) executed the same in the capacity therein stated and for the
purposes therein contained.

In witness thereof, I hereunto set my hand and official seal.

My Commission Expires: _____

(Notary Public)

(SEAL)

ATTACHMENT A-3

DISADVANTAGED BUSINESS ENTERPRISE (DBE) PARTICIPATION PLAN

Name of Prime Contractor					
Name of Project					
Project/Contract No				Total Bid Amount	
Name of DBE	DBE Category	Address	Contact Person & Telephone No.	Scope of Work	Dollar Value of Work
1.					
2.					
3.					
4.					
5.					
6.					
7.					
				Total DBE Dollars/%	

The undersigned will enter into formal agreement with the DBEs listed above for work in this schedule conditioned upon the award of a contract by the Greater Cleveland Regional Transit Authority (GCRTA).

Signature of Prime Contractor Representative

Phone Number

Date

ATTACHMENT A-4

LETTER OF INTENT TO PERFORM AS A DBE SUBCONTRACTOR

Project: _____
No.: _____
Location: _____

To: _____
Prime or General Bidder

Address

City/State

I am the _____ and duly authorized representative of the
(Title)

("Subcontractor") which intends to perform

(Prime or General Bidder)

work for the above project operating as (strike out conditions that do not apply) an individual, a Company, a corporation, organized and existing under the law of the State of _____
or a Proprietorship, a Partnership, or Joint Venture consisting of _____

Subcontractor is a Disadvantaged Business Enterprise (DBE) as defined by the Greater Cleveland Regional Transit Authority in the specifications for:

(RFP Name and Number)

Subcontractor is currently certified by the Ohio Unified Certification Program as a disadvantaged business enterprise with a certification date of _____.

I will provide information and/or the certification to document the representation noted above upon your request.

The undersigned is prepared to perform the following described work in connection with the above project (specify in appropriate detail particular work items or parts thereof to be performed): _____

at the following price: _____.

You have projected the following commencement date for such work, and the undersigned is projecting completion of such work as follows:

<u>Type of Work and Items</u>	<u>Work Hours Involved</u>	<u>Projected Commencement Date</u>	<u>Projected Completion Date</u>
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____

I further represent that _____ percent (____%) of the dollar value of my subcontract will be performed by contractors and/or suppliers, which are not certified by the Authority as a Disadvantaged Business Enterprise.

The undersigned will enter into a formal agreement for the above work with you conditioned upon your execution of a contract with the Authority.

Respectfully submitted, this _____ day _____, 20 _____

(DBE Subcontractor)

(Address)

(Signature)

(Name Typed)

(Title)

(SEAL IF PROPOSER/BIDDER IS A CORPORATION)

ATTACHMENT A-5 REQUIREMENTS CONCERNING PRIME AND SUB-CONTRACTORS

Contract No.: _____ Project Name: _____

In accordance with FTA Federal Regulation 49 CFR, Part 26.11, the Office of Business Development is required to create and maintain a bidders list on all Prime and Sub-Contractors DBEs and Non-DBEs that seek to participate on Greater Cleveland Regional Transit Authority (GCRTA) federally assisted contracts. Please complete the following information in its entirety.

I. PRIME CONTRACTOR

(This information must be provided on the Prime bidder on this Project)

Name of Firm: _____ ☐ Certified DBE ☐

Non-DBE Mailing Address: _____

City/State/Zip Code: _____

Contact: _____ Phone No. _____ Email _____

Date Business Established (Month, Day and Year): _____

Gross Sales in Dollars Last FY:	Less than \$500,000	☐ \$500,000 - \$1
	\$1 million - \$2 million	\$2 million - \$5 million
	Over \$5 million	

II. DBE SUBCONTRACTOR(S)

(The following information must be provided for all DBE sub-contractor(s) proposed to work on this Project. If additional space is needed, copy this form to add additional information.)

Name of Firm	Firm Gender/Ethnicity	Year Firm Established	Contract Amount	Approximate Annual Gross Sales

III. NON-DBE SUBCONTRACTOR(S) & VETERANS

(The following information must be provided for all NON-DBE sub-contractor(s) proposed to work on this Project. If additional space is needed, copy this form to add additional information.)

Name of Firm	Year Firm	Contract Amount	Approximate Annual Gross Sales	Veteran Status
--------------	-----------	-----------------	--------------------------------	----------------

I certify the information contained in this document is true and accurate as of the stated date. I understand making FALSE or misleading statements may be a criminal offense, as well as disqualify the firm from participation on contracts with GCRTA.

Name & Title of Person Authorized to Sign

Signature

Date

APPENDIX A TO PART 26—GUIDANCE CONCERNING..., 49 C.F.R. Pt. 26, App. A

ATTACHMENT A-6

[49 CFR PART 26 APPENDIX A](#)*This document is effective through May 2, 2025 issue of the Federal Register*[Code of Federal Regulations](#)[Title 49. Transportation](#)[Subtitle A. Office of the Secretary of Transportation](#)[Part 26. Participation by Disadvantaged Business Enterprises in Department of Transportation Financial Assistance Programs \(Refs & Annos\)](#)

49 C.F.R. Pt. 26, App. A

APPENDIX A TO PART 26—GUIDANCE CONCERNING GOOD FAITH EFFORTS

[Currentness](#)

I. When, as a recipient, you establish a contract goal on a DOT–assisted contract for procuring construction, equipment, services, or any other purpose, a bidder must, in order to be responsible and/or responsive, make sufficient good faith efforts to meet the goal. The bidder can meet this requirement in either of two ways. First, the bidder can meet the goal, documenting commitments for participation by DBE firms sufficient for this purpose. Second, even if it doesn’t meet the goal, the bidder can document adequate good faith efforts. This means that the bidder must show that it took all necessary and reasonable steps to achieve a DBE goal or other requirement of this part which, by their scope, intensity, and appropriateness to the objective, could reasonably be expected to obtain sufficient DBE participation, even if they were not fully successful.

II. In any situation in which you have established a contract goal, Part 26 requires you to use the good faith efforts mechanism of this part. As a recipient, you have the responsibility to make a fair and reasonable judgment whether a bidder that did not meet the goal made adequate good faith efforts. It is important for you to consider the quality, quantity, and intensity of the different kinds of efforts that the bidder has made, based on the regulations and the guidance in this Appendix.

The efforts employed by the bidder should be those that one could reasonably expect a bidder to take if the bidder were actively and aggressively trying to obtain DBE participation sufficient to meet the DBE contract goal. Mere pro forma efforts are not good faith efforts to meet the DBE contract requirements. We emphasize, however, that your determination concerning the sufficiency of the firm’s good faith efforts is a judgment call. Determinations should not be made using quantitative formulas.

III. The Department also strongly cautions you against requiring that a bidder meet a contract goal (i.e., obtain a specified amount of DBE participation) in order to be awarded a contract, even though the bidder makes an adequate good faith efforts showing. This rule specifically prohibits you from ignoring bona fide good faith efforts.

IV. The following is a list of types of actions which you should consider as part of the bidder’s good faith efforts to obtain DBE participation. It is not intended to be a mandatory checklist, nor is it intended to be exclusive or exhaustive. Other factors or types of efforts may be relevant in appropriate cases.

A. (1) Conducting market research to identify small business contractors and suppliers and soliciting through all reasonable and

available means the interest of all certified DBEs that have the capability to perform the work of the contract. This may include attendance at pre-bid and business matchmaking meetings and events, advertising and/or written notices, posting of Notices of Sources Sought and/or Requests for Proposals, written notices or emails to all DBEs listed in the State's directory of transportation firms that specialize in the areas of work desired (as noted in the DBE directory) and which are located in the area or surrounding areas of the project.

(2) The bidder should solicit this interest as early in the acquisition process as practicable to allow the DBEs to respond to the solicitation and submit a timely offer for the subcontract. The bidder should determine with certainty if the DBEs are interested by taking appropriate steps to follow up initial solicitations.

B. Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units (for example, smaller tasks or quantities) to facilitate DBE participation, even when the prime contractor might otherwise prefer to perform these work items with its own forces. This may include, where possible, establishing flexible timeframes for performance and delivery schedules in a manner that encourages and facilitates DBE participation.

C. Providing interested DBEs with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation with their offer for the subcontract.

D. (1) Negotiating in good faith with interested DBEs. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional Agreements could not be reached for DBEs to perform the work.

(2) A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBEs is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also, the ability or desire of a prime contractor to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Prime contractors are not, however, required to accept higher quotes from DBEs if the price difference is excessive or unreasonable.

E. (1) Not rejecting DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The contractor's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union status) are not legitimate causes for the rejection or non-solicitation of bids in the contractor's efforts to meet the project goal. Another practice considered an insufficient good faith effort is the rejection of the DBE because its quotation for the work was not the lowest received. However, nothing in this paragraph shall be construed to require the bidder or prime contractor to accept unreasonable quotes in order to satisfy contract goals.

(2) A prime contractor's inability to find a replacement DBE at the original price is not alone sufficient to support a finding that good faith efforts have been made to replace the original DBE. The fact that the contractor has the ability and/or desire to perform the contract work with its own forces does not relieve the contractor of the obligation to make good faith efforts to find a replacement DBE, and it is not a sound basis for rejecting a prospective replacement DBE's reasonable quote.

F. Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or contractor.

G. Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.

H. Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, State, and Federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBEs.

V. In determining whether a bidder has made good faith efforts, it is essential to scrutinize its documented efforts. At a minimum, you must review the performance of other bidders in meeting the contract goal. For example, when the apparent successful bidder fails to meet the contract goal, but others meet it, you may reasonably raise the question of whether, with additional efforts, the apparent successful bidder could have met the goal. If the apparent successful bidder fails to meet the goal, but meets or exceeds the average DBE participation obtained by other bidders, you may view this, in conjunction with other factors, as evidence of the apparent successful bidder having made good faith efforts. As provided in [§ 26.53\(b\)\(2\)\(vi\)](#), you must also require the contractor to submit copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor was selected over a DBE for work on the contract to review whether DBE prices were substantially higher; and contact the DBEs listed on a contractor's solicitation to inquire as to whether they were contacted by the prime. Pro forma mailings to DBEs requesting bids are not alone sufficient to satisfy good faith efforts under the rule.

VI. A promise to use DBEs after contract award is not considered to be responsive to the contract solicitation or to constitute good faith efforts except in design-build procurement.

Credits

[[79 FR 59600](#), Oct. 2, 2014; [89 FR 24979](#), April 9, 2024]

SOURCE: [64 FR 5126](#), Feb. 2, 1999; [64 FR 34570](#), June 28, 1999; [76 FR 5096](#), Jan. 28, 2011; [85 FR 80647](#), Dec. 14, 2020; [89 FR 24963](#), April 9, 2024, unless otherwise noted.

AUTHORITY: [23 U.S.C. 304](#) and [324](#); [42 U.S.C. 2000d](#), et seq.; [49 U.S.C. 47113](#), [47123](#); Sec. 1101(b), [Pub.L. 114-94](#), [129 Stat. 1312](#), [1324](#) ([23 U.S.C. 101](#) note); Sec. 150, [Pub.L. 115-254](#), [132 Stat. 3215](#) ([23 U.S.C. 101](#) note); [Pub.L. 117-58](#), [135 Stat. 429](#) ([23 U.S.C. 101](#) note).

GREATER CLEVELAND REGIONAL TRANSIT AUTHORITY
Attachment A-7 Good Faith Efforts - Documentation Form

Name and Address of DBE Company	First and Last Name of Person Contacted		DBE Phone Number	DBE Email Address	Type of Work DBE Contacted to Perform	Yes	No	Reason(s) DBE Company Contacted Not Used

NOTE: Where the proposed level of DBE participation falls short of the goal established for the contract by GCRTA, prime contractors are required to demonstrate Good Faith Efforts (as defined by federal regulations) to meet the DBE participation goal and provide sufficient documentation of such efforts to GCRTA for its review and consideration. Please direct any questions concerning the DBE Program or completion of the Good Faith Efforts - Documentation Form (ATTACHMENT II) to the Office of Business Development (OBD) at 216 356-3128.

ATTACHMENT A-8 PAYMENT COMPLIANCE REPORT										Contract No. 2025-135	
The Prime Contractor is required to submit the Payment Compliance Report and its accompanying support documentation with the monthly RTA Invoice indicating the payments made to the Subcontractors for the designated time period. The completed Payment Compliance Report and supporting information will be forwarded to GCRTA, 1240 West 6th St., Cleveland OH 44113											
(1a) Invoice Number:							(1b) Report No.				
(1c) Reporting Period:			From:				To:				
CONTRACT INFORMATION											
(2) Contract No./Project No.				(3a) Contract Award Date						(3b) Scheduled Date of Completion	
(4) Original Contract Amount				(5) Title of Contract							
(6) DBE Goal for this contract				(7) Committed DBE Goal for this contract)							
PRIME CONTRACTOR INFORMATION											
(8a) Name						(8b) Address and Phone #					
		Change Order Summary									
(9) Total Dollar Amount & Dates of Modifications Change Orders to Date		Change Order #	Date	Amount		(10) Current Contract Amount					
		Total		\$0.00							
(11) Dollar Amount Paid to Date by GCRTA						(12) % of Contract Completed to Date					
SUBCONSULTANT PARTICIPATION											
(13) Name of Firm(s)		(14) Dollar Amount Paid to each Firm THIS PERIOD	(15) Total Subcontract Amount for each Firm in this contract	Total Invoices to Date	(16) Dollar Amount Paid to each Firm TO DATE	Retention to Date	Balance Due	(18) Amount of This Invoice allocated to the Subcontractor	(17) Functions Performed by the Firm		
SUBTOTAL DBE FIRMS		\$0	\$0	\$0	\$0	\$0	\$0	\$0			
SUBTOTAL NON-DBE & VETERAN FIRMS		\$0	\$0	\$0	\$0	\$0	\$0	\$0			
TOTAL		\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Title of Company Official			Date Report Completed			Signature, Name and Phone Number of Individual Completing Report					
Comments/Explanations - Please use the reverse side of this form or attach additional sheets											

ATTACHMENT B
NONDISCRIMINATION AFFIDAVIT

_____, being first duly sworn deposes and says:

1. That _____ is the (President or other authorized official of Company, or Partnership, a Corporation or Partnership organized and existing under and by virtue of the laws of the State of _____ (hereinafter "Contractor").

2. That Contractor does not and will not discriminate in its employment practices because of race, religion, gender, color, national origin, age, or disability.

3. That Contractor further understands this contract, purchase order or agreement is subject to the Urban Mass Transportation Act of 1964, as amended (49 U.S.C. 1601, et seq.) and shall be subject to all rules and/or regulations issued pursuant thereto regarding nondiscrimination in federally assisted programs of the United States Department of Transportation.

4. That Contractor agrees to be bound and, for contracts funded in whole or in part with federal funding, further agrees to bind its subcontractors to the obligations imposed by said act, executive ordinance and policy, as well as the terms of this Affidavit.

5. That Contractor agrees that during the performance of any contract resulting from this bid/proposal:

a. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, age, or disability. Such action shall include, but not be limited to the following: employment, upgrading, demotion, transfer, recruitment, rates of pay or other forms of compensation; and selection for training, including apprenticeships. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by GCRTA setting forth the provisions of this nondiscrimination clause.

b. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, age, or disability.

c. The Contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.

BY: _____

ITS: _____

State of _____

County of _____

Sworn to and subscribed in my presence this _____ day of _____, 20____.

(Notary Seal)

Signature of Notary

My commission expires: _____ (date)

**ATTACHMENT C
DELINQUENT TAX CERTIFICATION**

_____, hereby affirms under oath, the following:

- 1) Pursuant to Ohio Revised Code Section 5719.042, that at the time the Bid was submitted, my company ***was not*** charged with delinquent Personal property taxes on the General Tax List of Personal Property for Cuyahoga County, Ohio. If such charge for delinquent personal property tax exists on the General Tax List of Personal Property for Cuyahoga, County, Ohio.
- 2) My company does not have any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

By: _____

Title: _____

Subscribed in my presence and sworn to before me this _____ day of _____, _____.

Notary Public

ATTACHMENT D

CERTIFICATION REGARDING DEBARMENT

1. The undersigned Bidder ("Attester") certifies, to the best of its knowledge and belief that:
 - a) The Attester and/or any of its principals or subcontractors:
 - i) Are not presently debarred, suspended, proposed for debarment, or declared ineligible for award of contracts by any federal agency.
 - ii) Have not within a three-year period preceding this offer, been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, state, or local) contract or subcontract; violation of federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property; and
 - iii) Are not presently indicted for, or otherwise criminally or civilly charged by a governmental entity with commission of any of the offenses enumerated in Paragraph 2 above.
 - iv) Was not convicted of any felony criminal violation under any Federal law within the preceding 24 months.
 - v) The Attester has not, within a three-year period preceding this offer, had one or more contracts terminated for default by any federal agency.
2. "Principals," for the purposes of this certification, means officers, directors, owners, partners, and persons having primary management or supervisory responsibilities within a business entity (e.g., general manager, plant manager, head of a subsidiary, division, or business segment, and similar positions).
 - a) This certification concerns a matter which may be within the jurisdiction of an agency of the United States and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Section 1001, Title 18, United States Code.
3. The Attester shall provide immediate written notice to the Authority's Procurement Department if, at any time the Attester learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
4. A certification that any of the items listed herein exist will not necessarily result in withholding of an award under this solicitation. However, the certification will be considered in connection with a determination of the Attester's responsibility. Failure of the Attester to furnish a certification or provide such additional information as requested by the GCRTA may render the Attester non-responsible.
5. The certification herein is a material representation of fact upon which reliance was placed when making award. If it is later determined that the Attester knowingly rendered an erroneous certification, in addition to other remedies available, the Authority may terminate the contract resulting from this solicitation for default.

(IF THE ATTESTER IS UNABLE TO CERTIFY TO ANY OF THE STATEMENTS IN THIS CERTIFICATION, SUCH ATTESTER SHALL ATTACH AN EXPLANATION TO THIS CERTIFICATION.)

Signature and Title of Authorized Official

Company Name

ATTACHMENT E CERTIFICATION REGARDING PROCUREMENT INTEGRITY

I, _____ am the officer or employee
(Name of Certifier)

responsible for the preparation of this offer or proposal and hereby certify that, to the best of my knowledge and belief, with the exception of any information described in this certificate, I have no information concerning a violation or possible violation of 41 U.S.C. §2102, §2103, and §2105 et seq. occurring during the conduct of this procurement _____.
(Procurement Number)

As required by 41 U.S.C. §2104(a)(2), I further certify that each officer, employee, agent representative, and consultant of _____
(Name of Offeror)

who has participated personally and substantially in the preparation or submission of this offer, has certified that he or she is familiar with, and will comply with, the requirements of 41 U.S.C. §2102(a), as implemented in the FAR, and will report immediately to me any information concerning any violation or possible violation of the aforementioned statutes pertaining to this procurement.

Violations or possible violations: (Continue on plain paper if necessary and label Certificate of Procurement integrity Continuation Sheet. **Enter "NONE" if there are no violations.**)

Signature of the Officer/ Employee Responsible for the Proposal

Date

Type Name of the Officer or Employee for the Proposal

THIS CERTIFICATION CONCERNS A MATTER WITHIN THE JURISDICTION OF AN AGENCY OF THE UNITED STATES AND THE MAKING OF A FALSE, FICTITIOUS, OR FRAUDULENT CERTIFICATION MAY RENDER THE MAKER SUBJECT TO PROSECUTION UNDER TITLE 18, UNITED STATES CODE SECTION 1001.

ATTACHMENT F
CERTIFICATION REGARDING RESTRICTIONS ON LOBBYING
(To be Submitted with Each Proposal Exceeding \$100,000)

The undersigned hereby certifies on behalf of _____
 (Proposer)

that to the best of his/her knowledge and belief:

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for making lobbying contacts to an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit standard Form-LLL, "Disclosure Form to Report Lobbying", in accordance with its instructions [as amended] by "Government Wide Guidance for New Restrictions on Lobbying", "61 Fed. Reg. 1413 (1-19-16).
- (3) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers and that all sub-awardees shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance is placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31, U.S.C. §1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

[Note: Pursuant to 41 U.S.C. §1352(c) 1-(2)(A), any person who makes a prohibited expenditure or fails to file or amend a required certification or disclosure form shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such expenditure or failure.]

The Proposer, _____, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Proposer understands and agrees that the provisions of 31 U.S.C. A 3801, et seq., apply to this certification and disclosure, if any.

 Signature of Proposer's Authorized Official

 Date

 Printed Name and Title

**ATTACHMENT G-1
BUY AMERICA CERTIFICATE COMPLIANCE**

(For Bids in Excess of \$150,000.00)

The undersigned Bidder hereby certifies compliance with (1) Buy America (as defined in 49 CFR Part 661), (2) Fixing America's Surface Transportation Act ("FAST" Act) (as defined in 49 USC 5323), (3) Section 165(5) of the Surface Transportation Assistance Act of 1982, as amended, and to the extent consistent with 49 U.S.C. § 5323(j), and (4) Build America, Buy America Act (BABAA) requirements of the Infrastructure Investment and Jobs Act of 2021 (Pub. L. 117-58, §§ 70901-70953).

If the Bidder is not in compliance, then the Bidder certifies that it has received a waiver from the relevant authority.

Date _____

Project Name _____

Signature _____

Title _____

Company Name _____

Company Address _____

Contact Information _____

**ATTACHMENT G-2
BUY AMERICA CERTIFICATE NON-COMPLIANCE**

(For Bids in Excess of \$150,000.00)

The undersigned Bidder hereby certifies that it is non-compliant with (1) Buy America (as defined in 49 CFR Part 661), (2) Fixing America's Surface Transportation Act ("FAST" Act) (as defined in 49 USC 5323), (3) Section 165(5) of the Surface Transportation Assistance Act of 1982, as amended, and to the extent consistent with 49 U.S.C. § 5323(j), and/or (4) Build America, Buy America Act (BABAA) requirements of the Infrastructure Investment and Jobs Act of 2021 (Pub. L. 117-58, §§ 70901-70953).

The Bidder further certifies that it has not obtained a waiver for non-compliance.

Date _____

Project Name _____

Signature _____

Title _____

Company Name _____

Company Address _____

Contact Information _____