

Worcester Regional Transit Authority



Request for Proposals (RFP) # 2025-03

TO

Provide and Install a Computer-aided Dispatch (CAD)
and
Automatic Vehicle Location (AVL) System

PROPOSALS DUE:

February 7, 2025

2:00 p.m., EST

Joshua Rickman, Administrator
Worcester Regional Transit Authority
60 Foster Street
Worcester, MA 01608

CONTACT:

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(508) 453-3414
dperera@therta.com

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SECTION 1. INTRODUCTION

The Worcester Regional Transit Authority, herein referred to as “WRTA” is a political subdivision of the Commonwealth of Massachusetts. It is responsible for public transit services in thirty-seven (37) communities within the Central Massachusetts region. The WRTA was created pursuant to Massachusetts General Laws, Chapter 161B. The WRTA is required to comply with the mandates of the Americans with Disabilities Act (ADA) of 1990, as are the entities with which it contracts for transit services. In addition, the performance of this contract is subject to the requirements of Title VI of the Civil Rights Act of 1964 and all equal opportunity requirements.

The WRTA is issuing this *Request for Proposal (RFP)* to engage a qualified firm to provide, install and integrate a new **Computer-aided Dispatch and Automatic Vehicle Location System** for its fleet of Fixed Route, Shuttle, Demand Response vehicles.

The contract awarded under this RFP may be funded in whole or in part by the Federal Transit Administration (FTA). The successful proposer shall cooperate with WRTA to ensure the full conformance with its funding agreements with FTA. The successful Proposer shall comply with all terms and conditions prescribed for third party contracts by the FTA, if applicable.

SECTION 2. INSTRUCTIONS TO PROPOSERS

2.1 RFP Schedule

The following is an anticipated RFP engagement schedule. The WRTA may change the estimated dates and process as deemed necessary.

The proposed schedule for submittal, reviews, and notification is as follows:

Activity	Date
Release & Advertise RFP	December 19, 2024
Pre-Proposal Meeting	January 13, 2025
Deadline for Questions/Clarifications	January 15, 2025
Response to Questions/Clarifications	January 17, 2025
Deadline for Issuance of Updates and Addenda	January 17, 2025
Proposals Due	February 07, 2025
Short-listed Vendor Interviews (if necessary)	February 27, 2025
Issue Best and Final Offer (BAFO) request(s)	March 04, 2025
BAFO Responses Received	March 11, 2025
Approximate Conditional Award Date	March 18, 2025

2.2 Proposal Preparation & Submission

- Offeror Information – Proposal shall include the fully completed *Prospective Proposer Fact Sheet* form included in Exhibit A of this RFP.

- Non-Collusion Declaration – Proposal shall include the fully completed and signed *Non-Collusion Declaration* included in Exhibit B of this RFP.
- Certification as to Payment of State Taxes – Proposal shall include the fully completed and signed *Certification as to Payment of State Taxes* included in Exhibit C of this RFP.
- Customer References – Proposal shall include the *Customer References* form included in Exhibit D of this RFP. **Please be certain to list contact names and phone numbers that are accurate and current.**
- Government-Wide Debarment and Suspension Certification – Proposal shall include the fully completed and signed *Government-Wide Debarment and Suspension Certification* form included in Exhibit E of this RFP.
- Lobbying Certification – Proposal shall include the fully completed and signed *Lobbying Certification* included in Exhibit F of this RFP.
- Buy America Certification – Proposal shall include the fully completed and signed *Buy America Certification* included in Exhibit G of this RFP.
- Non-Compliance – Proposer shall include a fully completed *Non-Compliance* form included as Exhibit K of this RFP.
- Cost Proposal – Proposal shall include the fully completed *Cost Proposal* form included as Exhibit L of this RFP.

2.3 Proposer-Prepared Documents

To facilitate the WRTA’s objective review of the proposals from different Firms, the Firms are requested to organize the document using a standardized format. Each RFP response should contain the following:

Statement of Qualifications – A submittal indicating the capability of the offeror to perform the attached *Scope of Work* is required. It shall include the information and be formatted as follows:

- Cover Letter. Letter on company letterhead shall be signed by an officer authorized to bind the offeror contractually and shall address the below matters.
 - Proposer’s interest and willingness to enter into a contract with WRTA to perform the work as described in the *Scope of Work*; and proposer’s commitment to the effect that it would exert its “best efforts” in fulfilling its responsibilities therein.
 - Proposer’s ability and willingness to obtain insurance meeting the requirements indicated in section 6.7 of this document.
 - Statement indicating that proposals shall be valid for a 90-day period, commencing from the RFP due date and shall include the name, title, address,

email, and telephone number of the individual to whom correspondence and other contact should be directed to during the selection process.

- Firm Background. Proposer shall provide, at a minimum, the following information about the prime consultant or any subcontract firm or individuals on the team:
 - Firm name and business addresses, contact(s), including phone number and e-mail address;
 - Subconsultant firm(s) name and business addresses, contact(s), including phone number, and e-mail address;
 - Individual consultant name and business address, phone number, and e-mail address;
 - Year firm(s) was established (including former names and year established, if applicable); and
 - Firm type/ownership and parent company, if applicable;
 - Location of office from which work will be provided.

- Executive Summary. Proposer shall include a description of the hardware, software, system capabilities, and experience and capabilities of Firm.

- Proposer Experience. Proposer shall discuss its experience record including a list of transit properties where similar equipment that is being proposed has been installed by the proposer within the past **three (3) years**. The list must include the name, address, phone number, and email of the contract officer of the awarding entity.

- Technical information including a description of system capabilities and detailed specifications for the equipment being proposed.

- Any exceptions or deviations from the project requirements or specifications must be clearly indicated. A completed Non-Compliance form must be included as part of the submission (located in Exhibit K)

- A proposed project work plan including proposed schedule from notice to proceed for delivery, installation, system training, and testing.

- The required certifications and Federal Contract Clauses

- A bid bond as more fully described in section 2.10 of this document.

Cost Proposal – Proposers must complete and submit the Cost Proposal Form, attached to this RFP as Exhibit L. A Proposer's failure to submit a Cost Proposal form may result in rejection of the proposal as non-responsive.

2.4 Submittal Contents, Location, & Deadline

Contents: One (1) original, and five (5) physical copies of the proposal must be submitted in hard copy, and one (1) version of the proposal must be submitted in electronic format (Google Drive or Dropbox) in Adobe PDF to:

Worcester Regional Transit Authority
60 Foster Street
Worcester, MA 01608
Attention: Dinusha Perera, Manager of Grants and Procurements
Electronic Submission: email to: dperera@therta.com

Proposal must be sealed and clearly marked on the outside as follows: **“Computer-aided Dispatch and Automatic Vehicle Location System – RFP #2025-03.”**

Deadline - Proposals shall be submitted no later than 2:00 PM Eastern Standard Time (EST) on February 7, 2025. Proposals received after the date and time specified above will not be considered and will be returned to the submitter unopened. There will no public opening of submittals at the deadline or otherwise.

2.5 Withdrawal of Submittal

A proposer may withdraw a submittal any time prior to the submittal deadline by a submitting written request executed by the proposer’s authorized representative. Any such withdrawal does no prejudice the right to resubmit a submittal by the deadline.

2.6 Submittal Stipulations

Submittals submitted as a result of this solicitation become property of WRTA. WRTA will not pay any costs incurred by an offeror resulting from preparation or delivery of its submittal. Submittals will remain valid for 90 calendar days following submittal due date. WRTA reserves the following rights and will exercise such rights if it is in WRTA’s best interest to do so:

- The WRTA reserves the unqualified right, in its sole and absolute discretion, to undertake discussions with one or more Proposers or any third party, to waive any irregularities, to waive defects or noncompliance in the filing or contents of any Submission, and to proceed with that Submission, or elements of one or more Submissions, if any, which in its sole judgment will, under the circumstances, best serve the WRTA’s interest.
- The WRTA reserves the unqualified right to amend the terms of this RFP at any time, and to solicit and accept modifications to any Submission at any time when it is in the best interest of the WRTA to do so.
- The WRTA reserves the unqualified right, in its sole and absolute discretion, to choose or reject any Submission received in response to this RFP, either on the basis of an evaluation of the factors listed in this RFP or for other reasons, whether or not any Submission offers the highest monetary compensation to the WRTA or any other public entity.

- The WRTA reserves the unqualified right, in its sole and absolute discretion, to reject any and all Submissions or to suspend or abandon this RFP process at any time, with no recourse for any Proposer.
- The information contained in this RFP and in any subsequent addenda or related documents is provided as general information only. The WRTA makes no representations, warranties, or guarantees that the information contained herein is accurate or complete. The furnishing of such information by the WRTA shall not create or be deemed to create any obligation or liability upon it for any reasons whatsoever, and each recipient of the RFP, by presenting a submission to the WRTA, expressly agrees that it has not relied upon the foregoing information, and that it shall not hold the WRTA, or any third party who advised or prepared a report for the WRTA, liable or responsible therefore in any manner whatsoever.
- The WRTA may, at any time, request further information from any Proposer, interview any Proposers to more fully understand their responses to this RFP, and require any Proposer to arrange a site visit for its Evaluation Committee.
- The WRTA reserves the right, in its sole discretion, to develop the project on any schedule and use any chosen approach.
- Neither the expression of any Proposer's interest, nor the submission of any Proposer's qualifications and any documents or other information, nor the acceptance thereof by the WRTA, nor any correspondence, discussions, meetings or other communications between an Proposer and the WRTA, nor a determination by the WRTA that the Proposer is qualified hereunder, shall: (i) impose any obligation on the WRTA to include the Proposer in any such further procedures which the WRTA may utilize prior to the final selection of a Proposer, (ii) be deemed to impose any obligation whatsoever on the WRTA to select the Proposer, or to enter into negotiations with the Proposer, or (iii) entitle the Proposer's to any compensation or reimbursement for any costs or expenses incurred by the Proposer in connection with the Proposer's submission hereunder. No costs of responding to the RFP or any addenda thereto, nor of the attending any subsequent interviews or meetings in connection with this development opportunity, shall be reimbursed by the WRTA.
- The WRTA may consult with individuals familiar with each Proposer regarding the Proposer's prior operations and development or management projects, financial plan, past performance, experience and qualifications, or other matters, whether or not the specific individuals are identified in the RFP response. Submission of a Proposal in response to this RFP shall constitute permission for the WRTA to make such inquiries, and authorization to third parties to respond thereto.
- The individual responses to this RFP, including all drawings, plans, photos and narrative material shall become the property of the WRTA upon their receipt thereof. The WRTA will maintain the confidentiality of any material that is provided in response to this RFP and clearly marked "Confidential", to the maximum extent

possible, in a manner consistent with applicable law. Given the liberal nature of the Commonwealth's public records law, Proposers should nevertheless be aware that any information given to the WRTA in response to this RFP or any correspondence, discussion, meeting, or other communication between the Proposer and the WRTA before, with, or after the submission of the response, either orally or in writing, may not be, or may not be deemed to have been, proprietary or confidential.

- Neither the members of the WRTA nor any individual member, nor any officer, agent, or employee thereof shall be charged personally by a Proposer or any third party with any liability or held liable to it under neither any term or provision of this RFP nor any statement made herein.
- The WRTA reserves the unqualified right, in its sole and absolute discretion, to disqualify any team, firm, or individual from any phase or component of the selection process for this development opportunity, due to: (1) felonious or other criminal record in any jurisdiction (domestic or foreign); (2) a determination by the WRTA that the Proposer has failed to disclose any matter that materially relates to the fitness or ability of the Proposer to perform the work and services associated with this development opportunity, or a conflict of interest; or (3) a determination that such disqualification would serve the public interest.
- The WRTA reserves the unqualified right to: (1) disqualify any prospective Proposer or reject any response at any time solely on the grounds that a real or perceived legal or policy conflict of interest is presented; (2) require any prospective Proposer to take any action or supply any information necessary to remove the conflict, including without limitation, obtaining an opinion from the State Ethics Commission; or (3) terminate any contract arising out of this RFP if, in the opinion of the WRTA, any such relationship would constitute or have the potential to create a real or perceived conflict of interest.
- The WRTA reserves the unqualified right, in its sole and absolute discretion, to reject any subcontractor or individual working on a consultant team and to replace the subcontractor or individual with a mutually acceptable replacement.
- The WRTA reserves the unqualified right, in its sole and absolute discretion, to retain more than one firm and assign work based on needs of a particular project and the experience and qualifications of the firm.

2.7 Failure to Perform

WRTA may remove from mailing lists for future IFB's/RFQ's/RFP's, for an undetermined period of time, the name of any offeror for failure to accept a contract and/or unsatisfactory performance.

2.8 Pre-Proposal Meeting

A pre-proposal meeting will be held at the WRTA Administrative Office, 60 Foster Street., Worcester, MA 01608 on January 13, 2025 at 2:00 PM. All potential respondents to this RFP are encouraged to attend.

2.9 Questions / Clarifications

Questions or clarifications must be received by the WRTA in writing no later than January 15, 2025 at 5:00 PM. Email to Dinusha Perera dperera@therta.com is the preferred method.

2.10 Bid Bond

Proposers shall furnish a bid guaranty in the form of a bid bond, or certified treasurer's or cashier's check issued by a responsible financial institution, be issued by a fully qualified surety company acceptable to the WRTA and made payable to the WRTA. The amount of such guaranty shall be equal to five percent (5%) of the bid price. The bid guarantee is an assurance that the proposer will, upon acceptance of the proposal, execute such contractual documents as may be required within the time specified.

In submitting this bid, it is understood and agreed by proposer that the WRTA reserves the right is to reject any and all bids, or part of any bid, and it is agreed that the proposal may not be withdrawn for a period of ninety (90) days subsequent to the opening of bids, without the written consent of Recipient.

It is also understood and agreed that if the undersigned proposer should withdraw any part or all of its proposal within ninety (90) days after the proposal opening without the written consent of the WRTA, or refuse or be unable to enter into this contract, the proposer shall forfeit its bid guaranty to the extent of WRTA's damages occasioned by such withdrawal, or refusal, or inability to enter into an agreement, or provide adequate security thereof.

It is further understood and agreed that to the extent the defaulting proposer's bid guaranty shall prove inadequate to fully recompense WRTA for the damages occasioned by default, then the undersigned proposer agrees to indemnify the WRTA and pay over to the WRTA the difference between the bid guaranty and WRTA's total damages, so as to make the WRTA whole.

2.11 Performance Bond

A performance bond in the amount of one hundred percent (100%) of the contract value is required by the WRTA to secure fulfillment of all the contractor's obligations under the contract. Either a performance bond or an irrevocable Stand-by letter of credit, issued by a fully qualified surety company acceptable to the WRTA and made payable to the WRTA, shall be provided by the Contractor and shall remain in full force for the term of the contract.

The WRTA may require additional performance bond protection when a contract price is increased. The increase in protection shall generally equal 100 percent of the increase in contract price. The WRTA may secure additional protection by directing the Contractor to increase the penal amount of the existing bond or to obtain an additional bond.

2.12 Multiple Proposals

Only one proposal will be accepted from any one person, partnership, corporation or other entity.

2.13 Updates and Addenda

No one is authorized to amend any of these documents in any respect by an oral statement or to make any representation or interpretation in conflict with their provisions. Any changes to these documents will be issued in writing via Addendum by Dinusha Perera or her designee.

Proposers shall be responsible for continually checking the WRTA's website at www.therta.com for the most current information regarding this RFP. Current information may be in the form of an update or formal addendum. Updates and/or addenda will be posted on the above-mentioned website by January 17, 2025 at 5:00 p.m. EST.

2.14 Point of Contact

All questions regarding this RFP shall be directed in writing to Dinusha Perera who may be reached by email at dperera@therta.com. No other individual has the authority to respond to any questions submitted unless specifically authorized by Dinusha Perera. Failure to adhere to this process may disqualify the proposer.

2.15 Interpretation

Should any discrepancies or omissions be found in the RFP specifications / requirements, or doubt as to their meaning, the proposer shall notify the WRTA in writing at once (email is acceptable). The WRTA will post updates or addenda on its website (www.therta.com). The WRTA shall not be responsible for oral interpretations. All addenda issued shall be incorporated in the Contract.

2.16 Proprietary Information

All information appearing within the bid is subject to public inspection. Any proprietary information must be clearly marked as such and submitted in a separate sealed envelope. Reference sealed envelope within the body of the bid.

2.17 Exceptions and / or Deviations

No exceptions to or deviations from this specification will be considered, unless each exception or deviation is specifically stated by the proposer as an exception on the request form and accompanied by a detailed statement completely defining the exception and / or deviation. The manufacturer's name, product name or trade name, and catalog or part number must be shown on the RFP in the designated places; however, that information is not sufficient evidence that the proposer is making an exception. If no exception or deviation is shown, the offeror will be required to furnish the equipment exactly as specified herein. The burden of proof of compliance with this specification will be the responsibility of the offeror. The WRTA reserves the right to reject, as unresponsive, any bid not containing all information requested by the WRTA.

SECTION 3. EVALUATION

3.1 Responsiveness

WRTA shall examine the submittals for the purpose of ascertaining its completeness and responsiveness to the requirements of this solicitation. Such process may involve requesting additional or clarifying information from the proposer. Submittals that do not contain all required material, information, or forms; or where such materials, information, or forms are substantially incomplete, may be determined as non-responsive and rejected by WRTA. In such cases, WRTA shall notify the proposer in writing of its rejection and the basis thereof.

3.2 Evaluation Criteria

The evaluation of proposals will be based on the technical, management and cost evaluation criteria (listed in their order of importance) shown in the table below.

Evaluation Criteria	Factors Considered	Suggested Weight
Project understanding and ability to meet business and technical requirements	<ul style="list-style-type: none"> • Overall comprehension of project objectives • Understanding and compliance with business and functional requirements • System usability, expandability, maintainability and sustainability (life cycle) • Minimization of system customization • Minimization of risk by use of the most current, proven and available state-of-the-art technologies 	30%
Ability and approach to meet schedule and quality of training plan	<ul style="list-style-type: none"> • Proposed project management plan and project schedule; • Timeliness to complete installation • Overall quality of the proposed training program 	20%
Past performance, reputation and at least three (3) client references	<ul style="list-style-type: none"> • Stability of ownership and history of providing comparable software to comparable agencies • Experience and reputation of management and other key project staff • Breadth and depth of project experience with and past performance on similar projects • Overall installation and deployment experience • Results of client references related to similar projects 	20%
Key personnel qualifications and staff/technical support capacity	<ul style="list-style-type: none"> • Project management team • Personnel experience • Availability of key personnel 	15%
Price	<ul style="list-style-type: none"> • Comparative to similar systems/proposals for each element in the Price Proposal Form • Unit prices comparable to similar unit prices in the industry • Recurring/on-going costs • Maintenance and software upgrade fees • Life cycle costs 	15%

3.3 Interviews

As part of the evaluation process, WRTA may conduct interviews with the highest ranked proposer(s) within a competitive range (whichever is applicable). Such interviews are for information gathering and clarification for the Evaluation Committee. WRTA may conduct interviews in person or by Zoom. Any proposer requested to be interviewed shall make its best effort to be available during the interview dates listed in this solicitation. WRTA reserves the right to award a contract without interviews and/or negotiations if deemed unnecessary to determine the most qualified, responsible proposer.

3.4 Final Evaluation

If WRTA chooses to conduct interviews, the Evaluation Committee will conduct a final round of scoring that takes into consideration information gleaned from interviews. Based upon the final scores, WRTA will determine the highest ranked proposer.

3.5 Pre-Award Deliverables

Upon determination of the highest ranked proposer and prior to consideration of contract award, WRTA will request the following from the proposer:

- Insurance Certificate – A certificate of insurance showing the coverage types and dollar limits stipulated in Section 6.7 – Insurance Requirement of this RFP
- System for Award Management – A .pdf copy showing the proposer is registered and active from the U.S. government’s System for Award Management (SAM).

SECTION 4 CONTRACT AWARD

Upon prompt receipt of the Pre-Award Deliverables listed above, WRTA staff will prepare a recommendation for contract award to be considered by the WRTA Administrator.

If the award recommendation is approved, it is the intent of WRTA to execute the documents as soon as practical after such award. The contract will be composed of the *Agreement for Services*, the *Federal Transit Administration Contract Clauses*, the *Scope of Work*, any *Addenda* and the proposers’ submission(s).

SECTION 5 SCOPE OF WORK

5.1 Introduction

Please refer to Exhibit J, Computer-aided Dispatch (CAD) / Automatic Vehicle Location (AVL) System Specifications – Final for a general introduction of this project

5.2 Project Overview

Please refer to Exhibit J, Computer-aided Dispatch (CAD) / Automatic Vehicle Location (AVL) System Specifications – Final for the project overview

5.3 Information Technology Requirements

Please refer to Exhibit J, Computer-aided Dispatch (CAD) / Automatic Vehicle Location (AVL) System Specifications – Final for the information technology requirements of this project

5.4 Wireless Data Communication Requirements

Please refer to Exhibit J, Computer-aided Dispatch (CAD) / Automatic Vehicle Location (AVL) System Specifications – Final for the Wireless Data Communication Requirements.

5.5 ITS Functional Specifications

Please refer to Exhibit J, Computer-aided Dispatch (CAD) / Automatic Vehicle Location (AVL) System Specifications – Final for the ITS Functional Specifications

5.6 Other Requirements

Please refer to Exhibit J, Computer-aided Dispatch (CAD) / Automatic Vehicle Location (AVL) System Specifications – Final for Future Capabilities, Project Implementation, and Warranty and Spares requirements.

SECTION 6. STANDARD TERMS AND CONDITIONS

6.1 Invoicing

The WRTA will only pay by original invoice. The WRTA will not authorize and does not participate in funding payments to a contractor prior to the incurrence of costs. Progress payments may be authorized provided the following requirements are followed:

- Progress payments are only made to the contractor for costs incurred in the performance of the contract
- When progress payments are used, the WRTA must obtain title to property (materials, equipment, etc.) for which progress payments are made

The WRTA will consent to the following progress payment milestones for this project:

No	Milestone	Deliverable	Percent of Contract Payment
1	Requirements Review Approval	Agreed-to final baseline Requirements Matrix (documented and provided by the WRTA or WRTA’s Consultant)	10%
2	Design Reviews Approval	<ul style="list-style-type: none"> • Preliminary Design Document (PDD) • Draft Final Design Document (FDD) (after PDR meeting) • Critical Design Review (CDR) meeting • FDD after CDR meeting 	10%
3	Training Plan (TP), and Factory Acceptance Test (FAT) Procedures and Approval, and FAT Completion and Approval	<ul style="list-style-type: none"> • Training Plan (TP) • Acceptance Test Plan • FAT Test Procedures • FAT Test Results Documentation (TRD) • FAT Punchlist 	10%

No	Milestone	Deliverable	Percent of Contract Payment
4	Implementation Plan, Training Plan and Installation Design Document (IDD) Approval	<ul style="list-style-type: none"> • Implementation Plan • Training Plan • IDD 	10%
5	Pilot Test Procedures and Approval, and Pilot Test Completion and Approval	<ul style="list-style-type: none"> • Pilot Test Procedures • Pilot Test Results Documentation (TRD) • Pilot Punchlist 	10%
6	Fixed-route and Support Vehicle Kit Delivery	Fixed-route and Support Vehicle Kit Delivery	15%
7	Fixed-route and Support Vehicle Installations Completion (Needs Approval)	Fixed-route and Support Vehicle Installations Completion (Needs Approval)	10%
8	System Test Procedures and Approval, and System Test Completion and Approval	<ul style="list-style-type: none"> • System Test Procedures • System Test Results Documentation (TRD) • System Punchlist 	10%
9	30-Day Burn-In Test Completion and Approval, and Manuals	<ul style="list-style-type: none"> • Required punch list • Maintenance Manuals • User Manuals • Vehicle Operator Manuals • Systems Manuals 	5%
10	Final System Acceptance	Final Requirements Matrix (provided by Tri-Valley Transit) showing all requirements met	Release of Retainage (10%)

All milestones require the approval or involvement of the WRTA, so the Contractor shall only issue an invoice for the relevant milestone after the WRTA actively undergoes the applicable testing and implementation process and approves the milestone. All invoices must be preceded by execution of a milestone Acceptance Certificate. The milestone Acceptance Certificate must be signed by the authorized transit provider staff member at the WRTA, the Contractor Project Manager and the third-party consultant overseeing the implementation for the WRTA, if utilized. Payment will not be made without an invoice and a fully executed milestone Acceptance Certificate. The WRTA will make payment to the Contractor within thirty (30)

days from the date of the invoice received from the Contractor for each milestone payment. **Each invoice shall be accompanied by a Progress Report updated as of the date of the invoice, the current System Implementation Plan and the current AIL.**

6.2 Controlling Law

The Contract shall be governed and construed in accordance with the laws of the Commonwealth of Massachusetts and proper venue for legal action regarding the Contract shall be a court of competent jurisdiction within the State in which the WRTA is located.

6.3 Taxes, Charges and Extras

The WRTA is exempt from all federal excise taxes, including tax on transportation and Massachusetts's sales tax. Price(s) quoted to the WRTA shall not include said taxes. Upon request the WRTA will furnish the Contractor with a tax exemption certificate.

No charge for delivery, drayage, express, parcel post, packing, cartage, insurance, license fees, permits, cost of bonds, or for any other purpose will be paid by the WRTA unless expressly included and itemized in the bid.

6.4 Alteration or Variation of Terms

It is mutually understood and agreed that no alteration or variation of the terms of this RFP or subsequent task order shall be valid unless made or confirmed in writing and signed by the parties hereto, and that no oral understanding or agreements not incorporated herein, and no alterations or variations of the terms hereof unless made or confirmed in writing between the parties hereto shall be binding on any of the parties hereto.

6.5 Assignability

A contract is not assignable by Proposer either in whole or in part.

6.6 Compliance with Statute

Proposer hereby warrants that all applicable Federal and State statutes and regulations or local ordinances will be complied with in connection with the sale and delivery of the property furnished.

6.7 Insurance Requirements

By signing its proposal, Proposer acknowledges that upon contract award Proposer shall obtain and maintain in full force and effect during the term of the Agreement the insurance coverage in companies licensed to do business in the Commonwealth of Massachusetts, and acceptable to WRTA, as set forth below:

General Liability

Bodily Injury Liability	\$1,000,000 per occurrence
Property Damage Liability	\$500,000 per occurrence
(or combined single limit)	\$1,000,000 per occurrence

Automobile Liability

Bodily Injury Liability	\$1,000,000 per occurrence
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Property Damage Liability	\$500,000 per occurrence
(or combined single limit)	\$1,000,000 per occurrence

Workers' Compensation Insurance

Coverage for all employees in accordance with Massachusetts General Laws

Professional Liability Insurance

Minimum Coverage \$1,000,000 per occurrence

Cyber Liability Insurance

Minimum Coverage \$1,000,000 per occurrence

Umbrella Liability Insurance

\$1,000,000 per occurrence

All policies shall identify the WRTA as an additional insured (except Workers' Compensation) and shall provide that the WRTA shall receive written notification at least 30 days prior to the effective date of any amendment or cancellation. Certificates shall include a Waiver of Subrogation on behalf of the WRTA on all lines of coverage. Insured's coverage shall be primary and noncontributory. Certificates evidencing all such coverages shall be provided to the WRTA upon the execution of the Agreement. Each such certificate shall specifically refer to the Agreement and shall state that such insurance is as required by the Agreement. Failure to provide or to continue in force such insurance shall be deemed a material breach of the Agreement and shall be grounds for immediate termination.

6.8 Warranty

Proposer warrants to WRTA that the goods and / or services covered by this order will conform to the drawings, specifications, samples, descriptions and time provisions furnished by WRTA and will be of first-class material and workmanship and free from defects; and WRTA reserves the right to cancel the unfilled portion of this order without liability to Proposer for breach of this warranty. Goods will be received subject to inspection and acceptance at destination by WRTA; risk of loss before acceptance shall be on Proposer. Defective goods rejected by WRTA may without prejudice to any other legal remedy be held at Proposer's risk and returned to Proposer at Proposer's expense. Defects are not waived by acceptance of goods or by failure to notify Proposer thereof.

6.9 Federal Contract Clauses

The goods and / or services covered by this RFP are being funded in part with funds from the U.S. Department of Transportation, Federal Transit Administration, and the Commonwealth of Massachusetts Department of Transportation. By submitting a proposal, the proposer agrees to comply with the clauses found in EXHIBIT H – Federal Contract Clauses.

6.10 Davis-Bacon

The goods and / or services covered by this RFP are not subject to Davis-Bacon and related acts compliance.

6.11 Rights and Remedies of WRTA for Default

In the event any item furnished by the Proposer in the performance of the contract should fail to conform to specifications therefore, or to the sample submitted by the Proposer with his bid, the WRTA may reject the same, and it shall thereupon become the duty of the Proposer to reclaim and remove the same, without expense to the WRTA, and immediately to replace all such rejected items with others conforming to such specifications or samples; providing that should the Proposer fail, neglect or refuse so to do the WRTA shall have the right to purchase on the open market, in lieu thereof, a corresponding quantity of any such items and to deduct from any moneys due or that may thereafter become due to the Proposer the difference between the prices named in the contract or Task order and make the actual cost thereof to the WRTA. In the event the Proposer shall fail to make prompt delivery as specified of any item, the same conditions as to the rights of the WRTA to purchase in the open market and to reimbursement set forth above shall apply, except when delivery is delayed by fire, strike, freight embargo, or Act of God or the government. Cost of delivery of an item which does not meet specifications, will be the responsibility of the Proposer. The rights and remedies of the WRTA provided above shall not be exclusive and are in addition to any other rights and remedies provided by the law or under the contract.

6.12 Severability

Should any part of the Contract be held to be invalid, illegal, or unenforceable in any respect, such invalidity, illegality, or unenforceability shall not affect the validity of the remainder of the Contract which shall continue in full force and effect; provided that the remainder of the Contract can, absent the excised portion, be reasonably interpreted to give the effect to the intentions of the parties.

6.13 Limitation on Funding

The Contract for services resulting from this RFP will be subject to the contract between the WRTA and the availability of on-going funds from the WRTA's funding sources. The Contract for this service is contingent upon receipt of these funds by the WRTA. In the event that funding from these sources is eliminated or decreased, the WRTA reserves the right to terminate the Contract or modify it accordingly.

6.14 Evaluation Results

Evaluation results are available for inspection at the office of the WRTA located at:
60 Foster Street
Worcester, MA 01608

6.15 DBE Objective / Policy Statement

The Worcester Regional Transit Authority (WRTA) has established a Disadvantaged Business Enterprise (DBE) Program in accordance with regulations of the U.S. Department of Transportation (DOT), 49 CFR § 26. The WRTA has received Federal financial assistance from the DOT and as a condition of receiving this assistance, the WRTA has signed an assurance that it will comply with 49 CFR § 26.

It is the policy of the WRTA to ensure that all contracts and procurements will be administered without discrimination on the basis of race, color, national origin, or sex. The WRTA ensures

that Disadvantaged Business Enterprises (DBEs) shall have an equal opportunity to compete for and participate in DOT-assisted contracts. It is also our policy to:

1. To create a level playing field on which DBEs can compete fairly for DOT-assisted contracts;
2. To ensure that the DBE program is narrowly tailored in accordance with applicable law;
3. To ensure that only firms that fully meet 49 CFR § 26 eligibility standards are permitted to participate as DBEs;
4. To help remove barriers to the participation of DBEs in DOT-assisted contracts;
5. To assist the development of firms that can compete successfully in the marketplace outside the DBE program.

The Grants and Procurement Manager has been designated as the DBE Liaison Officer (DBELO). The DBELO has direct, independent access to the Chief Executive Officer (Administrator) concerning DBE program matters. The DBELO is responsible for implementing all aspects of the WRTA DBE Program. The WRTA has adequate staff, (including procurement, finance, etc.), to administer the program in compliance with 49 CFR § 26.

WRTA has circulated this Policy Statement to its Advisory Board, throughout our organization, and to the DBE and non-DBE business communities that perform work on our DOT-assisted contracts. Distribution has been accomplished via our website www.therta.com, inclusion with procurement documents, and through outreach to community organizations.

6.16 Bid Protest Procedures

WRTA has established procurement protest procedures to ensure uniform, timely, and fair consideration of complaints received by WRTA concerning its procurement activities. Such procedures are found in EXHIBIT I - Protest Procedures.

EXHIBIT A
PROSPECTIVE PROPOSER FACT SHEET

Name of Contractor: _____

Contractor Tax ID#: ____ - _____

Contractor's License #: _____ Type: _____ (as applicable)

Contractor Does Business As: Individual Partnership Corporation
 Government Fiduciary Other _____

Contractor is a: Resident Non-Resident of Massachusetts

- 1) Are you or your firm authorized to business in Massachusetts? Yes No
- 2) Are you or your firm a certified DBE? Yes No
- 3) Is this a local business? Yes No
- 4) This firm has been in continuous business under the present name for ____ years.

- End Exhibit A -

EXHIBIT C

CERTIFICATION AS TO PAYMENT OF STATE TAXES

Pursuant to Chapter 62C of the Massachusetts General Laws, Section 49A(b), I,

_____, authorized signatory for the CONTRACTOR does hereby certify under the pains and penalties of perjury that said CONTRACTOR has complied with all laws of the Commonwealth of Massachusetts relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

Social Security Number or
Federal Identification Number

Signature of Individual or
Corporate Name

By:
Corporate Officer
(if applicable)

- End Exhibit C -

EXHIBIT D

CUSTOMER REFERENCES

List and submit with this RFP three (3) customer references, preferably within the Commonwealth of Massachusetts, for whom the Proposer has furnished a similar service.

1. COMPANY NAME: _____

CONTACT PERSON: _____

TELEPHONE NUMBER: _____

EMAIL ADDRESS: _____

COMPANY ADDRESS: _____

2. COMPANY NAME: _____

CONTACT PERSON: _____

TELEPHONE NUMBER: _____

EMAIL ADDRESS: _____

COMPANY ADDRESS: _____

3. COMPANY NAME: _____

CONTACT PERSON: _____

TELEPHONE NUMBER: _____

EMAIL ADDRESS: _____

COMPANY ADDRESS: _____

- End Exhibit D -

EXHIBIT E

WORCESTER REGIONAL TRANSIT AUTHORITY

60 Foster Street, Worcester, MA 01608
Phone: (508) 791-2389 Fax: (508) 752-1676

GOVERNMENT-WIDE DEBARMENT AND SUSPENSION

Applies to All Contracts >\$25,000

2 C.F.R. part 180

2 C.F.R part 1200

2 C.F.R. § 200.213

2 C.F.R. part 200 Appendix II (I)

Executive Order 12549

Executive Order 12689

Debarment, Suspension, Ineligibility and Voluntary Exclusion

The Contractor shall comply and facilitate compliance with U.S. DOT regulations, "Nonprocurement Suspension and Debarment," 2 C.F.R. part 1200, which adopts and supplements the U.S. Office of Management and Budget (U.S. OMB) "Guidelines to Agencies on Governmentwide Debarment and Suspension (Nonprocurement)," 2 C.F.R. part 180. These provisions apply to each contract at any tier of \$25,000 or more, and to each contract at any tier for a federally required audit (irrespective of the contract amount), and to each contract at any tier that must be approved by an FTA official irrespective of the contract amount. As such, the Contractor shall verify that its principals, affiliates, and subcontractors are eligible to participate in this federally funded contract and are not presently declared by any Federal department or agency to be:

- a) Debarred from participation in any federally assisted Award;
- b) Suspended from participation in any federally assisted Award;
- c) Proposed for debarment from participation in any federally assisted Award;
- d) Declared ineligible to participate in any federally assisted Award;
- e) Voluntarily excluded from participation in any federally assisted Award; or
- f) Disqualified from participation in any federally assisted Award.

By signing and submitting its bid or proposal, the bidder or proposer certifies as follows:

The certification in this clause is a material representation of fact relied upon by the WRTA. If it is later determined by the WRTA that the bidder or proposer knowingly rendered an erroneous certification, in addition to remedies available to the WRTA, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment. The bidder or proposer agrees to comply with the requirements of 2 C.F.R. part 180, subpart C, as supplemented by 2 C.F.R. part 1200, while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

_____ Signature of Contractor's Authorized Official

_____ Name and Title of Contractor's Authorized Official

_____ Date

- End Exhibit E -

EXHIBIT F

WORCESTER REGIONAL TRANSIT AUTHORITY

60 Foster Street, Worcester, MA 01608
Phone: (508) 791-2389 Fax: (508) 752-1676

LOBBYING RESTRICTIONS

Applies to All Contracts >\$100,000

31 U.S.C. § 1352

2 C.F.R. § 200.450

2 C.F.R. part 200 appendix II (J)

49 C.F.R. part 20

Lobbying Restrictions

The undersigned certifies, to the best of his or her knowledge and belief, that:

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 an 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 influencing or attempting to influence an officer or employee of WRTA, 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.
3. The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all subcontractors shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was 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 section 1352, title 31, U.S. Code. 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.

_____ Signature of Contractor's Authorized Official

_____ Name and Title of Contractor's Authorized Official

_____ Date

- End Exhibit F -

EXHIBIT G

WORCESTER REGIONAL TRANSIT AUTHORITY

60 Foster Street, Worcester, MA 01608
Phone: (508) 791-2389 Fax: (508) 752-1676

BUY AMERICA REQUIREMENTS

Applies to Contracts >\$150,000

49 U.S.C. 5323(j)

49 C.F.R. part 661

Buy America

The contractor agrees to comply with 49 U.S.C. 5323(j) and 49 C.F.R. part 661, which provide that Federal funds may not be obligated unless all steel, iron, and manufactured products used in FTA funded projects are produced in the United States, unless a waiver has been granted by FTA or the product is subject to a general waiver. General waivers are listed in 49 C.F.R. § 661.7. Separate requirements for rolling stock are set out at 49 U.S.C. 5323(j)(2)(C) and 49 C.F.R. § 661.11.

The [bidder or offeror] must submit to [WRTA] the appropriate Buy America certification below with its [bid or offer]. Bids or offers that are not accompanied by a completed Buy America certification will be rejected as nonresponsive.

In accordance with 49 C.F.R. § 661.6, for the procurement of steel, iron or manufactured products, use the certifications below.

Certificate of Compliance with Buy America Requirements

The bidder or offeror hereby certifies that it will comply with the requirements of 49 U.S.C. 5323(j)(1), and the applicable regulations in 49 C.F.R. part 661.

Blank lines for Date, Signature, Company, Name, and Title.

Certificate of Non-Compliance with Buy America Requirements

The bidder or offeror hereby certifies that it cannot comply with the requirements of 49 U.S.C. 5323(j), but it may qualify for an exception to the requirement pursuant to 49 U.S.C. 5323(j)(2), as amended, and the applicable regulations in 49 C.F.R. § 661.7.

Blank lines for Date and Signature.

_____ Company
_____ Name
_____ Title

In accordance with 49 C.F.R. § 661.12, for the procurement of rolling stock (including train control, communication, and traction power equipment) use the following certifications :

Certificate of Compliance with Buy America Rolling Stock Requirements

The bidder or offeror hereby certifies that it will comply with the requirements of 49 U.S.C. 5323(j), and the applicable regulations of 49 C.F.R. § 661.11.

_____ Date
_____ Signature
_____ Company
_____ Name
_____ Title

Certificate of Non-Compliance with Buy America Rolling Stock Requirements

The bidder or offeror hereby certifies that it cannot comply with the requirements of 49 U.S.C. 5323(j), but may qualify for an exception to the requirement consistent with 49 U.S.C. 5323(j)(2)(C), and the applicable regulations in 49 C.F.R. § 661.7.

_____ Date
_____ Signature
_____ Company
_____ Name
_____ Title

- End Exhibit G -

EXHIBIT H
FEDERAL CONTRACT CLAUSES

Federally Required and Other Model Contract Clauses
Applicability of Third Party Contract Clauses – Materials & Supplies > \$100,000
(Excluding micro-purchases, and exceptions as noted within each clause)

1. NO GOVERNMENT OBLIGATIONS TO THIRD PARTIES
2. PROGRAM FRAUD AND FALSE OR FRAUDULENT STATEMENTS AND RELATED ACTS
3. ACCESS TO RECORDS AND REPORTS
4. CHANGES TO FEDERAL REQUIREMENTS
5. CIVIL RIGHTS LAWS AND REGULATIONS
6. INCORPORATION OF FTA TERMS
7. ENERGY CONSERVATION
8. TERMINATION
9. GOVERNMENT-WIDE DEBARMENT AND SUSPENSION
10. BUY AMERICA REQUIREMENTS
11. VIOLATION AND BREACH OF CONTRACT
12. LOBBYING RESTRICTIONS
13. CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT
14. CARGO PREFERENCE REQUIREMENTS
15. FLY AMERICA
16. DISADVANTAGED BUSINESS ENTERPRISE (DBE)
- 16d. PROMPT PAYMENT
17. RECYCLED PRODUCTS
18. PROHIBITION ON CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT
19. NOTICE TO FTA AND U.S. DOT INSPECTOR GENERAL OF INFORMATION RELATED TO FRAUD, WASTE, ABUSE, OR OTHER LEGAL MATTERS
20. SAFE OPERATION OF MOTOR VEHICLES
21. AMERICANS WITH DISABILITIES ACT (ADA) ACCESS
22. CONFORMANCE WITH ITS NATIONAL INFRASTRUCTURE

1. NO GOVERNMENT OBLIGATION TO THIRD PARTIES - *Applies to All Contracts*

The WRTA and Contractor acknowledge and agree that, notwithstanding any concurrence by the Federal Government in or approval of the solicitation or award of the underlying Contract, absent the express written consent by the Federal Government, the Federal Government is not a party to this Contract and shall not be subject to any obligations or liabilities to the WRTA, Contractor or any other party (whether or not a party to that contract) pertaining to any matter resulting from the underlying Contract. The Contractor agrees to include the above clause in each subcontract financed in whole or in part with Federal assistance provided by the FTA. It is further agreed that the clause shall not be modified, except to identify the subcontractor who will be subject to its provisions.

2. PROGRAM FRAUD AND FALSE OR FRAUDULENT STATEMENTS AND RELATED ACTS

Applies to All Procurements

49 U.S.C. § 5323(l) (1)

31 U.S.C. §§ 3801-3812

18 U.S.C. § 1001

49 C.F.R. part 31

The Contractor acknowledges that the provisions of the Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. § 3801 et seq. and U.S. DOT regulations, "Program Fraud Civil Remedies," 49 C.F.R. part 31, apply to its actions pertaining to this Project. Upon execution of the underlying contract, the Contractor certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, it may make, or causes to be made, pertaining to the underlying contract or the FTA assisted project for which this contract work is being performed. In addition to other penalties that

may be applicable, the Contractor further acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification, the Federal Government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986 on the Contractor to the extent the Federal Government deems appropriate.

The Contractor also acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification to the Federal Government under a contract connected with a project that is financed in whole or in part with Federal assistance originally awarded by FTA under the authority of 49 U.S.C. chapter 53, the Government reserves the right to impose the penalties of 18 U.S.C. § 1001 and 49 U.S.C. § 5323(l) on the Contractor, to the extent the Federal Government deems appropriate.

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

3. ACCESS TO RECORDS AND REPORTS - *Applies to All Procurement Types*

49 U.S.C. § 5325(g)

2 C.F.R. § 200.333

49 C.F.R. part 633

a. Record Retention. The Contractor will retain, and will require its subcontractors of all tiers to retain, complete and readily accessible records related in whole or in part to the contract, including, but not limited to, data, documents, reports, statistics, sub-agreements, leases, subcontracts, arrangements, other third party agreements of any type, and supporting materials related to those records.

b. Retention Period. The Contractor agrees to comply with the record retention requirements in accordance with 2 C.F.R. § 200.333. The Contractor shall maintain all books, records, accounts and reports required under this Contract for a period of at not less than three (3) years after the date of termination or expiration of this Contract, except in the event of litigation or settlement of claims arising from the performance of this Contract, in which case records shall be maintained until the disposition of all such litigation, appeals, claims or exceptions related thereto.

c. Access to Records. The Contractor agrees to provide sufficient access to FTA and its contractors to inspect and audit records and information related to performance of this contract as reasonably may be required.

d. Access to the Sites of Performance. The Contractor agrees to permit FTA and its contractors' access to the sites of performance under this contract as reasonably may be required.

4. FEDERAL CHANGES – *Applies to all Contracts*

49 CFR Part 18

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

5. CIVIL RIGHTS LAWS AND REGULATIONS – *Applies to All Procurement Types*

Civil Rights and Equal Opportunity – The WRTA is an Equal Opportunity Employer. As such, the WRTA agrees to comply with all applicable Federal civil rights laws and implementing regulations. Apart from inconsistent requirements imposed by Federal laws or regulations, the WRTA agrees to comply with the requirements of 49 U.S.C. § 5323(h) (3) by not using any Federal assistance awarded by FTA to support procurements using exclusionary or discriminatory specifications.

Under this Agreement, the Contractor shall at all times comply with the following requirements and shall include these requirements in each subcontract entered into as part thereof.

1. Nondiscrimination. In accordance with Federal transit law at 49 U.S.C. § 5332, the Contractor agrees that it will not discriminate against any employee or applicant for employment because of race, color, religion, national origin, sex, disability, or age. In addition, the Contractor agrees to comply with applicable Federal implementing regulations and other implementing requirements FTA may issue.

2. Race, Color, Religion, National Origin, Sex. In accordance with Title VII of the Civil Rights Act, as amended, 42 U.S.C. § 2000e et seq., and Federal transit laws at 49 U.S.C. § 5332, the Contractor agrees to comply with all applicable

equal employment opportunity requirements of U.S. Department of Labor (U.S. DOL) regulations, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor," 41 C.F.R. chapter 60, and Executive Order No. 11246, "Equal Employment Opportunity in Federal Employment," September 24, 1965, 42 U.S.C. § 2000e note, as amended by any later Executive Order that amends or supersedes it, referenced in 42 U.S.C. § 2000e note. The Contractor agrees to take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, national origin, or sex (including sexual orientation and gender identity). Such action shall include, but not be limited to, the following: employment, promotion, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

3. **Age.** In accordance with the Age Discrimination in Employment Act, 29 U.S.C. §§ 621- 634, U.S. Equal Employment Opportunity Commission (U.S. EEOC) regulations, "Age Discrimination in Employment Act," 29 C.F.R. part 1625, the Age Discrimination Act of 1975, as amended, 42 U.S.C. § 6101 et seq., U.S. Health and Human Services regulations, "Nondiscrimination on the Basis of Age in Programs or Activities Receiving Federal Financial Assistance," 45 C.F.R. part 90, and Federal transit law at 49 U.S.C. § 5332, the Contractor agrees to refrain from discrimination against present and prospective employees for reason of age. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

4. **Disabilities.** In accordance with section 504 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. § 794, the Americans with Disabilities Act of 1990, as amended, 42 U.S.C. § 12101 et seq., the Architectural Barriers Act of 1968, as amended, 42 U.S.C. § 4151 et seq., and Federal transit law at 49 U.S.C. § 5332, the Contractor agrees that it will not discriminate against individuals on the basis of disability. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

6. INCORPORATION OF FEDERAL TRANSIT ADMINISTRATION (FTA) TERMS – *Applies to all Contracts*

The preceding provisions include, in part, certain Standard Terms and Conditions required by DOT, whether or not expressly set forth in the preceding contract provisions. All contractual provisions required by DOT, as set forth in FTA Circular 4220.1F are hereby incorporated by reference. Anything to the contrary herein notwithstanding, all FTA mandated terms shall be deemed to control in the event of a conflict with other provisions contained in this Agreement. The Contractor shall not perform any act, fail to perform any act, or refuse to comply with any the WRTA requests which would cause the WRTA to be in violation of the FTA terms and conditions.

7. ENERGY CONSERVATION – *Applies to All Procurements*

42 U.S.C. 6321 et seq.

49 C.F.R. part 622, subpart C

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

8. TERMINATION – *Applies to all contracts >\$10,000 if 49 CFR part 18 applies*

2 C.F.R. § 200.339

2 C.F.R. part 200, Appendix II (B)

Termination for Convenience (General Provision)

The WRTA may terminate this contract, in whole or in part, at any time by written notice to the Contractor when it is in the WRTA's best interest. The Contractor shall be paid its costs, including contract close-out costs, and profit on work performed up to the time of termination. The Contractor shall promptly submit its termination claim to WRTA to be paid the Contractor. If the Contractor has any property in its possession belonging to WRTA, the Contractor will account for the same, and dispose of it in the manner WRTA directs.

Termination for Default [Breach or Cause] (General Provision)

If the Contractor does not deliver supplies in accordance with the contract delivery schedule, or if the contract is for services, the Contractor fails to perform in the manner called for in the contract, or if the Contractor fails to comply with any other provisions of the contract, the WRTA may terminate this contract for default. Termination shall be effected by serving a Notice of Termination on the Contractor setting forth the manner in which the Contractor is in default. The

Contractor will be paid only the contract price for supplies delivered and accepted, or services performed in accordance with the manner of performance set forth in the contract.

If it is later determined by the WRTA that the Contractor had an excusable reason for not performing, such as a strike, fire, or flood, events which are not the fault of or are beyond the control of the Contractor, the WRTA, after setting up a new delivery of performance schedule, may allow the Contractor to continue work, or treat the termination as a Termination for Convenience.

Opportunity to Cure (General Provision)

The WRTA, in its sole discretion may, in the case of a termination for breach or default, allow the Contractor [an appropriately short period of time] in which to cure the defect. In such case, the Notice of Termination will state the time period in which cure is permitted and other appropriate conditions

If Contractor fails to remedy to WRTA's satisfaction the breach or default of any of the terms, covenants, or conditions of this Contract within [10 days] after receipt by Contractor of written notice from WRTA setting forth the nature of said breach or default, WRTA shall have the right to terminate the contract without any further obligation to Contractor. Any such termination for default shall not in any way operate to preclude WRTA from also pursuing all available remedies against Contractor and its sureties for said breach or default.

Waiver of Remedies for any Breach

In the event that WRTA elects to waive its remedies for any breach by Contractor of any covenant, term or condition of this contract, such waiver by WRTA shall not limit WRTA's remedies for any succeeding breach of that or of any other covenant, term, or condition of this contract.

Termination for Convenience (Professional or Transit Service Contracts)

The WRTA, by written notice, may terminate this contract, in whole or in part, when it is in the WRTA's interest. If this contract is terminated, the WRTA shall be liable only for payment under the payment provisions of this contract for services rendered before the effective date of termination.

Termination for Default (Supplies and Service)

If the Contractor fails to deliver supplies or to perform the services within the time specified in this contract or any extension, or if the Contractor fails to comply with any other provisions of this contract, the WRTA may terminate this contract for default. The WRTA shall terminate by delivering to the Contractor a Notice of Termination specifying the nature of the default. The Contractor will only be paid the contract price for supplies delivered and accepted, or services performed in accordance with the manner or performance set forth in this contract.

If, after termination for failure to fulfill contract obligations, it is determined that the Contractor was not in default, the rights and obligations of the parties shall be the same as if the termination had been issued for the convenience of the WRTA.

Termination for Default (Transportation Services)

If the Contractor fails to pick up the commodities or to perform the services, including delivery services, within the time specified in this contract or any extension, or if the Contractor fails to comply with any other provisions of this contract, the WRTA may terminate this contract for default. The WRTA shall terminate by delivering to the Contractor a Notice of Termination specifying the nature of default. The Contractor will only be paid the contract price for services performed in accordance with the manner of performance set forth in this contract.

If this contract is terminated while the Contractor has possession of WRTA goods, the Contractor shall, upon direction of the WRTA, protect and preserve the goods until surrendered to the WRTA or its agent. The Contractor and WRTA shall agree on payment for the preservation and protection of goods. Failure to agree on an amount will be resolved under the Dispute clause.

If, after termination for failure to fulfill contract obligations, it is determined that the Contractor was not in default, the rights and obligations of the parties shall be the same as if the termination had been issued for the convenience of the WRTA.

Termination for Default (Construction)

If the Contractor refuses or fails to prosecute the work or any separable part, with the diligence that will ensure its completion within the time specified in this contract or any extension or fails to complete the work within this time, or if the Contractor fails to comply with any other provision of this contract, WRTA may terminate this contract for default. The WRTA shall terminate by delivering to the Contractor a Notice of Termination specifying the nature of the default. In this event, the WRTA may take over the work and compete it by contract or otherwise, and may take possession of and use any materials, appliances, and plant on the work site necessary for completing the work. The Contractor and its sureties shall be liable for any damage to the WRTA resulting from the Contractor's refusal or failure to complete the work within specified time, whether or not the Contractor's right to proceed with the work is terminated. This liability includes any increased costs incurred by the WRTA in completing the work.

The Contractor's right to proceed shall not be terminated nor shall the Contractor be charged with damages under this clause if:

1. The delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such causes include: acts of God, acts of WRTA, acts of another contractor in the performance of a contract with WRTA, epidemics, quarantine restrictions, strikes, freight embargoes; and
2. The Contractor, within [10] days from the beginning of any delay, notifies WRTA in writing of the causes of delay. If, in the judgment of WRTA, the delay is excusable, the time for completing the work shall be extended. The judgment of WRTA shall be final and conclusive for the parties, but subject to appeal under the Disputes clause(s) of this contract. If, after termination of the Contractor's right to proceed, it is determined that the Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if the termination had been issued for the convenience of WRTA.

Termination for Convenience or Default (Architect and Engineering)

The WRTA may terminate this contract in whole or in part, for the WRTA's convenience or because of the failure of the Contractor to fulfill the contract obligations. The WRTA shall terminate by delivering to the Contractor a Notice of Termination specifying the nature, extent, and effective date of the termination. Upon receipt of the notice, the Contractor shall (1) immediately discontinue all services affected (unless the notice directs otherwise), and (2) deliver to the WRTA 's Contracting Officer all data, drawings, specifications, reports, estimates, summaries, and other information and materials accumulated in performing this contract, whether completed or in process. WRTA has a royalty-free, nonexclusive, and irrevocable license to reproduce, publish or otherwise use, all such data, drawings, specifications, reports, estimates, summaries, and other information and materials.

If the termination is for the convenience of the WRTA, the WRTA's Contracting Officer shall make an equitable adjustment in the contract price but shall allow no anticipated profit on unperformed services.

If the termination is for failure of the Contractor to fulfill the contract obligations, the WRTA may complete the work by contract or otherwise and the Contractor shall be liable for any additional cost incurred by the WRTA.

If, after termination for failure to fulfill contract obligations, it is determined that the Contractor was not in default, the rights and obligations of the parties shall be the same as if the termination had been issued for the convenience of WRTA.

Termination for Convenience or Default (Cost-Type Contracts)

The WRTA may terminate this contract, or any portion of it, by serving a Notice of Termination on the Contractor. The notice shall state whether the termination is for convenience of WRTA or for the default of the Contractor. If the termination is for default, the notice shall state the manner in which the Contractor has failed to perform the requirements of the contract. The Contractor shall account for any property in its possession paid for from funds received from the WRTA, or property supplied to the Contractor by the WRTA. If the termination is for default, the WRTA may fix the fee, if the contract provides for a fee, to be paid the Contractor in proportion to the value, if any, of work performed up to the time of termination. The Contractor shall promptly submit its termination claim to the WRTA and the parties shall negotiate the termination settlement to be paid the Contractor.

If the termination is for the convenience of WRTA, the Contractor shall be paid its contract close-out costs, and a fee, if the contract provided for payment of a fee, in proportion to the work performed up to the time of termination.

If, after serving a Notice of Termination for Default, the WRTA determines that the Contractor has an excusable reason for not performing, the WRTA, after setting up a new work schedule, may allow the Contractor to continue work, or treat the termination as a Termination for Convenience.

9. GOVERNMENT-WIDE DEBARMENT AND SUSPENSION – *Applies to All Contracts >\$25,000*

2 C.F.R. part 180

2 C.F.R part 1200

2 C.F.R. § 200.213

2 C.F.R. part 200 Appendix II (I)

Executive Order 12549

Executive Order 12689

Debarment, Suspension, Ineligibility and Voluntary Exclusion

The Contractor shall comply and facilitate compliance with U.S. DOT regulations, "Nonprocurement Suspension and Debarment," 2 C.F.R. part 1200, which adopts and supplements the U.S. Office of Management and Budget (U.S. OMB) "Guidelines to Agencies on Governmentwide Debarment and Suspension (Nonprocurement)," 2 C.F.R. part 180. These provisions apply to each contract at any tier of \$25,000 or more, and to each contract at any tier for a federally required audit (irrespective of the contract amount), and to each contract at any tier that must be approved by an FTA official

irrespective of the contract amount. As such, the Contractor shall verify that its principals, affiliates, and subcontractors are eligible to participate in this federally funded contract and are not presently declared by any Federal department or WRTA to be:

- a) Debarred from participation in any federally assisted Award;
- b) Suspended from participation in any federally assisted Award;
- c) Proposed for debarment from participation in any federally assisted Award;
- d) Declared ineligible to participate in any federally assisted Award;
- e) Voluntarily excluded from participation in any federally assisted Award; or
- f) Disqualified from participation in any federally assisted Award.

By signing and submitting its bid or proposal, the bidder or proposer certifies as follows:

The certification in this clause is a material representation of fact relied upon by the WRTA. If it is later determined by the WRTA that the bidder or proposer knowingly rendered an erroneous certification, in addition to remedies available to the WRTA, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment. The bidder or proposer agrees to comply with the requirements of 2 C.F.R. part 180, subpart C, as supplemented by 2 C.F.R. part 1200, while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

SEE EXHIBIT E FOR DEBARMENT AND SUSPENSION CERTIFICATION

10. BUY AMERICA REQUIREMENTS – *Applies to Rolling Stock, Construction, Materials & Supplies Contracts >\$150,000*
49 U.S.C. 5323(j)
49 C.F.R. part 661

The contractor agrees to comply with 49 U.S.C. 5323(j) and 49 C.F.R. part 661, which provide that Federal funds may not be obligated unless all steel, iron, and manufactured products used in FTA funded projects are produced in the United States, unless a waiver has been granted by FTA or the product is subject to a general waiver. General waivers are listed in 49 C.F.R. § 661.7. Separate requirements for rolling stock are set out at 49 U.S.C. 5323(j)(2)(C) and 49 C.F.R. § 661.11. The [bidder or offeror] must submit to WRTA the appropriate Buy America certification below with its [bid or offer]. Bids or offers that are not accompanied by a completed Buy America certification will be rejected as nonresponsive.

In accordance with 49 C.F.R. § 661.6, for the procurement of steel, iron or manufactured products, use the certifications below.

SEE EXHIBIT G FOR BUY AMERICA CERTIFICATIONS:

- Certificate of Compliance with Buy America Requirements
- Certificate of Non-Compliance with Buy America Requirements
- Certificate of Compliance with Buy America Rolling Stock Requirements
- Certificate of Non-Compliance with Buy America Rolling Stock Requirements

11. VIOLATION AND BREACH OF CONTRACT – *Applies to all Contracts >\$250,000*
2 C.F.R. § 200.326
2 C.F.R. part 200, Appendix II (A)

Rights and Remedies of the WRTA The WRTA shall have the following rights in the event that the WRTA deems the Contractor guilty of a breach of any term under the Contract.

1. The right to take over and complete the work or any part thereof as WRTA for and at the expense of the Contractor, either directly or through other contractors;
2. The right to cancel this Contract as to any or all of the work yet to be performed;
3. The right to specific performance, an injunction or any other appropriate equitable remedy; and
4. The right to money damages.

Rights and Remedies of Contractor Inasmuch as the Contractor can be adequately compensated by money damages for any breach of this Contract, which may be committed by the WRTA, the Contractor expressly agrees that no default, act or omission of the WRTA shall constitute a material breach of this Contract, entitling Contractor to cancel or rescind the Contract (unless the WRTA directs Contractor to do so) or to suspend or abandon performance.

Remedies Substantial failure of the Contractor to complete the Project in accordance with the terms of this Agreement will be a default of this Agreement. In the event of a default, the WRTA will have all remedies in law and equity, including the right to specific performance, without further assistance, and the rights to termination or suspension as provided

herein. The Contractor recognizes that in the event of a breach of this Agreement by the Contractor before the WRTA takes action contemplated herein, the WRTA will provide the Contractor with sixty (60) days written notice that the WRTA considers that such a breach has occurred and will provide the Contractor a reasonable period of time to respond and to take necessary corrective action.

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

In the event that a resolution of the dispute is not mutually agreed upon, the parties can agree to mediate the dispute or proceed with litigation. Notwithstanding any provision of this section, or any other provision of this Contract, it is expressly agreed and understood that any court proceeding arising out of a dispute under the Contract shall be heard by a Court de novo and the court shall not be limited in such proceeding to the issue of whether the Authority acted in an arbitrary, capricious or grossly erroneous manner.

Pending final settlement of any dispute, the parties shall proceed diligently with the performance of the Contract, and in accordance with the WRTA's direction or decisions made thereof.

Performance during Dispute Unless otherwise directed by WRTA, Contractor shall continue performance under this Contract while matters in dispute are being resolved.

Claims for Damages Should either party to the Contract suffer injury or damage to person or property because of any act or omission of the party or of any of its employees, agents or others for whose acts it is legally liable, a claim for damages therefor shall be made in writing to such other party within a reasonable time after the first observance of such injury or damage.

Remedies Unless this Contract provides otherwise, all claims, counterclaims, disputes and other matters in question between the WRTA and the Contractor arising out of or relating to this agreement or its breach will be decided by arbitration if the parties mutually agree, or in a court of competent jurisdiction within the State in which the WRTA is located.

Rights and Remedies The duties and obligations imposed by the Contract documents and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law. No action or failure to act by the WRTA or Contractor shall constitute a waiver of any right or duty afforded any of them under the Contract, nor shall any such action or failure to act constitute an approval of or acquiescence in any breach thereunder, except as may be specifically agreed in writing.

12. LOBBYING RESTRICTIONS – *Applies to All Contracts >\$100,000*

31 U.S.C. § 1352

2 C.F.R. § 200.450

2 C.F.R. part 200 appendix II (J)

49 C.F.R. part 20

The undersigned certifies, to the best of his or her knowledge and belief, that:

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 an WRTA, 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 influencing or attempting to influence an officer or employee of any WRTA, 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.

3. The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all subcontractors shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was 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 section 1352, title 31, U.S. Code. 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.

SEE EXHIBIT F FOR LOBBYING RESTRICTIONS CERTIFICATION

13. CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT – *Applies to All Procurement*

Types >\$150,000

42 U.S.C. §§ 7401 – 7671q
33 U.S.C. §§ 1251-1387
2 C.F.R. part 200, Appendix II (G)

The Contractor agrees:

- 1) It will not use any violating facilities;
- 2) It will report the use of facilities placed on or likely to be placed on the U.S. EPA “List of Violating Facilities;”
- 3) It will report violations of use of prohibited facilities to FTA; and
- 4) It will comply with the inspection and other requirements of the Clean Air Act, as amended, (42 U.S.C. §§ 7401 – 7671q); and the Federal Water Pollution Control Act as amended, (33 U.S.C. §§ 1251-1387).

14. CARGO PREFERENCE REQUIREMENTS – *Applies to Rolling Stock, Construction, Material & Supplies that may be transported by ocean vessel.*

46 U.S.C. § 55305
46 C.F.R. part 381

Cargo Preference - Use of United States-Flag Vessels

The contractor agrees:

- a. to use privately owned United States-Flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to the underlying contract to the extent such vessels are available at fair and reasonable rates for United States-Flag commercial vessels;
- b. to furnish within 20 working days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, "on-board" commercial ocean bill-of-lading in English for each shipment of cargo described in the preceding paragraph to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590 and to the WRTA (through the contractor in the case of a subcontractor's bill-of-lading); and
- c. to include these requirements in all subcontracts issued pursuant to this contract when the subcontract may involve the transport of equipment, material, or commodities by ocean vessel.

15. FLY AMERICA – *Applies to All Procurements involving foreign transport or travel by air*

49 U.S.C. § 40118
41 C.F.R. part 301-10
48 C.F.R. part 47.4

Fly America Requirements

a) Definitions. As used in this clause—

“International air transportation” means transportation by air between a place in the United States and a place outside the United States or between two places both of which are outside the United States.

“United States” means the 50 States, the District of Columbia, and outlying areas.

“U.S.-flag air carrier” means an air carrier holding a certificate under 49 U.S.C. Chapter 411.

b) When Federal funds are used to fund travel, Section 5 of the International Air Transportation Fair Competitive Practices Act of 1974 (49 U.S.C. 40118) (Fly America Act) requires contractors, WRTAs, and others use U.S.-flag air carriers for U.S. Government-financed international air transportation of personnel (and their personal effects) or property, to the extent that service by those carriers is available. It requires the Comptroller General of the United States, in the absence of satisfactory proof of the necessity for foreign-flag air transportation, to disallow expenditures from funds, appropriated or otherwise established for the account of the United States, for international air transportation secured aboard a foreign-flag air carrier if a U.S.-flag air carrier is available to provide such services.

- c) If available, the Contractor, in performing work under this contract, shall use U.S.-flag carriers for international air transportation of personnel (and their personal effects) or property.
- d) In the event that the Contractor selects a carrier other than a U.S.-flag air carrier for international air transportation, the Contractor shall include a statement on vouchers involving such transportation essentially as follows:

Statement of Unavailability of U.S.-Flag Air Carriers

International air transportation of persons (and their personal effects) or property by U.S.-flag air carrier was not available or it was necessary to use foreign-flag air carrier service for the following reasons. See FAR § 47.403. [State reasons]:

(End of statement)

- e) The Contractor shall include the substance of this clause, including this paragraph (e), in each subcontract or purchase under this contract that may involve international air transportation. (End of Clause)

16. DISADVANTAGED BUSINESS ENTERPRISE (DBE) – *Applies to All Procurement Types*
49 C.F.R. part 26

The following contract clause is required in all DOT-assisted prime and subcontracts:

- a. This contract is subject to the requirements of Title 49, Code of Federal Regulations, Part 26, *Participation by Disadvantaged Business Enterprises in Department of Transportation Financial Assistance Programs*. The national goal for participation of Disadvantaged Business Enterprises (DBE) is 10%. The WRTA’s overall goal for DBE participation is 1.22%.
- b. The contractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of this DOT-assisted contract. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the WRTA deems appropriate, which may include, but is not limited to:
- (1) Withholding monthly progress payments;
 - (2) Assessing sanctions;
 - (3) Liquidated damages; and/or
 - (4) Disqualifying the contractor from future bidding as non-responsible. 49 C.F.R. § 26.13(b).

Each subcontract the contractor signs with a subcontractor must include the assurance in this paragraph (see 49 CFR 26.13(b)).

- c. The successful bidder/offeror will be required to report its DBE participation obtained through race-neutral means throughout the period of performance.
- d. **PROMPT PAYMENT** - The contractor is required to pay its subcontractors performing work related to this contract for satisfactory performance of that work no later than 30 days after the contractor’s receipt of payment for that work from the WRTA. In addition, the contractor is required to return any retainage payments to those subcontractors within 30 days after the subcontractor's work related to this contract is satisfactorily completed.
- e. The contractor must promptly notify the WRTA, whenever a DBE subcontractor performing work related to this contract is terminated or fails to complete its work, and must make good faith efforts to engage another DBE subcontractor to perform at least the same amount of work. The contractor may not terminate any DBE subcontractor and perform that work through its own forces or those of an affiliate without prior written consent of the WRTA.

17. RECYCLED PRODUCTS – *Applies to Operations/Management/Subrecipients; Rolling Stock; Construction Procurements - EPA Selected Items >\$10,000 Annually*

42 U.S.C. § 6962
40 C.F.R. part 247

2 C.F.R. part § 200.322

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

18. PROHIBITION ON CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT – *Applies to All Procurements*

2 CFR 200.216

The contractor is prohibited from obligating or expending Federal funds to:

1. Procure or obtain
2. Extend or renew a contract to procure or obtain; or
3. Enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that use covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. As described in Public Law 115-232, section 889, “covered telecommunications equipment or services” is:
 - a. Telecommunications equipment provided by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities)
 - b. For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).
 - c. Telecommunications or video surveillance services provided by such entities or using such equipment.
 - d. Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

The contractor shall not provide covered telecommunications equipment or services in the performance of this contract.

19. NOTICE TO FTA AND U.S. DOT INSPECTOR GENERAL OF INFORMATION RELATED TO FRAUD, WASTE, ABUSE, OR OTHER LEGAL MATTERS – *Applies to All Contracts in excess of \$25,000*
FTA Master Agreement §39(b)

If a current or prospective legal matter that may affect the Federal Government emerges, the Contractor must promptly notify the Worcester Regional Transit Authority (WRTA), which will promptly notify the FTA Chief Counsel and FTA Regional Counsel for the Region in which the WRTA is located. The Contractor must include an equivalent provision in its sub-agreements at every tier, for any agreement that is a “covered transaction” according to 2 C.F.R. §§ 180.220 and 1200.220.

- The types of legal matters that require notification include, but are not limited to, a major dispute, breach, default, litigation, or naming the Federal Government as a party to litigation or a legal disagreement in any forum for any reason.

- Matters that may affect the Federal Government include, but are not limited to, the Federal Government’s interests in the Award, the accompanying Underlying Agreement between the FTA and the WRTA, and any Amendments thereto, or the Federal Government’s administration or enforcement of federal laws, regulations, and requirements.

Additional Notice to U.S. DOT Inspector General. The Contractor must promptly notify the WRTA, which will promptly notify the U.S. DOT Inspector General in addition to the FTA Chief Counsel or Regional Counsel for the Region in which the WRTA is located, if the Contractor has knowledge of potential fraud, waste, or abuse occurring on a Project receiving assistance from FTA. 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 with the WRTA involving a principal, officer, employee, agent, or Third Party Participant of the Contractor. 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. This notification provision applies to all divisions of the Contractor, including divisions tasked with law enforcement or investigatory functions.

20. SAFE OPERATION OF MOTOR VEHICLES – *Applies to All Procurement Types*

23 U.S.C. part 402
Executive Order No. 13043
Executive Order No. 13513
U.S. DOT Order No. 3902.10
Seat Belt Use

Seat Belt Use: The Contractor is encouraged to adopt and promote on-the-job seat belt use policies and programs for its employees and other personnel that operate company-owned vehicles, company- A-60 rented vehicles, or personally operated vehicles. The terms “company-owned” and “company-leased” refer to vehicles owned or leased either by the Contractor or WRTA.

Distracted Driving: The Contractor agrees to adopt and enforce workplace safety policies to decrease crashes caused by distracted drivers, including policies to ban text messaging while using an electronic device supplied by an employer, and driving a vehicle the driver owns or rents, a vehicle Contractor owns, leases, or rents, or a privately-owned vehicle when on official business in connection with the work performed under this agreement.

21. AMERICANS WITH DISABILITIES ACT (ADA) - *Applies to All Procurement Types*

ADA Access - This requirement applies to contracts for Architectural and Engineering Services. The contractor agrees to comply with the requirements of 49 U.S.C. § 5301 (d), which states the Federal policy that the elderly and persons with disabilities have the same right as other persons to use mass transportation service and facilities, and that special efforts shall be made in planning and designing those services and facilities to implement that policy. The contractor also agrees to comply with all applicable requirements of section 504 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. § 794, which prohibits discrimination on the basis of handicaps, with the Americans with Disabilities Act of 1990 (ADA), as amended, 42 U.S.C. §§ 12101 et seq., which requires that accessible facilities and services be made available to persons with disabilities, including any subsequent amendments to that Act, and with the Architectural Barriers act of 1968, as amended, 42 U.S.C. §§ 4151 et seq., which requires that buildings and public accommodations be accessible to persons with disabilities, including any subsequent amendments to that Act. In addition, the contractor agrees to comply with any and all applicable requirements issued by the FTA, DOT, DOJ, U.S. GSA, U.S. EEOC, U.S. FCC, any subsequent amendments thereto and any other nondiscrimination statute(s) that may apply to the Project.

22. CONFORMANCE WITH ITS NATIONAL ARCHITECTURE - *Applies to All Procurement Types*

ITS projects shall conform to the National ITS Architecture and standards. Conformance with the National ITS Architecture is interpreted to mean the use of the National ITS Architecture to develop a regional ITS architecture in support of integration and the subsequent adherence of all ITS projects to that regional ITS architecture. Development of the regional ITS architecture should be consistent with the transportation planning process for Statewide and Metropolitan Transportation Planning (49 CFR Part 613 and 621).

- End Exhibit H -

EXHIBIT I

PROTEST PROCEDURES

The following Bid Protest Procedures apply to Federal Transit Administration (FTA) assisted procurements that are competitively solicited. Interested parties must adhere to the following procedures. A protest will be processed in the time frames and structure specified below.

A. PRIOR TO OFFER OPENING

1. Protests concerning a procurement (by a prime contractor or an adversely affected subcontractor) must be in writing and received by WRTA not less than five (5) working days before offer opening unless a different deadline is established in the procurement documents.
2. Upon receipt of that protest, the Administrator will determine if the offer opening should be postponed. If offer opening is postponed, WRTA will notify all prime contractors and subcontractors who have been furnished a copy of the specifications that a protest has been filed and that offer opening is postponed until WRTA has issued its decision. Appropriate addenda will be issued rescheduling offer opening.
3. Any protest to WRTA may be withdrawn at any time before WRTA has issued its decision.
4. WRTA will respond within three (3) working days of receiving the protest, at least generally, to each material issue raised in the Protest. If the matter requires further evaluation, the Administrator will notify the protesting party in writing (by facsimile and U.S. Mail) of the extended review period. The Administrator's decision on any protest will be in writing and is final.

B. AFTER OFFER OPENING

1. Protests received after an offer opening will be considered only if it concerns an issue, procedure, or other matter that could not have been protested by an offeror prior to the opening. The protest must be in writing and be received by WRTA at least three (3) working days before the conditional award of a contract by the WRTA.
2. Upon receipt of the protest, the Administrator will immediately determine if the award of the contract should be postponed. If it is postponed, WRTA will notify all offerors that a protest has been filed and that award of the contract is postponed until WRTA has issued its decision.
3. A protest to WRTA may be withdrawn at any time before WRTA has issued its decision.
4. WRTA will respond within three (3) working days of receiving the protest, at least generally, to each material issue raised in the Protest. If the matter requires further

evaluation, the Administrator will notify the protesting party in writing (by facsimile and U.S. Mail) of the extended review period. The Administrator's decision on any protest will be in writing and is final.

C. AFTER AWARD

1. Protests received after an award has been made will be considered only if it concerns an issue, procedure or other matter that could not have been protested by an offeror after the opening. The protest must be in writing and received by the WRTA three (3) working days before the execution of the resulting contract.
2. Upon receipt of the protest, the Administrator will immediately determine if the execution of the contract should be postponed. If it is postponed, WRTA will notify all offerors that a protest has been filed and that execution of the contract is postponed until WRTA has issued its decision.
3. A protest to WRTA may be withdrawn at any time before WRTA has issued its decision.
4. WRTA will respond within three (3) working days of receiving the protest, at least generally, to each material issue raised in the Protest. If the matter requires further evaluation, the Administrator will notify the protesting party in writing (by facsimile and U.S. Mail) of the extended review period. The Administrator's decision on any protest will be in writing and is final.

D. APPEALS

1. Except as provided above, there are no further administrative appeals available. In certain circumstances judicial remedies may be available to aggrieved parties.

The WRTA will consider all written protests made within the timelines stated in this policy. Protest submissions should be concise, logically arranged, clearly state the grounds for the protest, and must include at least the following information:

- Name, address, and telephone number of protester.
- Solicitation or contract name and/or number.
- A detailed statement of the legal and factual grounds for the protest, including copies of all relevant documents or information.
- A statement of relief requested.

Protests are to be filed by certified mail, return receipt requested or by personal deliver by 4:30 pm on or before the due date at:

Administrator
Worcester Regional Transit Authority
60 Foster Street

Worcester, MA 01608

If protests are filed by personal delivery, the protestor must obtain a time-stamped copy of the protest from the WRTA's Administration Office as proof of the date and time of the filing of the protest. It is the Protester's sole responsibility to provide said copy at the time of filing.

- End Exhibit I -

EXHIBIT J
FUNCTIONAL SPECIFICATIONS

(Next Page)

Computer-aided Dispatch (CAD)/Automatic Vehicle Location (AVL) System Specifications - Final

Prepared for:



Prepared by:

Schweiger Consulting LLC

December 10, 2024

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1 Introduction

These specifications define the functional, performance, installation, integration and project implementation requirements for the deployment of a computer-aided dispatch (CAD)/automatic vehicle location (AVL) system for the Worcester Regional Transit Authority (WRTA) services.

This document includes the following sections:

- Section 2 provides an overview of the WRTA's existing services, system environment, and technical scope of this project;
- Section 3 defines the WRTA's information technology (IT) requirements;
- Section 4 defines wireless data communication system requirements;
- Section 5 defines requirements for fixed-route, paratransit revenue and non-revenue ITS technologies;
- Section 6 defines project implementation requirements; and
- Section 7 defines warranty and spares requirements.

2 Project Overview

2.1 Purpose

The WRTA is a regional transit system that services the City of Worcester and 36 surrounding communities in Central Massachusetts with a total fleet of 116 revenue vehicles which includes diesel-electric hybrid and clean diesel buses, and gasoline cutaway vans. The WRTA will take delivery of seven (7) battery electric buses in October 2025 replacing buses that have exceeded their useful lives.

The WRTA is replacing its current CAD/AVL system as it has reached the end of its useful life. Not only will a new CAD/AVL system improve internal operations, but also provide an improved experience for its riders, including more accurate real-time information and automated stop announcements. The WRTA has made and will be making other technological enhancements to improve the quality of transit service and customer information, including the implementation of a mobile fare payment system (already deployed) and an improved demand-response scheduling and dispatching system.

2.2 Agency Background

2.2.1 WRTA Operations

The Central Hub located at 60 Foster Street adjacent to Union Station in downtown Worcester was constructed in 2013. It is the home of WRTA Administrative offices, a customer service call center and indoor lobby. The adjacent bus bay and waiting area has eight bus slips, seating for passengers, and real-time updates on when buses will arrive. Both the Hub and Union Station provide connections between WRTA fixed route and paratransit service, as well as the various modes of transportation in the area, including MBTA commuter rail, intercity bus, taxi service, and Amtrak. Years later, WRTA's increased fleet size and adoption of fuel-efficient, low-emission bus technologies lead to the build of a 150,000-square-foot Maintenance and Operations facility leaving behind the Grove Street garage, which was built in 1928 as a trolley barn.

The WRTA operates 26 fixed-routes throughout the service area. Profiles of each route, which can be found at <https://therta.com/route-profiles/>, provide a comprehensive snapshot of available data surrounding service summary, ridership, popular stops and financial reporting. In addition, the WRTA offers a curb-to-curb transit service for residents of Auburn, Clinton, Grafton, Holden, Leicester, Millbury, Northborough, Oxford, Shrewsbury and West Boylston who are aged 60 and over, and for people with disabilities of all ages. This shared-ride service provided with either a lift-equipped van or a taxi is offered through Council on Aging Partners. Further, the WRTA contracts with SCM Elderbus, a private non-profit 501 (c) 3 organization, to provide transportation services to seniors and the disabled residing in twenty-two (22) communities in central Massachusetts. SCM Elderbus provides transportation to and from medical appointments, shopping, banking, trips to the local pharmacy, work related trips, or simply a ride to the local coffee shop to meet with friends. Finally, the WRTA provides ADA complementary paratransit service to those who are eligible for this service.

The WRTA offers microtransit service through Via, which operates the service. The microtransit service area is shown in Figure 1.

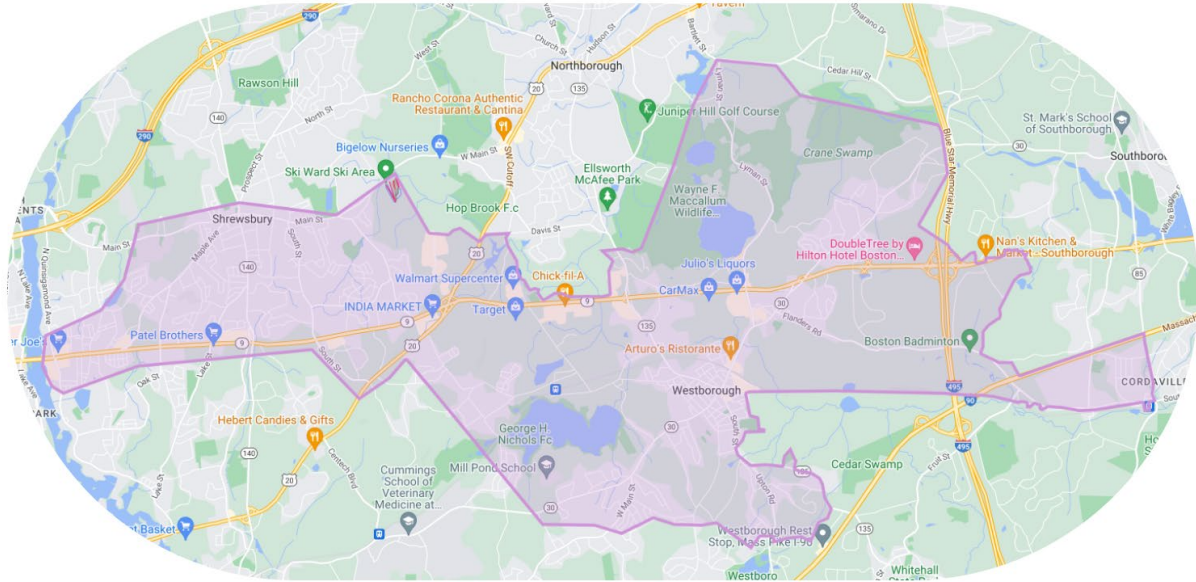


Figure 1. WRTA Microtransit Zone

2.2.2 Transit Fleet

The WRTA’s vehicle fleet includes 58 fixed-route vehicles, 58 paratransit vehicles, and five (5) supervisor/support vehicles. A detailed fleet inventory is provided in Appendix A.

Please note that vehicles are route type specific and only used on their specific route type.

2.3 Existing Systems Environment - Servers, Desktops, Database, and Networks

The WRTA currently uses the technologies shown in Table 1.

Table 1. WRTA Technology Inventory Summary

System	Vendor
Fixed-Route Scheduling Software	CSched/HASTUS
Workforce Management, including timekeeping and integration with Human Resources and payroll	Kronos
Paratransit Scheduling and Dispatching Software	<ul style="list-style-type: none"> StrataGen Adept (COAs) RouteMatch (SCM Elderbus)
Microtransit Scheduling	Via
Computer-Aided Dispatch (CAD)/ Automatic Vehicle Location (AVL)	Clever Devices

System	Vendor
Maintenance	<ul style="list-style-type: none"> • FLEETWATCH • Ron Turley & Associates • Clever AVM
Automatic Vehicle Announcements (AVA) Technology	Clever Devices
Automated Passenger Counters (APCs)	<ul style="list-style-type: none"> • RideCheck+ (Clever) • Infodev
Interactive Voice Response (IVR)/Callback Hardware and Software	Enghouse
On-Board Internal Audio/Visual System	Clever Devices
Wayside Signs (dynamic message signs providing real-time information to travelers)	Clever Devices
Fare Collection Equipment and Software	Masabi
Mobile Video Surveillance System	<ul style="list-style-type: none"> • Seon • Safe Fleet®

2.4 Technical Scope and Project Phasing

2.4.1 Technical Scope

The following figures present the System and On-Board System Overviews. Proposers are required to provide their own system diagrams in their proposal responses.

Figure 2 shows the system overview including on-board and real time information systems. Figure 3 shows the on-board system overview for fixed-route vehicles. Figure 4 shows the on-board system overview for paratransit vehicles. Figure 5 shows the on-board system overview for supervisor and support vehicles. Figure 6 presents the IVR System Configuration.

2.4.2 Project Phasing

The WRTA will deploy the overall system in a staged manner, replacing the core system under the initial deployment and then later expanding this core system to add more capabilities. The highest priority for the WRTA is to enable effective fixed-route operations as well as to provide onboard next stop announcements, automatic passenger counters (APC), and real-time passenger information.

The WRTA will implement ITS technologies in two phases - the specific components included in each of the phases are listed below.

Phase 1 – Core Systems:

- Core CAD/AVL System for all revenue and support/supervisory vehicles, including central and on-board subsystems

- Integration with the existing Fixed-route Scheduling Software
- Wireless Data Communications
- Automated Vehicle Announcement (AVA) Central and On-Board System
- Real-time Information System (RTIS), including real-time vehicle arrival prediction, GTFS-realtime feed to be consumed by third-party apps, and wayside dynamic message signs (DMS) at the Hub and other existing locations
- Automatic Passenger Counting (APC) Central and On-Board Systems
- Interactive Voice Response (IVR) System for fixed-route real-time information

Phase 2 - Future Needs:

- Integration with existing On-board Video Surveillance System¹
- Integration with existing FLEETWATCH and/or Ron Turley & Associates
- Integration with existing Masabi mobile fare payment system
- Integration with future paratransit scheduling and dispatching software
- Installation of additional DMS throughout the WRTA service area

¹ Images/videos captured by the on-board video surveillance system shall be tagged with the date, time and vehicle location.

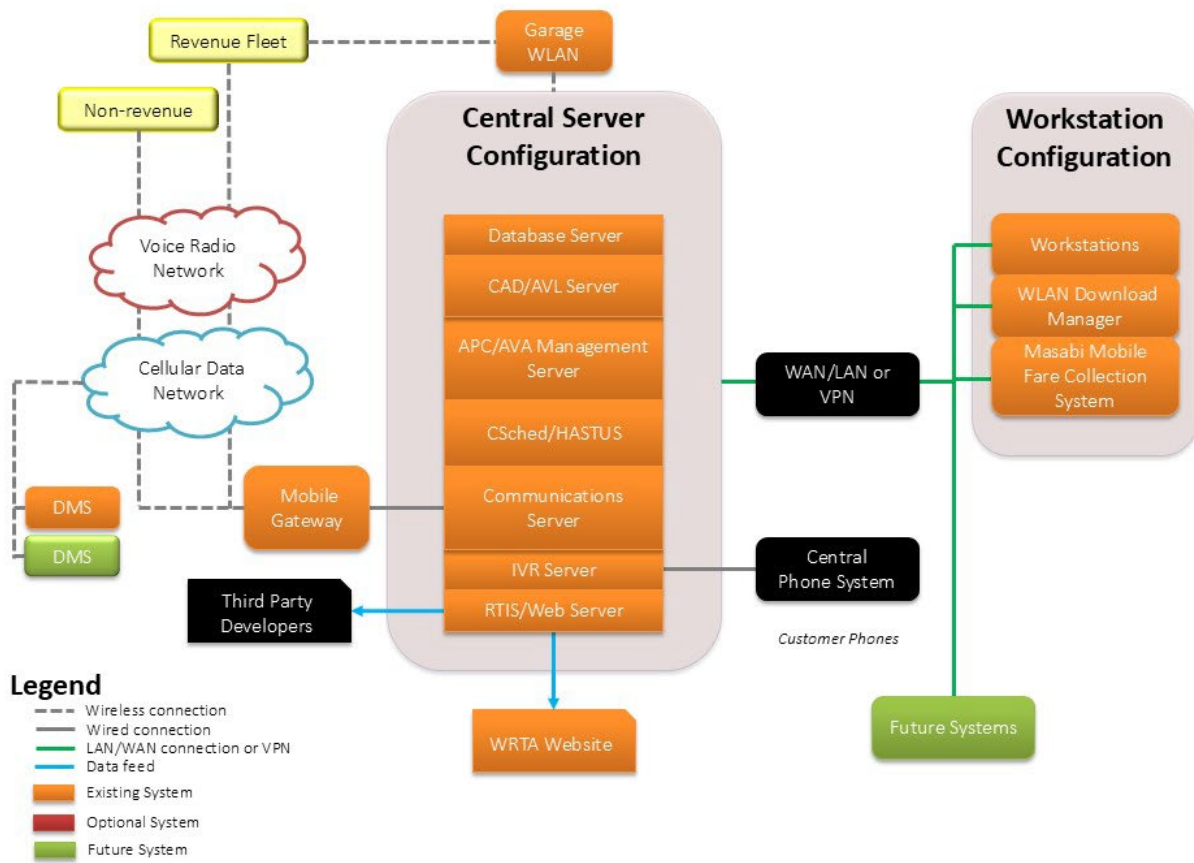


Figure 2. System Overview

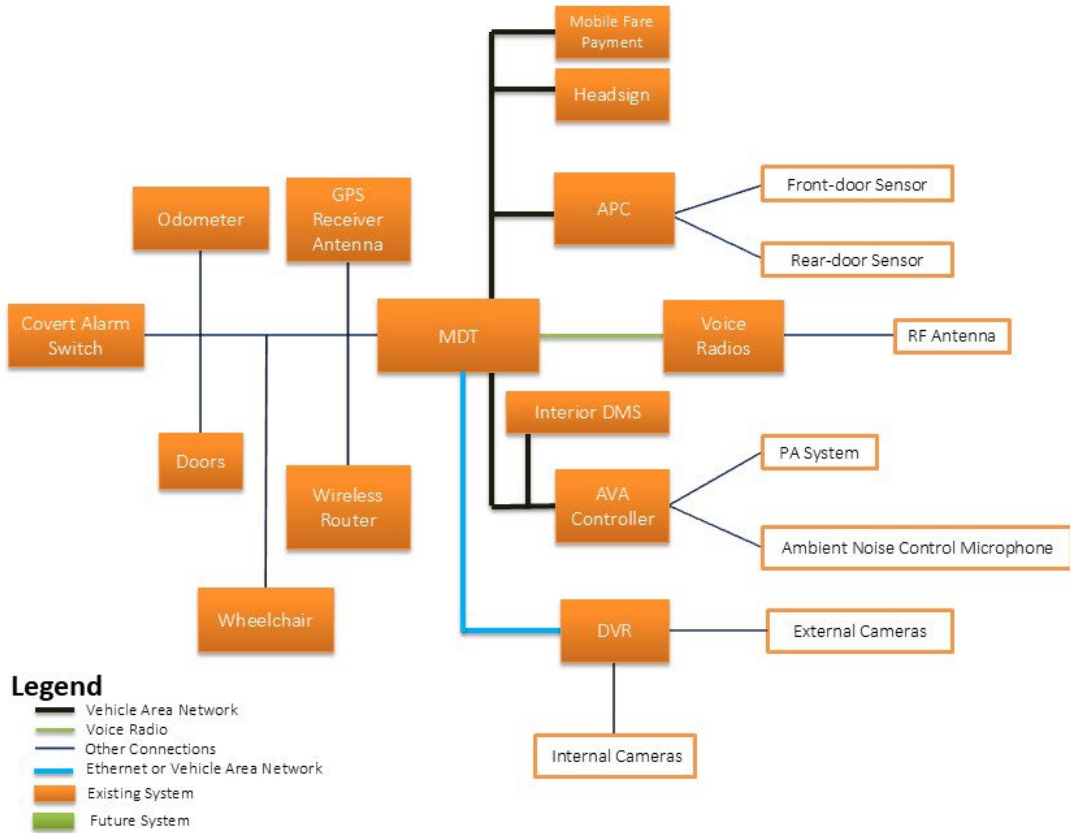


Figure 3. On-board System Overview for Fixed-Route Vehicles

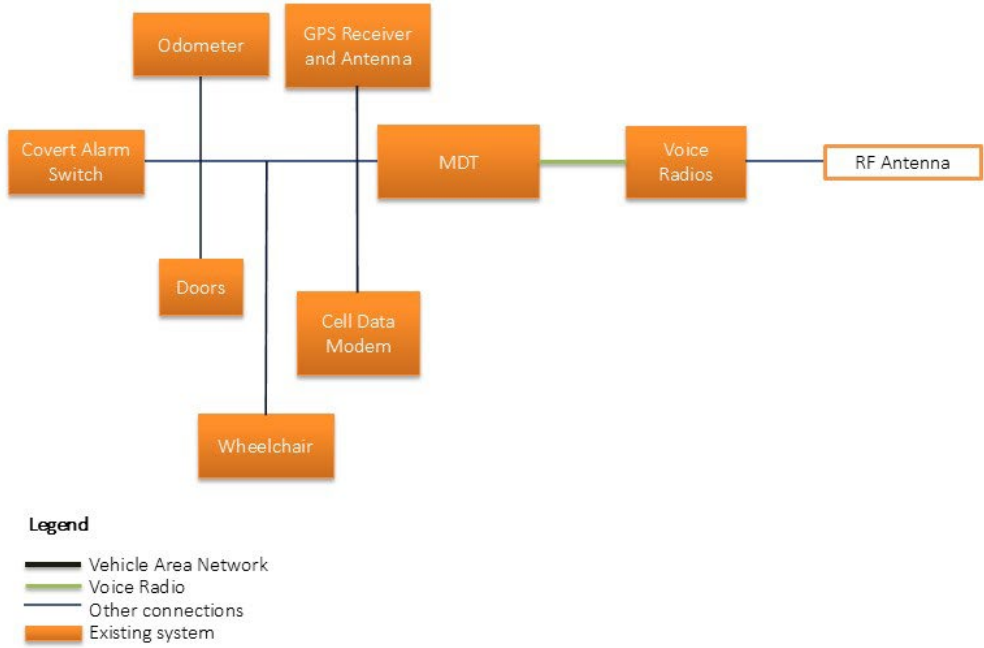


Figure 4. On-board System Overview for Paratransit Vehicles

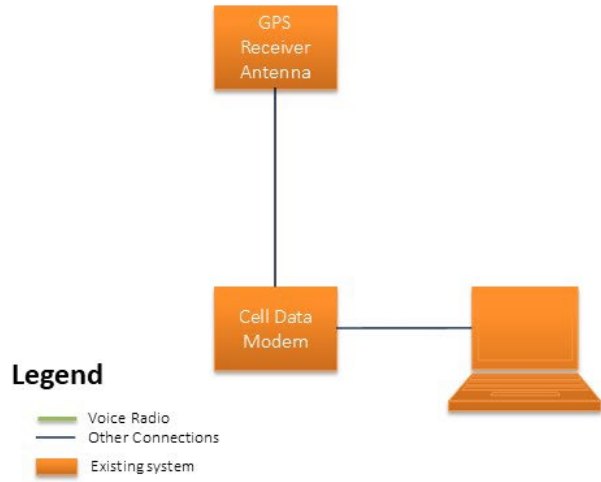


Figure 5. On-board System Overview for Supervisor/Support Vehicles

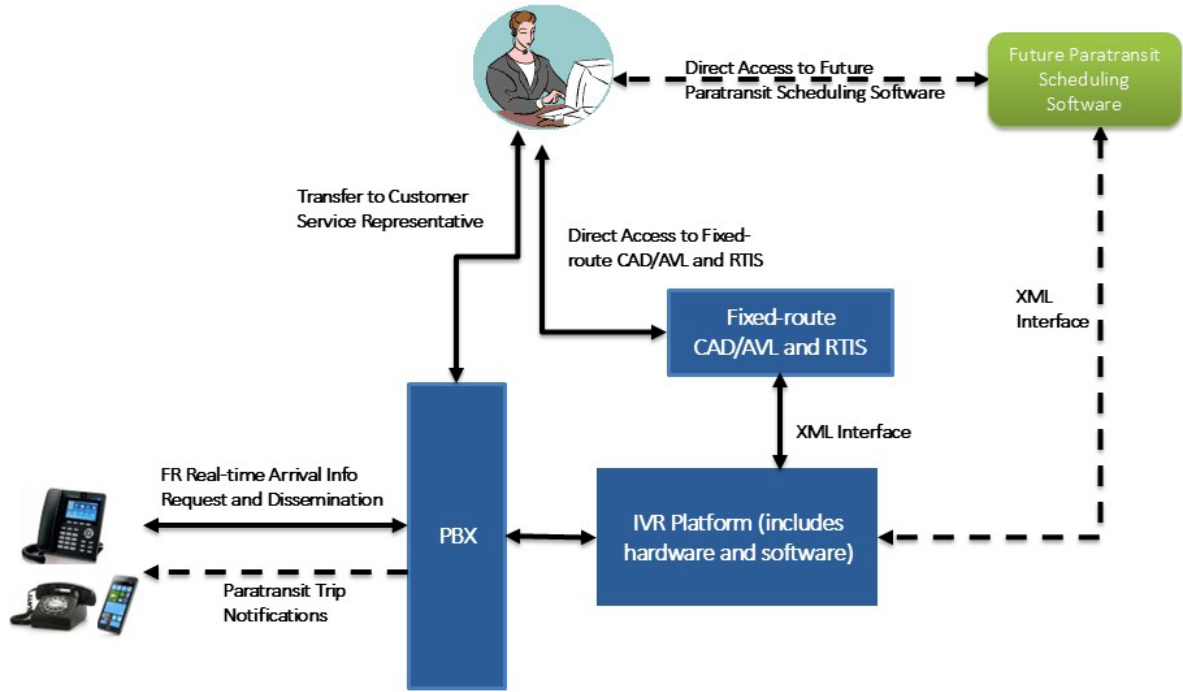


Figure 6. IVR System Configuration Overview

3 Information Technology (IT) Requirements

3.1 General

The selected vendor, referred to as the “Contractor” in the rest of this document, shall provide the hardware and configuration details for installing the system at a data center (cloud Software as a Service [SaaS] solution) proposed by the Contractor (hosted approach). The data center selected for installation of the system must be approved by the WRTA Director of Information Technology.

The software applications shall include context sensitive help capability.

The software applications must run fully in the user context and shall not require elevated permissions or administrative permissions on the desktop.

All software applications must utilize the Microsoft Operating System consistent with current WRTA upgrades, patches and service packs on the servers and desktops. The following requirements must be met:

- Must be compatible with Windows 11 and newer operating system (OS) versions for clients
- If web based, must be compatible with Microsoft Edge, standard browsers and current versions

All software applications must support role-based security.

The Contractor is required to notify the WRTA when new releases of software applications become available, and when current releases and related systems are no longer supported.

The Contractor must comply with the WRTA’s change management process when making any changes to supported systems; these changes must be reported to the WRTA project manager.

The WRTA’s change management process is as follows:

1. Record all details for the request for change (e.g., person making request, reason, timeline, etc.)
2. Establish whether or not the request for change is within the existing contractual framework
3. Evaluate the urgency and required contractual changes along with their financial, contractual and operational impact
4. Make decisions to authorize or reject the change through established approvers
5. Coordinate the implementation of change or information that change is not accepted as well as the different steps that must be taken from the different internal and external parties
6. Review and close:
 - Have changes been made according to the agreement (or rejected)?

- Have goals been reached?
- Are all parties satisfied?
- Were there any surprising effects?
- Was there a cost overrun or delay?
- What was the cause for the change request?
- Were the contract terms sufficient?
- Did product or service quality exist? How about process or communication quality?
- Is there room for improvement in the change process (process, contract, communication etc.)?
- Can change be recorded as completed, or do we need new change (or maybe a claim management process)?

The Contractor shall implement a test environment, with all software components installed on parallel hardware in a hosted environment, where software updates and configuration changes can be tested prior to being implemented in the production system. Any future updates or upgrades must be tested in the test environment before being implemented on production servers.

All software upgrades or changes required by the Contractor must be made in a WRTA test environment and certified prior to moving into a production environment. Any on-board firmware changes must be tested first in a “bus-in-box” type test bench before installing them on vehicles.

3.2 Required Infrastructure

The Proposer must describe the infrastructure, including the location of servers/data center, security of system, and how and where the data is stored. Please note that all data associated with the CAD/AVL system must be stored in the United States.

99% system uptime is required for WRTA. Response times to address incidents shall follow the requirements shown in Section 3.6.

The Proposer must provide disaster recovery documentation highlighting how the CAD/AVL system can function and prevent any data loss in the event of a natural disaster or other unexpected events.

The Proposer must describe their data backup process for the CAD/AVL database and any related data files.

3.2.1 Hardware

The Proposer shall confirm in their response that no hardware or software will be required on premise at the WRTA with the exception of CAD/AVL workstation personal computers (PCs), on-board mobile data terminals (MDTs)/tablets and printers.

The Proposer shall advise if any third-party software is required or recommended but not included in the CAD/AVL being offered.

The Proposer shall provide the specifications for workstation hardware and in-vehicle/on-board MDTs/tablets that comprise the proposed system, including the required number of workstations for all CAD/AVL users. The WRTA may procure workstation hardware and MDTs/tablets from suppliers other than the Contractor.

The Contractor must have a Mobile Device Management solution to manage the mobile devices, including on-board MDTs/tablets.

3.2.2 Software

The successful Contractor shall provide software and specifications for hardware that comprise the proposed central system, including the required number of licenses for all agency software users. The cost of each component shall be provided per the instructions on the Price Proposal Form.

Ownership of the source code² will be subject to the following requirements:

- The Contractor shall either (1) provide the WRTA (the licensee) with source code for the software, (2) place the source code in a third-party escrow arrangement with a designated escrow agent, which shall be identified to the WRTA, and which shall be directed to release the deposited source code in accordance with a standard escrow agreement acceptable to the WRTA, or (3) certify to the WRTA that the software manufacturer/developer has named the WRTA (the licensee), as the named beneficiary of an established escrow arrangement with its designated escrow agent, which shall be identified to the WRTA (the licensee), and which shall be directed to release the deposited source code in accordance with the terms of escrow;
- Source code will be subject to code review. While the WRTA will try to be reasonable, the Contractor must be willing to make necessary changes if the WRTA finds the code to be unacceptable:
 - There should be a separation of layers;
 - Coding conventions and best practices should be followed;
 - Business logic code should be reasonably commented; and
 - Functioning unit tests should be provided; and
- Source code should follow Open Web Application Security Project® (OWASP) best practices related to security and vulnerabilities (i.e., https://www.owasp.org/index.php/OWASP_Guide_Project).

The Contractor cannot charge the WRTA for copies of the source code or backups of the data after it is located in the Contractor's cloud.

² "Source Code" means the source code, design and associated preliminary materials, object code, file formats and specifications, build and compilation scripts and instructions, databases, configuration data, audio, video, literal and other media and materials, including accompanying documentation relating to or comprising the software built by a WRTA contractor and is owned by the WRTA.

Given the hosted approach, the Proposer shall clearly define the approach for software hosting and access (e.g., Citrix's independent computing architecture [ICA] protocol, Microsoft's remote desktop protocol [RDP] over secure virtual private network (VPN) connection, completely web-based application accessible via hypertext transport protocol secure [HTTPS] on standard web browsers (e.g., Microsoft Internet Explorer, Mozilla Firefox, Google Chrome and Apple Safari).

The Proposer must identify the cloud platform that will be used (e.g., Amazon Cloud Services, Microsoft Azure Cloud Services or other).

Using a hosted approach, at least two parallel data centers in two different geographic locations shall be utilized.

The Central system shall be setup in redundant configuration by default. So, if the primary application fails, the secondary application that is configured to run in hot-standby mode shall automatically start running as the primary application to ensure fail-safe operation. Each RFP respondent shall provide a clear description of their approach for enabling redundant server configuration.

Given a hosted solution, Proposers shall describe the minimum computer hardware and browser requirements (e.g., minimum Random Access Memory [RAM] requirements for map rendering, java run-time environment [JRE] for java-based web applications).

3.3 Information Security

The Contractor shall be asked to comply with best practices with all areas of IT Security as outlined by Health Insurance Portability and Accountability Act (HIPAA) rules. The WRTA has specific policies in the following areas, if you require additional information, please contact the WRTA's IT department to discuss them in more detail.

- Acceptable Use
- Automatic Log-Off
- Data Backup
- Encryption and Decryption
- IT Risk Management Program
- Malware Protection
- Password Management
- Portable Computing Device Privacy and Security
- Privacy and Security of Protected Health Information
- Termination of Access
- Transmission Security
- Unique User ID
- Workstation Use and Security

The Contractor must provide documentation showing compliance with regulations and standards identified in the National Institute of Standards and Technology (NIST) publication NIST Special Publication 800-47 Revision 1 "Managing the Security of Information Exchanges" and any addition regulations required by and specific to the Commonwealth of Massachusetts.

All software applications must support role-based security.

The WRTA requires the Contractor to perform regular periodic (every six months or every year) Penetration (Pen Tests) tests and report the results.

The Contractor shall follow the WRTA IT Security Policies, which are shown in Appendix B.

For this hosted solution, please describe the administrative needs to add users to the system.

The methods used for encrypting stored passwords must be disclosed. Industry standard encryption methods utilizing at least 256-bit encryption techniques are required.

The Proposer must disclose provisions to secure the database in its proposal. At a minimum, the Contractor must comply with all applicable statutes and regulations regarding the privacy and security of Confidential Information, and must in all other respects maintain the privacy and security of Personal Information (PI) and Protected Health Information (PHI) at a level and scope that is not less than the level and scope of requirements applicable to federal agencies, including, but not limited to, provisions of the Privacy Act of 1974 (5 U.S.C. § 552a), DHHS Privacy Act Regulations (45 C.F.R. §5b), HIPAA Privacy and Security Rules (45 C.F.R. Parts 160 and 164) that govern protections for individually identifiable health information and as applicable under Commonwealth law.

Any vulnerabilities or exploits discovered by the Contractor or others for the proposed application must be reported to the WRTA immediately with a proposed mitigation strategy.

The Contractor shall support Microsoft security patches and updates within seven (7) calendar days of release.

The system must track all activities performed by software users for auditing purposes (e.g., system configuration changes, geocoding addresses, trip modifications and data editing).

The methods used for encrypting stored passwords must be disclosed. Industry standard encryption methods utilizing at least 256-bit encryption techniques are required. Applications may not store or transmit passwords in clear text.

Any software which stores personally identifying information (PII), including but not limited to, "unique identifier number," driver's license numbers, etc., or any financial information, such as credit card numbers (e.g., requiring compliance with Payment Card Industry Data Security Standards [PCI DSS], bank routing information, etc., must fully protect the information for the entire duration of the WRTA's use of the software, as defined in the eventual contract with the successful Contractor, and disclose the methods of data collection, storage, usage, transmission and disposal, data protection used, access protection methods, and life cycle handling of this data. Industry standard encryption methods utilizing at least 256-bit encryption techniques are required when PII is in transit and at rest.

Compliance with HIPAA, Public Law 104-191, the Standards for Privacy and Security of Individually Identifiable Health Information, 45 CFR Parts 160, 162, and 164 (HIPAA), provisions of the HITECH Act, Title XIII, Subtitle D, Parts 1&2 of the American Recovery and Reinvestment Act of 2009, 42 USC 17934, et sec., applicable to business associates, and as applicable, to be bound by the provisions of the Confidentiality of Substance Use Disorder Patient Records, 42 USC s. 290 dd-2, 42 CFR Part 2, (Part 2), as any of these laws and regulations may be amended from time to time.

Any HIPAA-related information must be protected in the database and application according to the law (e.g., display only last four digits of the Social Security Number (SSN)).

The Contractor shall supply the WRTA with current HIPAA test results or be willing to be tested with regards to compliance with HIPAA policies on a yearly basis.

3.4 Database

All database-related components of the solution (e.g., tables, stored procedures, scripts, extensible markup language [XML] schema, and related information) shall be fully accessible and available for support and use by the WRTA and WRTA IT staff.

Proposer's solutions should be developed and configured using prescribed standards for SQL Server and be flexible enough to run in consolidated database environments with other applications using different schemas and virtualization.

Data shall be retained in a read-only historical database for use by management and other WRTA staff to plan and assess system performance, and to address inquiries, conflicts and other related issues.

The system shall allow all such data to be retrieved, even if it has been archived.

All queries made to the database shall be logged for audit purposes. The WRTA shall have the ability to view these logs when required.

The online data storage system shall ensure data integrity in the event of a disk-drive failure.

In addition, the system shall include a means of archiving transaction data, or restoring data from an archive, while the system is in operation. It shall not be necessary to shut down the database to perform a successful backup operation.

Proposers shall determine and describe the need and procedures for an incremental, daily or other time frame-based backup of the data (but not less than daily). Other needs related to the archiving of data, such hardware and software, shall also be determined and described by each Proposer.

Data kept for archive purposes must be in a location that is still subject to all HIPAA testing and be tested for compliance on a yearly basis.

The system administrator account shall not be used with SQL server applications. If it is, the solution must allow the WRTA staff to change the system administrator password on a periodic basis without limitations.

3.4.1 Data Management

All data associated with the new CAD/AVL system is owned by the WRTA and shall be considered confidential and not shared by the Contractor without the express permission of the WRTA.

Data shall be retained in a database for use by WRTA staff to plan and assess operational, financial and system performance, and to address inquiries, conflicts and related issues. Storage capacity must be large enough to retain operational history data for at least three fiscal years. Data older than three fiscal years must be archived but still available for use by the WRTA.

After two fiscal years, the operational and financial data will be archived in a “non-live”³ database and will remain readily accessible when needed.

Data backup for both live and non-live databases must be archived at redundant offsite locations.

Proposers must describe the time it would take to restore the data into the database from the backed-up files in the event of a database crash.

The Contractor shall develop a long-term archival plan to store information on optical (e.g., Digital Versatile Discs [DVD]) or magnetic storage (e.g., external hard drives) devices in coordination with the WRTA. This data should be stored in such a way that it is mountable or searchable, and arranged by year so, as it moves beyond the number of years mandated in the WRTA’s document retention policy, it can be permanently destroyed.

The Contractor is required to provide a data dictionary. At a minimum, the following must be provided:

- All fields and associated attributes;
- A function within the Admin module to view the data dictionary; and
- Could be used for interface configurations to other applications or Application Programming Interface (API) setup.

3.4.2 Data Logging and Retrieval

All incoming and outgoing data shall be stored in a read-only historical database for retrieval, analysis, display and printing.

This historical information shall include all data exchanged between vehicles and dispatch (e.g., location data, vehicle logon/logoff data, device alarms, and canned data messages); and all central software user logons and logoffs.

The stored data shall be time and date stamped and shall contain sufficient information to enable selective sorting and retrieval based on user-specified selection criteria. At a minimum, the following sorting and selection criteria shall be supported for accessing the historical data from both the online and archived storage: date and time, GPS latitude/longitude, vehicle number, vehicle operator number, dispatcher number, trip/run number, and incident type (where needed).

3.5 Data Access

The database structures and any proprietary interfaces shall be documented in the proposal.

The proposed system shall follow an open architecture model, providing the capability for the WRTA to independently develop system interfaces or enable integration with other internal or

³ “Non-Live” database refers to a “read-only” database that is not being accessed by any application. This database may not be up and running all the time and can be shut down or restarted, as needed.

third-party systems. The use of standard network communication protocols (e.g., Transmission Control Protocol/Internet Protocol [TCP/IP] and system interfaces (e.g., Open Database Connectivity [ODBC] for databases) is required.

The WRTA shall be allowed royalty-free access to the database tables, and royalty-free use of the data and interfaces. If necessary, the WRTA shall be allowed to extend such access and use to third party vendors for integration purposes.

All system data shall be the property of the WRTA and shall be immediately available to the WRTA. The Contractor shall acknowledge in writing that the WRTA will own any and all data and the database where the data resides.

3.6 Customer Support

Customer support shall be available 24 hours a day, 365 days a year. All technical requests from the WRTA must be addressed within one hour of the notification of a problem. If an issue requires a longer timeframe for resolution, the WRTA must be advised accordingly and an expected reasonable timeframe for resolution must be provided.

The Contractor's customer support activities must include the following:

- Responding to support tickets and questions agencies are unable to resolve
- Verifying the existence of any software defect and determining the scope of its impact
- Submitting feature requests and other feedback on behalf of agencies
- Escalating incidents and other issues
- Helping to maintain quality standards throughout the support process
- Notifying agencies of planned system maintenance, expected outages, or alerts from third-party services
- Providing agencies with copies of Incident Tracking and Monitoring logs and other relevant information from the Incident Management Suite
- Collaborating with the Contractor's engineers to develop resolutions or workarounds
- Contributing to outage reports that detail the root cause, impact, and actions taken to prevent recurrence
- Administering faulty hardware returns should the Contractor provide hardware
- Attending incident review meetings

At a minimum, the Contractor shall provide four (4) levels of support:

- Critical support is to report an issue which may indicate an impact to the overall operation of an agency's CAD/AVL system and prevents standard functions to be completed or used. This level covers requests that are considered critical (most important);
- Urgent support is to report an issue which may impact part of the agency's CAD/AVL system (e.g., reporting) and prevents one standard function from being used. This level covers requests that are considered urgent (important but not impacting the entire system or use of the entire system);

- Normal support is to report a single issue regarding a potential defect or issue reported by a single system user; and
- Low/General support is to ask for knowledge base support and how-to's, or general questions about new functionality releases.

The Contractor shall allow agencies to submit a support request via email, phone, and the Contractor's support website or other online location.

The priority and severity of a support request (critical, standard or general support) are assigned during an initial triage by the Contractor.

At a minimum, the following table identifies the required response times to support requests.

Critical	Urgent	Normal	Low
Resolution: 4 hours Guaranteed Response: <60 mins	Resolution: 8 hours Guaranteed Response: <4 hrs	Resolution: As Defined Guaranteed Response: <12 hrs	Resolution: As Planned Guaranteed Response: <24hrs

The WRTA must be able to view the status of their support request(s) at any time through an online tracking system to be provided by the Contractor.

The Contractor shall arrange for support from one or more qualified firms to be available on-site on a four-hour response basis when needed by the WRTA to assist with fault diagnosis or component replacement.

If a support firm does not respond within the agreed-to response timeframe, or when a support firm is not able to provide the needed support, the Contractor shall provide, during the warranty period, supplementary support in accordance with an agreed-to escalation procedure. The escalation procedure can initially involve telephone support, but must culminate in the Contractor providing on-site support, if needed. The proposal must define the proposed support escalation procedures.

3.6.1 Hosted Approach

All servers, routers, switches, data center security and facility power shall be monitored electronically 24 hours a day, 365 days a year. In the event there are any out of tolerance conditions with any server components, technical support shall be automatically notified. Technical support must respond to these issues within one hour of notification.

The data centers to be used for hosting must have existing scheduled routine maintenance and emergency situation management plans. Proposers must submit maintenance schedules and emergency plans with their proposals for contractor review.

The data centers must comply with all HIPAA requirements as pertains to security and verification of credentials as well as any access to physical systems containing WRTA data.

3.6.2 Follow-up Analysis

The Contractor shall provide onsite follow-up analysis, including a written report on the findings of this analysis, on how the system is being used and provide training to address the issues. This follow-up analysis shall be conducted every six months during the warranty period and the first visit shall be conducted six months after the system acceptance. The follow-up analysis report shall categorize discovered issues under the following categories:

- Issues due to lack of training;
- Issues that require configuration changes;
- Issues that require system enhancements and can be addressed by upgrading to a more recent version of the system; and
- Issues that require system enhancements and will be fresh development for the Contractor.

3.6.3 Post-Implementation Support and Maintenance Program

The WRTA is in the process of developing a Service Level Agreement (SLA) for post-implementation support and maintenance. The Proposer shall provide a sample SLA that addresses these needs.

Maintenance windows required by the WRTA must be at times when fixed-route and paratransit services are not operating: non-business hours Monday through Sunday.

3.7 Software Updates and Upgrades

Proposers must describe their maintenance update and upgrade approaches in their proposals.

Proposers shall describe the difference in processes and costs associated with updates and upgrades.

The Contractor is required to notify the WRTA at least one month in advance of the installation when new software releases become available.

The Contractor is required to notify the WRTA at least six months in advance when it is expected that the current releases and related systems will no longer be supported.

The Contractor shall ensure that all existing software configurations are protected after the system has been upgraded or updated for the entire duration of the time when the WRTA uses the product.

The Contractor must comply with the WRTA's change management process when making any changes to supported systems. These changes must be reported to the WRTA Project Manager.

4 Wireless Data Communication Requirements

4.1 General

The Proposer shall describe the data communication infrastructure required to satisfy the following communication needs for this project:

- Wireless data communication between vehicles located at the garages and the central system;
- Wireless data communication between the central system and fixed-route revenue vehicles;
- Wireless data communication between the central system and supervisor/support vehicles; and
- Wireless data communication between wayside Dynamic Message Signs (DMS) and the central system.

The Proposer shall identify the specific on-board and central hardware and software that will be required to establish wireless communication infrastructure.

The Proposer shall identify the necessary cellular data requirements for their proposed solution and include pricing in the cost proposal.

4.2 Wireless Data Communications

4.2.1 On-Board Hardware

4.2.1.1 Modem Hardware

The modem must be capable of withstanding normal wear and tear, dust and water intrusion, and weather conditions associated with field use inside transit and supervisory vehicles.

The modem shall be capable of transmitting and receiving data per the requirements in Section 5.2.

4.2.1.2 Antenna Hardware

The Proposer must specify the model and type of vehicular data modem and antenna that will be used for cellular communication. **Please note that the WRTA uses Verizon Wireless for data communication.**

Vendors shall propose hardware that will help limit the number of antenna hardware to be installed on each vehicle. They may propose an antenna which can support a combination of global positioning system (GPS) connection, cellular network connection, and wireless fidelity (Wi-Fi) connection using a single unit (e.g., dual-mode antenna, tri-band antenna).

4.2.2 Wireless Communication Gateway Software

4.2.2.1 General

The Contractor shall establish a wireless data communications gateway to carry data using a cellular data network. This gateway shall have the ability to support multiple wireless networks, including private radio, cellular, and Wi-Fi, simultaneously, if necessary.

The Contractor shall set up the gateway in a highly redundant configuration. Proposers shall describe the gateway's redundancy functionality.

The gateway shall provide the ability to monitor communication traffic and to temporarily suspend the one-way or two-way wireless data communication path.

4.2.2.2 Data Message Processing

The system shall process data messages received from the vehicles and wayside DMS and pass these messages to the central software.

The system shall also process data messages received from the central software and pass these to an individual vehicle, a group of vehicles, or DMS, as applicable.

The system shall log and allow report generation on relevant details about each data message including but not limited to the following:

- A message's sender and receiver;
- Message type; and
- Follow-up action to a message, if applicable (e.g., acknowledgement).

4.3 Wireless Local Area Network (WLAN) Data Exchange

If the Proposer proposes using a WLAN data exchange rather than a continuous data exchange using the WRTA's cellular service, the proposal must describe meeting the requirements stated in this section (Section 4.3).

4.3.1 General

Wireless communication between vehicles and the central system will be provided at the WRTA garage location using Institute of Electrical and Electronics Engineers (IEEE) 802.11x (Wi-Fi) hotspots. The Contractor shall determine if the existing Wi-Fi in the WRTA Operations and Maintenance Facility at 42 Quinsigamond Ave, Worcester, MA 01610 can be used to satisfy this requirement.

The Contractor shall install WLAN access points at the WRTA facility, if necessary, to upload and download data when vehicles are coming in or out of service, as necessary.

The Contractor shall conduct the survey of the WRTA garage facility to determine the accurate number of wireless access points required. A floor plan of the WRTA garage facility is available in Appendix C: Garage Layout.

The service set identifier (SSID) for access points shall be not broadcast publicly and must be accessible to only WRTA vehicles. The access points shall avoid significant signal availability outside of the intended coverage area. Please note that the current Seon camera system has three access points. The Contractor shall determine if these access points will satisfy this requirement.

The Contractor shall install WLAN access points such that no barrier obstructs the wireless signals.

4.3.2 Access Point Hardware

The WLAN access points shall support the Wireless Protected Access 2 (WPA2) security standard, or an approved alternate superior security standard ratified by the time of implementation. The WRTA shall have the ability to independently change the encryption keys as often as desired.

The WRTA shall have the ability to independently adjust the signal strength of each WLAN access point.

The WRTA shall approve the specifics of proposed access point locations, signal levels, and antenna type/orientations for an acceptable balance between expected coverage in the intended coverage area's outlying parts and minimizing signal availability outside the facility. WLAN access points shall meet or exceed the following environmental capabilities:

- Non-operating (storage) temperature: -40 to 185°F (-40 to 85°C);
- Operating temperature: -4 to 131°F (-20 to 55°C); and
- Operating humidity: 5 to 97 percent (non-condensing).

WLAN access points must be National Electrical Manufacturers Association (NEMA) 4 or IP65 rated for dust and water resistance.

4.3.3 WLAN Data Transfer Support Software

The WLAN data transfer support software shall manage the WLAN data transfers between vehicles and the central software using the garage WLAN. Wi-Fi hotspots will be required at the WRTA garage to upload/download the following information to WRTA vehicles. (As stated in Section 4.3.1, the existing Wi-Fi in the bus operations and maintenance facility may be used to satisfy the requirement for the WLAN).

- Fixed-route schedule data to vehicles;
- Configurations, firmware upgrades, and patches to vehicles;
- AVA annunciation files to vehicles;
- Vehicle Component Monitoring (VCM) data from vehicles;
- APC data download from vehicles; and
- Video clips from the Digital Video Recorder (DVR) [Optional].

Once a vehicle has successfully associated with a WRTA WLAN access point, the WLAN data transfer software shall receive the file uploads which the Mobile Data Terminal (MDT) initiated.

When the WLAN data transfer software has a download available for a vehicle that has successfully associated with a WRTA WLAN access point, the WLAN data transfer software

shall check with that MDT whether it has already received that download and if not, initiate and complete that download.

The Contractor shall download any new download file to the entire fleet within one day, if each vehicle returns to WLAN coverage each night and the WRTA configures the WLAN coverage to remain on for a set time (e.g., at least fifteen minutes after the ignition is turned off).

The system shall report on the current status of downloads (e.g., download in progress, downloaded or download failed) for the WRTA fleet.

The WRTA shall be able to download updates or changes to fixed-route schedule data before their effective service date. These updates or changes shall be accessible the first time a driver logs on for service for that effective date.

5 ITS Functional Specifications

5.1 General

5.1.1 Environment

Equipment modules, cables, mounting hardware, and connectors shall be designed to withstand the full range of operating environments where they are to be installed and shall not interfere with the operation of existing onboard equipment.

The equipment shall operate within ambient temperature specifications between -22 °F (-30°C) and 140 °F (+60°C). If not compliant, the Proposer shall provide operating temperature ratings for the equipment.

The equipment shall withstand being stored for extended periods without damage in ambient temperatures from -40°F (-40°C) to 158°F (+70°C). If not compliant, the Proposer shall provide storage temperature ratings for the equipment.

The equipment shall operate within ambient humidity specifications between 5% and 97% non-condensing. If not compliant, the Proposer shall provide humidity ratings for the equipment.

The equipment shall be sealed against dust and water intrusion, certified in compliance with or exceeding the NEMA4 or IP65 standard.

The equipment shall conform to the Federal Communication Commission (FCC) Part 15 Class A limits for conducted and radiated emissions of electromagnetic interference and radio frequency interference.

The equipment shall be tested and proven capable of withstanding power transients, electromagnetic interference and radio frequency interference without degradation at levels encountered in typical transit operations.

Onboard equipment shall be specifically designed for the harsh transit environment and shall meet the requirements of this specification under all conditions encountered in typical transit operations.

The onboard equipment provided shall operate with these specifications while withstanding the vibration and shock forces encountered in typical transit operations.

Cabling and wiring shall be installed with these specifications while withstanding the vibration and shock forces encountered in typical transit operations.

5.1.2 Installation

The Contractor shall submit Installation Design Documentation (IDD) for WRTA approval before undertaking any installations.

The IDD shall provide adequately detailed text, drawings, illustrations, and images to allow a technician's quality installation without further training or installation instructions from the vendors of the individual equipment components.

The IDD shall include details on (1) equipment installation locations/mounting; (2) routing, conductors, color-coding, labeling, and connectors for power, communications, and vehicle ground circuits; (3) connections with, any required modifications to and restoration of existing infrastructure; (4) work area and equipment storage requirements; (5) methods and quality standards; and (6) supervision and quality assurance procedures.

The IDD shall include procedures for pre- and post-installation checklists for tests that the installers shall perform. The installations shall not be considered complete unless the WRTA signs off on the pre- and post- installation checklist for each vehicle.

Equipment shall be properly grounded with onboard equipment connected as directly as possible to the chassis ground.

Equipment components shall be replaceable as discrete units and identified by unique serial numbers. Each connector shall be keyed or otherwise configured to prevent inadvertent miswiring during MDT replacement.

The Contractor shall protect equipment inputs and outputs to absorb "routine" electrostatic discharges, over-voltages, and reverse polarity conditions. In the event of "extraordinary" conditions, the Contractor shall design equipment to sacrifice inexpensive and easily identifiable components when necessary to protect more expensive components or those less easy to troubleshoot.

The Contractor shall house equipment in enclosures that cannot be opened with standard hand tools and can resist damage from vandalism.

Onboard equipment shall operate from the vehicle electrical system, between 9 and 35 volts.

The Contractor shall securely mount onboard equipment in the vehicle's interior, clear of obstructions and interference-generating devices. The Contractor shall collaborate with WRTA staff to determine the installed location of onboard components.

Customer-facing equipment shall meet or exceed all ADA requirements found in 49 CFR Parts 37.167 and 38.35, as well as the requirements of the current version of the ADA Accessibility Guidelines (ADAAG) at the time of implementation. Compliance involving readability distance shall involve the selection of sign face and character features, including background contrast, high character brightness, character font selection, number of pixels per character, character aspect ratio, and number of pixels separating characters.

The Contractor shall perform installations at specific times during the day that the WRTA approves. The WRTA may require the Contractor to perform installations over nights and weekends and may require installations performed at the vehicle's home base.

The WRTA reserves the right to limit that no more than 5% of its vehicle fleet be out of service within any given 24-hour period to accommodate vehicle installations. The WRTA reserves the right to change this allowable percentage to allow for unrelated ongoing maintenance.

The Contractor shall ensure that all vehicles made available for overnight installation work are ready for revenue service by the start of the next service day.

The WRTA expects that it can make available four to five buses during service hours. Facilities and all vehicles are available overnights and on Sundays. Specifically, all installations would need to take place outside of revenue service (post 10:00 PM weeknights/Saturdays, post 7:00 PM Sundays).

The Contractor shall install and configure the entire system, including any WRTA provided computer hardware and integration with existing systems.

The Contractor shall provide all necessary personnel, tools, test equipment, transportation, hardware, and supplies for the successful and complete installation of all equipment and software.

The Contractor shall be responsible for their own and subcontractors' performance and safety.

Installations shall be performed in accordance with all Federal, State, and local laws and regulations.

The Contractor shall supply any electrical equipment necessary to operate system components using existing DC electrical power available on WRTA vehicles and existing AC electrical power at fixed facilities. If existing power arrangements are unsatisfactory, the Contractor must specify proposed alterations.

System implementation shall not reduce the capabilities of existing infrastructure affected by or to be integrated into the new system (e.g. the WRTA's local area network(s) (LAN) and wide area network(s) (WAN)) at any time.

The Contractor shall conduct a pre-installation inspection for each installation site, documenting the existing condition of any existing infrastructure that the installation may affect. The WRTA shall only authorize installations after approving each pre-installation inspection.

After installation, the Contractor shall be responsible for restoring the condition of any affected existing infrastructure at the installation sites to their pre-installation condition.

The Contractor shall be responsible for the security of equipment prior to installation.

5.1.3 WRTA Responsibilities

The WRTA will provide space for the Contractor to establish secure storage facilities adjacent to each installation area. The Contractor shall provide details on the space required for equipment storage and vehicle installation.

The WRTA will provide space for central system installations and vehicle installations.

The WRTA will provide light and electrical service at all installation locations as well as access to compressed air at vehicle installation locations.

The WRTA will provide staff to move vehicles to and from the installation locations.

5.2 On-board Systems

Requirements described in Section 5.2 apply to all revenue vehicles unless otherwise stated.

5.2.1 Vehicle Area Network (VAN)

The Contractor shall install communications cabling and connections compliant with the Society of Automobile Engineers (SAE) J-1708/1587 or J-1939 network standard, to form a VAN connecting the MDT, headsign, APC controller, AVA controller, and interior DMS for AVA for common login, operating control, and other integrated functionalities.

The Contractor shall fully document all supported Message IDs (MID) and Parameter IDs (PID) available for communications with on-board devices using the J-1708/1587 or J-1939 interface.

5.2.2 Revenue Vehicle MDT

5.2.2.1 General

The vehicle operator terminal shall be connected with or integrated into the Vehicle Logic Unit (VLU); this document will subsequently refer to this combination as the MDT.

MDTs shall turn on automatically when the vehicle power is turned on and shall shut down at an agency configurable time after the vehicle power is turned off. The system shall have a built-in battery backup to compensate for any loss of power draw from the vehicle battery when the vehicle is not running.

The Proposer shall provide details on its capability to remotely configure and reset MDTs.

VLUs, which serve as the controlling computing device for the overall MDT, shall be capable of being locally and remotely configured, diagnosed, and maintained. The local configurations shall use a laptop computer or other portable programming device (e.g., via a universal serial bus [USB] port, RS-232 console port or the operator terminal). The local configuration shall be accessible to the units and shall not require excessive customization between vehicle types (i.e., an identical location and connection shall be used for each vehicle type).

5.2.2.2 Vehicle Operator Display

The MDT's operator terminal shall use a color backlit display that the vehicle operator can read from the seated position under the full range of ambient illumination conditions. This includes capabilities such as vehicle operator-controlled brightness/contrast control, anti-glare coating, and adjustable orientation mounting.

The color combination to be used on the MDT terminal shall provide legibility for people who are color blind.

The operator terminal shall be operated using either at least eight programmable function keys with tactile and audible feedback or touch screen programmable buttons with visual and audible feedback.

The MDT speaker shall provide audible feedback when a function key or on-screen key is pressed.

The operator shall not be able to manually shut off or disconnect the operator terminal power or manually shut down the MDT application software.

5.2.2.3 “Safe Driving” Mode

For driver safety, the MDT shall have safe *driving* mode enabled when the vehicle is moving above a configurable speed limit (e.g., 5 miles/hour).

The safe driving mode shall allow WRTA management to determine the criteria that will prevent vehicle operators from interacting with MDTs when driving. The MDT shall allow the WRTA to enable the following screen configurations under safe driving mode:

- Blank display on the screen;
- Disabled MDT buttons to stop vehicle operators from performing any actions on the screen; and
- Display of information relevant to vehicle operators when of high priority (e.g., route and schedule adherence status, missed messages or calls from dispatchers).

The WRTA shall have the ability to remotely change configurations for safe driving mode.

The WRTA shall be able to change the safe driving mode configurations by vehicle operator login. For example, the safe driving mode could be disabled for maintenance or training purposes.

5.2.2.4 Vehicle Operator Logon

The MDT shall allow vehicle operator logon using operator ID and run ID entry. The MDT shall check with the central system to validate that the operator ID and run ID are valid. In the event of a conflict, the system shall notify the vehicle operator of an “invalid” logon. The amount of time for operator logon process should be minimized. Since it validates the operator and run IDs, the MDT shall select the schedule data stored in the MDT corresponding with that run to complete the logon.

After logon, the operator terminal shall display the current run, route, trip, next time point, and vehicle operator ID.

The MDTs shall use the logon data once the MDT logon is completed to provide run and block data to the AVA system and begin the process of automatically sending display commands to the headsights based on vehicle location.

The MDT shall track whether the wheelchair lift was cycled before the vehicle moved an agency configurable distance after logon and report it in real time to central software if it was not cycled.

The MDT shall allow the vehicle operator to logoff by selecting the logoff key.

The MDT shall send a message to the dispatcher as confirmation of the vehicle operator logoff.

The MDT shall periodically attempt to send a logon or logoff message until it receives an acknowledgement message from the central system. If no response was received from the central system within an agency configurable time, the MDT shall provide the operator with a “no logon response” message.

5.2.2.5 Vehicle Location Tracking

5.2.2.5.1 GPS Receiver and Antenna

GPS receivers shall report date and time, latitude, longitude, speed, direction of travel, and whether the receiver has a GPS position lock.

The GPS receivers shall be at least eight channel parallel tracking receivers, capable of simultaneously tracking at least four GPS satellites in the best available geometry, while also tracking at least the four next best and/or upcoming (rising)

On-board GPS receivers must be Wide Area Augmentation System (WAAS)-capable, providing position accuracy within ten feet (or three meters) 95 percent of the time. If GPS receivers are not WAAS compliant, the Proposer shall indicate how they will meet the GPS accuracy requirement.

The GPS receiver shall have a cold start solution time of 60 seconds or less and a re-acquisition time of 15 seconds or less.

The GPS equipment's velocity measurements shall be accurate to within 0.3281 feet (0.1 meters) per second.

The GPS antenna shall be securely mounted on the vehicle's exterior. The antenna, mounting and sealants shall be impervious to physical and chemical attack by automatic bus washing equipment.

The Contractor shall interface with vehicle odometers and provide a gyroscope to compensate for the loss of GPS signals. If location data is not available from GPS receivers, the MDT shall be able to calculate vehicle location based on vehicle speed, odometer readings, and gyroscope data.

5.2.2.5.2 Location Reports

MDTs shall send a location report to the central system immediately when the central system polls or automatically once a configurable number of minutes have passed since the previous location report.

All transmitted data shall be stamped with the following information: date and time, "GPS lock" status, latitude and longitude, heading, run number, vehicle number, and vehicle operator ID number.

5.2.2.6 Canned Data Messaging

The MDT shall not allow vehicle operators to send or view a canned data message when the safe driving mode is enabled on their vehicles.

The MDT shall allow the vehicle operator to select a set of pre-defined messages to send a canned data message to the central system. All canned messages to dispatch shall include the date, time, location (latitude and longitude) and odometer value.

The MDT shall issue a distinct audible tone and visual alert to indicate when a canned data message is received from dispatch.

The MDT shall store up to a configurable number of canned data messages received from dispatch, indicate to the vehicle operator when there are unread text messages, and allow stored messages to be viewed or deleted. The MDT shall allow the vehicle operator to view received messages that are longer than can fit on one line of the display.

The MDT shall allow the vehicle operator to send an acknowledgement or Yes/No response to certain messages received from the central system.

The MDT shall periodically attempt to send a canned data message or response until it receives an acknowledgement message from the central system.

5.2.2.7 Wireless Data Communication

The MDT shall use wireless data communications to send and receive messages with the central software at any time.

The data protocol used for transmission shall accommodate the required functionality for up to at least 100 vehicles at a 30-second or less polling interval.

The system shall store data if communications are interrupted and forward data to the central system once communications are restored.

5.2.2.8 Covert Alarm Switch and Covert Microphone

The Contractor shall mount a covert alarm switch at a location the operator can easily press in a discreet manner.

Vehicle vibration shall not activate the covert alarm switch.

The MDT shall be equipped with a covert microphone having adjustable orientation and sensitivity.

The MDT shall detect if the covert alarm switch circuit is closed for at least one second and automatically send an alarm message to the dispatch and place the MDT into covert alarm mode.

The MDT shall allow dispatch to activate audio transmission from the covert microphone, but only after the vehicle operator has activated the covert alarm.

The MDT shall disable the sending/receiving of text messages while in the covert alarm state.

Only dispatch shall be allowed to terminate the covert alarm state once the covert alarm state has been activated.

The MDT shall periodically attempt to send the covert alarm message until it receives an acknowledgement message from the central system.

When the MDT is in the covert alarm mode, there shall be no indication on the display other than subtle symbols or icons the WRTA approves, signifying that a dispatcher has accepted the covert alarm and the WRTA is monitoring the covert microphone.

5.2.2.9 Fixed-route Only Features

5.2.2.9.1 Schedule Adherence

When a vehicle operator is logged on to a fixed-route run, the MDT operator terminal shall provide continuous feedback on current schedule adherence status, updated every second based on the estimated on-schedule time for the current location (not just the schedule adherence as of the previous time point), and displayed to the vehicle operator with an accuracy of one second.

The MDT shall send the most recent schedule adherence data as part of each location report.

5.2.2.9.2 Route Adherence

Based on configurable thresholds, the on-board system shall compute whether a fixed-route vehicle is running on-route or off-route.

The MDTs on fixed-route vehicles shall send a message to the central software when a vehicle is determined to have gone off-route or have come back on-route.

The MDT shall periodically attempt to send an off-route message until it receives an acknowledgement message from the central system.

The MDT shall display on the vehicle operator terminal whether the vehicle is on-route or off-route.

5.2.2.10 MDT Installation and Integration

5.2.2.10.1 General

The vehicle operator terminal shall be mounted within comfortable reach of the controls from the seated position for the full range of vehicle operators and vehicle types.

The Contractor shall securely mount the vehicle operator terminal in the vehicle's interior to avoid blocking vehicle operator sightlines to front and side windows.

The Contractor shall determine location and mounting method for the VLUs and vehicle operator terminals with WRTA staff. If the WRTA deems necessary, the Contractor shall rearrange the installed locations of other onboard equipment to achieve a suitable overall arrangement of equipment (e.g., headsign control head and radio/handset).

The Contractor shall install the VLUs in lockable enclosures.

The MDT shall synchronize the APC controller and AVA controller date/time at least daily with the WRTA system time.

5.2.2.10.2 MDT On-board Integration

5.2.2.10.2.1 Headsign Integration

The MDT software shall control the destination text to be displayed on the existing headsigns.

The Contractor shall confirm if any upgrades to the headsign or headsign controller firmware are needed to implement this interface. The WRTA will coordinate these upgrades.

The vehicle operator shall continue to be able to use all features of the existing headsign controller, regardless of whether the vehicle operator has logged into a run using the MDT or whether the MDT is operational.

At an agency configurable distance before each trip starts, the MDT shall change the headsign message to display a message that the WRTA can configure.

When the vehicle is logged into a run using the MDT but operating on deadhead from the garage to the first trip of the run, the MDT shall automatically command the headsign to display a message that the WRTA can configure. This message could be "OUTBOUND", "INBOUND", "OUT OF SERVICE", "FROM GARAGE" or the message the vehicle will display during the first trip.

When the vehicle is logged into a run using the MDT but operating on deadhead to the garage from the final trip of the run, the MDT shall automatically command the headsign to display a message that the WRTA can configure. This message could be "OUT OF SERVICE", "TO GARAGE" or the message the vehicle will display during the final trip.

When the vehicle is logged into a run using the MDT but operating on deadhead for interlining between trips in the course of a run, the MDT shall automatically command the headsign to display a message the WRTA can configure. This message could be "OUT OF SERVICE" or the message displayed during either the previous or upcoming trip.

When the vehicle is logged into a "special" run using the MDT, the MDT shall automatically command the headsign to display a message the WRTA can configure for that run (e.g., "OUT OF SERVICE", "IN TRAINING").

When the vehicle is logged into any run using the MDT, the vehicle operator shall be able to manually command the headsign to display one of a set of preconfigured messages the WRTA can configure (e.g., "OUT OF SERVICE", "IN TRAINING").

When the vehicle is in covert alarm mode, the MDT shall automatically command the headsign to display one of a set of preconfigured messages the WRTA can configure (e.g., "CALL POLICE").

5.2.2.10.2.2 Interface with Interior DMS and Existing Public Address Speakers

The MDT shall be interfaced with the interior DMS and the existing interior public address speakers to enable interior next stop announcements.

5.2.2.10.2.3 Odometer Interface

The MDTs shall interface with the existing odometer, receiving the digital or analog signal and determining the distance traveled since the MDT was logged on, including the ability for the

WRTA to adjust the odometer's calibration. Proposers shall provide documented evidence of GPS-odometer accuracy if they propose substituting the GPS-odometer for the vehicle odometer.

The accumulated mileage data that the MDTs collect shall be calibrated within 5% of observed mileage.

5.2.3 Supervisor/Support Vehicles Equipment

The Contractor shall equip supervisor vehicles with ruggedized laptops and docking stations to provide remote dispatching capabilities. Supervisor vehicles shall be equipped with built-in GPS receivers just to enable vehicle location tracking.

The Contractor shall equip support vehicles with data modems having built-in GPS receivers just to enable vehicle location tracking.

The WRTA shall have the ability to track all supervisor and maintenance/service vehicles using the CAD/AVL software.

5.2.4 Automatic Passenger Counter (APC) System

5.2.4.1 APC Sensors

The doorway sensors shall be able to count and differentiate between boarding and alighting passengers.

The doorway sensors for all doorways shall be connected to a single APC controller.

The doorway sensors shall be able to separately count successive passengers that are walking as close together as is practicable, either one behind the other or side by side.

The doorway sensors shall be able to count moving passengers with heights between one meter in height and the maximum doorway height.

The doorway sensors shall be able to count moving passengers with speed between 0.3 and 9.8 feet (0.1 and 3 meters) per second.

The doorway sensors shall not register as multiple passengers a single passenger who reaches into or out of the doorway passage or who is swinging his or her arms while passing through the sensor beams.

The doorway sensors shall not separately count objects carried by passengers, such as shopping bags or umbrellas.

Please note that there are two (2) doors per fixed-route bus.

Boarding and alighting counts shall only be recorded when the doorway is open to avoid counting any passengers moving near the doorway passages between stops.

Boarding and alighting counts shall only be recorded when the vehicle MDT is logged in. If a breakdown occurs and passengers need to transfer to a replacement vehicle, this will allow the

passenger transfer to be done with both vehicles logged out so that transferring passengers are not erroneously double-counted.

The Contractor shall collect at least 700 boarding and alighting counts or a sample of boarding and alighting counts for at least three revenue trips (whichever is greater) for testing the APC system's accuracy. The measured accuracy shall be at least 95 percent for the collected sample. The Proposer shall provide documentation related to APC accuracy testing and results of a sample demonstration from a previous implementation of the proposed APCs.

The Proposer shall provide information on the maintenance required for the proposed APC solution (e.g., recalibration of sensors) to maintain the required 95% APC accuracy.

The Proposers shall describe their experience in helping other agencies with the Federal Transit Administration (FTA) certification process for using APC data for national transit database reporting.

The Contractor shall help the WRTA obtain FTA certification for using APC data for national transit database reporting.

5.2.4.2 APC Controller

The APC controller shall be interfaced with a wheelchair lift sensor and record the number of wheelchair lift operational cycles at each stop.

For each stop, the APC controller shall create a data record to store the number of boarding and alighting passengers for each doorway and the number of wheelchair lift activations.

Each data record shall also include the current GPS location's latitude and longitude, as well as the current date/time, vehicle number, vehicle operator ID, run number, route number, and trip number.

Data records may be stored either in the APC controller or the MDT with sufficient on-board memory capacity to allow for storage of at least 72 hours of APC data.

The APC system shall transmit real-time on-board passenger count information to the central system.

On-board memory shall use non-volatile storage, so a power supply is not required to retain the stored APC data records.

The Contractor shall provide utility software for use on a laptop computer connected via a serial communications connection to either the APC controller or the MDT. This shall support the doorway sensors' calibration and a review of stored data records.

5.2.4.3 Wireless Download of APC Data

A command from the WLAN subsystem shall upload data records from the APC subsystem.

The APC subsystem shall not erase or allow the overwriting of data records until confirmation is received from the WLAN subsystem that the data records were successfully received.

APC software or configuration data updates shall be automatically downloaded to the APC subsystem and installed in the MDT or APC controller upon command from the WLAN subsystem.

Upon successful receipt of a file from the WLAN subsystem, the APC subsystem shall provide an acknowledgement to the WLAN subsystem.

The APC subsystem shall provide a backup method (for use when the WLAN subsystem is temporarily unavailable) for bi-directional data transfer between vehicles and the central system, involving one or more portable devices that can be connected with the APC controller or MDT in each vehicle and with a reader device on the central system network (e.g., portable computer, memory cards). If battery power is required, the portable device(s) shall be rechargeable and have sufficient battery capacity to operate over an eight-hour shift between recharges. The portable device(s) shall have sufficient memory capacity to carry data to be uploaded to all vehicles and up to 72 hours' worth of APC data from all vehicles by the shift's end.

5.2.4.4 APC Installation/Integration

The Contractor shall integrate the APC controller with the on-board MDT, based on the standard SAE J-1708/J-1587 or J-1939 VAN.

The Contractor shall mount APC sensors so as to avoid any protrusions into the doorway passage, with sealed windows for the infrared beams.

Cabling to the doorway sensors shall be shielded and routed to avoid sources of electromagnetic interference, such as fluorescent lighting ballasts.

The Contractor shall mount doorway sensors and the APC controller in locations that are not accessible to the vehicle operator.

The Contractor shall calibrate the alignment of the doorway sensors after installation to maximize their accuracy and establish each vehicle's alignment settings. The Contractor shall also document each vehicle's calibration settings for future reference.

5.2.5 Automated Vehicle Announcement (AVA) System

5.2.5.1 AVA Controller

5.2.5.1.1 General

The AVA controller shall provide audio and visual announcements to on-board riders and those waiting to board. As each fixed-route vehicle approaches a stop or other designated location, a digitally-recorded announcement shall automatically be made in English and Spanish languages over the existing on-board public address (PA) system speakers and displayed on DMS inside the vehicle to inform passengers about upcoming stops, major intersections, and landmarks.

The controller shall be capable of making time-based, location-based, and vehicle operator-initiated announcements/displays.

The AVA controller shall make an exterior announcement of the current route number and destination when doors open at a stop. At other locations (e.g., major intersections), the controller shall make preset location-based interior announcements.

The location information announced/displayed shall provide the stop name and transfer opportunities.

5.2.5.1.2 PA Volume Control

The volume of the internal announcements shall be automatically adjusted according to the noise level on the vehicle at the time, and the vehicle operator shall not be able to lower the announcement volume.

The AVA shall provide the capability to adjust the external speaker volume levels based on time of day and location settings, as the WRTA pre-configures (e.g., maximum volume at the downtown transfer center between 6 a.m. and 9 a.m. and minimum volume at specific neighborhood stops).

The AVA shall provide the capability to adjust the minimum and maximum volume levels separately for interior and exterior announcements.

The AVA announcements and PA volume level controls shall also allow the vehicle operator to separately adjust the volumes for the driver and handset speakers.

5.2.5.1.3 AVA Triggers

The AVA controller shall use the vehicle location information from the AVL system to trigger the appropriate announcements on-board the vehicle whenever the vehicle enters a “trigger zone.” A trigger zone is a user-defined area that is located just before each stop location. The trigger zone, for example, may begin 800 feet (243 meters) before a stop as well as at selected other announcement locations.

The central software for AVA trigger management shall pre-define trigger zones and download them to the controller over WLAN.

Trigger zones shall be configurable by stop to accommodate for differences in operations, including but not limited to, the direction of approach and size of stop.

Time-based announcements/displays shall be programmed to be made on-board the vehicle at specific times of the day or at a set frequency within specified time periods on specific days of the week.

Location-based announcements/displays shall be programmed to be made on-board the vehicle when that vehicle passes any designated location(s).

Automated announcements shall continue to operate normally when the MDT is in silent alarm mode.

Automated announcements/displays shall not be made if a vehicle is operating off-route. Once the route is reacquired, the system shall automatically determine and announce the next valid bus stop or other designated location.

Off-route and on-route detection and recovery shall be automatic and not require vehicle operator intervention or action.

5.2.5.1.4 Manual Announcements

The vehicle operator shall have the ability to manually trigger the activation of any pre-recorded announcements if needed.

Vehicle operator-initiated announcements/displays (e.g., safety-related announcements) shall be programmed to be made at the vehicle operator's discretion.

Vehicle operator use of the on-board PA system shall override any automated announcements.

Vehicle operators will be allowed to override AVA announcements for manual PA announcements for configurable time durations. The controller shall revert to automated announcements after the time limit expires.

Dispatchers shall be able to simultaneously activate or deactivate announcements on a group of buses.

5.2.5.1.5 AVA Text Display

The AVA system shall provide text announcements for configurable duration, which will be set using the central recording software.

As any fixed-route vehicle approaches a stop or other designated location, the AVA system shall provide a stored text announcement at the same location as interior audio next stop announcement.

The AVA system shall provide stored text for location triggered, periodic or vehicle operator-activated announcements.

The DMS shall display the current date/time when not displaying a triggered announcement.

The dispatcher shall have the ability to send a free form announcement message to the AVA interior DMS on one bus or a group of buses.

5.2.5.1.6 "Stop Requested" Functionality

The DMS shall display a "stop requested" message when a customer activates a stop request or wheelchair area stop request.

If the stop request signal is received while another message is being displayed on the DMS, the AVA system shall show the stop requested message after the current message is completed.

If the next stop announcement begins while the stop requested message is displayed, the stop requested message shall be interrupted.

5.2.5.1.7 Integration with Interior DMS

The Contractor shall integrate interior DMS with the AVA controller over the J1708/1587 network.

5.3 Central Systems

The system shall access network time from the WRTA server daily to synchronize times.

5.3.1 Built-in Maps

The Contractor shall provide the base geographic data necessary for the central system base maps. If the Contractor is using WRTA-provided route/variation and stop data, the Contractor shall physically drive those routes to verify the data.

The system shall include mechanisms to allow for the WRTA's periodic independent updates to the central and on-board systems' built-in maps.

Proposers shall provide the details and cost of the geographic information system (GIS) editing software that would be needed to maintain the GIS maps proposed in the solution. The proposed software shall incorporate maps comprised of a selection of individually selectable theme layers (e.g., streets, street names, water features, parks, major buildings) to support the functionality.

The GIS editing software shall allow the WRTA to develop additional overlay map layers that can include polygons (e.g., municipal boundaries, fare zones), lines (e.g., route traces) and points (e.g., landmarks, transfer locations, time points, stop locations), with the color, shape, and thickness being selectable.

The built-in GIS module in the proposed software shall allow users to view the map at various user-selected zoom levels.

The built-in GIS module in the proposed software shall allow the user to calculate the distance along a line drawn on the map as a sequence of straight lines between points (e.g. the distance of a route trace).

The built-in GIS module shall allow the WRTA system users to save and reload a map view in the AVL window.

The system shall include mechanisms to accept real-time traffic or event-based roadway conditions (Optional).

5.3.2 Fixed-route CAD/AVL Software

5.3.2.1 General

Requirements in this subsection apply to fixed-route vehicles unless stated otherwise.

5.3.2.2 Remote Access

The Contractor shall provide remote access to the CAD/AVL software to customer service, maintenance, supervisors for off-site dispatching, staff at transit centers, and other authorized WRTA staff.

5.3.2.3 Mobile Access

The Contractor shall provide technical requirements for ruggedized laptops (or equivalent mobile hardware) to allow remote access for supervisor vehicles to the central fixed-route CAD/AVL software over a cellular data connection. The WRTA will procure the laptops. The Contractor will provide software, installation, and integration assistance for the supervisor vehicles.

Software functions and views to be displayed on the mobile laptop shall be configurable by WRTA's staff.

The Dispatcher shall be able to view supervisor and support vehicle locations in addition to fixed-route vehicle locations.

5.3.2.4 MDT Logon Verification

The system shall receive and validate a logon request from an MDT, if the vehicle operator ID and run ID are valid and not already logged in on another MDT (and otherwise respond that it is an invalid login attempt).

The system shall provide dispatchers the ability to manually logon a vehicle operator to an appropriate run.

The system shall allow vehicle operators to log on to a vehicle to operate service that was assigned to another driver, or to supplement service if more vehicles are needed on a particular day or event.

The system shall receive and immediately process a logoff message from an MDT.

5.3.2.5 Route and Schedule Adherence Tracking

The system shall track the times when buses arrive at each bus stop, even if the door does not open, and store the associated schedule adherence data along with date, time, stop, vehicle, vehicle operator, run, route, and trip direction.

Based on thresholds that WRTA staff configures, the system shall use the reported schedule adherence data to designate when vehicles are "early," "late" or "on time."

Based on thresholds that WRTA staff configures, the system shall designate when vehicles are deemed off-route.

The system shall highlight the vehicle IDs of those vehicles that are operating early, late, or off-route, using tabular and map displays to indicate their current schedule and route adherence status to the dispatcher. The tabular display entries and the map display symbols for these vehicles shall use distinct and configurable color codes for early, late, and off-route status.

The system shall provide a real-time output of the current location and the schedule adherence for all fleet vehicles for the next stop prediction software's use. The Proposer shall document and provide the WRTA with the communications protocols, command sets, and message formats used in this interface.

5.3.2.6 Vehicle Location Tracking

The system shall receive location reports from revenue and non-revenue vehicles after a time period WRTA configures has passed after receiving the last location report.

The system shall receive and store latitude and longitude information stamped with date, time, vehicle, vehicle operator, run, route, and trip information from MDTs.

Dispatchers should have the choice of whether to label vehicle points on the AVL interface with the vehicle number, block number, route number, or vehicle operator number.

The display shall provide an indication if the last reported location being displayed is older than the reporting interval. If a vehicle's location on the AVL map is shown to be older than a minute, the system shall let the dispatcher manually poll/locate a vehicle.

5.3.2.7 Vehicle Data Replay

Authorized WRTA staff shall be able to review the chronological sequence of reported locations for a specified vehicle(s) or route(s) over a specified time period.

The replay data shall include location reports and schedule and route adherence status.

The system shall allow replay for a single vehicle, selected set of vehicles, or all vehicles on the selected map view for a selected time period.

The system shall allow replay for a single route, selected set of routes, or all routes on the selected map view for selected time period.

The system shall provide controls to view the entire sequence of reported locations from the beginning of the time period.

The system shall allow selection of any time period for the historical data stored in the database.

All users accessing the CAD/AVL software including workstation users, remote access users, and mobile access users shall be able to access the playback function.

The system shall allow the ability to use playback without exiting from the current CAD/AVL operational view.

The system shall be able to store a playback in a format that can be exported for viewing on any computer.

5.3.2.8 Canned Data Messaging

The system shall allow the dispatcher to view received canned data messages in a tabular display that also indicates the vehicle ID and the time of the message.

The system shall allow the dispatcher to send a message to a single MDT, a predefined group of MDTs, all MDTs within an area selected on the map display, all MDTs operating on the same route, or all MDTs.

The system shall be configurable to allow for audible and visual alerts for incoming messages.

The system shall allow the dispatcher to select one of a set of predefined messages (canned data messages) or enter a free text message.

The system shall allow WRTA's staff to add, edit, delete, or reorder the listing of canned data messages to be stored on MDT.

The system shall allow for any message that dispatch sends to be flagged as requiring vehicle operator acknowledgement or a Y/N response. The system shall also allow the dispatcher to view a list of such messages that vehicle operators have not yet acknowledged.

5.3.2.9 Central Covert Alarm Handling

When a covert alarm signal is received from a vehicle, the central CAD/AVL system shall display the event in the performance queue to all dispatchers, using WRTA approved visual and audio alerting methods.

The CAD/AVL system shall notify the dispatcher in the performance queue that a silent alarm message has been received using a WRTA approved visual interface. There shall also be a WRTA approved audio notification method, which the WRTA shall be able to configure as on or off.

Once one of the dispatchers selects the covert alarm event, this shall be indicated to that dispatcher and other authorized staff.

Once a dispatcher has selected the covert alarm event, the dispatcher shall be able to opt whether to monitor the covert microphone audio.

The dispatcher can opt at any time to end the covert microphone monitoring or the overall covert alarm event.

The system shall send signals back to the MDT that generated the alarm when a dispatcher has selected the event, when covert microphone monitoring has started or ended, and when the event has ended.

During a covert alarm event, the system shall inform dispatchers to NOT initiate voice calls with the vehicle or send a text message but shall allow monitoring of all other locations/performance.

The Contractor shall configure the system so that a vehicle in covert alarm mode shall send updated location reports at a more frequent polling interval. The WRTA shall configure the frequency of the location report interval.

5.3.2.10 Incident Reports

The dispatcher shall be able to select an event to form the basis for an incident report, with the incident report form auto-populated with all information already known in the system about the event.

There shall be one central incident/accident report accessible from a server, so everyone sees the same current report information. However, only one instance of the report shall be open at a time for editing.

The system shall allow authorized users to append to an existing open incident report with other system users limited to read-only access.

The user shall be able to select from a list of currently open incident reports that can be sorted by date/time, incident type, or initiating dispatcher. The open incident report shall be repeatedly accessed and modified until it is marked closed after which further modifications shall not be possible, unless authorized personnel with specific authorization do so.

The users shall have the ability to attach files (e.g. an image file) to the incident report.

The system shall be able to set limits on which users can open, modify, or close incident reports.

The system shall track the user and date/time when the incident report is opened, modified, or closed.

The system shall allow authorized users to close an existing open incident report. The user shall be able to select from a list of currently open incident reports, which can be sorted by date/time, incident type, or initiating dispatcher. The user shall be asked to confirm the selected incident report before the incident is closed.

The incident report database shall indicate, for each incident report, the date/time of opening the report, the incident type, the initial incident text, the initiating dispatcher, the date/time of each subsequent modification, each modified version of the text, the modifying dispatcher, the date/time the incident was closed, and the closing dispatcher.

5.3.2.11 Data Logging and Retrieval

All incoming and outgoing data shall be stored in a read-only historical database for retrieval, analysis, display, and printing.

This historical information shall include all data exchanged between vehicles and dispatch (e.g., location data, route/schedule adherence data, vehicle logon/logoff data, covert alarms, device alarms, text messages, and RTT/PRTT call being and end time); and all central software user logons and logoffs.

The stored data shall be time and date stamped and shall contain sufficient information to enable selective sorting and retrieval based on user-specified selection criteria. At a minimum, the following sorting and selection criteria shall be supported for accessing historical data from both the online and archived storage: date and time, GPS latitude/longitude, vehicle number, vehicle operator number, dispatcher number, run number, and incident type (where needed).

5.3.2.12 Standard Reports

The software shall provide standard reports based on the CAD/AVL data. Proposers shall provide details in their proposal related to reports that are offered and the degree to which they can be configured. Some of the expected standard reports are as follows:

- On time performance by route, variation, timepoint, bus stop and operator;
- Running time by route, timepoint, and timepoint pair;

- Active fleet;
- Productivity (e.g., boardings/hour);
- Number of incidents/accidents by route, vehicle, and vehicle operator;
- Lost service time by incident type and vehicle; and
- National Transit Database (NTD) annual reports in accordance with FTA rules. National Transit Database reporting shall be available on actual revenue-hours, revenue-miles, layover-hours, deadhead-hours, deadhead-miles, actual-hours, and actual-miles. Deadhead should breakdown between to/from garage and interline types.

All reports shall have the capability to export information into common analysis and text editing office software such as Microsoft Excel and Word.

All reports must use standard reporting tools (e.g., Microsoft Reporting Services and Crystal Reports) and shall have the ability to export data into file formats that can be viewed and edited with standard office software (e.g., Microsoft Word and Excel).

The Contractor shall provide tools to generate and store ad-hoc reports on stored CAD/AVL data.

5.3.2.13 Interfaces

5.3.2.13.1 Fixed Route Scheduling Software

The system shall be interfaced with CSched/Hastus to allow for schedule data to be transmitted to the MDT upon operator log on.

5.3.2.13.2 Wireless Data Communications Gateway

The Contractor shall interface the system with the wireless data communications gateway to allow all incoming and outgoing messages to be transmitted between the system and the MDTs (and if needed, some DMS) using the mobile data communications system.

5.3.2.13.3 Wireless LAN Data Exchange Software

The Contractor shall interface the system with the WLAN data exchange software to let the system exchange data over the garage WLAN with vehicles.

The system shall allow files to be set up so that they will automatically download to vehicles when they connect with the WLAN. The system should include a mechanism to avoid repeating a download to a vehicle that has already previously received it. The system shall also determine when all vehicles have received the download.

The system shall automatically receive any files that vehicles have ready for upload when they connect to the WLAN. This system should include a mechanism to avoid repeating an upload from a vehicle that has already provided it.

5.3.3 AVA and Trigger Location Management Software

The system shall provide an integrated software package for preparing all information to be downloaded to the fleet, including the interior/exterior announcements, DMS text messages, announcement trigger locations, and headsign trigger locations.

5.3.3.1 Announcement File Preparation

The system shall provide pre-recorded announcement files in the English and Spanish languages. The WRTA may accept a text-to-speech generator-based approach if it can provide audio quality comparable to pre-recorded announcements.

The system shall be able to use professionally recorded messages that use a designated file format. Proposers shall describe the format of the audio file to be used in the case of pre-recorded announcements.

The system shall provide software to create recorded message files in-house.

The system shall provide the ability to create announcement messages that concatenate selected portions of recorded message files with timed pauses and text-to-speech segments.

The system shall provide the ability to create the DMS text associated with each announcement message.

5.3.3.2 Announcement Trigger Locations Configuration

The system shall allow the announcement message files and associated interior DMS text files to be linked with individual announcement trigger locations.

An announcement trigger location is a user-defined area located just before a stop location. The system shall provide a utility allowing the user to configure announcement trigger locations on a global basis (e.g., 800 feet / 243 meters before) and to individually set or adjust announcement trigger locations.

A headsign trigger location is a user-defined area approaching the start of a trip or deadhead segment. The system shall provide a utility allowing the user to globally configure headsign trigger locations (e.g., 800 feet / 243 meters before) and to individually set or adjust headsign trigger locations.

5.3.3.3 Interfaces: WLAN Data Exchange Software

The Contractor shall interface the system with the WLAN data transfer software to provide a mechanism to download AVA and trigger location updates to vehicles.

5.3.4 APC Software

5.3.4.1 Unprocessed Data

Unprocessed APC data received from vehicles shall be stored without alteration in the system database until the APC management software processes it.

5.3.4.2 Post-Processed Data

The system shall associate each unprocessed APC record with the correct nearest stop, based on an algorithm that uses the recorded GPS latitude and longitude, the route, and the stops assigned to the preceding and following data records.

If the latitude and longitude recorded for a stop are not within a distance WRTA configures (e.g. 164 feet or 50 meters) of a specific stop (called uncorrelated stops from here through the end of the document) on the current route/trip, the boarding and alighting counts for that stop shall be stored in the database with the corresponding latitude and longitude information for WRTA staff review.

The system shall generate a report containing these uncorrelated stops. If the WRTA determines that such uncorrelated stops are valid after review, the system shall have the ability to update the stop database and correlate these stops with boarding counts during the processing of raw APC data.

The system shall initially flag in the unprocessed data (1) any “outlying” data; (2) instances where the calculated vehicle occupancy becomes negative; and (3) instances where the total number of boardings and alightings over the course of a block are not equal. Proposers shall describe other details regarding exception handling of APC data.

The software shall allow the user to set and adjust parameters controlling the automatic flagging of “outlying” data.

The system shall allow the user to review the flagged data and offer post-processing options. At a minimum, these options will include (1) eliminating or adjusting “outlying” data; (2) proportionally adjusting boarding and alighting counts data to avoid a negative occupancy condition; and (3) proportionally weighting boarding and alighting counts to equalize the total number of boardings and alightings.

The system shall store the post-processed version of the APC data received from vehicles in the system database for reporting.

The Contractor shall assist the WRTA in obtaining NTD certification for the APC system.

5.3.4.3 Reporting

The system shall be capable of providing information support for common transit management queries, including, but are not limited to, those in the following categories:

- Ridership by route, run, segment, and bus stop;
- Dwell time;
- Ridership profile by service hours (time-of-day) and service day (weekend, weekday, holiday); and
- National Transit Database reporting (e.g., passenger mile statistical reporting).

The system shall provide ridership analysis results in both tabular and graphical (charts and/or maps) formats.

The user shall be able to apply a filter comprising any combination of route, pattern, direction, stops, date/time period, and day-of-week. The user shall be able to select to view data including boardings by stop, boardings not assigned to a stop, alightings by stop, alightings not assigned to a stop, onboard passenger load by stop, and stops for which boardings/alightings were not recorded.

The system shall allow for ridership reporting to be included in the Data Warehouse and Reporting (Section 5.3.7)

5.3.4.4 Interface with WLAN Data Exchange Software

The Contractor shall interface the system with the WLAN exchange software to offload data from vehicles while they are in range of the WLAN.

5.3.5 Real Time Information System (RTIS)

The RTIS shall make the following information available:

- Map-based real-time vehicle location and schedule adherence information;
- Interactive schedule-based information;
- Real-time information on next bus arrival/departure;
- Real-time information on service disruption and alternatives;
- Planned detour information;
- Real-time information alerts;
- Current status of (availability of) real-time information; and
- Emergency information (e.g., AMBER alerts) via the described methods.

The RTIS shall make the information available via the following media:

- The WRTA website;
- Web-enabled phone and mobile devices;
- Third-party app;
- Voice Phone; and
- At wayside DMS locations, including Hub bus bays and passenger waiting areas, and bus stops.

The RTIS shall make the information available on-demand (OD); pushed out based on system configurations (PD); or not available (NA) for certain locations.

Table 2 illustrates the types of information, the appropriate locations for making this information available, and the method by which the information is made available (or not).

5.3.5.1 Vehicle Arrival Prediction

The system shall use the real time location and schedule adherence data to create continuously updated arrival and/or departure predictions for all stops.

The Proposer shall indicate how the system will comply with the ADA Accessibility Guidelines and Limited English Proficiency requirements.

Table 2. Real-time Information Types and Availability

Information Category	Dissemination Media					
	WRTA Website	Web-enabled phone and mobile devices	Voice Phone ^[1]	DMS		
				Bus bays	Passenger waiting area	Bus stop locations
Map-based real-time vehicle location and schedule adherence information	OD	OD	OD	NA	PD	NA
Interactive schedule-based information	OD	OD	OD	NA	NA	NA
Real-time information on next bus arrival/departure ^[2]	OD	OD	OD	PD	PD	PD
Real-time information on service disruption and alternatives ^[3]	OD/PD	OD/PD	OD/PD	PD	PD	PD
Planned detour information	OD	OD	OD	PD	PD	PD
Real-time information on transfer availability	OD	OD	OD	PD	PD	PD
Real-time information alerts	PD	PD	PD	PD	PD	PD
Current status of (availability of) real-time information	OD/PD	OD/PD	OD/PD	PD	PD	PD
Emergency information (e.g., AMBER alerts)	OD/PD	OD/PD	OD/PD	PD	PD	PD

The system shall provide this prediction data such that the WRTA and designated third parties have the right to perpetual and royalty-free access to this data for integrating it with future DMS (or other public information methods) and for importing it into the historic database.

The Contractor shall document and enter information the algorithm(s) require into a prediction support database. The system shall allow the user to configure the prediction support database values.

Based on this data, the Contractor shall calibrate the prediction algorithm and help the WRTA adjust fixed-route schedule times and stop locations to maximize the arrival predictions'

^[1] Information dissemination via voice phones would utilize the proposed IVR system.

^[2] In general, the system will be required to provide predicted next bus **arrival** information except when vehicles are leaving from transit centers or stations. At these locations, **both arrival and departure** information shall be provided, as applicable.

^[3] The WRTA shall have the ability to broadcast (push-out) service disruption and alternatives information via IVR and web services media.

accuracy. Where adjustments are made, the Contractor shall also collect additional prediction accuracy data for the affected stops to assess how much the adjustments improved accuracy.

The system shall generate a report that provides accuracy predictions stratified by minutes in advance of the arrival, filtered on a stop and timer period basis. The Contractor shall perform sufficient field data collection to validate the system prediction accuracy report and support efforts to use the report for maximizing the arrival predictions' accuracy.

Real-time information predicted by the next bus technology system must be at least 97% accurate when the errors are limited to the proposed solution and not affected by external systems. Proposers must discuss any exceptions if they do not comply with this requirement.

5.3.5.2 Information Dissemination

The system shall provide current next vehicle arrival and/or departure information to the DMS and other dissemination media (e.g., website, Transit app) through an automated process.

The system shall provide the capability to preview real-time information content before it is disseminated.

5.3.5.3 DMS Control Software

The system shall allow an authorized user to construct and display one or more text messages (e.g., real-time information messages regarding service disruptions) of 30 characters or less. These messages shall be displayed on the DMS on a separate row from the predicted arrival times.

The system shall allow software users to preview a message before it is transmitted to the DMS and other dissemination media for display.

The system shall allow users to configure the amount of time that a message is shown on the DMS. This capability will enable users to display different messages for specific time periods.

The system shall be able to remotely monitor and alert the authorized WRTA personnel about the functional status of each dissemination medium including DMS and web services. The system shall notify the dispatcher if:

- The data communication link is lost with the DMS, and
- An alarm is received from the DMS using a tabular display.

The system shall allow the WRTA to remotely perform the following functions on the DMS:

- Volume control; and
- Firmware upgrade.

5.3.5.4 Website Integration

5.3.5.4.1 Stop Next Arrival Predictions for Fixed-route

The system shall allow a person using a personal computer or web enabled personal mobile device to visit a publicly accessible web address to select a route, direction, and stop. The

prediction software at the initiating device shall then provide that person with the current predicted arrival time.

The Contractor shall provide all web pages, data feeds, and scripts needed to enable this web service on the WRTA website.

The WRTA expects that an embedded link on the WRTA's website shall contain real-time bus arrival information and a map with trip planning functionality that meets usability/accessibility guidelines.

The response web page shall be continuously updated (whenever a new predicted arrival time is determined) until the user closes the web page.

Clicking on a vehicle icon must show the vehicle's current status (early/late/on-time).

Clicking on a stop icon shall display arrival times for the next three buses for each route passing by that stop.

The system shall let the WRTA publish any service alerts on the web page showing the real-time vehicle location display.

The system shall comply with Section 508 of the Rehabilitation Act⁴ §1194.22, Web-based intranet and internet information and applications, listing 16 requirements that allow a person using screen reading technology (e.g. JAWS) to access and navigate all information on the WRTA's website.

5.3.5.4.2 Real-time Information Alerts for Fixed-route

The system shall provide real-time information alerts to WRTA customers based on their preferences. Customers shall be able to subscribe or unsubscribe to this service as desired. The system shall also allow them to configure their preferences for receiving real-time information alerts for the content and time interval.

The system shall automatically notify customers of the real-time status of buses at a specific stop on a requested route and direction. The notification will be made in the form of an email or SMS message. Further, the notification can be accomplished using GTFS-realtime data provided to trip planning apps (e.g., Transit app) in which the customer will be provided with the real-time status.

The notification service shall alert customers about the real-time status of the last bus of the day, if their preference indicates interest in this information.

5.3.5.5 Interactive Voice Response (IVR)

5.3.5.5.1 General

The IVR system shall provide the capability for customers to access or be contacted with information about WRTA services via telephone. The Contractor shall be responsible for

⁴ For more information, reference: <http://www.section508.gov/>

supplying hardware and software, technical support, and warranty coverage on implemented hardware and software.

The Contractor shall interface the IVR system with the RTIS software to access current prediction data for a selected stop.

The Proposer shall indicate how the IVR system will comply with FCC Section 255 of the Communications Act and Limited English Proficiency requirements.

The system shall provide both a web and phone-based customer interface for registering with IVR.

5.3.5.5.2 Phone System Integration

Proposers shall describe and provide the cost of integrating with the current phone system to meet the IVR requirements.

5.3.5.5.3 Customer Interface

The customer interface shall consist of voice prompts to which the customer may respond by either voice commands or by touch-tone key selection.

The IVR system shall provide a welcoming message as its first response to incoming callers or call recipients. The system shall allow for an additional optional message to be spoken after the welcome message.

The IVR system shall be designed such that incoming calls with no touch-tone or voice response within a short period of time by the customer are acted upon automatically (time-out). Proposers shall specify proposed options for calls that time-out or for which there is no touch-tone service.

The voice prompts shall encourage incoming callers to use the automated menu-based interface as a first choice over communication with a live Customer Service Representative.

The voice system structure shall provide key-ahead of touch-tone inputs such that experienced users do not have to wait for voice messages or prompts to complete before making a touch-tone or voice selection.

At any time during the call, the customer may request a transfer to WRTA Customer Service via touch-tone key or voice command. The touch-tone key used for this particular selection shall remain consistent throughout the customer interface.

5.3.5.5.4 Call Transfers

The proposed system shall handle at least 1,000 calls per day.

The proposed IVR system shall be capable of transferring calls to WRTA Customer Service.

When a caller initiates a transfer request to Customer Service after business hours, the IVR system shall issue an informational message to the caller and return the caller to the first level of the IVR system voice menu.

When a caller initiates a transfer request to Customer Service during regular business hours, the IVR system shall transfer the caller to Customer Service if a call taker or queue space is available.

When a caller initiates a transfer request to Customer Service during regular business hours but the call takers are busy and the queue is full, the IVR system shall detect the queue-busy condition, hold the call, announce the approximate amount of time the caller may be on hold, and provide IVR menu options for automated assistance.

5.3.5.5.5 Usage Data Collection and Reporting

The IVR system shall collect customer call data and provide reports for administrative purposes.

The Contractor shall describe the level to which data may be collected for incoming customer calls and for touch-tone responses to menu options.

The proposed system shall allow a system administrator to generate reports for specific time periods, including the following types of reports:

- Number of total incoming calls;
- Number of calls that transfer to Customer Service; and
- Call duration for each call.

The proposed IVR shall let the system administrator generate the above reports for the following selectable periods: hourly, daily, range of days, weekly, monthly, and yearly.

5.3.5.5.6 Vocabulary Management

The proposed IVR system shall let the system administrator record and edit vocabulary words and construct the phrases that the IVR system shall use.

The Contractor shall specify the method(s) for recording and editing vocabulary words and constructing phrases.

The proposed IVR system shall provide speech editing features. The Contractor shall specify features supported by the vocabulary management environment, including but not limited to:

- Individual vocabulary edits,
- Pause deletions and insertion, and
- Undo/redo individual vocabulary edits.

The IVR system shall provide the capability to store and manage all vocabulary words and phrases the system uses. The Contractor shall describe how the vocabulary words and phrases are to be stored and managed.

5.3.5.6 General Transit Feed Specification (GTFS) and GTFS-realtime Export for Google Transit Trip Planner and Third-party Apps

The system shall provide an interface to Google Transit using the GTFS and GTFS-realtime feeds. The interface shall allow for the export and delivery of data fields necessary (per the

WRTA's needs) for fixed-route trip planning on Google⁵. The Contractor shall work with the WRTA to decide which of the data fields described in the GTFS and GTFS-realtime shall be included in the export.

The Contractor shall perform or help the WRTA with the following processes required to deliver its fixed-route data to Google Transit:

- Shall prepare transit data as a zip file in GTFS format.
- Shall test the GTFS zip file using *FeedValidator* (<http://code.google.com/p/googletransitdatafeed/wiki/FeedValidator>) and *ScheduleViewer* (<http://code.google.com/p/googletransitdatafeed/wiki/ScheduleViewer>) tools to ensure that it is valid, and work with the WRTA to ensure that the schedules are accurate; and
- Shall review and perform a quality assurance check of Google's preview data (beta website) with the WRTA and work with Google to resolve any issues.

The Contractor shall perform or help the WRTA with the following process required to deliver its real-time data to Google Transit and third-party apps:

- Once the working GTFS static feed is available through Google Maps, the Contractor shall assist the WRTA in preparing the required form⁶ to determine WRTA's eligibility to share the Realtime feed;
- Create the GTFS-realtime feed;
- Assist the WRTA in choosing a data submission method;
- Publish the WRTA's data;
- Assist the WRTA in testing the realtime feed;
- Use the daily validation report to determine the quality of the realtime transit data; and
- Assist the WRTA to prepare for launching the real-time data.

The Contractor shall coordinate with the WRTA to ensure that any abnormal situations in trip planning, including but not limited to the following, are resolved:

- Excessive walking to/from an origin/destination transit stop,
- Stops connected by a straight line on the map instead of following the appropriate route trace,
- Excessive wait-time suggested for transfers, and
- Major and minor stop locations not marked on the map.

5.3.6 Data Warehouse and Reporting

While the WRTA will be deploying a centralized data warehouse that covers multiple technologies in the future, the CAD/AVL software shall provide and display key performance indicators, and standard and custom reports in an at-a-glance format (i.e. using dashboards).

The user shall be able to customize the displays and reports.

⁵ Transit using GTFS guidelines available at: http://code.google.com/transit/spec/transit_feed_specification.html.

⁶ https://support.google.com/transitpartners/contact/provide_live_updates?hl=en&cfnti=6154561&cft=3

5.3.6.1.1 Datamart Development

The Contractor shall develop a centralized reporting database (also known as datamart) to support an integrated reporting interface for all business function users at the WRTA.

Databases from the following systems shall be available in the centralized reporting database to generate the required reports listed in this section:

- Fixed-route scheduling software
- CAD/AVL
- APC

The Contractor shall perform extract, transform, and load (ETL) processes on multiple data sources to develop the datamart.

The Contractor will automate the ETL process and will not require WRTA staff's day-to-day involvement.

The ETL process will generate a daily log of data upload activities and will alert staff in the event of a database upload failure.

The ETL logic shall have exception handling built-in to avoid uploading any unwarranted data.

The ETL program shall provide a web-based system administration dashboard to monitor the database's current attributes. The system administration tool shall also allow management of user roles and privileges for accessing reports.

The database backup and restore program must be foolproof so that the entire database can be restored if the database crashes.

5.3.6.1.2 Reports

The reports shall be accessible over the WRTA intranet through a web browser.

The Contractor shall develop graphs and map-based illustrations, as applicable (e.g., ridership reports), along with tabular reports.

The reports shall allow the export of data to a common export format (e.g., text file, CSV, Microsoft Excel, and portable document format [PDF]).

The reports shall provide the ability to drill-down and drill-through reported information.

The reporting interface shall allow the WRTA to customize existing reports and generate ad-hoc reports.

The Contractor shall work with the WRTA as part of the design review to determine the requirements for each of the following reports:

Planning and Scheduling:

- **Passenger load profiles:** shall report on peak-load variation by date, day of week, time of day, route and stop. The system shall flag “overcrowding” situations.
- **Boardings/alightings:** shall report on boardings and alightings patterns by date, day of week, time of day, route and stop.
- **Ridership distribution by weather:** shall use weather information from third party service providers and correlate that with ridership patterns to provide information on the impact of weather patterns on ridership.

Operations:

- **On-time performance:** shall report on schedule adherence pattern by date, day of week, time of day, route and timepoint.
- **Logon/logoff summary:** shall report on vehicle operator logon and logoff statistics comparing scheduled and actual times for logon and logoffs.
- **Driver workpiece summary:** shall report on the actual piece of work vehicle operators performed in the field in comparison with the scheduled piece of work for each run by comparing the following data: logon/logoff times, timepoint crossings, logon/logoff operators.
- **Operator performance summary:** shall report on driver performance with respect to schedule adherence at timepoints. The reports shall be run by date, day of week, time of day, route, and stop.
- **Running times:** shall report on running time by timepoints and timepoint segments and run the reports by date, day of week, time of day, route and stop.
- **Added trips (to meet rush hour demand):** shall report on additional runs or trips that were not prescheduled and were introduced to meet passenger demand in real-time.
- **Dwell time summary:** shall report on dwell times at stops by date, day of week, time of day, route and stop.
- **Space-time diagram:** shall provide a visualization of scheduled and actual trips by creating a scatterplot of timepoint locations and arrival/departure times.
- **Missed trips summary:** shall report on trips that could not be performed.
- **Deadhead summary:** shall report on deadhead miles and distinguish pullout and pull-in events from other deadheads (e.g., when start or end point of a deadhead is not the garage).
- **Headway reliability summary:** shall provide a comparative summary of actual and scheduled headways for each timepoint.
- **Data communication (or event log) summary including response times:** shall report on a chain of activities tied to inbound and outbound data communications.
- **Off route summary:** shall report on start and end point and start and end times of an off-route event by date, day of week, time of day, and route.
- **System health summary:** shall report on current health of each piece of equipment and computer hardware that is part of the CAD/AVL system.
- **Automated announcement summary:** shall report on a comparative assessment of scheduled and actual on-board AVA events.

- **Road call summary:** shall report on the road calls vehicle operators/dispatchers make.
- **Incidents and accidents summary:** shall report on any incidents and accidents and relevant information.

System administration and alarm/failure monitoring:

- **On-board equipment status:** shall report on the functional status of hardware and software versions (e.g., MDT software version, route version, farebox software version, headsign software version).
- **Vehicle uploads and download summary:** shall report on the status of the WLAN data exchange by indicating successful, in progress, or failed downloads.
- **Wayside equipment status:** shall report on the software version and alarm status for DMS.
- **Real-time information accuracy:** shall report on the accuracy of disseminated real-time information on predicted arrival/departure.
- **Real-time information usage on the web and other personal media devices:** shall report on the use of dissemination media.

The reporting interface shall provide spatial or temporal segmentation of summary data ‘on the fly’ (if applicable) by the following parameters:

- Route and direction;
- Variation/Pattern;
- Stop and timepoint;
- Communication type (applicable only to communication reports, for example, RTT, PRTT, and covert microphone events);
- Trip;
- Run;
- Block;
- Vehicle; and
- Time of day, day of week, month, rating, fiscal year, and calendar year.

5.4 Wayside Systems: Real-time Information DMS

5.4.1 General

The Contractor shall propose the specifications for light emitting diode (LED) DMS at outdoor locations that the WRTA shall determine.

The Contractor shall propose the specifications for liquid crystal display (LCD) DMS at indoor locations that the WRTA shall determine.

The LED DMS shall consist of three rows providing at least 25 variable characters per row with height of at least three inches (7.62 centimeters) to be installed outdoors.

The LCD DMS shall consist of 7 rows providing at 30 variable characters per row with height of at least two inches (5.08 centimeters) to be installed indoors.

The WRTA will confirm the final number and locations of the DMS. The WRTA is planning to have ten (10) DMS located at the Hub and three (3) LCD DMS located inside the Hub building that houses the Customer Service window. However, the WRTA reserves the right to change the number of DMS being requested from the successful proposer or a third-party provider.

The information displayed on the DMS shall be in conformance with the ADA and ABA Accessibility Guidelines for Buildings and Facilities, Chapter 7, Section 703.

5.4.2 Hardware

The Proposer shall submit the following information for each type of DMS in the proposal:

- Dimensions of display area;
- Enclosure dimensions and construction/material details;
- Recommended installation method;
- Requirements for and dimensions of all installation hardware;
- Weight of DMS and associated installation hardware;
- Power requirements (voltage, peak and average current draw);
- Communications methods available between DMS and control software;
- Available display colors; and
- Available enclosure colors.

Maximum DMS intensity shall be along the axis perpendicular to the sign face and at least 50% of this maximum intensity shall be maintained within a cone spanning 22 degrees in any direction from this axis.

DMS messages shall be readable by a person with 20/20 corrected vision within the cone of maximum intensity at up to 40 feet from the sign face per inch of character height, under the full range of ambient illumination conditions.

The LED half-life (time until light output has diminished by 50% from the original rated value) shall be a minimum of 100,000 hours.

5.4.3 Enclosures

DMS must be protected using vandal-resistant enclosures.

The enclosure shall be durable in extreme weather and site conditions as discussed in Section 5.1.

The display panel shall provide high contrast, low sunlight reflection in all weather and site conditions.

Displays shall be legible when sunlight is shining directly on the display face or when the sun is directly behind the display.

The display housing shall provide safe and convenient front service access for all modular assemblies, components, wiring, and other materials located within the housing.

All internal components shall be removable and replaceable by a single technician with basic hand tools.

Service access shall involve unlocking and opening one or more hinged panels.

Removal of a display module will not be required to access the display's internal components.

5.4.4 Audio Announcement of Wayside DMS Text

The DMS shall include a manually-activated audio announcement system, which shall read out the sign text once successively in English and Spanish after a pushbutton has been pressed.

The DMS shall construct audio sign messages in real-time in a way that avoids the need to send audio data over the radio system, using either prerecorded announcements or text-to-speech generation of quality acceptable to the WRTA.

The audio announcement system shall be made through speakers built-in to the DMS enclosure or installed nearby.

The pushbutton must be mounted no higher than 48 inches (1.21 meters) and no lower than 15 inches (.381 meters) from the shelter or kiosk's finished floor.

An unobstructed pathway no less than 36 (.91 meters) inches wide connecting the pushbutton to an adjoining or overlapping accessible route must be provided. A clear floor space of no less than 30 inches (.762 meters) wide by 48 inches (1.21 meters) long must exist at the device (wheelchair footprint).

The pushbutton must be operable with one hand; not require tight grasping, pinching, or twisting of the wrist; and the force required to activate the button shall not exceed 5 pounds-force (22 Newton).

The pushbutton shall emit a brief low volume sound (e.g., "chirp") activated by a motion detector to guide people with visual impairments to the pushbutton location.

The audio volume shall be automatically adjusted based on the current ambient sound level in front of the DMS to ensure that it is only loud enough to be understandable within a five-foot radius from the sign.

5.4.5 DMS Controller

The Contractor shall enable the WRTA to configure the DMS controllers remotely via a wireless data connection and locally via a portable computer using a USB, an Ethernet, or an RS-232 connection. The WRTA shall also be able to use portable computer devices to perform routine diagnostic maintenance on the signs/monitors through local connectivity. Proposers shall list the type of health data that is reported by sign.

Each controller shall be connected to photoelectric sensor(s) sufficient to automatically adjust DMS output to address the requirements for legibility under varying ambient illumination conditions.

The controller shall have a time-of-day clock and calendar. The time and date shall be in sync with the system time at the WRTA.

The controller shall incorporate a real-time clock capable of maintaining the current date/time for up to 14 days without external power supply.

The controller shall be capable of receiving updated date/time data from the central software and use this data to update the real-time clock.

Public information messages/schedules and display configuration shall be stored in a minimum of 10 MB of non-volatile memory, to enable the immediate restoration of these messages when power is restored after a power loss.

The controller shall be configurable with a unique name for the display. When powered on, the DMS shall present the following information at a minimum on the display:

- Name of the sign;
- Firmware revision;
- Communication port configuration information;
- Hardware address of the controller; and
- Day, date, and time.

The controller shall automatically generate next vehicle arrival prediction messages, incorporating arrival time prediction data as it is received from the central prediction software.

The message template's format shall be "(route #) (route/destination name) (countdown minutes)" or an alternative format WRTA approves.

When the sign receives a message from central software indicating that current prediction data is not available, the DMS shall display an alternate message the WRTA approves. The WRTA also may choose to display scheduled arrivals in situations when predictions are not available for particular routes/vehicles. When scheduled arrivals are displayed along with actual arrivals, the DMS shall be able to distinguish scheduled arrivals with a distinct symbol (e.g., using asterisk next to the scheduled arrival).

The controller shall be capable of displaying messages on multiple sequential "pages". For example, displaying a next vehicle arrival message, and a date and time message, each within a single row; would use an alternating sequence of two one row message "pages."

Hold times for each message display and the blanking interval between message displays shall be variable in 0.1 second increments.

The DMS shall include ongoing self-diagnostics and shall send an alarm message to central software if a diagnostic fault is detected.

5.4.6 Data Communication for DMS

The DMS controller shall be able to receive instructions from and provide information to central diagnostics/control software over the data communication network infrastructure to be implemented for the project. The network interface cards to be proposed with the sign shall be able to interface with the WRTA network.

DMS shall be equipped to use the wireless data network to communicate with the central system. The DMS shall also have the capability to communicate with the central server over an Ethernet connection.

The DMS data communication equipment shall be housed within the sign case.

Interface with central system shall use the National Transportation Communications for ITS Protocol (NTCIP) standards, allowing additional signs to be added to the system without Contractor support. The Contractor shall provide an Interface Control Document (ICD).

The DMS controller shall be able to receive instructions from and provide information to a local computer equipped with diagnostics/control software through a serial connection port.

The data-link protocol will use a check summing technique to guarantee packet integrity. Packets must be discarded if the packet's check sum is not valid.

Each DMS on the network will be assigned a unique ID.

5.4.7 Installation/Integration

The WRTA will determine the DMS installation locations.

The Contractor shall connect the signs to the local power supply the WRTA provides at each sign location, including DMS and mounting hardware grounding as well as the providing a power disconnect near the DMS that is accessible without needing to touch the DMS enclosure.

6 Future Capabilities

The WRTA has identified future functionality of the new CAD/AVL system, including the following:

- Integration with existing On-board Video Surveillance System⁷
- Integration with existing FLEETWATCH and/or Ron Turley & Associates
- Integration with existing Masabi mobile fare payment system
- Integration with future paratransit scheduling and dispatching software
- Installation of additional DMS throughout the WRTA service area

As part of the future integration with FLEETWATCH and/or Ron Turley & Associates, the following maintenance reports shall be made available:

- **Real-time vehicle availability:** shall be able to provide the current availability of a vehicle based on the current health of maintenance components and on-board ITS equipment on that vehicle.
- **Maintenance work summary:** shall report on identified problem, resolution, and cause for ITS and non-ITS maintenance works.
- **Repeat failures summary:** shall report on recurring maintenance issues.

Proposers are required to identify their capabilities as they relate to providing each of these future functionalities.

⁷ Images/videos captured by the on-board video surveillance system shall be tagged with the date, time and vehicle location.

7 Project Implementation

7.1 General

The Contractor shall include the filename in the document footer and include the file release date in the filename for all deliverables.

The Contractor shall prepare all deliverables in both Microsoft Office (Word, Excel or PowerPoint) and Adobe PDF formats, with the WRTA granted full rights to reprint as needed.

7.2 Project Management

7.2.1 Project Status Tracking

The Contractor shall prepare a System Implementation Plan (SIP), including the detailed implementation activities/schedule, roles and responsibilities of parties in the proposed project team, progress milestones/status, and assigned staff.

The Contractor shall also include a Safety Management Plan in their SIP, which shall detail their responsibilities and procedures for safety during the project, including (1) conducting pre-installation surveys to identify potential project safety hazards; (2) identifying project hazard control procedures, including occupational (worker) and public hazards; (3) providing project safety orientation and training to its subcontractors and WRTA staff who will be involved in the project; and (4) furnishing procedures and training for project accident reporting and investigations,

The Contractor shall provide the initial draft of the SIP to the WRTA within two weeks from Notice to Proceed (NTP).

The revised SIP shall address comments from the first onsite meeting. The Contractor shall provide this revised SIP to the WRTA within two weeks after this meeting.

The WRTA must approve and accept the SIP before it can become effective.

The Contractor shall submit an updated SIP to the WRTA at the beginning of each month.

The SIP shall include a rollout plan for all WRTA and contractor vehicles.

The Contractor shall maintain an Action Items List (AIL), indicating the following for each item: (1) item number, (2) date generated, (3) item priority, (4) brief item descriptive title, (5) assigned person with lead resolution responsibility, (6) date resolved, and (7) ongoing dated notes on resolution status.

The AIL shall be sorted, primarily by unresolved vs. resolved items, priority, and by the date the item was generated.

7.2.2 Bi-Weekly Conference Calls

The Contractor shall participate in bi-weekly conference calls with the WRTA Project Manager, other WRTA staff, and outside consultants as the WRTA Project Manager determines.

The agenda for these meetings will be to discuss the most current status of and plans related to all issues identified in the recent releases of the system implementation plan and the action items list.

The WRTA reserves the right to identify for discussion any additional issues beyond those in the SIP and AIL.

The Contractor shall issue a status report to the WRTA at least two days before each conference call, including (1) an agenda for the upcoming conference call highlighting key discussion items, and (2) an updated AIL with the updates incorporating the discussions of the previous bi-weekly conference call as well as other subsequent developments since the previous AIL release.

At a minimum, the Contractor's Project Manager and any additional Contractor staff necessary to properly address the current issues and project status shall represent the Contractor in these conference calls.

Designated implementation management representatives shall represent the WRTA in these conference calls.

The Contractor will arrange and pay for these conference calls.

The Contractor shall submit minutes within two days of each conference call.

7.2.3 Minimum Required Onsite Work

Onsite work will be subject to all State and Federal COVID-19 precautions.

At the first onsite meeting, the Contractor shall be prepared to discuss WRTA feedback on the draft SIP and conduct a Requirements Review (RR).

At the second onsite meeting, the Contractor shall be prepared to discuss WRTA feedback on the draft Design Review documentation.

During the third and subsequent onsite efforts, the Contractor shall install the system and conduct acceptance testing. These onsite installation and testing efforts will occur over an extended period and will likely involve several different onsite trips and a range of different Contractor staff.

7.2.4 Invoicing

The Contractor shall only submit an invoice upon the completion of the following established milestones and upon receipt of a fully-signed Acceptance Certificate indicating that a progress payment milestone has been achieved. Payment of invoices shall be made by the WRTA within 30 days after receiving them.

The WRTA will withhold 10% retainage on each invoice and will pay total retainage upon final system acceptance.

7.3 System Design Reviews

7.3.1 Gap Analysis

The Contractor shall review the current system environment at the WRTA and prepare a gap analysis report as part of the design phase. The gap analysis shall include but not be limited to the following:

- Data conversion for fixed-route schedule;
- Data conversion for fleet inventory;
- Data conversion for ridership data; and
- Computer hardware infrastructure.

7.3.2 Requirements Review

The Contractor shall participate in the RR, as part of the first onsite meeting. The RR will initialize the Requirements Matrix. The Contractor will use this Matrix to produce the draft Design Document for conducting the Preliminary Design Review (PDR) at the second on-site meeting. The RR meeting shall discuss the following for each contract requirement: (1) WRTA's design intent; (2) the intended Contractor design approach; and (3) the general Contractor approach to demonstration through the acceptance testing process.

The Contractor shall prepare a traceability matrix with finalized contract requirements after the RR meeting. This matrix will be referred to as the Requirements Matrix (RM) hereafter.

7.3.3 Preliminary Design Review

The Preliminary Design Document (PDD) shall include the following materials: (1) a conceptual diagram illustrating all elements in the system and data flow; (2) an overview of the equipment, system, and configuration proposed for implementation; (3) detailed technical documentation for each equipment item; (4) detailed technical documentation on all software, addressing each module's functions, the format of all user interface screens, the format of all reports, the data fields to be included in all data exchange interfaces, and any other software aspects warranting advance agreement with the WRTA before system customization/configuration; and (5) a table providing cross-references for each section of the PDD to the appropriate element of the RM.

The RR and PDR meetings shall include a review of the facility and available resources that may need to be updated to accommodate the added technologies. The Contractor shall determine and detail the exact demand for resources such as electrical power and HVAC.

The Contractor shall update the PDD based on WRTA feedback and submit the updated documentation as the Final Design Document (FDD).

The FDD shall include the following materials: (1) updated PDD incorporating WRTA feedback and comments; (2) final list of equipment to be procured; (3) final design and configurations of the system to be built including all customizations to be made to the system; and (4) an updated table providing cross-references between sections in the FDD and elements of the RM.

7.3.4 Critical Design Review

The Contractor shall conduct the Critical Design Review (CDR) four weeks after submitting the FDD.

The PDD and FDD are intended only to reduce the chance of any misunderstandings on the design intent or interpretation of the contract requirements. The PDR and CDR shall not alter the need for each requirement's successful formal demonstration through the Acceptance Testing process.

Once the CDR is complete, the Contractor shall provide a detailed equipment list for the system.

The Contractor shall create a detailed list of system configurations for individual systems. An example of these configurations is as follows:

- CAD/AVL: list of canned messages, reporting threshold for AVL, and list of incident and accident codes; and
- AVA: list of messages and stops to be announced.

The Contractor shall document configurations of the fixed-end computer hardware and networking infrastructure (e.g., list of IP addresses).

7.4 Acceptance Testing

The Contractor shall submit an Acceptance Test Procedures document (ATP), for WRTA's approval before undertaking any testing.

The ATP shall clearly address: (1) how each testable specification requirement will be demonstrated, including the method for performing the test; (2) the results that will constitute success for each test; (3) responsibilities of both Contractor and WRTA's representatives during each test; and (4) which contract requirements from the Requirements Matrix each test addresses and how it addresses them.

Please note that, where applicable, testing the accessibility of specific requirements shall be accomplished by individuals with visual impairments, auditory impairments or other disabilities. Where applicable, the vendor shall note where persons with disabilities shall be desired in the testing process. (For example, testing dynamic message signs containing real-time information shall be tested by an individual with visual impairments.) The WRTA shall identify individuals who can be available to assist with the testing of these requirements.

The ATP shall include an updated RM from the Design Review Document (DRD). These procedures shall include the test stage at which each contract requirement will be demonstrated and a cross-reference to the test procedure(s) that serve to address each contract requirement.

The Contractor shall submit the ATP to the WRTA at least three weeks in advance of any intended testing.

The ATP shall incorporate the following distinct testing stages for the proposed system: (1) Factory Acceptance Test (FAT); (2) Pilot Testing (Pilot); (3) System Testing (ST); and (4) Burn-In/Rigorous Testing (BT).

The Contractor shall complete the FAT and rectify any deficiencies before shipping the equipment and software to the WRTA for installation.

The WRTA's representatives (WRTA staff and/or designated support consultants) shall witness the FAT.

The Contractor shall complete the Pilot for at least one type of each vehicle in WRTA's fleet for any on-board systems. The Contractor shall rectify any deficiencies observed in a four-week period following Pilot before initiating ST. (i.e. The vehicles used during the Pilot will be in operation for four weeks to observe issues that arise in daily operations).

Before the pilot's commencement, the Contractor shall validate all WRTA routes to ensure the on-board data configurations (e.g., AVA triggers) are accurate.

WRTA representatives shall witness the pilot.

The Contractor shall complete system testing after the entire system has been installed and shall rectify any deficiencies before initiating burn-in/rigorous testing.

The Contractor shall validate⁸ all routes in the WRTA system to ensure that the geographic parameters relevant to the system operation (e.g., stop locations, route traces, and trigger zones) have been accurately configured in the system database.

ST shall include the testing of all spare components.

WRTA representatives shall witness ST.

BT shall involve revenue service use of the system over a 30-day period after system testing is completed. The Contractor shall rectify any deficiencies before the WRTA will grant Final System Acceptance.

The WRTA may authorize the Contractor to proceed to the next testing stage with certain deficiencies not yet resolved.

The Contractor shall provide written notice to the WRTA at least two weeks in advance of any testing, indicating the specific tests to be completed as well as the date, time, and location.

The Contractor shall be required to reschedule testing if WRTA's witnessing representatives cannot be present or if other circumstances prevent testing from taking place.

The Contractor shall provide written Test Results Documentation (TRD) after completing each stage of testing.

The Contractor shall provide written test results documentation containing TRD of each ATP procedure and provide an updated RM which contract requirements have been demonstrated.

The WRTA must approve the TRD before granting Final System Acceptance.

⁸ Route validation will require the Contractor to "drive" all WRTA system routes

The WRTA will not grant Final System Acceptance until the Contractor has formally met all contract requirements through BT.

The Contractor shall use the RM as a “punch list” to track which requirements have not yet been demonstrated at each stage of testing.

The WRTA can subsequently redefine a requirement that was classified as “demonstrated” during a certain acceptance testing stage as “not demonstrated” if compliance issues emerge before Final System Acceptance.

7.5 Documentation and Training

The Contractor must complete all documentation and training before the WRTA will allow equipment installation.

7.5.1 Training

The Contractor shall provide training courses for at least the following:

- Equipment installers/maintainers,
- Trainers for vehicle operators,
- Users of the fixed-route CAD/AVL software,
- Users of AVA software,
- Users of APC management software,
- Customer service staff, and
- Applications/systems administrators.

The WRTA will provide the actual number of trainees for each of the above categories.

The Contractor will describe the necessary pre-requisite computer skills and knowledge expected for each of the training courses to develop training classes based on user skill level.

The Contractor shall provide all training materials in both Microsoft Office and Adobe PDF formats on compact disc (CD) and DVD with permission to reproduce copies later on.

The Contractor must provide the Training Plan (TP), including the training schedule and course outlines, to the WRTA for review at least three weeks in advance of the start of training. The Contractor shall at least include the following topics in the TP for each training session:

- Course objective,
- Topics to be covered,
- Required WRTA staff,
- Time required for training,
- Resources required from the WRTA,
- Follow-up need (in-person or webinar),
- Prerequisites for trainees, and
- Evaluation procedure for students.

The WRTA must approve the TP before any training starts.

The Contractor shall furnish all special tools, equipment, training aids, and any other materials required to train course participants for use during training courses only.

The instructors shall demonstrate a thorough knowledge of the material covered in the courses, familiarity with the training materials used in the courses, and the ability to effectively lead students in a classroom setting.

If the WRTA considers any instructor unsuitable either before or during the training, the Contractor shall provide a suitable replacement within five business days of receiving the WRTA's notice.

The Contractor shall provide brief refresher versions of each training course to the original trainees between three to six months after Final System Acceptance at no additional cost.

The Contractor shall provide additional training to the original trainees after Final System Acceptance at no additional cost if major modifications are made to the system after the initial training due to system upgrades or changes made under warranty; and/or Final System Acceptance occurs at least three months after the training completion, due to delays for which the Contractor is responsible.

7.5.2 Training Manuals

All manuals described in this section must be provided in hard copy and electronic formats.

The Contractor shall provide an As-Built Document (ABD) to the WRTA for approval.

The ABD shall include: (1) an inventory of all components supplied including supplier, model number, serial number and installation location; (2) an inventory of all spare parts supplied including supplier, model number, serial number and storage location; (3) all reference and user manuals for system components, including those components supplied by third parties; (4) all warranties documentation, including that for components supplied by third parties; (5) a diagram indicating the as-built interconnections between components; and (6) the version number of all software, including that supplied by third parties.

The Contractor shall provide Maintenance Manuals (MM) documenting (1) how the system components were installed; (2) how to install and configure spare components; and (3) the schedule/procedures for preventative maintenance, inspection, fault diagnosis, component replacement and warranty administration on each system component.

The Contractor shall provide User Manuals (UM) for the fixed-route dispatchers, documenting use of all software functions.

The Contractor shall provide Vehicle Operator Manuals (OM) documenting use of the MDTs and on-board equipment.

The Contractor shall provide a Systems Manuals (SM), documenting (1) the configuration and topology of central systems hardware and software; (2) central systems software functions and operations; (3) scheduled maintenance required for the central systems; and (4) database structure and data dictionary.

The Contractor must provide disaster recovery documentation highlighting how the system can function and prevent any data loss in the case of a natural disaster or other unexpected events.

7.6 Required Schedule of Implementation Activities

Table 3 shows the required schedule of activities and deliverables that have been described in Section 6.

Table 3. Required Schedule of Activities and Deliverables

Item	Description	Time Since Prior Activity
1	Notice to Proceed	
2	Revised System Implementation Plan (SIP)	2 Weeks
3	Requirements Review (RR) Meeting	4 Weeks
4	Preliminary Design Document (PDD)	4 Weeks
5	Preliminary Design Review Meeting	4 Weeks
6	Final Design Document	3 Weeks
7	Critical Design Review Meeting	3 Weeks
8	Design Document Approval	3 Weeks
9	Acceptance Test Procedures (ATP) for Factory Test	4 Weeks
10	Factory Test (FT)	3 Weeks
11	FT Results Document and FT Approval	2 Weeks
12	Training Manuals and Training	3 Weeks
13	Pilot Test ATP	2 Weeks
14	Pilot Test	3 Weeks
15	PT Results Document and PT Approval	2 Weeks
16	System Test ATP	4 Weeks
17	System Test (ST)	3 Weeks
18	ST Results Document and ST Approval	2 Weeks
19	Burn-in/Rigorous Test (BT)	4 Weeks
20	ST Results Document and ST Approval	2 Weeks
21	Final System Acceptance	2 Weeks

8 Warranty and Spares

8.1 General

The warranty period for the system shall run concurrently for all system components, through to five years from the date of Final System Acceptance.

The Contractor shall offer an option to extend the system's warranty period for one, two, or three additional years. The Contractor shall document any differences in the warranty terms for these option years in their proposal.

The Contractor shall warrant that it has reviewed and evaluated all information the WRTA furnished and has made all inquiries necessary such that the Contractor is fully aware of WRTA's business requirements and intended uses of system, as set forth or referenced in the Request for Proposals and any Addenda, Amendments, or Final Proposal Requests, as well as in discussions during the Pre-proposal Conference.

The Contractor shall warrant that the system satisfies the foregoing requirements in all material respects and will be fit for such intended uses.

The Contractor shall warrant that the design, materials, construction, software, and workmanship of the equipment shall reflect the equipment's intended use as a component of the overall transit management system in the WRTA environment.

The Contractor shall warrant that equipment and software, including the initial supply of spare components, (1) is free from defects in design, material, and workmanship, and shall remain in good working order, and (2) function properly and in conformity with this Contract.

The Contractor shall warrant that the documentation provided shall completely and accurately reflect the equipment and software's operation and maintenance and provide the WRTA with all information necessary to maintain the system.

If there is a change in the production configuration of any equipment or software being installed before Final System Acceptance, the WRTA may require that all previously installed equipment and software be upgraded to match the updated configuration.

The Contractor shall warrant compliance with all applicable laws and regulations relating to the project.

The Contractor shall warrant that its employees, agents, and Subcontractors assigned to perform services under this contract shall have the proper skill, training, and background to perform in a competent and professional manner and that all work will be so performed. The WRTA reserves the right to remove any subcontractors if their work is deemed incompetent or unprofessional.

During the warranty period, the Contractor shall at no cost to the WRTA furnish such materials, labor, equipment, software, documentation, services and incidentals as are necessary to maintain the system in accordance with the warranty.

The Contractor shall provide any software updates and patches for the current software version at no cost to the WRTA during the warranty period.

In addition to the foregoing warranties, the Contractor shall assign to the WRTA, and the WRTA shall have the benefit of, any and all Subcontractors', Suppliers', and Vendors' warranties and representations with respect to the deliverables provided.

In its agreements with Subcontractors, Suppliers, and Vendors, the Contractor shall require that such parties (1) consent to the assignment of such warranties and representations to the WRTA; (2) agree that such warranties and representations shall be enforceable by the WRTA in its own name; and (3) furnish documentation on the applicable warranties to the WRTA.

The Contractor shall provide a single point of contact for all warranty administration during the warranty period.

The Contractor shall warrant that the WRTA shall acquire permanent title to all equipment and non-proprietary software provided under the Contract, free and clear of all liens and encumbrances.

8.2 Repair or Replacement of Faulty Components

During the warranty period, the Contractor shall repair or replace any faulty components, with the cost included in the warranty price. The WRTA will ship each faulty component to the Contractor, who shall return a new or repaired component within one week of originally receiving it.

If the Contractor determines that a returned component is not faulty, the WRTA shall receive the original component back in working order within two days of the Contractor originally receiving the returned component.

All components received back at the WRTA from the Contractor will be tested in accordance with the original ATP and returned to the Contractor if faulty accompanied by a certification.

The Contractor shall pay all shipping charges to and from the WRTA, and any duties associated with the repair or replacement of faulty units.

Returned or replaced spare components shall be packaged, organized and labeled in the same manner as the original supply of spare components.

8.3 System-wide Replacement

If at least 25% of a given component requires repair or replacement within the three-year warranty period, the component shall be deemed to warrant system-wide replacement.

System-wide replacement shall require the Contractor to replace all units of the suspect component throughout the system, whether or not they have exhibited any fault.

Even if the system-wide replacement activity extends beyond the end of the three-year warranty period, the Contractor shall be obligated to complete it if the need was documented before the end of the warranty period.

8.4 Spare Components

The Contractor shall provide an initial supply of spare components to the WRTA for all installed hardware (e.g., MDT and data modem), with a quantity of at least 10% of the installed quantity (with a minimum quantity of 1).

The Proposal shall include a list of the spare components and quantities to be provided, including manufacturer, model numbers, and unit prices. At any time during the warranty period, the WRTA shall be able to purchase additional spare components at the unit price stated in the Price Proposal form.

Spare components shall be delivered to the WRTA already organized and labeled such that they can be readily identified and found. The WRTA's Project Manager must approve the organization and labeling.

Spare components shall be packaged to protect their reliability, including providing for them to be identified, inspected, stored for long periods, and endure multiple inventories without damage or degradation.

Additional spare components purchased during the warranty period shall be packaged, organized and labeled in the same manner as the original supply of spare components, although additional storage provisions will not need to be provided.

9 Acronyms and Abbreviations

ABD	As-Built Document
ABS	Anti-lock Brake System
ADA	Americans with Disabilities Act
AIL	Action Items List
APC	Automatic Passenger Counters
ATP	Acceptance Test Procedures
AVA	Automated Vehicle Announcement System
AVI	Automatic Vehicle Identification
AVL	Automatic Vehicle Location
BT	Burn-In Testing
CAD	Computer-aided Dispatch
CD	Compact Disc
CDR	Critical Design Review
CSV	Comma separated value
DMS	Dynamic Message Sign
DVD	Digital Video Disc
DVR	Digital Video Recorder
ETL	Extract, Transform and Load
FAT	Factory Acceptance Test
FCC	Federal Communications Commission
FDD	Final Design Document
FMS	Fuel Management System
FTA	Federal Transit Administration
GTFS	General Transit Feed Specification
GIS	Geographic Information System
GPS	Global Positioning System
HTTPS	Hypertext Transport Protocol Secure
HVAC	Heating, Ventilation and Air-conditioning
ICA	Independent Computing Architecture
ICD	Interface Control Document
IDD	Installation Design Documentation
IEEE	Institute of Electrical and Electronics Engineers
IT	Information Technology
ITS	Intelligent Transportation Systems
IVR	Interactive Voice Response
JRE	Java Run-time Environment
LAN	Local Area Network

LCD	Liquid Crystal Display
LED	Light Emitting Diode
MDT	Mobile Data Terminal
MID	Message ID
MM	Maintenance Manuals
MMS	Maintenance Management System
MPEG	Moving Picture Experts Group
MS	Microsoft
NEMA	National Electrical Manufacturers Association
NTCIP	National Transportation Communications for ITS Protocol
NTD	National Transit Database
NTP	Notice to Proceed
OCU	Operator Control Unit
ODBC	Open Database Connectivity
OS	Operating System
PA	Public Address
PDD	Preliminary Design Document
PDF	Portable document format
PDR	Preliminary Design Review
PIDs	Parameter IDs
PRTT	Priority Request to Talk
RAM	Random Access Memory
RDP	Remote Desktop Protocol
RFP	Request for Proposals
RM	Requirements Matrix
RR	Requirements Review
RSA	Route and Schedule Adherence
RTIS	Real-time Information System
RTT	Request to Talk
SA	System Administrator
SAE	Society of Automotive Engineers
SIP	System Implementation Plan
SM	Systems Manuals
SQL	Structured Query Language
SSID	Service set identifier
ST	Systems Testing
TCP	Transfer Connection Protection
TCP/IP	Transmission Control Protocol/Internet Protocol
TP	Training Plan

TRD	Test Results Documentation
UM	User Manuals
USB	Universal serial bus
VAN	Vehicle Area Network
VCM	Vehicle Component Monitoring
VLU	Vehicle Logic Unit
VOM	Vehicle Operator Manuals
VPN	Virtual Private Network
WAAS	Wide Area Augmentation System
WAN	Wide Area Network
Wi-Fi	Wireless Fidelity
WLAN	Wireless Local Area Network
WPA2	Wireless Protected Access 2
WRTA	Worcester Regional Transit Authority
XML	Extensible Markup Language

Appendix A: Fleet Inventory

No.	WRTA ID	Mfg Year	In Service Date	Make	Model	Size	Type	Current Age Years	Eligible Replmnt Date	Comment / Correction
MotorBus - Active Fleet										
1	9409	2010	03/05/10	Gillig	Low Floor	40	D	14.75	03/05/22	Future Contingency Fleet
2	9410	2010	03/05/10	Gillig	Low Floor	40	D	14.75	03/05/22	Future Contingency Fleet
3	9414	2010	03/16/10	Gillig	Low Floor	40	D	14.75	03/16/22	Future Contingency Fleet
4	9415	2010	03/16/10	Gillig	Low Floor	40	D	14.75	03/16/22	Future Contingency Fleet
5	2350	2012	03/15/12	Gillig	Low Floor	35	D	12.75	03/15/24	Replaced Fall 2025 w/35' Gillig BeB
6	2352	2012	03/15/12	Gillig	Low Floor	35	D	12.75	03/15/24	Replaced Fall 2025 w/35' Gillig BeB
7	2353	2012	03/15/12	Gillig	Low Floor	35	D	12.75	03/15/24	Replaced Fall 2025 w/35' Gillig BeB
8	2354	2012	03/15/12	Gillig	Low Floor	35	H	12.75	03/15/24	Replaced Fall 2025 w/35' Gillig BeB
9	2355	2012	03/15/12	Gillig	Low Floor	35	H	12.75	03/15/24	Replaced Fall 2025 w/35' Gillig BeB
10	2417	2012	03/15/12	Gillig	Low Floor	40	D	12.75	03/15/24	Replaced Fall 2025 w/35' Gillig BeB
11	3360	2013	10/07/13	Gillig	Low Floor	35	D	11.17	10/07/25	Replaced Fall 2025 w/40' Gillig Diesel Hybrid
12	3361	2013	10/07/13	Gillig	Low Floor	35	D	11.17	10/07/25	Replaced Fall 2025 w/40' Gillig Diesel Hybrid
13	3362	2013	10/07/13	Gillig	Low Floor	35	D	11.17	10/07/25	Replaced Fall 2025 w/40' Gillig Diesel Hybrid
14	3356	2013	10/11/13	Gillig	Low Floor	35	H	11.17	10/11/25	Replaced Fall 2025 w/40' Gillig Diesel Hybrid
15	3363	2013	10/11/13	Gillig	Low Floor	35	D	11.17	10/11/25	Replaced Fall 2025 w/40' Gillig Diesel Hybrid
16	3419	2013	10/11/13	Gillig	Low Floor	40	H	11.17	10/11/25	Replaced Fall 2025 w/40' Gillig Diesel Hybrid
17	3420	2013	10/11/13	Gillig	Low Floor	40	H	11.17	10/11/25	
18	3421	2013	10/11/13	Gillig	Low Floor	40	H	11.17	10/11/25	
19	3364	2013	10/17/13	Gillig	Low Floor	35	D	11.17	10/17/25	
20	3357	2013	12/10/13	Gillig	Low Floor	35	H	11.00	12/10/25	
21	3358	2013	12/10/13	Gillig	Low Floor	35	H	11.00	12/10/25	
22	3422	2013	12/10/13	Gillig	Low Floor	40	H	11.00	12/10/25	
23	3423	2013	12/10/13	Gillig	Low Floor	40	H	11.00	12/10/25	
24	3424	2013	12/10/13	Gillig	Low Floor	40	H	11.00	12/10/25	
25	3359	2013	12/16/13	Gillig	Low Floor	35	H	11.00	12/16/25	
26	4425	2015	06/27/14	Gillig	Low Floor	40	H	10.50	06/27/26	
27	9365	2019	05/14/19	Gillig	Low Floor	35	D	5.58	05/14/31	
28	9366	2019	05/14/19	Gillig	Low Floor	35	D	5.58	05/14/31	
29	1367	2020	01/06/21	Gillig	TRANSIT BUS	35	D	3.92	01/06/33	
30	1368	2020	01/06/21	Gillig	TRANSIT BUS	35	D	3.92	01/06/33	
31	1369	2020	01/06/21	Gillig	TRANSIT BUS	35	D	3.92	01/06/33	
32	1370	2020	01/06/21	Gillig	TRANSIT BUS	35	D	3.92	01/06/33	
33	1371	2020	01/06/21	Gillig	TRANSIT BUS	35	D	3.92	01/06/33	
34	1372	2021	08/24/21	Gillig	Low Floor	35	D	3.33	08/24/33	
35	1373	2021	08/24/21	Gillig	Low Floor	35	D	3.33	08/24/33	
36	1374	2021	08/24/21	Gillig	Low Floor	35	D	3.33	08/24/33	
37	1375	2021	08/24/21	Gillig	Low Floor	35	D	3.33	08/24/33	
38	1376	2021	08/24/21	Gillig	Low Floor	35	D	3.33	08/24/33	
39	1377	2021	08/24/21	Gillig	Low Floor	35	D	3.33	08/24/33	
40	2378	2022	07/02/22	Gillig	TRANSIT BUS	35	D	2.42	07/02/34	
41	2379	2022	07/05/22	Gillig	TRANSIT BUS	35	D	2.42	07/05/34	
42	2380	2022	07/05/22	Gillig	TRANSIT BUS	35	D	2.42	07/05/34	
43	2381	2022	07/05/22	Gillig	TRANSIT BUS	35	D	2.42	07/05/34	
44	2382	2022	07/05/22	Gillig	TRANSIT BUS	35	D	2.42	07/05/34	
45	2383	2022	07/05/22	Gillig	TRANSIT BUS	35	D	2.42	07/05/34	

46	2384	2022	07/05/22	Gillig	TRANSIT BUS	35	D	2.42	07/05/34	
47	2385	2022	07/05/22	Gillig	TRANSIT BUS	35	D	2.42	07/05/34	
48	2386	2022	07/05/22	Gillig	TRANSIT BUS	35	D	2.42	07/05/34	
49	3387	2023	08/04/23	Gillig	TRANSIT BUS	35	D	1.33	08/04/35	
50	3388	2023	08/04/23	Gillig	TRANSIT BUS	35	D	1.33	08/04/35	
51	3389	2023	08/04/23	Gillig	TRANSIT BUS	35	D	1.33	08/04/35	
52	3390	2023	08/04/23	Gillig	TRANSIT BUS	35	D	1.33	08/04/35	
53	3391	2023	08/04/23	Gillig	TRANSIT BUS	35	D	1.33	08/04/35	
54	3392	2023	08/04/23	Gillig	TRANSIT BUS	35	D	1.33	08/04/35	
55	3393	2023	08/04/23	Gillig	TRANSIT BUS	35	D	1.33	08/04/35	
56	3394	2023	08/04/23	Gillig	TRANSIT BUS	35	D	1.33	08/04/35	
57	3395	2023	08/04/23	Gillig	TRANSIT BUS	35	D	1.33	08/04/35	
58	3396	2023	08/04/23	Gillig	TRANSIT BUS	35	D	1.33	08/04/35	
								Average Age:	6.87	
D = Diesel										
H = Diesel / Hybrid										

No.	WRTA ID	Mfg Year	In Service Date	Make	Model	Type	Current Age Years	Eligible Replmnt Date	Comment / Correction
Demand Response - Active Fleet									
1	1537	2016	11/17/15	FORD	E350	E	9.08	11/17/21	To Be Replaced June 2025
2	1538	2016	11/17/15	FORD	E350	E	9.08	11/17/21	To Be Replaced June 2025
3	1544	2016	11/17/15	FORD	CUTVAN	E2	9.08	11/17/21	To Be Replaced June 2025
4	1551	2016	11/17/15	FORD	CUTVAN	E	9.08	11/17/21	To Be Replaced June 2025
5	1662	2016	11/28/16	FORD	ECONOLINE	E	8.08	11/28/22	To Be Replaced June 2025
6	1657	2016	11/28/16	FORD	ECONOLINE	E	8.08	11/28/22	To Be Replaced June 2025
7	1863	2018	10/01/18	FORD	ECONOLINE	E	6.17	10/01/24	To Be Replaced June 2025
8	1864	2018	10/01/18	FORD	ECONOLINE	E	6.17	10/01/24	To Be Replaced June 2025
9	1865	2018	10/01/18	FORD	ECONOLINE	E	6.17	10/01/24	To Be Replaced June 2025
10	1866	2018	10/01/18	FORD	ECONOLINE	E	6.17	10/01/24	To Be Replaced June 2025
11	1867	2018	10/01/18	FORD	ECONOLINE	E	6.17	10/01/24	To Be Replaced June 2025
12	1968	2019	07/10/19	FORD	ECONOLINE	E	5.42	07/10/25	To Be Replaced June 2025
13	1969	2019	07/10/19	FORD	E350	E	5.42	07/10/25	
14	1971	2019	07/10/19	FORD	ECONOLINE	E2	5.42	07/10/25	
15	1972	2019	07/10/19	FORD	ECONOLINE	E2	5.42	07/10/25	
16	1973	2019	07/10/19	FORD	E350	E2	5.42	07/10/25	
17	1976	2019	07/10/19	FORD	ECONOLINE	E2	5.42	07/10/25	
18	1977	2019	07/10/19	FORD	ECONOLINE	E2	5.42	07/10/25	
19	2178	2021	10/21/20	FORD	ECONOLINE	E	4.17	10/21/26	
20	2179	2021	10/21/20	FORD	ECONOLINE	E	4.17	10/21/26	
21	2180	2021	10/21/20	FORD	ECONOLINE	E	4.17	10/21/26	
22	2181	2021	10/21/20	FORD	ECONOLINE	E	4.17	10/21/26	
23	2182	2021	10/21/20	FORD	ECONOLINE	E	4.17	10/21/26	
24	2183	2021	10/21/20	FORD	ECONOLINE	E	4.17	10/21/26	
25	2184	2021	10/21/20	FORD	ECONOLINE	E	4.17	10/21/26	
26	2185	2021	10/21/20	FORD	ECONOLINE	E	4.17	10/21/26	
27	2186	2021	10/21/20	FORD	ECONOLINE	E	4.17	10/21/26	
28	2187	2021	10/21/20	FORD	ECONOLINE	E	4.17	10/21/26	
29	2196	2022	10/01/21	FORD	ECONOLINE	E2	3.17	10/01/29	
30	2189	2022	10/05/21	FORD	ECONOLINE	E2	3.17	10/05/29	

31	2190	2022	10/05/21	FORD	ECONOLINE	E2	3.17	10/05/29	
32	2191	2022	10/05/21	FORD	ECONOLINE	E2	3.17	10/05/29	
33	2192	2022	10/05/21	FORD	ECONOLINE	E2	3.17	10/05/29	
34	2193	2022	10/05/21	FORD	ECONOLINE	E2	3.17	10/05/29	
35	2194	2022	10/05/21	FORD	ECONOLINE	E2	3.17	10/05/29	
36	2195	2022	10/05/21	FORD	ECONOLINE	E2	3.17	10/05/29	
37	2197	2022	10/05/21	FORD	ECONOLINE	E	3.17	10/05/29	
38	2198	2022	10/05/21	FORD	ECONOLINE	E	3.17	10/05/29	
39	2201	2022	11/03/22	FORD	ECONOLINE	E	2.08	11/03/30	
40	2202	2022	11/03/22	FORD	ECONOLINE	E	2.08	11/03/30	
41	2203	2022	11/03/22	FORD	ECONOLINE	E	2.08	11/03/30	
42	2204	2022	11/03/22	FORD	ECONOLINE	E	2.08	11/03/30	
43	2205	2022	11/03/22	FORD	ECONOLINE	E	2.08	11/03/30	
44	2206	2022	11/03/22	FORD	ECONOLINE	E	2.08	11/03/30	
45	2207	2022	11/03/22	FORD	ECONOLINE	E	2.08	11/03/30	
46	2208	2022	11/03/22	FORD	ECONOLINE	E	2.08	11/03/30	
47	2209	2022	11/03/22	FORD	ECONOLINE	E	2.08	11/03/30	
48	2210	2022	11/03/22	FORD	ECONOLINE	E	2.08	11/03/30	
49	2211	2022	11/03/22	FORD	ECONOLINE	E	2.08	11/03/30	
50	2212	2022	11/03/22	FORD	ECONOLINE	E	2.08	11/03/30	
51	2213	2022	11/03/22	FORD	ECONOLINE	E	2.08	11/03/30	
52	2214	2022	11/03/22	FORD	ECONOLINE	E	2.08	11/03/30	
53	2415	2024	09/17/24	FORD	ECONOLINE	E	0.25	09/17/32	
54	2416	2024	09/17/24	FORD	ECONOLINE	E2	0.25	09/17/32	
55	2418	2024	09/17/24	FORD	ECONOLINE	E2	0.25	09/17/32	
56				RAM	FRONTRUNNER	LF			Expansion Fleet To Be Delivered June 2025
57				RAM	FRONTRUNNER	LF			Expansion Fleet To Be Delivered June 2025
58				RAM	FRONTRUNNER	LF			Expansion Fleet To Be Delivered June 2025
							4.08		
E = Single Rear Wheel									
E2 = Dual Rear Wheel									
LF= Low Floor									

No.	WRTA ID	Mfg Year	In Service Date	Make	Model	Current Age Years	Eligible Replmnt Date	Comment / Correction
Support Vehicles - Active Fleet								
1	16	2011	07/16/10	FORD	F450 / Svc Trk	14.42	07/16/20	
2	18	2015	07/01/15	FORD	F550 DUMP	9.42	07/01/25	
3	654	2016	01/13/16	FORD	EXPLORER	8.92	01/13/23	
4	644	2018	06/29/18	FORD	EXPLORER	6.50	06/29/25	
5	693	2023	07/12/24	FORD	F450 Rack Truck	0.42	07/12/34	
					Average Age	7.93		

Appendix B: WRTA IT Security Policies/Plan

I. OBJECTIVE:

The Worcester Regional Transit Authority (“WRTA” or the “Company”) objective, in the development and implementation of this Written Information Security Plan (“Plan”), is to create effective administrative, technical and physical safeguards for the protection of “personal information” of residents of the Commonwealth of Massachusetts, and to comply with the Company’s obligations under 201 CMR 17.00. This Plan sets forth the Company’s procedure for evaluating electronic and physical methods of accessing, collecting, storing, using, transmitting, maintaining, and protecting personal information of residents of the Commonwealth of Massachusetts.

For purposes of this Plan, “personal information” means a Massachusetts resident’s first name and last name or first initial and last name in combination with any one or more of the following data elements that relate to such resident: (a) Social Security number; (b) driver’s license number or state-issued identification card number; or (c) financial account number, or credit or debit card number, with or without any required security code, access code, personal identification number or password, that would permit access to a resident’s financial account; provided, however, that “personal information” shall not include information that is lawfully obtained from publicly available information, or from federal, state or local government records lawfully made available to the general public.

II. PURPOSE:

The purpose of the Plan is to:

- a. Ensure the security and confidentiality of personal information;
- b. Protect against any anticipated threats or hazards to the security or integrity of such information; and
- c. Protect against unauthorized access to or use of such information in a manner that creates a substantial risk of identity theft or fraud.

III. SCOPE:

In formulating and implementing the Plan, the Company will (1) identify reasonably foreseeable internal and external risks to the security, confidentiality, and/or integrity of any electronic, paper or other records containing personal information; (2) assess the likelihood and potential damage that could result from these threats, taking into consideration the sensitivity of the personal information; (3) evaluate the sufficiency of existing policies, procedures, customer information systems, and other safeguards in place to control risks; (4) design and implement a plan that puts safeguards in place to minimize those risks, consistent with the requirements of 201 CMR 17.00; and (5) regularly monitor the effectiveness of those safeguards.

IV. DATA SECURITY COORDINATOR:

The Company has designated Donna Novelli as the Data Security Coordinator (“DSC”) to implement, supervise and maintain the Plan. The DSC shall report to the General Manager of the Company with respect to the Plan. The DSC shall be responsible for:

- a. Initial implementation of the Plan;
- b. Training employees;
- c. Regular testing of the Plan’s safeguards;
- d. Evaluating the ability of each of the Company’s third-party service providers to protect, in the manner required by 201 CMR 17.00, the personal information to which the Company has permitted them access; and taking the steps reasonably necessary to ensure that such third-party service providers are applying to such personal information, protective security measures at least as stringent as those required to be applied under 201 CMR 17.00;
- e. Reviewing the scope of the security measures in the Plan at least annually, or whenever there is a material change in business practices that may implicate the security or integrity of records containing personal information;
- f. Conducting an annual training session on the elements of the Plan for all managers, employees and independent contractors, including temporary and contract employees who have access to personal information. All attendees at such training sessions are required to certify their attendance at the training and their familiarity with the Company’s requirements for ensuring the protection of personal information. The DSC shall retain copies of the signed attendance certifications; and
- g. Coordinating with other Company personnel to assist with implementation of the Plan, including personnel to assist with Information Technology issues, Human Resources issues, facilities maintenance and support, and legal compliance.

V. INTERNAL RISKS:

To combat internal risks to the security, confidentiality, and/or integrity of any electronic, paper or other records containing personal information, and to evaluate and improve, where necessary, the effectiveness of the current safeguards for limiting such risks, the below-listed measures are mandatory and are effective immediately. Oversight for implementation of these measures is the responsibility of the DSC.

- a. A copy of the Plan must be distributed to each employee who shall, upon receipt of the Plan, acknowledge in writing that he/she has received a copy of the Plan. New employees are to receive a copy of the Plan during orientation.
- b. Training must be conducted for all employees upon hire on the detailed provisions of the Plan and its requirements. Following initial training, training is to be conducted annually.

- c. Employment contracts must be reviewed and amended, as necessary, to require compliance with the provisions of the Plan, and to prohibit any nonconforming use of personal information during or after employment.
- d. The amount of personal information collected must be limited to that amount reasonably necessary to accomplish legitimate business purposes, or as necessary to comply with other state or federal regulations. The DSC is responsible for compiling and maintaining a “Personal Information Record Location List,” which sets forth the locations and description of all records containing personal information in either hard copy or electronic form. Such list shall also include a listing of third-party vendors or service providers that have been provided with personal information.
- e. Access to records containing personal information shall be limited to only those employees who are reasonably required to have access in order to accomplish their job duties and responsibilities, or as is otherwise necessary to comply with state or federal regulations. Except as expressly authorized in writing, employees are prohibited from keeping, accessing and/or transporting personal information off the Company’s premises. For those employees who have access to personal information and are permitted to telecommute, or those employees permitted to access or store personal information in a laptop computer or other portable device, the DSC shall ensure security measures are in place and being followed to safeguard such personal information, consistent with the requirements set forth herein.
- f. Electronic access to systems containing personal information must be blocked following multiple unsuccessful attempts to gain access due to improper user identification or password.
- g. All security measures shall be reviewed at least annually by the DSC and his/her designees, or whenever there is a material change in business practices that may reasonably implicate the security or integrity of records containing personal information. The DSC shall fully apprise management of the results of that review and any recommendations for improved security arising out of that review.
- h. Terminated employees must return all records containing personal information, in any form, that may at the time of such termination be in the former employee’s possession, custody or control (including all such information stored on laptops or other portable devices or media, and in files, records, work papers, etc.).
- i. A terminated employee’s physical and electronic access to personal information must be blocked immediately prior to the employment termination or during the termination meeting. Such terminated employee shall be required to surrender all keys, IDs or access codes or badges, business cards, and the like, that permit access to the Company’s premises or information. Moreover, simultaneously, such terminated employee’s remote electronic access to personal information must be disabled; and his/her voicemail access, e-mail access, internet access,

and passwords must be invalidated. The DSC shall maintain a highly secured master list of all lock combinations, passwords and keys.

- j. Current employees' user-IDs and passwords must be changed periodically as directed by the DSC, but no less often than 90 days.
- k. Access to personal information shall be restricted to active users and active user accounts only.
- l. Employees are encouraged to report any suspicious or unauthorized access to, or use of, personal information.
- m. Whenever there is an incident involving personal information that requires notification to the Attorney General, Commonwealth of Massachusetts, Division of Consumer Affairs and Business Regulations and Employees, under M.G.L. c. 93H, §3, there shall be an immediate mandatory post-incident review of events and actions taken, if any, with a view to determining whether any changes in the Company's security practices are required to improve the security of personal information for which the Company is responsible. In documenting an incident involving a breach of security measures related to protection of personal information, the DSC will ensure an Incident Report is drafted that addresses, at a minimum: (i) review of the security breach; (ii) the responsive actions taken in connection with the breach; and (iii) those revisions to the Plan or the Company's business practices that were made to minimize the likelihood of a reoccurrence of the same, or a similar breach. Notification of a breach, if required pursuant to M.G.L. c. 93H, shall be handled by Kathy Jacques, Director of Communications & Logistics, in consultation with the DSC and Company management.
- n. Employees are prohibited from keeping open files containing personal information on their desks when they are not at their desks.
- o. At the end of the work day, all files and other records containing personal information must be secured in a manner that is consistent with the Plan's rules for protecting the security of personal information, including ensuring that hard copies of personal information are placed in a secure, locked area.
- p. Each department with access to personal information shall develop procedures (bearing in mind the business needs of that department) that ensure that reasonable restrictions upon physical access to records containing personal information are in place, including a written procedure that sets forth the manner in which physical access to such records in that department is to be restricted; and each department must store such records and data in locked facilities, secure storage areas or locked containers. Each department's procedures, as noted above, must be submitted to the DSC for approval and/or modification, as necessary.
- q. Access to electronically-stored personal information shall be electronically limited to those employees having a unique log-in ID, and re-login shall be required when a computer has been inactive for more than 30 minutes.

- r. Visitors' access to areas in which personal information is stored must be restricted. Visitors are required to sign-in the visitor book in the lobby and be escorted to the Administrative offices. Visitors shall not be permitted to visit unescorted any area within the Company's premises that contains personal information. The DSC is responsible for reviewing and approving measures related to visitor access and for identifying all areas containing personal information.
- s. Paper or electronic records (including records stored on hard drives or other electronic media) containing personal information shall be disposed of only in a manner that complies with M.G.L. c. 93I. For example, all physical copies (and originals) of records containing personal information that are designated for destruction shall be shredded so that no personal information contained on them can be practicably read or reconstructed. All electronic versions of records containing personal information shall be destroyed or erased so that no personal information contained on them can be practicably read or reconstructed.
- t. The DSC and/or his/her designee shall review all third-party service provider relationships and contracts that exist at the time this Policy is adopted to (i) verify that the third-party service providers have the capacity to protect personal information in compliance with 201 CMR 17.00; (ii) confirm that the third-party service providers are applying protective security measures that are at least as stringent as those required under 201 CMR 17.00; and (iii) ensure that contracts are amended to provide a representation by the third-party service provider that it has implemented a written information security program in compliance with 201 CMR 17.00 and that such program applies protective security measures at least as stringent as those required under 201 CMR 17.00.
- u. The DSC and/or his/her designee shall review all new agreements with third-party service providers to ensure compliance with this Plan. In addition, the DSC shall conduct an annual review of third-party service provider agreements to ensure continuing compliance. To facilitate monitoring/review efforts, the DSC shall maintain an updated listing of all existing third-party service providers and their respective contracts.
- v. The DSC will have authority, in consultation with Company management, to impose disciplinary measures, up to and including termination of employment, to any employee who violates the policies and procedures set out in this Plan.

VI. EXTERNAL RISKS:

To combat external risks to the security, confidentiality, and/or integrity of any electronic, paper or other records containing personal information, and to evaluate and improve, where necessary, the effectiveness of the current safeguards for limiting such risks, the below listed measures are mandatory and are effective immediately. Oversight for implementation is the responsibility of the DSC.

- a. There shall be reasonably up-to-date firewall protection and operating system security patches, reasonably designed to maintain the integrity of the personal information, installed on all systems processing personal information.

- b. There shall be reasonably up-to-date versions of system security agent software, which must include malware protection and reasonably up-to-date patches and virus definitions, installed on all systems that process personal information.
- c. To the extent technically feasible (as determined by the DSC based on research of available encryption technology), all personal information stored on laptops or other portable devices shall be encrypted, as must all records and files transmitted across public networks or wirelessly. "Encryption" here means the transformation of data through the use of an algorithmic process, or an alternative method at least as secure, into a form in which meaning cannot be assigned without the use of a confidential process or key, unless further defined by regulation by the Commonwealth of Massachusetts' Office of Consumer Affairs and Business Regulation. Password protection does not satisfy the requirement for encryption.
- d. All computer systems must be monitored for unauthorized use of, or access to, personal information.
- e. There shall be secure user authentication protocols in place, including: (1) protocols for control of user IDs and other identifiers; (2) a reasonably secure method of assigning and selecting passwords, or use of unique identifier technologies, such as biometrics or token devices; (3) control of data security passwords to ensure that such passwords are kept in a location and/or format that does not compromise the security of the data they protect; (4) restriction of access to active users and active user accounts only; and (5) blocking of access to user identification after multiple unsuccessful attempts to gain access.
- f. The secure access control measures in place shall include assigning unique identifications plus passwords, which are not vendor-supplied default passwords, to each person with computer access to personal information.

VII. ADDITIONAL EMPLOYEE OBLIGATIONS:

In addition to the other responsibilities set out in this Plan, all employees shall be responsible for:

- a. Regularly reviewing the Plan, including all revisions and updates that are made to the Plan;
- b. Complying with all policies and procedures that have been developed and implemented as a result of the Plan;
- c. Reviewing all internal and external risks identified in the Plan in order to be more aware of potential threats to the integrity and security of personal information;
- d. Providing feedback and suggestions to the DSC relating to the Plan;
- e. Reporting to the DSC all suspicious activity relating to personal information, including without limitation, unauthorized access to, or use of, personal information by other employees, or

- f. Immediate reporting of any security breach to the DSC;
- g. Protecting assigned passwords so that they are not accessible or used by any other party; and
- h. Complying with all requirements for the return and safeguarding of personal information upon employment termination.

APPROVED:

GENERAL MANAGER

DATE APPROVED

EXHIBIT K
NON-COMPLIANCE FORM

(Next Page)

EXHIBIT L
COST PROPOSAL

(Next Page)

No.	Line Items	Installed Quantity	Unit Cost	Installed Total Cost	Spares Quantity	Spares Unit Cost	Spares Total Cost	Fixed Software License Cost	Total Number of Licenses	Total Capital Cost	Annual Operations & Maintenance Cost After Warranty
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Signed:

Date

Title

Explanation of Terms:

D) Installed Quantity: number of units to be installed

E) Unit Cost: cost of each unit along with installation cost. Please include associated firmware cost where applicable.

F) Installed Total Cost: total cost of installing required units. To be calculated as $F = D \times E$

G) Spares Quantity: number of spare units

H) Spares Unit Cost: cost of each spare unit without installation cost

I) Spares Total Cost: total cost of spare units. To be calculated as: $I = G \times H$

J) Fixed Software License Cost: one-time license cost of software

K) Total Number of Licenses: number of user licenses covered by fixed-software license cost (J)

L) Total Capital Cost: total capital cost to be calculated as: $L = F+I+J$

M) Annual Cost After Warranty: annual warranty cost associated with an individual line item once system warranty expires

Specific Notes

Note 1: Please enter the quantity as needed.

Note 2: The purchaser reserves the right to increase or decrease quantity based on the need for custom reports as determined based on an eventual review of standard reports available with the software.

Note 3: Please list the equipment being used to provide this functionality in the price notes.

Note 4: Please provide specific details in the proposal

General Notes:

The purchaser reserves the right to adjust a line item quantity up to +/- 10% at the stated unit price.

The purchaser reserves the right to supply server and workstation hardware directly instead of purchasing from the contractor, meeting reasonable minimum hardware requirements defined by the contractor.

Proposers shall not modify this price proposal form. If proposals need to provide information on any details not covered by this form, they must include a separate sheet to do so.