Capital Area Transportation Authority

Large (40’ & 60’) Bus Purchase

Request for Proposal Project # 2018-104

SCHEDULE OF ACTIVITIES

RFP Released:	February 5, 2018
Written Questions from Vendor / Approved Equal Submissions Due to CATA:	March 6, 2018 @ 2PM EST
Pre-Proposal Meeting (optional):	N/A
CATA’s Responses to Questions Released:	March 27, 2018
Number of Proposals and Due Date:	Submit (7) proposal copies and (1) electronic (“PDF”) copy on CD/DVD or flash drive by 2:00 P.M. on April 26, 2018 EST
Anticipated Award Date:	June 2018

Released on: February 5, 2018

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SECTION 1: PROCUREMENT PROCESS

1-A Issuing Office

This Request for Proposal ("RFP") is issued by Capital Area Transportation Authority ("CATA"), 4615 Tranter Street, Lansing, MI 48910.

All communications regarding this project during the procurement process must be in writing and addressed to CATA's Purchasing & Contracts Department:

Ms. Nicole Wilson
Purchasing & Contracts Manager
Capital Area Transportation Authority
4615 Tranter Street
Lansing, MI 48910
E-mail: nwilson@cata.org

1-B Project Management

The person designated to perform as CATA's Project Manager ***AFTER AWARD*** of the Project is named below. **This person is not to be contacted by respondents prior to award. The only CATA contact during the RFP process is CATA's Purchasing & Contracts Department employee named above.**

Mr. Bill Frarey
Interim Director of Maintenance
Capital Area Transportation Authority
4615 Tranter Street
Lansing, MI 48910

1-C Project Oversight

The oversight of this CATA Project is the responsibility of the CATA Project Manager, or his designee, named in Project Management Section above.

The Contractor will be required to work with CATA staff and service agencies as directed by CATA throughout the duration of the Contract and attend Progress Meetings as required by the CATA Project Manager.

1-D Incurring Costs

CATA is not liable for any cost incurred by any party prior to signing of a contract with that party and then only upon written authorization from CATA to proceed with the project.

1-E Contract Term

The term of the contract will commence upon the date on which it is signed by the last Contracting Party and continue for a period of five (5) years, or earlier if all purchase options have been exercised prior.

1-F Type of Contract

The award of this solicitation will result in a **Fixed Price Contract.**

1-G Questions/Changes to the RFP

It is the desire of CATA to provide the same information to all interested parties to ensure fairness and impartiality in the procurement process. **To that end, CATA will not respond to telephone inquiries or personal visits.** Visitation by respondents or their representatives may be made to CATA only at the pre-proposal meeting, if held. All questions are to be submitted in writing. ***Submit written questions (via U.S. postal service, e-mail, or fax) to the CATA Purchasing & Contracts Department at the address indicated in Section I above no later than the date and time indicated on the Schedule of Activities above.*** Any changes made to this RFP, in response to the questions or concerns raised in any scheduled pre-proposal meeting or through correspondence received by CATA prior to the pre-proposal meeting, will be put in writing to all firms attending any scheduled pre-proposal meeting or otherwise indicating an interest in this project by the date stated on the above *Schedule of Activities* page. No changes will be made in the RFP after such changes/answers are distributed.

1-H Pre-Proposal Meeting

Not Applicable.

1-I Proposals

To be considered for award, each respondent must submit a complete response to the RFP, using the designated format (if any) and accepting the requirements of Sections II and III below. Proposals are to be submitted only to CATA. No other distribution of proposals is to be made. An official authorized to bind the respondent to the proposal must sign the proposal in ink. Submission of a proposal shall bind the respondent to all provisions of the proposal, including costs, for a period extending not less than one hundred eighty (180) days following the Proposal Due Date, which is stated in the *Schedule of Activities* above. Submit the number of proposal copies per the directions indicated on the *Schedule of Activities* page above. Proposals, including price sheets, must be submitted to CATA by the time and date set as the Proposal Due Date indicated on the *Schedule of Activities* page above. The respondent is solely responsible for the timely delivery of the proposal to CATA. Except as provided below, late proposals will not be considered.

The Proposal shall contain a cover letter signed by a person authorized to bind the Proposer (i) agreeing that the Proposal shall remain valid for not less than 180 days (as extended in the event of a Protest) and (ii) providing a name, physical address, and email address of such person who is administering the Proposal, who has authority to bind the Proposer and to whom CATA may submit notices and writings regarding this RFP. It is to this person and at this email address that CATA will provide notices and other matters regarding this RFP.

In addition, all Proposers are required to provide a “Statement of Compliance” stating they have read, understand, are in agreement and will comply with CATA’s Standard Terms and Conditions, attached to this solicitation as **Appendix A.**

Submission of Proposals

The Proposer must submit its Proposal, which must be received by CATA no later than the date and time specified in *Schedule of Activities* on the RFP cover page. The envelope containing the Proposal must be marked with the RFP number and title as set forth on the cover page of this RFP.

Proposals may be hand delivered, mailed or sent via a reputable national courier (such as UPS or Fed-Ex). All Proposals must be delivered to the following address:

Capital Area Transportation Authority
Attn: Purchasing & Contracts Department
4615 Tranter Street
Lansing, Michigan 48910

and **must be received** by CATA by the date and time set forth in the *Schedule of Activities* of the Proposal Cover Page. For example, a postmark date on a mailed Proposal will not be considered as being "received".

If a Proposal is hand delivered, it must be delivered to the front desk at the above address. In such an event, the Proposer or its agent should request a verification receipt to prove that the submission of its Proposal was timely.

Any Proposal not timely received may, in CATA's sole and absolute discretion, be rejected.

Late proposals which are received after the Proposal Due Date may be considered, if the respondent establishes to CATA's satisfaction within five (5) days of the Proposal Due Date that the delay was due to an independent event outside the control of respondent, such as acts of God or the public enemy, war, national emergency, labor strikes, the failure of the U. S. Postal Service to deliver first-class, registered, or certified mail within five (5) days, or the failure of a national courier service recognized by CATA to deliver as guaranteed or specified. CATA will require documentation to excuse late delivery, including, but not limited to, signed statements or affidavits, postmarks, original postal receipts, courier receipts, and shipment tracking logs in a form satisfactory to CATA. All proposals submitted in response to this RFP will become the property of CATA and will not be returned to the respondent.

1-J Acceptance of Proposal Content

The contents of this RFP, its attachments, and the proposal will become contractual obligations if a contract ensues. Failure of the successful respondent to accept these obligations may result in elimination of the respondent from the selection process.

1-K Economy of Presentation

Each proposal should be prepared simply and economically, providing a straightforward, concise description of the respondent's ability to meet the requirements and objectives of this RFP. Emphasis should be on completeness and clarity of content.

1-L Primary Contractor Responsibilities

The selected contractor will be required to assume responsibility for all services offered in its proposal whether or not the contractor performs them. Further, CATA will consider the selected respondent to be the sole point of contact with regard to contractual matters, including payment of any and all charges resulting from the contract. If any part of the work is to be subcontracted, the prime contractor must provide a complete description of work subcontracted and descriptive information about the subcontractor's organization, capabilities, and Certified Disadvantaged Business Enterprise ("DBE") and Small Business Enterprise ("SBE") status. The prime contractor is totally responsible for adherence by the subcontractors to all provisions of the contract. DBE firm's and subcontractor's FTA and DBE certifications must be included in the proposals. All subcontractors must be included in the proposal with descriptions of the firms' qualifications and the qualifications of the key individuals assigned to this project. All subcontractors are subject to CATA review and written approval prior to their participation in the project.

1-M Selection Criteria

Responses to this RFP will be evaluated based upon the following factors as presented in the respondent's proposal. These are not listed in order of importance:

1) **Compliance to the Specification included with the RFP.**
2) **Vendor Service and product support capabilities.**
3) **Quality Control with current ISO Certification.**
4) **Successful experience with similar projects of this size.**
5) **Acceptance of the CATA production schedule set forth in the specification.**
6) **Build and delivery schedule time line from notice to proceed.**
7) **Price.**
8) **Overall evaluation.**

Overall evaluation of the proposal and the vendor, including with respect to vendor, satisfactory references, legal status and compliance, experience with other projects and procurements, and other matters of concern.

CATA will constitute an ad hoc committee to evaluate all proposals. The firm(s) determined to be the most highly qualified based on the submitted proposal and any oral presentation may be asked to enter final negotiations. If the most qualified firm is unable to consummate agreement with CATA, then the next most qualified firm will be considered for award, and so on.

CATA will evaluate proposal criteria on a best value basis which considers both price and the above technical factors to determine the offer that is most advantageous and presents CATA with the best overall value.

The cost basis for the proposal will be used to evaluate the price proposal. Price will be evaluated in comparison to the above technical factors in the group.

Respondents may be required to update their proposals in writing if clarification or additional information is needed. Inquiries may be made of Respondents concerning their proposals. At any time during this process, CATA reserves the right to re-bid, award, or cancel the project, as CATA determines.

Each contractor should make every effort to include Disadvantaged Business Enterprises in this project. CATA has a Disadvantaged Business Enterprise goal of 1.24%.

1-N Oral Presentation

Those Respondents deemed by CATA to be most responsive to the needs of CATA may be asked to make oral presentations to CATA. These presentations provide an opportunity for the Respondent to clarify the proposals through mutual discussion. This is not a time to simply review the contents of the proposal, but to present to CATA your approach to this project. If oral presentations are held, Respondents will be notified of the date of the presentations and the time allowed.

1-O Selection Process

CATA may select a comparative range of proposals for further negotiations and discussions. This will be based upon sufficient analysis of technical factors and cost/price to identify those proposals that may not be competitive or those where technical or cost/price elements need to be addressed as part of the negotiation process. All those

Respondents that are determined to be within the competitive range may be invited to participate in oral and/or written discussions and in further negotiations regarding their proposals. All firms within the competitive range will have equal participation in the discussions and negotiations. CATA's goal is to obtain final and best offers from each of the firms from which it may then make a selection for final negotiations and the procurement award.

The final selection shall be made on a best value basis at the conclusion of negotiations and be based upon evaluation of the best and final offers, unless a determination has been made instead to make an award on the basis of initial proposals without conducting discussions.

1-P Reservation of Rights

CATA reserves its rights to cancel, amend, or reissue this RFP or the Project at any time and may cancel any award pursuant to this RFP or seek amended or new proposals as CATA deems necessary.

CATA further reserves the right to:

- Reject all proposals and re-solicit or cancel the RFP, if deemed by CATA to be in its best interest to do so;
- Enter into a contract with any Respondent, based upon the initial proposal, or on the basis of a Best and Final offer, with or without conducting written or oral discussions;
- Award a contract to a Respondent other than the Respondent that submitted the lowest price proposal.

1-Q Independent Price Determination

By submission of a proposal, the respondent certifies or, in the case of a joint proposal, each party thereto certifies as to its own organization, in connection with this proposal:

- The prices in the proposal have been determined independently and without consultation, communication, or agreement for the purpose of restricting competition as to any matter relating to such prices with any other respondent or with any competitor.
- Unless otherwise required by law, the prices that have been quoted in the proposal have not been knowingly disclosed by the respondent prior to award directly or indirectly to any other respondent or to any competitor.
- No attempt has been made or will be made by the respondent to induce any other persons or firm to submit or not submit a proposal for the purpose of restricting competition.

Each person signing the proposal certifies that she/he:

- Is the person in the respondent's organization responsible within that organization for the decision as to the prices being offered in the proposal and has not participated (and will not participate) in any action contrary to the requirements indicated in the bullets above.
- Is not the person within the respondent's organization responsible for the decisions as to the pricing being offered in the proposal but has been authorized, in writing, to act as an agent for the persons responsible for such a decision and certifying that such persons have not participated (and will not participate) in any action contrary to the requirements indicated in the bullets above.

1-R Pricing & Payment

Pricing proposals are to include the following:

- Price and specifications for **both hybrid & diesel** powered 40' and 60' transit buses (See Section 2 & Specifications attached).

- Price for total contract purchases of up to seventy (70) buses (hybrid and/or diesel) in combination of 40' and 60' as determined by CATA (per specification attached) will be based on the Producer Price Index (PPI) and will be mutually negotiated between CATA & the Contractor at the time an order is placed.

- Payment shall be made as follows: 80% upon delivery of the completed vehicle to the CATA facility; 20% upon full acceptance. Acceptance shall be made within 10 days of receipt of the vehicle, ***providing the vehicle meets CATA specification compliance and passes CATA's acceptance inspection***.

1-S Proposals Exceeding $100,000

If the amount of any Proposal in response to this RFP exceeds $100,000, then FTA regulations require CATA to obtain a properly executed Lobbying certificate from the proposer. CATA must consider any proposal lacking this certificate as non-responsive. (*See,* "Buy America" Certification and Certification Regarding Lobbying, attached hereto as Appendices E and F.)

SECTION 2: STATEMENT OF WORK

2-A Background

The Capital Area Transportation Authority ("CATA") is the regional public transportation provider for the Greater Lansing area. Specifically, CATA currently provides transit service to the Cities of Lansing and East Lansing, the Townships of Lansing, Delhi, Meridian, Ingham County, and portions of Eaton and Clinton Counties. CATA operates over 30 fixed bus routes as well as paratransit and demand-response services. CATA provided over 10.2 million passenger trips in Fiscal Year 2017. Nearly 2.6 million of those rides occurred on the Michigan State University (MSU) campus.

2-B Objectives of the Project

The objectives for this Project are as follows:

- Secure a five (5) year contract for the purchase of both forty foot (40') and sixty foot (60') hybrid and/or diesel buses in combinations to be determined by CATA.
- Initiate an order for up to ten (10) buses contingent on available funding. The initial order quantities will be two (2) 60' buses and eight (8) 40' buses, contingent on available funding.
- Secure options to purchase up to sixty (60) additional 40' and 60' buses, in any combination, as specified, contingent on available funding as determined by CATA.

2-C Scope of Work

- The initial purchase of ten (10) buses, with options to purchase up to sixty (60) additional 40' and 60' buses (any combination), contingent on availability of funding and need as determined by CATA, for a five (5) year period. See attached Appendix I for specification details.
- A timeline commitment from the vendor to address and answer requests to change orders and requests for pricing units as part of this contract.
- Detailed specifications are provided in Appendix I.

2-D CATA Responsibility

CATA will provide

- Detailed specifications;
- Answers to written questions pertaining to clarifications to the specifications in a timely manner.

2-E General Requirements

- **Timeliness**: The services of the successful respondent are to commence upon execution of the contract and shall be undertaken and completed so as to assure project completion as required by CATA's Project Manager.

- **Meetings**: CATA will conduct pre-production meetings with the successful respondent prior to the build of the initial units. CATA will maintain contact with the successful Contractor during the entire period of this contract. This contact may be conducted over the telephone, in person, or via e-mail, as determined by the CATA Project Manager. The Contractor shall be required to make immediate phone calls to the CATA Project Manager if any significant problems are encountered during and scheduled production period.
- **Oral Presentations**: Oral presentations are not currently contemplated.
- **Progress Reports**: During scheduled production the successful respondent shall provide weekly written progress memos to CATA's Project Manager. These reports will identify work accomplished, problems encountered during the past week with production, methodology and timeline for resolving these problems and the activities planned for the upcoming week. These memos shall be provided to the Project Manager on Monday for the prior week progress. The report can be faxed, mailed, or e-mailed to the Project Manager.
- **Project Reports**: The Contractor will provide to the Project Manager the following reports as it pertains to all scheduled production:
    - Federal Motor Vehicle Safety Standard (FMVSS) certification and documentation
    - Copies of all Quality Assurance inspections performed during the production process for each vehicle

2-F Deliverables

The following shall be delivered to CATA with each bus:

- Please refer to *Section 24.0, Parts Book, Manuals, Drawings and Training* in attached Appendix I, for list of items/services to be furnished with each bus delivered.
- Buy America audits, certification, and documentation.
- All diagnostic equipment and software.
- Copies of all Quality Control inspection forms for each bus delivered.
- Copies of completed front end alignment verification for each bus delivered.
- Warranty registrations for all installed components parts for each bus delivered.
- Manuals, Parts Books, CD's, DVD's, and Drawing.
- Vehicle registration and title in the State of Michigan for each bus delivered.

2-G Detailed Work Plan

Within 10 working days of the award of the contract, the Contractor will submit to CATA's Project Manager, for discussion, review, and approval, an adjusted technical work plan including the following:

- The Contractor final project organization structure.
- The Contractor's (and subcontractor's) detailed manning table with names, titles, addresses, telephone numbers, fax numbers, e-mail addresses, and any other critical information, by task if appropriate.
- The time-phases planned for completing the project, production time frame from issuance of a Purchase Order.

- Within one week following the submittal of the detailed work plan, the Contractor's representative will meet with CATA's Project Manager to review the components of the work plan and to finalize the direction of the project.

2-H Proposal Requirements

- Detailed description of Respondent's compliance with Scope of Work, including Specifications.
- Statement describing the Respondent's understanding of CATA's stated project objectives.
- Qualifications of the Primary Contractor and each sub-contractor.
- A list of any work that is to be sub-contracted and a description of the qualifications of the Prime Contractor and each Sub-Contractor on the team.
- Qualifications of the key individuals from each firm assigned to the project. This shall include the project manager, sales, engineering, production, and quality control.
- Past experience on similar projects, submit a minimum of three (3) examples for the prime and each sub-contractor.
- List at least three (3) customer references including specific contact names, addresses, telephone numbers, fax numbers, and e-mail addresses.
- Identification of DBE firms to be involved in the project, to include work to be performed, location, and contact person.
- Statement of Agreement with CATA Standard Terms & Conditions and the RFP.
- Statement of compliance and agreement to continue compliance with Federal and State laws and regulations, including regulations of the Federal Transit Administration ("FTA") and the Michigan Department of Transportation ("MDOT").
- Detailed timeline for each task including key meetings and critical tasks.
- A description of the Respondent's Quality Assurance Program.
- An organizational chart for the Respondent and all Sub-Contractors.
- The name and telephone number of person(s) in the Respondent's organization authorized to negotiate/expedite any proposed contract with CATA.
- Executed Iran Economic Sanctions Act Certificate (see attached CATA Standard Terms & Conditions of Procurement).
- Executed FTA Lobbying Certificate (see attached CATA Standard Terms & Conditions of Procurement).
- Executed FTA Buy America Provision (see attached CATA Standard Terms & Conditions of Procurement).
- Executed FTA Debarment, Suspension, Ineligibility, and Voluntary Exclusion Certification (see attached CATA Standard Terms & Conditions of Procurement).

2-I Cost of Project

See Section 1-R above for pricing and payment information.

SECTION 3: COMPLIANCE REQUIREMENTS

3-A FTA and MDOT Required Clauses

The contractor will comply with all relevant procurement and contract requirements of the Federal Transit Administration ("FTA") and the Michigan Department of Transportation ("MDOT"). *See,* for example, FTA Best Practices Procurement Manual, Appendix A.1 and FTA Circular 4220.1F.

The website address of the Federal Transit Administration is www.fta.dot.gov.

The website address of the Michigan Department of Transportation is www.michigan.gov.mdot.

The contractor shall furnish to CATA upon request, certificates of compliance with all such laws, rules and regulations. The contractor shall, at its own expense, be responsible for obtaining all necessary permits and licenses required for performance of the contract.

All contractual provisions required by MDOT or mandated by FTA as set forth in FTA Circular 4220.1F, are hereby incorporated by reference. The contractor shall not perform any act, fail to perform any act or refuse to comply with any CATA requests which would cause CATA or the contractor to be in violation of FTA or MDOT terms and conditions.

3-B Disadvantaged Business Enterprises

Disadvantaged Business Enterprises ("DBE") are encouraged to bid on this project. Any applicable DBE firm's certifications must be included in the proposal. Cost Proposals must list the amount and activity of service provided by the DBE firm, as applicable. Information on becoming certified as a Disadvantaged Business Enterprise is available from Michigan Department of Transportation ("MDOT") at the following website address: http://mdot270.state.mi.us:8080/UCP/HomePageServlet.

3-C Compliance with Laws

The contractor shall comply with all federal, state, and local laws, ordinances, rules, regulations, and orders, including, but not limited to:

1. Motor Carrier Safety Act, 1963 P A 181, as amended.
2. Motor Bus Transportation Act, 1982, P A 432, as amended.
3. Rules and Regulations of the Department of Transportation may promulgate to accomplish the purpose of 1990 P A 339.
4. Motor Safety Carrier Regulations, being 49 CFR, Parts 387, 390-393, 395-397, and 399 including appendices C, D, E, and G.
5. Drug-Free Workplace Act of 1988.
6. Procedures for Transportation Workplace Drug Testing Progress, 49 CFR 40.
7. Physical Qualification Requirements of 49 CFR 391.41 to 391.49.
8. Buy America Certification, Appendix E, must be signed by Respondent and included with proposal submission.

9. Lobbying Disclosure Act of 1985; Appendix F, must be signed by Respondent and included with proposal submission.

10. Iran Economic Sanctions Act Certificate per MCL 129.311 *et seq.,* Appendix G, must be signed by Respondent and included in proposal submission.

11. Non-Discrimination Clause per 49 CFR, Part 26.

12. Prohibition of Discrimination per 1976 P A 453, Public Acts of 1976.

Upon request, contractor shall furnish to CATA certificates of compliance with all such laws, rules and regulations. The contractor shall, at its own expense, be responsible for obtaining all necessary permits and licenses required for performance outlined in this RFP.

Information regarding the regulations listed above may be obtained from the Federal Motor Carrier Safety Administration at www.fmcsa.dot.gov/rulesregs/fmcsr/fmcsrguide.htm.

3-D Ownership

All original documents, calculations, and work product produced by contractor, whether produced on paper or electronic media or otherwise in performance of this Agreement, shall be the property of CATA. Contractor shall have the right to retain a copy of such documents, calculations, and work product. Contractor shall make available to CATA copies of all contractor correspondence, notes, and other papers relating to the work, upon request of CATA. All works of original authorship created in the scope of this Agreement are "works made for hire", as that term is used in connection with the U.S. Copyright Act. To the extent that by operation of law contractor retains any intellectual property rights to any work product, contractor hereby irrevocably assigns and licenses to CATA all right, title, and interest in such work product, including copyrights and patents, and agrees to execute such assignments and licenses as may be required in the opinion of CATA's legal counsel to confirm this provision. The work product produced by contractor in the performance of services under this agreement is intended for use by CATA solely for the purpose intended. Any use or reuse of such work product by CATA for any purpose other than its intended purpose shall be at the sole risk of CATA and without any liability or responsibility of contractor. To the extent that the work product produced by contractor contains standard design or construction details or other standardized material previously developed by contractor in its professional architectural, engineering, and planning practices, then contractor shall have the right to reuse any such material on other projects for other clients or persons without the prior knowledge or permission of CATA and without the payment of any compensation to CATA, provided that the reuse or continued use of such material contains no CATA identifying information or confidential information.

3-E News Releases

News releases pertaining to this RFP or the services, study, data, or project to which it relates will not be made without prior written CATA approval, and then only in accordance with the instructions from CATA's Executive Director.

3-F Audit and Inspection of Records

In the case of all negotiated contracts, and contracts for construction, reconstruction, or improvement of facilities and equipment which were entered into under other than competitive bidding procedures, the contractor agrees that the grantee, the Comptroller General of the United States, or any of their duly authorized representative shall, for the purpose of audit and examination, be permitted to inspect all work, materials, payrolls, and other date and records, and accounts with regard to the project. Further, the contractor agrees to maintain all required records for at least three (3) years after grantees make final payments and all other pending matters are closed.

3-G Complaints or Protests

CATA's Procurement Protest Procedures are available from CATA's Purchasing & Contracts Department.

3-H Contractual Terms and Conditions

See attached Appendix A, CATA Standard Terms and Conditions, for details.

APPENDICES

Appendix A:	CATA Standard Terms and Conditions
Appendix B:	Prohibition of Discrimination in State Contracts
Appendix C:	Assurances That Recipients and Contractors Must Make
Appendix D:	Disadvantaged Business Enterprise Policy
Appendix E:	Buy America Certification
Appendix F:	Certificate Regarding Lobbying
Appendix G:	Iran Sanction Certificate
Appendix H:	Certification of Primary Contractor Regarding Debarment, Suspension, and Other Responsibility Matters
Appendix I:	Technical Specifications
	Attachment A: Seat Insert Specification

APPENDIX A

CAPITAL AREA TRANSPORTATION AUTHORITY
STANDARD TERMS AND CONDITIONS OF PROCUREMENT
ROLLING STOCK GREATER THAN $100,000

A. THE FOLLOWING TERMS AND CONDITIONS WILL BE A PART OF THE CONTRACT AWARDED.

1. CHANGES. CATA, at any time, by a written order, and without notice to the sureties, may make changes within the general scope of this contract, in (a) drawings, designs or specifications where the supplies to be furnished are specifically manufactured for CATA in accordance therewith; (b) method of shipment or packing; and (c) place of delivery. If any such change causes an increase or decrease in the cost of, or the time required for performance of this contract, whether changed or not changed by such order, an equitable adjustment shall be made by written modification of the contract. Any claim by the Contractor for adjustment under this clause must be asserted within thirty (30) days from the date of receipt by the Contractor of the notification of change; provided that CATA, if it decides that the facts justify the action, may receive and act upon any such claim if asserted prior to dispute concerning a question of fact within the meaning of the clause of this contract entitled "Disputes." However, nothing in this clause shall excuse the Contractor from proceeding with the contract as changed.

2. TERMINATION FOR DEFAULT. CATA, by written notice, may terminate the contract awarded on the basis of this proposal, in whole or in part, for failure of the Contractor to perform any of the provisions hereof. In such event, the Contractor shall be liable for damages, including the excess cost of reprocuring similar supplies or services, provided, that if (a) it is determined for any reason that the Contractor was not in default or, (b) the Contractor's failure to perform is without his control, fault or negligence, the termination shall be deemed to be a termination for convenience under the following Paragraph 3.

3. TERMINATION FOR CONVENIENCE. CATA, by written notice, may terminate the contract, awarded on the basis of this proposal, in whole or in part, when it determines it is in the best interest of CATA. If this contract is for supplies and is so terminated, the Contractor shall be compensated in accordance with its auditable cost incurred at the time of notification of termination. To the extent that the contract is for services and is so terminated, CATA shall be liable only for payment in accordance with the payment provisions of the contract for services rendered to the effective date of termination.

4. ADDITIONAL INFORMATION. The Contractor shall promptly furnish any additional information requested by CATA relative to the equipment it proposes.

5. SUPPLIER RESPONSIBILITY. No advantage shall be taken by the Contractor or its Subcontractor in the omission of any part or detail which goes to make the equipment complete and operable for use by CATA. In case of any variance, this specification shall overrule Contractor or Subcontractor specifications. The Contractor shall assume responsibility for all materials used whether the same is manufactured by the Contractor or purchased ready made from a source outside Contractor's company. In the case of the replacement of a Subcontractor, the Contractor must, within five (5) working days, notify CATA in writing of the replacement and provide name, address, telephone number, and the type of service.

6. DELIVERY. Service and/or equipment will be delivered to Capital Area Transportation Authority, 4615 Tranter Street, Lansing, Michigan 48910. The Authority will assume custody of all property at one of its other locations, if so directed, in writing by CATA. Invoices shall be furnished with the delivery of each item. CATA reserves the right to inspect all deliveries or services before acceptance.

7. BREACH OF CONTRACT. If the Contractor shall fail, refuse or neglect to comply with the terms of these contract conditions, such failure shall be deemed a total breach of contract and the Contractor shall be subject to legal recourse by CATA, plus costs relating to failure to comply.

8. DISPUTES (AFTER BID AWARD). Except as otherwise provided in the contract, any dispute concerning a question of fact arising under the contract which is not disposed of by Contractor shall be decided by CATA in writing, with a copy mailed or otherwise furnished to the Contractor. The decision of CATA shall be final and conclusive unless within ten (10) days from the date of receipt of such copy, the Contractor mails or otherwise

furnishes to CATA a written appeal addressed to the Executive Director for the determination of such appeal, which shall be final and conclusive, unless determined by a court of competent jurisdiction to have been fraudulent or capricious, or arbitrary, or so grossly erroneous as necessarily to imply bad faith, or not supported by substantial evidence. In connection with any appeal proceeding under this clause, the Contractor shall be afforded an opportunity to be heard and to offer evidence in support of its appeal. Pending a final decision of the dispute, the Contractor shall proceed diligently with the performance of the contract and in accordance with CATA's decision.

9. DELIVERY EXTENSION AND DELAYS. CATA reserves the right to extend, postpone or reschedule delivery in case the delivery of service equipment, under this contract, shall be necessarily delayed because of strike, injunction, civil disturbance, government controls, or by reason of any cause or circumstance beyond the control of the Contractor, as detailed in writing by the Contractor, the time of completion or a delivery shall be extended by a number of days to be determined in each instance by CATA.

10. INSTALLATION. If specified, the Contractor shall install and place in operation, subject to approval by CATA, the equipment at the Contractor's expense within thirty (30) days from issuance of a notice to install issued by CATA.

11. INSTALLATION EXTENSION AND DELAYS. CATA reserves the right to extend, postpone, or reschedule installation in case the installation of equipment under this contract shall be necessarily delayed because of strike, injunction, civil disturbance, government controls, or by reason or cause or circumstances beyond the control of the Contractor. The time of completion or installation shall be extended by a number of days to be determined in each instance by CATA.

12. ASSEMBLY. If required, the Contractor shall assemble the equipment of the installation.

13. ACCESSORIES. The Contractor shall furnish all accessories required to permit CATA to operate the equipment as contemplated by the Authority. Accessories shall be included in the bid price.

14. TRAINING. The Contractor shall properly train CATA personnel in the operation and maintenance of the equipment.

15. SERVICE MANUAL AND WIRING SCHEMATIC. If specified, the Contractor will provide at least one copy of a service manual and at least one copy of a wiring schematic for individual components and other schematics and drawings.

16. WARRANTY. The Contractor shall describe its policy or warranty(s) both on workmanship and material as applying to the equipment, along with the method or adjustment, and shall be further subject to warranty requirements of CATA as set forth in the following Paragraph 17.

17. CATA WARRANTY. The Contractor agrees that the supplies or services furnished under this contract shall be covered by the most favorable warranties the Contractor gives any customer for such equipment and that the rights and remedies provided herein are in addition to and do not limit any rights afforded to CATA by any other clause of this contract. The Contractor shall state the warranty and supply with its bid.

18. INSURANCE. The Contractor shall place and maintain with responsible insurance carriers the following insurance. The Contractor shall deliver to CATA, upon request, certificates of insurance which shall provide thirty (30) days' written notice to be given to CATA in the event of cancellation. Contractor shall require all Subcontractors to maintain adequate insurance coverage.

(a) Workers' Compensation and Employer's Liability Insurance.

(1) Workers' Compensation in compliance with the applicable state and federal laws.
(2) Employer's Liability. Limit $1,000,000.

(b) Commercial General Liability Insurance, including Professional Liability, Blanket contractual, XCU Hazards, Broad Form Property Damage, Completed Operations, and Independent Contractor's Liability, all applicable to Personal Injury, Bodily Injury and Property Damage to a combined single limit of $1,000,000 each occurrence/claim, subject to a $2,000,000 annual aggregate for Professional Liability, Completed Operations and Personal Injury other than Bodily Injury.

(c) Automobile Liability Insurance, including owned, hired and non-owned automobiles, Bodily Injury and Property Damage, to a combined single limit of $1,000,000 each occurrence.

19. INDEMNIFICATION. In addition to the protection afforded by any policy of insurance, the Contractor agrees to indemnify and save harmless CATA, the Michigan Department of Transportation ("MDOT"), the Federal Transit Administration ("FTA"), and all officers, agents, and employees thereof:

    (a) From any and all claims by persons, firms, or corporations for labor, materials, supplies, or services provided to the Contractor in connection with the Contractor's performance of the contract; and

    (b) From any and all claims for injuries to or death of any and all persons, for loss of or damage to property, for environmental damage, degradation and response, and cleanup costs, and for attorney fees and related costs arising out of, under, or by reason of the Contractor's negligent performance of the contract.

CATA will not be subject to any obligations or liabilities by Subcontractors of the Contractor or their Subcontractors or any other person not a party to this contract without its specific consent and notwithstanding its concurrence in or approval of the award of any contract or subcontract or the solicitation thereof.

20. ACCEPTANCE OF MATERIAL - NO RELEASE. Unless CATA otherwise agrees in writing, acceptance of any portion of the material prior to final acceptance shall not release the Contractor from liability for faulty workmanship or materials or for failure to fully comply with all of the terms of this contract. CATA reserves the right and shall be at liberty to inspect all materials and workmanship at any time during the manufacturing process, and shall have the right to reject all materials and workmanship which do not conform with the contract requirements and specifications; provided, however, that CATA is under no duty to make such inspection and no inspection so made shall relieve Contractor from any obligation to furnish materials and workmanship in accordance with the contract requirements and specifications.

21. FINAL ACCEPTANCE. Upon final acceptance by CATA of all work to be performed by the Contractor, CATA will so notify the Contractor in writing. The date of final acceptance shall commence the warranty period.

22. LIQUIDATED DAMAGES. If the Contractor fails to deliver the requirements by the date as set forth in the bid documents scheduled for delivery, CATA shall be paid damages for each consecutive calendar day thereafter until the goods are delivered, unless a completion date is extended by CATA in writing. Inasmuch as the amount of such damages will be extremely difficult to ascertain, the Contractor agrees to compensate CATA the sum of $_____ per day, which sum is hereby agreed upon, fixed and determined by the parties hereto as the liquidated damages that CATA will suffer by reason of said delay and default and not as a penalty; and CATA shall have the right to deduct such sum from any amounts which may otherwise become due under contract.

23. NO ASSIGNMENT OF CONTRACT. Contractor may not assign or transfer any interest in the contract without the prior written consent of CATA.

24. DEFECTIVE WORKMANSHIP AND MATERIAL. When and as often as CATA determines that the work done or being done under the contract or the kind of quality or materials supplied in connection therewith are not fully and completely in accordance with any requirement of the contract documents, it may give notice of such noncompliance to the Contractor in writing and the Contractor shall immediately upon receipt of such notice do all things required to remedy such noncompliance without additional cost to CATA. If the Contractor fails to comply with such written notice, then CATA, upon written notice to the Contractor, shall deduct the cost of repair, replacement or correction of defective or damaged work from the compensation due or to become due to the Contractor.

25. WAIVER OF BREACH. The waiver by either party hereto or any breach of any provision of this contract by the other party shall not operate or be construed as a waiver of any subsequent breach of the same or any other provision of this contract by either party hereto.

26. OWNERSHIP OF DOCUMENTS. All original documents, calculations, and work product produced by CONTRACTOR, whether produced on paper or electronic media or otherwise in performance of this Agreement, shall be the property of CATA. CONTRACTOR shall have the right to retain a copy of such documents, calculations, and work product. CONTRACTOR shall make available to CATA copies of all CONTRACTOR correspondence, notes, and other papers relating to the work, upon request of CATA. All works of original authorship created in the scope of this Agreement are "works made for hire", as that term is used in connection with the U.S. Copyright Act. To the extent that by operation of law CONTRACTOR retains any intellectual property rights to any work product, CONTRACTOR hereby irrevocably assigns and licenses to CATA all right, title, and

interest in such work product, including copyrights and patents, and agrees to execute such assignments and licenses as may be required in the opinion of CATA's legal counsel to confirm this provision. The work product produced by CONTRACTOR in the performance of services under this Agreement is intended for use by CATA solely for the purpose intended. Any use or reuse of such work product by CATA for any purpose other than its intended purpose shall be at the sole risk of CATA and without any liability or responsibility of CONTRACTOR. To the extent that the work product produced by CONTRACTOR contains standard design or construction details or other standardized material previously developed by CONTRACTOR in its professional architectural, engineering, and planning practices, then CONTRACTOR shall have the right to reuse any such material on other projects for other clients or persons without the prior knowledge or permission of CATA and without the payment of any compensation to CATA, provided that the reuse or continued use of such material contains no CATA identifying information or confidential information.

27. EXCUSES FOR FAILURE TO PERFORM OR DELAYS. The Contractor will not be in default by reason of any failure in the performance of this contract, if such failure arises out of causes beyond the control and without the fault or negligence of Contractor. Such causes may include, but are not limited to, acts of God or the public enemy, acts of the government either in its sovereign or contractual capacity, fires, floods, and strikes. But in every case, a failure to perform must be beyond the control and without the fault or negligence of the Contractor or its Subcontractors. An excusable delay will permit the Contractor an extension of time for such reasonable period as may be mutually agreed upon between the parties.

B. TERMS INCLUDED IN CONTRACTS FUNDED IN WHOLE OR PART BY FTA, MDOT, OR OTHER GOVERNMENTAL AGENCY.

1 NONDISCRIMINATION.

(a) Compliance with Regulations. Contractor shall comply with Federal Regulations relative to nondiscrimination of the Department of Transportation, Title 49, Code of Federal Regulations, Part 21, and Title 23, Code of Federal Regulations, Part 710.405(b), as they may be amended from time to time (hereinafter referred to as the Regulations), and with Executive Order 11246 titled Equal Employment opportunity, as amended by Executive Order 11375, and as supplemented by Department of Labor Regulation (41 CFR 60) which are herein incorporated by reference and made a part of this contract. Contractor agrees that it will comply with the requirements of U.S. Equal Employment Opportunity Commission, "Regulations to Implement the Equal Employment Provisions of the Americans with Disabilities Act," 29 C.F.R. Part 1630, pertaining to employment of persons with disabilities. In addition, Contractor agrees to comply with any implementing requirements FTA may issue.

(b) Nondiscrimination. With regard to the work performed by it during this contract, Contractor shall not discriminate on the grounds of race, color, sex, disability, or national origin in the selection and retention of Subcontractors, including procurement of materials and leases of equipment. Contractor shall not participate either directly or indirectly in discrimination prohibited by Section 21.5 and Part 710.405(b) of the Regulations, including employment practices when the contract covers a program set forth in Appendix C of the Regulations.

(c) In connection with the performance of services under this contract, Contractor agrees to comply with the State of Michigan provisions for “prohibition of discrimination in state contracts” as set forth in Appendix B dated March 19, 1998, a copy of which is attached hereto and made a part hereof.

(d) ADA Access. All work performed and all services provided pursuant to this contract shall be in compliance with Federal policy to ensure that elderly individuals and individuals with disabilities have an equal right to use of public transportation services and facilities. To the extent this Contract requires planning and design of services and facilities, special efforts shall be made to implement the transportation and accessibility rights of elderly individuals and individuals with disabilities. The work performed and services provided in this Contract shall be in compliance with all State and Federal statutes and laws ensuring equal access of transportation services and facilities for the elderly and individuals with disabilities, including 49 U.S.C. § 5301(d), § 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*., and the Architectural Barriers Act of 1968, as amended, 42 U.S.C. § 4151 *et seq*., and any applicable implementing Federal regulations or directives as they may from time to time be promulgated or amended.

(e) This provision B.1 (a)-(e) will be included in all subcontracts relating to this contract. Further, each contract which Contractor signs with a Subcontractor must include the following assurance:

The Contractor, Subrecipient, or Subcontractor shall not discriminate on the basis of race, color, national origin, creed, disability, 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 US DOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate.

2. DBE REQUIREMENTS. Contractor will carry out the applicable requirements of the Michigan Department of Transportation's Disadvantaged Business Enterprise ("DBE") program and 49 CFR 26, including, but not limited to those requirements set forth in Appendix D, attached hereto and made a part hereof.

3. CONTINGENT FEES. The Contractor warrants that it has not employed or retained any company or person, other than a bonafide employee working solely for the Contractor, to solicit or secure this contract and that it has not paid or agreed to pay any company or person, other than a bonafide employee working solely for the Contractor, any fee, commission, percentage, brokerage fee, gifts or any other consideration, contingent upon or resulting from the award or making of this contract. For breach or violation of this warranty, CATA shall have the right to annul this contract without liability.

4. RECORDS/AUDITS. The Contractor shall maintain complete and accurate books, documents, papers, accounting records, and other evidence with respect to allowable costs incurred and manpower expended under this contract. All such records shall be maintained on the basis of generally-accepted accounting principles and shall be clearly identified and readily accessible. The Contractor shall provide during regular business hours to the U.S. Secretary of Transportation, the FTA Administrator, the Comptroller General of the United States and CATA, or their duly authorized representatives, access to such data and records, and the right to inspect and audit all data and records of the Contractor relating to its performance under the contract, and to make transcripts therefrom as necessary to allow inspection of all work data, documents, proceedings, and activities related to this contract for a period of three (3) years from the date of final payment under this contract. In the event of a dispute as to allowable costs or any other issue under this contract, Contractor will thereafter continue to maintain such records until the dispute has been resolved.

5. CONFLICT OF INTEREST. The Contractor certifies that, to the best of its knowledge, no CATA employee or office of any public agency interested in this contract has any pecuniary interest in the business of the Contractor and that no person associated with the Contractor has any interest that would conflict in any manner or degree with the performance of this contract.

6. INTEREST OF MEMBER OF CONGRESS OR DELEGATES TO CONGRESS. No member of Congress or delegates to the Congress of the United States shall be admitted to any share or part of the contract, or to any benefit arising therefrom. This shall not be construed to prevent any such person from owning stock in a publicly owned corporation.

7. DEBARMENT AND SUSPENSION. Contractor must comply with U.S. DOT regulations "Nonprocurement Suspension and Debarment", 2 CFR Part 1200, which adopt and supplement the U.S. Office of Management and Budget ("U.S. OMB") "Guidelines to Agencies on Government-wide Debarment and Suspension (Nonprocurement)," 2 CFR Part 180. Contractor will not make any contract, subcontract, or lease for the project without first confirming that its proposed contractor, subcontractor, or lessee is not listed as barred in the Excluded Parties Listing System, at http://epls.gov/.

Contractor agrees to comply with federal debarment and suspension regulations and guidelines when administering any contract or subcontract of $25,000 or more, regardless of tier. A contract or subcontract award may not be made to a prospective contractor or subcontractor if that contractor is excluded or disqualified under the standards of the U.S. DOT regulations in the U.S. OMB Guidelines, unless the federal government has provided an exception as permitted under those regulations and guidelines. In addition, contracts of any amount for federally required audit services or for contracts which require the consent of a federal official are also covered by these DOT regulations and U.S. OMB Guidelines. Contractor must obtain the compliance of lower tier contractors, subcontractors, and lessees with the U.S. DOT debarment and suspension regulations and the U.S. OMB Guidelines that apply to them. The Contractor further agrees to include provisions requiring compliance as set forth above in lower tier covered transactions.

8. MDOT AND FTA TERMS. All contractual provisions that the Michigan Department of Transportation ("MDOT") or the Federal Transit Administration ("FTA"), by law or regulation, require to be included in contracts supported by

state or federal financial assistance, including the requirements set forth in FTA Circular 4220.1F, as updated and amended, and the Master Agreement between CATA and FTA as it may be amended, are hereby incorporated by reference. FTA required terms and MDOT required terms shall be deemed to control in the event of a conflict with other provisions contained in this contract. Contractor shall not refuse to comply with any CATA request to conform this contract to include MDOT or FTA required contractual provisions. The Contractor shall not perform any act, fail to perform any act, or refuse to comply with any CATA requests which would cause CATA to be in violation of the FTA mandated contractual provisions.

9. COMPLIANCE WITH LAWS. The Contractor shall at all times observe and comply with all laws, ordinances, and regulations of the state, federal, local, and city government which may, in any manner, affect the performance of the contract.

10. CLEAN AIR. The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. 7401, *et seq*. If state or local air pollution regulations are in force, the more restrictive criteria shall govern. The Contractor and any subcontractors or suppliers must submit evidence to CATA that the governing air pollution criteria will be met. The Contractor agrees to report each violation to CATA and understands and agrees that CATA will, in turn, report each violation as required to FTA and the appropriate EPA Regional Office. The Contractor also agrees to include these requirements in each subcontract exceeding $100,000 financed in whole or in part with Federal assistance provided by FTA.

11. BUY AMERICA PROVISIONS. Contractor agrees to comply with 49 U.S.C. 5323(j) and FTA's Buy America Regulations in 49 CFR Part 661. These require that iron, steel, and manufactured products used in FTA funded projects be produced in the United States, with specific provisions that apply to rolling stock procurements, unless a waiver has been granted by FTA or the product is subject to a general waiver. *The continued accuracy of the certificate, attached as Appendix E, entitled "Buy America Certification", submitted with Contractor's proposal/bid is a term and condition of this Agreement.*

12. CERTIFICATION REGARDING LOBBYING. This procurement is subject to the Federal Transportation Administration Lobbying requirements. The attached certificate, entitled Certificate Regarding Lobbying (Appendix F), must be signed and returned as a term and condition of this Agreement and its terms are incorporated by reference herein.

13. PREVAILING WAGE. N/A

14. BID BOND. N/A

15. PROTESTS. Any protests shall be filed timely in accordance with the CATA Procurement Protest Procedures dated July 13, 2007. These Procedures are available from the CATA Purchasing & Contracts Manager and the CATA CEO/Executive Director, at the following address: Capital Area Transportation Authority, 4615 Tranter Street, Lansing, MI 48910.

16. PERFORMANCE & PAYMENT BONDS. N/A

17. 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 CATA and FTA, as they may be amended or promulgated from time to time during the term of this contract. Contractor shall not, by action or by inaction, cause CATA to be in violation of FTA regulations, policies, procedures, or directives. Contractor's failure to comply with this paragraph shall constitute a material breach of this contract.

18. NO GOVERNMENT OBLIGATION. Notwithstanding any concurrence by the Federal Government or MDOT in, or approval of, the solicitation or award of this Agreement, absent the express written consent by the Federal Government or by MDOT, neither the Federal Government nor the State of Michigan is a party to this Agreement, and neither shall be subject to any obligations or liabilities to CATA, the Contractor or any other party (whether or not a party to this Agreement) pertaining to any matter resulting from this Agreement. The Contractor agrees to include this clause in each subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clause shall not be modified, except to identify the subcontractor who will be subject to its provisions.

19. CLEAN WATER. The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 *et seq*. The Contractor agrees to report each violation to CATA and understands and agrees that CATA will, in turn, report each violation as required to FTA and the appropriate EPA Regional Office. The Contractor also agrees to include these requirements in each subcontract exceeding $100,000 financed in whole or in part with Federal assistance provided by FTA.

20. ENERGY CONSERVATION. 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.

21. RECOVERED MATERIALS. N/A

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

23. CARGO PREFERENCE. The Contractor agrees (a) to use privately owned United States Flag commercial vessels to ship at least 50% 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 extend such vessels are available at fair and reasonable rates for United States Flag commercial vessels; (b) to furnish within twenty (20) working days following the date of loading of shipments originating within the United States or within thirty (30) working days following the date of loading for shipments originating outside the United States, a legible copy of the 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, D.C., 20590. CATA (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 where the subcontract may involve the transport of equipment, material, or commodities by ocean vessel.

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

    (a) The Contractor acknowledges that the provisions of the Program Fraud Civil Rights 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, or 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.

    (b) 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 authority of 49 U.S.C. § 5307, the Federal Government reserves the right to impose the penalties of 18 U.S.C. § 1001 and 49 U.S.C. § 5307(n)(1) on the Contractor, or the applicable Federal law to the extent the Federal Government deems appropriate.

    (c) The Contractor agrees to include the above two clauses in each subcontract financed in whole or in part with Federal assistance 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.

C. MISCELLANEOUS.

1. COMPUTATION OF TIME. In computing a period of time prescribed by these conditions, the following rules apply:

(a) "Day" means days of the week (e.g., Monday through Friday), not business days.
(b) The day of the act or event after which the designated period of time begins is not included.
(c) The last day of the period is included, unless it is a Saturday, Sunday, or legal holiday. In that event, the period runs until the end of the next day that is not a Saturday, Sunday or legal holiday.

2. NOTICE. All notices and other communications required under this Contract shall be given in writing, signed by an authorized representative, and be personally delivered or delivered by overnight courier, or certified mail (return receipt requested) to the addresses set forth below:

To CATA:	CEO/Executive Director Capital Area Transportation Authority 4615 Tranter Street Lansing, MI 48910
With a copy to:	Dan W. Chandler, Esq. Chandler, Bujold & Chandler, PLC 2855 Coolidge Hwy., Suite 109 Troy, MI 48084
To Contractor:	_____ _____ _____ _____
With a copy to:	_____ _____ _____ _____

3. JURISDICTION. This Contract will be governed by the internal laws of the State of Michigan without reference to its choice of law rules. Exclusive jurisdiction and venue of any suit, action or claim relating to this contract will be in the Ingham County Circuit Court or the Federal District Court for the Western District of Michigan.

4. This contract constitutes the entire contract between the parties and supercedes all negotiations, commitments, and previous contracts and may be modified only by a further written contract which is executed by a duly authorized officer of each of the parties.

APPENDIX B

PROHIBITION OF DISCRIMINATION IN STATE CONTRACTS

In connection with the performance of work under this contract, Contractor agrees as follows:

1. In accordance with Act 453, Public Acts of 1976, Contractor hereby agrees not to discriminate against an employee or applicant for employment with respect to hire, tenure, terms, conditions, or privileges of employment, or as a matter directly or indirectly related to employment, because of race, color, religion, national origin, age, sex, height, weight, or marital status. Further, in accordance with Act No. 220, Public Acts of 1976 as amended by Act No. 478, Public Acts of 1980, Contractor hereby agrees not to discriminate against an employee or applicant for employment with respect to hire, tenure, terms, conditions, or privileges of employment, or a matter directly or indirectly related to employment, because of a disability that is unrelated to the individual's ability to perform the duties of a particular job or position. A breach of the above covenants shall be regarded as a material breach of this contract.

2. Contractor hereby agrees that any and all subcontracts to this contract, whereby a portion of the work set forth in this contract is to be performed, shall contain a covenant the same as hereinabove set forth in Section 1 of this Appendix.

3. Contractor will take affirmative action to insure that applicants for employment and employees are treated without regard to their race, color, religion, national origin, age, sex, height, weight, marital status or a disability that is unrelated to the individual's ability to perform the duties of a particular job or position. Such action shall include, but not be limited to the following: employment, upgrading, demotion or transfer, recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.

4. Contractor will, in all solicitations or advertisements for employees placed by or on behalf of Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, national origin, age, sex, height, weight, marital status or disability that is unrelated to the individual's ability to perform the duties of a particular job or position.

5. Contractor or its collective bargaining representative will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice advising the said labor union or workers' representative of the Contractor's commitments under this Appendix.

6. Contractor will comply with all relevant published rules, regulations, directives, and orders of the Michigan Civil Rights Commission which may be in effect prior to the taking of bids for any individual state project.

7. Contractor will furnish and file compliance reports within such time and upon such forms as provided by the Michigan Civil Rights Commission, said forms may also elicit information as to the practices, policies, program, and employment statistics of each subcontractor as well as Contractor itself, and said Contractor will permit access to its books, records, and accounts by the Michigan Civil Rights Commission and/or its agent, for purposes of investigation to ascertain compliance with this contract and relevant with rules, regulations, and orders of the Michigan Civil Rights Commission.

8. In the event that the Civil Rights Commission finds, after a hearing held pursuant to its rules, that Contractor has not complied with the contractual obligations under this Agreement, the Civil Rights Commission may, as part of its order based upon such findings, certify said findings to the Administrative Board of the State of Michigan, which Administrative Board may order the cancellation of the contract found to have been violated and/or declare Contractor ineligible for future contracts with the state and its political and civil subdivisions, departments, and officers, and including the governing boards of institutions of higher education, until Contractor complies with said order of the Civil Rights Commission. Notice of said declaration of future ineligibility may be given to any or all of the persons with whom Contractor is declared ineligible to contract as a contracting party in future contracts. In any case before the Civil Rights Commission in which cancellation of an existing contract is a possibility, the contracting agency shall be notified of such possible remedy and shall be given the option by the Civil Rights Commission to participate in such proceedings.

9. Contractor will include, or incorporate by reference, the provisions of the foregoing paragraphs (1) through (8) in every subcontract or purchase order unless exempted by the rules, regulations or orders of the Michigan Civil Rights Commission, and will provide in every subcontract or purchase order that said provisions will be binding upon each subcontractor or seller.

APPENDIX C

ASSURANCES THAT RECIPIENTS AND CONTRACTORS MUST MAKE (EXCERPTS FROM US DOT REGULATION 49 CFR § 26.13)

A. Each financial assistance agreement signed with a DOT operating administration (or a primary recipient) must include the following assurance:

The recipient shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of any US DOT-assisted contract or in the administration of its DBE program or the requirements of 49 CFR Part 26. The recipient shall take all necessary and reasonable steps under 49 CFR Part 26 to ensure nondiscrimination in the award and administration of US DOT-assisted contracts. The recipient's DBE program, as required by 49 CFR Part 26 and as approved by US DOT, is incorporated by reference in this agreement. Implementation of this program is a legal obligation and failure to carry out its terms shall be treated as a violation of this agreement. Upon notification to the recipient of its failure to carry out its approved program, the department may impose sanctions as provided for under Part 26 and may, in appropriate cases, refer the matter for enforcement under 18 U.S.C. 1001 and/or the Program Fraud Civil Remedies Act of 1986 (31 U.S.C. 3801, et seq.).

B. Each contract Contractor signs with a subcontractor must include the following assurance:

The contractor, subrecipient, or subcontractor 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 US DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate.

APPENDIX D

POLICY #204

DISADVANTAGED BUSINESS ENTERPRISE POLICY

The Capital Area Transportation Authority ("CATA") is committed to a policy of non-discrimination in the conduct of its business, including the procurement of goods and services. CATA will take affirmative action to assure maximum practical opportunity for participation of Disadvantaged Business Enterprise ("DBE") in the performance of contracts financed in whole or in part with funds from the United States Department of Transportation, the Federal Transit Administration ("FTA"), the Michigan Department of Transportation ("MDOT"), or other state and federal agencies with DBE programs.

The Executive Director of CATA will annually set an overall goal or goals as a "level playing field" for the amount of DBE participation that can reasonably be expected in the absence of discrimination. This goal will be based on demonstrable evidence of ready, willing, and able DBEs that are available to participate in government assisted contracts. Affirmative action shall be consistent with sound procurement principles and applicable law.

This Policy Statement will be executed by the Executive Director and the Board Chair of CATA, and then circulated to all Department Directors, and Department Managers within the organization and circulated to contracting organizations, the state offices which administer programs, and DBE organizations. The Executive Director will give public notice of DBE goals, how the goals were determined, and contact information for public comment.

CATA's Purchasing Manager shall be the DBE liaison for CATA and will be responsible for administering the program. The DBE liaison will report to the Assistant Executive Director and shall have direct access to the Executive Director, as necessary. The DBE liaison will work with all directors and department managers to insure the effective functioning of CATA's DBE program.

The efforts and results of the entire staff will be reported to the Board through the Development Report of the Executive Director.

Sam Singh, Board Chair

Sandra L. Draggoo, CEO/Executive Director

Adopted: 2/9/84
Amended: 6/27/84
11/14/84
3/15/89
10/19/05

APPENDIX E

BUY AMERICA CERTIFICATION

BUSES, ROLLING STOCK, AND ASSOCIATED EQUIPMENT, SEE 49 CFR 661.3

This procurement is subject to federal "Buy America" Requirements set forth in 49 U.S.C. 5323(j) and in Federal Transit Administration ("FTA") regulations at 49 CFR Part 661, which require that steel, iron, and manufactured products used in FTA-funded procurements be produced in the United States. Special requirements apply to rolling stock, as defined in the regulations. See 49 U.S.C. 5323(j)(2)(C), 49 CFR 661.11. In some cases, the requirement may be waived (49 CFR 661.7).

The "Buy America" Certificate below **must** be completed and submitted with your bid/proposal. A bid/ proposal which does not include the Certificate or where both certificates are signed will be considered non-responsive.

****PLEASE SIGN ONLY ONE OF THE TWO CERTIFICATES BELOW ****

CERTIFICATE ONE:

BUY AMERICA CERTIFICATE

The bidder hereby certifies that it **WILL** comply with the requirements of 49 U.S.C. 5323(j) and applicable regulations in 49 CFR 661.11.

Signature:_____

Title: _____

Date: _____

CERTIFICATE TWO:

BUY AMERICA CERTIFICATE

The bidder 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 consistent with 49 U.S.C. 5323(j)(2)(C), and the regulations in 49 CFR 661.7.

Signature:_____

Title: _____

Date: _____

APPENDIX F

CERTIFICATE REGARDING LOBBYING

CERTIFICATION FOR CONTRACTS, GRANTS, LOANS, AND COOPERATIVE AGREEMENTS
(To be submitted with each bid or offer exceeding $100,000).

The undersigned Contractor 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 making lobbying contacts to an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of congress in connection with this federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form LLL, Disclosure Form to Report Lobbying, in accordance with its instructions (as amended by "Government Wide Guidance for New Restrictions on Lobbying", 61 Fed. Reg. 1413 (11/19/96). Note: Language in paragraph (2) herein has been modified in accordance with Section 10 of the Lobbying Disclosure Act of 1995 (P.L. 104-65, to be codified at 2 U.S.C. § 1601, et seq.).

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, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients 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 31 U.S.C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required Certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

[Note: Pursuant to 31 U.S.C. § 1352(c)(1)-(2)(A), any person who makes a prohibited expenditure or fails to file or amend a required Certification or disclosure form shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such expenditure or failure.]

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

_____ Signature of Contractor's Authorized Official

_____ Name & Title of Contractor's Authorized Official

_____ Date

THIS PAGE MUST BE COMPLETED AND RETURNED WITH YOUR PROPOSAL

APPENDIX G

IRAN ECONOMIC SANCTIONS ACT CERTFICATE

In accordance with the Iran Economic Sanctions Act, Michigan 2012 PA 517, effective April 1, 2013, (MCL 129.311, *et seq*.), the undersigned certifies in support of its bid or proposal that it is not an Iran linked business as such is defined in the Act.

Bidder: _____

Signature: _____

Printed Name: _____

Title: _____

Date: _____

THIS FORM MUST BE COMPLETED AND RETURNED WITH YOUR PROPOSAL

APPENDIX H

CERTIFICATION OF PRIMARY CONTRACTOR REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

The Primary Contractor, _____, certifies to the best of its knowledge and belief, that it and its principals:

1. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

2. Have not within a three (3) year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or Local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

3. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State, or Local) with commission of any of the offense enumerated in paragraph (2) of this certification; and

4. Have not within a three (3) year period preceding this application/proposal had one (1) or more public transactions (Federal, State, or Local) terminated for cause or default.

If the above named Primary Contractor is unable to certify to any of the statements in this certification, the Primary Contractor shall attach an explanation to this certification.

The Primary Contractor, _____, certifies or affirms the truthfulness and accuracy of the contents of the statements submitted on or with this certification and understands that the provision of 31 U.S.C. Section 3801 et seq. are applicable thereto.

Bidder: _____

Signature: _____

Printed Name: _____

Title: _____

Date: _____

THIS FORM MUST BE COMPLETED AND RETURNED WITH YOUR PROPOSAL

APPENDIX I

TECHNICAL SPECIFICATIONS

Table of Contents – Specifications

I. TECHNICAL SPECIFICATIONS

1.0 GENERAL PROVISIONS

1.1 SCOPE

The purpose of these specifications is to set forth the minimum performance requirements for the purchase of a minimum of ten (10) and maximum fifty-six (56) 40' buses and a minimum of two (2) and a maximum of fourteen (14) 60' buses depending on the availability of grant funding. The technical specifications detail the CAPITAL AREA TRANSPORTATION AUTHORITY (CATA) minimum acceptable requirements for low floor, heavy duty 60 foot long by 102 inches wide coaches, and low floor, heavy duty 40 foot long by 102 inch wide coaches. All shall be wheelchair ramp equipped transit coaches which can be used in fixed route service on all urban, secondary, and limited access highways found throughout CATA's service area. CATA defines a low floor bus as a bus with a floor height no higher than 15 inches from the ground at the front and rear doors. The bus must be designed to have a minimum economic life span of 12 years or 500,000 miles, whichever occurs first, and be capable of operating 40,000 miles each year, including the 12th year. The bus must be capable of accommodating the widest spectrum of passengers possible, including children, baby strollers, adults, elderly and the disabled. CATA may choose to modify the scope as new technology comes available or due to poor quality or performance of a component. These modifications will not increase the purchase price of more than 25 percent of the total cost.

CATA is requesting pricing and specifications for **both** hybrid & diesel powered buses in the following sections.

1.2 DEFINITIONS

The following are definitions or special terms used in these technical specifications:

1.2.1 dba. Decibels with reference to 0.0002 micro bar as measured on the "A" scale.

1.2.2 Audible Discrete Frequency. An audible discrete frequency exists if the sound power level in any _-octave band exceeds the average of the sound power levels of the two adjacent _-octave bands by four decibels (dB) or more.

1.2.3 Standee Line. A white or yellow line marked across the aisle in line with driver's barrier to designate the forward areas which passengers may not occupy when the coach is moving.

1.2.4 Free Floor Space. Floor area available to standees under seats, excluding ingress/egress areas, area occupied by feet of seated passengers, and the vestibule area.

1.2.5 Curb Weight. Weight of vehicle, including maximum fuel, oil and coolant, and all equipment required for operation and required by this specification, but without passengers or driver.

1.2.6 Seated Load. One hundred fifty pounds for every designated passenger seating position and driver.

1.2.7 Gross Load. One hundred fifty pounds for every designated passenger seating position, for the driver and for six standees.

1.2.8 SLW (Seated Load Weight). Curb weight plus seated load.

1.2.9 GVWR (Gross Vehicle Weight Rated). Curb weight plus gross load.

1.2.10 Driver's Eye Range. The 95th-percentile ellipse defined in SAE Recommended Practice 1941, except that the height of the ellipse will be determined from the seat at its reference height.

1.2.11 Fireproof. Materials that will not burn or melt at temperatures less than 2,000 degrees Fahrenheit.

1.2.12 Fire-Resistant. Materials that have a flame spread index less than 150 as measured in a radiant panel flame test per ASTE-E 162-75 or compliance with FMVSS 302.

1.2.13 Human Dimensions. The human dimensions used in these technical Specifications are defined in SAE Recommended Practice J833.

1.3 ABBREVIATIONS

The following is a list of abbreviations used in the technical specifications:

1.3.1 ASTM - American Society for Testing and Materials

1.3.2 SAE - Society of Automotive Engineers

1.3.3 ANSI - American National Standards Institute

1.3.4 ASHRAE - American Society of Heating, Refrigerating, and Air Conditioning Engineers

1.3.5 SPI - Society of the Plastics Industry

1.3.6 USDHHS - United States Department of Health and Human Services

1.3.7 JIC - Joint Industrial Council

1.3.8 FMVSS - Federal Motor Vehicle Safety Standards

1.3.9 DFPA - Douglas Fir Plywood Association

1.3.10 ADA - Americans with Disabilities Act

1.4 LEGAL REQUIREMENTS

The bus must meet all applicable FMVSS and ADA regulations in effect at date of manufacture. Contractor will comply with all federal, state, and local regulations. Local regulations are defined as those below the state level.

1.5 MATERIALS

1.5.1 All materials used in the construction of the bus and all its parts must conform in all respects to ASTM, SAE, or similar association standards.

1.5.2 All materials used in the construction of the vehicle must be first quality. The use of seconds is prohibited.

1.5.3 All joints will be protected by application of zinc chromatic metallic compound, butyl tape sealer, masking tape, oleoresins caulking compound or approved equal at the time of assembly.

1.5.4 All dissimilar metal joints shall be treated and sealed to inhibit rust or corrosion for 12 years. CATA requires all bidders to provide the best available corrosion resistant metal in all phases and areas in the production of these buses. The metal used and the treatment program must be designed to last the 12 year life span of these buses. The Contractor must have in place an internal program to identify counterfeit fasteners. All fasteners must be grade five or better.

1.6 WORKMANSHIP

1.6.1 Workmanship must be of highest quality and conform in all respects to the best practices in the industry.

1.6.2 Welding procedures, welding materials and qualifications of all welders must be in accordance with the standards of ASTM and the American Welding Society. All exposed welds will be ground smooth after welding to present a smooth quality workmanlike appearance. Where metal is welded to metal, the contact surface will be free of scale, grease and paint.

1.6.3 All bolts passing through wood will be cadmium plated or approved equal. Where wood and wood are placed together, both will be coated with powdered aluminum and spar varnish or linseed oil and titanium oxide, or other approved sealing compound. All wood will be filled, sealed, and finished in a professional manner.

1.6.4 All burrs and sharp edges will be dressed to prevent injury to passengers and the vehicle operator.

2.0 STANDARD BUS CONFIGURATION AND DIMENSION LIMITS

2.1 DIMENSIONAL LIMITS – 60’ BUS

The transit buses supplied must conform to the following dimensional limits for 60’ bus:

		NOT LESS THAN	NOT MORE THAN
2.1.1	Overall Length (including bumpers)	58.0 ft.	62.0 ft.
2.1.2	Overall Width (outside body width with doors closed, excluding mirrors and lights)	101.5 in	102.5 in.
2.1.3	Overall Height (with tires properly inflated and no load on the suspension)		124.0 in.
2.1.4	Angle of Approach	9 degrees	
2.1.5	Angle of Departure	9 degrees	
2.1.6	Doorway Clear Opening		
a.	Front Door	33.0 in	45.0 in.
b.	Middle Door	44.0 in	48.0 in.
c.	Rear Door	44.0 in	48.0 in.
2.1.7	Step Height – Front Door (ground to first step)		15.0 in.
2.1.8	Door Header Clearance (from header panel to first step)	76.0 in	82.0 in.
2.1.9	Interior Dimensions		
a.	Headroom (center of aisle in the middle of bus)	76.0 in	82.0 in.
b.	Aisle Width	22.0 in	
c.	Floor Height		15.0 in.
2.1.10	Ground Clearance	7.0 in	
2.1.11	Turning Radius (both wheels track and outside bumper		42.0 ft.
2.1.12	Gross Vehicle Weight (GVWR)		67,000 lbs.

2.2 DIMENSIONAL LIMITS – 40’ BUS

The transit buses supplied must conform to the following dimensional limits for 40’ bus:

		NOT LESS THAN	NOT MORE THAN
2.2.1	Overall Length (including bumpers)	39.0 ft.	42.0 ft.
2.2.2	Overall Width (outside body width with doors closed, excluding mirrors and lights)	101.5 in	102.5 in.

2.2.3	Overall Height (with tires properly inflated and no load on the suspension)		124.0 in.
2.2.4	Angle of Approach	9 degrees	
2.2.5	Angle of Departure	9 degrees	
2.2.6	Doorway Clear Opening		
a.	Front Door	33.0 in	45.0 in.
b.	Rear Door	44.0 in	48.0 in.
2.2.7	Step Height – Front Door (ground to first step)		15.0 in.
2.2.8	Door Header Clearance (from header panel to first step)	76.0 in	82.0 in.
2.2.9	Interior Dimensions		
a.	Headroom (center of aisle in the middle of bus)	76.0 in	82.0 in.
b.	Aisle Width	22.0 in	
c.	Floor Height		15.0 in.
2.2.10	Ground Clearance	7.0 in	
2.2.11	Turning Radius (both wheels track and outside bumper		42.0 ft.
2.2.12	Gross Vehicle Weight (GVWR)		38,000 lbs.

3.0 BASIC BODY CONFIGURATION REQUIREMENTS

3.1 GENERAL

3.1.1 All bidders should be aware that CATA is seeking a low floor heavy duty rear engine transit bus with a wheelchair ramp capable of operating a minimum of 40,000 miles a year in revenue service for a period of no less than twelve (12) years. The bus must be able to operate without restriction on all primary and secondary roads upon which CATA operates transit service.

3.1.2 The bus must be an integrally constructed vehicle with a monocoque design with adequate reinforcement provided at all points where stress concentration may occur. Bus body on chassis construction will not be allowed or accepted by CATA.

3.1.3 The bus must be capable of operating 15,000 miles between road calls and 1,000,000 miles between physical safety defects. CATA defines a road call as a failure resulting in an en route interruption in revenue service. A physical safety defect is defined by CATA as a failure in the bus mechanical system that could directly lead to passenger and driver injury and represents a severe crash situation.

3.1.4 The bidders will provide to CATA at the time the Request for Approved Equals or clarification are submitted, a complete set of photographs of the proposed bus, a statement on the design and construction of the bus, and data supporting the bidder's claim that the bus will be able to meet or exceed the service requirements, stated in Section 3.1.3. If the proposed bus has been tested at the Altoona test facility in compliance with Federal New Bus Testing requirements, a copy of the final test report issued by this facility shall also be enclosed. If during the testing process structural deficiencies were discovered, the bidder must explain how these deficiencies have been addressed. If the bidder is proposing a bus which has been tested but has been in revenue service prior to the implementation of New Bus Testing requirements, the bidder must clearly indicate whether the proposed bus has experienced any structural defects in the past (4) years. The bidder must provide CATA with a detailed engineering report on the defects and corrections taken to prevent future failures. CATA considers all failures involving the basic body, axle, and suspension as structural defects.

CATA will not accept the delivery of any vehicle which has either been in revenue service prior to the implementation of the New Bus Testing requirements, or has not been fully tested at the Altoona test facility.

Any structural deficiencies discovered during testing or from use in revenue service must be corrected. Vehicles delivered to CATA must incorporate all needed corrections.

3.2 VEHICLE CONSTRUCTION

3.2.1 The bus body will be made of rectangular galvanized steel or aluminum tubing welded together to form a solid frame. The frame must be fully reinforced at all points where vertical, lateral, torsion stress may occur. The bus frame must be capable of operating a full twelve (12) years without deformation or failure of the basic bus body, structure, axles and suspension.

3.2.2 The passenger and engine compartment shall be separated by a bulkhead(s) which will, by the incorporation of fireproof material in its construction, be a firewall. This firewall shall preclude or severely retard propagation of an engine compartment fire into the passenger compartment. Only necessary openings will be allowed in the firewall and these all will be fireproof. Any passageway for air from the climate control system will be separated from the engine compartment by fireproof material. Piping throughout the bulkhead will have copper, steel, or brass piping on the forward side. Wiring may be provided to prevent or severely retard fire propagation throughout the firewall. The conduit and bulkhead connectors shall be sealed with fireproof material at the firewall.

3.2.3 At all points where dissimilar metals are joined together, particular attention will be given to anti-corrosion treatment to prevent electrolysis. All frame members must be primed on the outside and frame tubes below the windows will also be filled on the inside with an anti-corrosion compound approved by CATA. The tubes shall be filled in such a manner as to keep water from becoming trapped in the frame members. Bidders shall provide full information on the anti-corrosion treatment planned for the bus acquired under these technical specifications for CATA's review and approval.

3.3 EXTERIOR PANELS

3.3.1 The exterior skin of the bus shall be of a smooth simple design with the exterior body features, including grilles and louvers, shaped to allow complete cleaning without snagging the brushes of an automatic bus washer.

3.3.2 The exterior skin of the bus will be either fastened to structural members by spot welds or by an approved fastener system. The use of rivets to attach exterior side panels will not be accepted or approved by CATA. A limited number of rivets may be used to secure the front and rear caps and the roof panels. The use of sheet metal screws to secure exterior panels is strictly prohibited. All exterior panels shall be smooth and free of wrinkles and dents. The design and attachment of the exterior panels should allow for easy replacement and/or replacement of the individual panels. The exterior panels may be made of aluminum of a thickness not less than .0598 inches thick or of stainless steel of a thickness not less than .0394 inches thick or an approved fiberglass or composite material secured to frame by corrosion resistant or rubber fasteners.

3.3.3 All steel or aluminum exterior panels will be cleaned and treated with an epoxy chromatic primer on both sides. The exterior panels will be installed in such a manner that panels should not experience rust-out or rust-through during the designated life span of the bus.

3.4 ROOF

3.4.1 Rain gutters will be provided to prevent water flowing from the roof onto the side windows and passenger doors. When the bus is decelerated, the gutters shall not drain onto the windshield, driver's side window, or into the door boarding area. Cross sections of the gutters shall be no less than 0.25 square inches.

3.4.2 Two (2) composite or fiberglass (not glass) escape hatch/roof ventilator combinations shall be provided in the roof of the bus approximately over the front and rear axles. When open with the bus in motion, the escape hatch/roof ventilators shall provide fresh air inside the bus. The ventilator shall cover an opening area no less than 425 square inches and shall be capable of being positioned as a scoop with either the leading or trailing edge no less than 4", or with all four edges raised simultaneously, to a height no less than 3 ½".

3.5 WHEELHOUSE

3.5.1 All wheelhouses shall be constructed of stainless steel. The wheelhouse must be able to resist damage from, and preclude the entry of, foreign objects.

3.5.2 All wheelhouses shall have sound deadening material to prevent the transmission of road noise into the passenger compartment.

3.5.3 Sufficient clearance and air circulation shall be provided around the tires, wheels, and brakes to preclude overheating.

3.6 SPLASH APRONS

3.6.1 Splash aprons shall be installed behind each wheelhouse, extending three inches off the ground. All splash aprons will be made of ¼ inch rubber material and attached to the bus by means of nuts and bolts.

3.6.2 Rear splash aprons shall be provided running the full width of all rear tires.

3.6.3 Spray accumulation on any window of the bus and splash of the bus's wheels from a wet road will be minimized to the greatest extent possible.

3.7 FENDERS

3.7.1 Fenders shall be provided at all wheel locations and shall be made of either molded or extruded rubber or approved equal material. Ripples in the fenders are not permitted.

3.7.2 Fender material and design shall not restrict or interfere with any wheel service or require removal of the fender to service any wheel or tire.

3.8 BUMPERS

3.8.1 Front and rear bumpers shall be full energy absorbing, wrap around type bumpers. To reduce cost of repairs each bumper shall be divided into replaceable sections. The rear bumper must have an anti-ride feature to preclude unauthorized riders standing on the bumper. The bumpers will be black in color.

3.8.2 The bumpers shall measure at least twelve (12) inches, but not more than fourteen (14) inches in height and project at least two (2) inches, but not more than eleven (11) inches ahead of the foremost part of the body of the bus.

3.9 SKID PLATES

3.9.1 CATA requests installation of skid plates under both front (left and right) corners of the chassis. If the front, driver's side plate would limit access to vital componentry, the left side plate can be omitted with CATA's approval. Both skid plates should be removable for any repair or replacement.

3.10 TOW EYES

3.10.1 Tow eyes shall be provided at both the front of the bus and the rear of the bus in an approved location.

3.10.2 Tow eyes may be either welded to the frame or screwed into fixtures welded to the frame. When used with a load-equalizing sling, the tow eyes shall be able to withstand, without permanent deformation of the frame, tension loads up to 1.2 times the curb weight of the bus within a twenty (20) degree longitudinal axis.

3.9.3 An approved air coupling will be provided at the rear of the bus to allow CATA to connect the bus to the shop air system. An approved shop air coupling device will also be provided at the front of the vehicle.

3.11 JACKING POINTS

3.11.1 The bus axles or jacking plates shall accommodate the lifting pads of a three hoist post Jacking plates, if used as hoisting pads, shall be approximately 2.5" square or round, with a turned-down flange not less than ¼ inch deep on each side to prevent the bus from falling off the hoist. Other pads or the bus structure shall support the bus on jack stands independent of the hoist.

3.11.2 Access to the jacking points will not be restricted by side skirt panels or front and rear bumpers.

3.12 RUB RAILS

3.12.1 CATA is not requesting rub rails on the vehicles.

3.13 RADIO/GPS ANTENNA PANEL

3.13.1 Two antenna access panels will be provided in the ceiling of the bus. The antenna access panels will be located approximately four (4) feet from the front of the bus.

3.13.2 The antenna access panels will be located as close as possible to a roof structural member. A small rectangular steel plate shall be provided on the roof of the bus as a mounting base for the antenna. There shall be at least 4 ground planes in the vehicle.

3.13.3 A conduit with an inside diameter of no less than one half inch will be installed and run from each ceiling antenna access points to the main power panel. This conduit shall run inside the wall of the bus and not be visible. A “fish line” shall be provided in the conduit to allow for the ease of installation of the radio antenna panel. One conduit and fish line shall run to the front destination sign compartment.

3.13.4 A similar conduit shall run from the main power panel to the radio transmitter compartment. A fish line will also be installed in this conduit.

3.13.5 Provisions for a Global Positioning (GPS) Antenna shall be provided. The access to this antenna shall be no closer than 18 inches to the radio antenna access and be placed in a manner that the cable to connect the GPS to its destination is no more than 18 feet.

3.13.6 CATA desires the radio antenna to be a thick mount base installed in the roof with the coax ran to the equipment cabinet, installed at the time of production. Our preferred mount is a K794 thick mount which includes the coax, or approved equal with 3/4” hole mount for surfaces up to 1/2” thick, with a 17ft RG-58/U cable. The actual installed position and antenna type will be finalized with the successful vendor.

3.14 EXTERIOR BIKE RACK

3.14.1 One bike transportation devise shall be installed. It shall be centered on the front bumper of the bus. The device shall provide a secure storage space for three (3) bicycles at any one time to be transported by the bus in regular service. The bike rack shall fold up to minimize space when not in use and be easily operated by any passenger wishing to transport a bicycle. Bike rack shall be stainless steel finish.

3.15 WATER TEST

3.15.1 The entire surface of the exterior of the bus shall be subject to an extensive water test before the bus is allowed to be shipped to CATA. At the time of the water test, the bus will be complete with no windows, doors, or other key components missing.

3.15.2 The nozzles that deliver the water for the test must be capable of ejecting a total volume of no less that fifty (50) gallons per minute at a pressure of no less than fifteen (15) pounds per square inch measured at each nozzle tip.

3.15.3 The water test shall be conducted for a minimum of ten (10) minutes.

3.15.4 If water leaks become evident during the water test, the leak will be repaired and the bus shall undergo another test to ensure that the leaks have been completely corrected.

4.0 INTERIOR BODY CONFIGURATION

4.1 FLOOR

4.1.1 The floor shall be made of 3/4 inch thick seven ply Douglas fir, Premium DGPA, Grade AB, marine plywood or approved composite equal. The Grade A of the plywood flooring is always on the upside.

4.1.2 All edges of the plywood will be treated with waterproof sealer and treated with chemical wood preservatives to inhibit rot, mold, and attack of termites.

4.1.3 The floor will be the under structure with flush bolts or corrosion resistant steel, self-tapping screws. The floor must not squeak or move.

4.1.4 Cracks and indentations will be filled with approved wood filler and the floor coarsely sanded prior to the application of the rubber flooring material. All floor seam joints are to be supported by a structural cross member.

4.1.5 If possible, CATA prefers that floor drains be provided in locations recommended by manufacturer.

4.2 FLOOR CONTOUR

4.2.1 The floor forward of the rear exit door will be flat except for slight inclines to accommodate variations in the floor height. The wheel housing may protrude into the passenger compartment. Behind the rear exit door the floor may be raised to provide

room for the rear suspension components, fuel tank and air tanks. If the floor is raised, a maximum of two step risers will be provided for each step riser no higher than seven inches. As a safety precaution, yellow nosings will be provided and the entire first step shall be yellow. The steps will be illuminated.

4.2.2 For better forward vision, rear vision down each side of the bus, and within the bus, a raised driver's platform shall be installed in the area normally reserved for the driver. This platform shall be raised not less than three quarters of an inch, nor more that eighteen (18) inches. If the driver's platform is raised more than ten (10) inches, a notch or foothold shall be provided to aid the driver in safely accessing driver's compartment. The raised area shall contain a flat surface of sufficient size for the driver seat and allow for easy access of controls within the compartment. The floor shall have a slight slope to allow water to drain and not to collect or form puddles anywhere in the driver's compartment. The service brake and accelerator shall be mounted on this platform. The entire raised platform shall be completely sealed with all sealers and treatments used in the base floor to preclude the penetration of water, mold, mildew, or termites. The entire base will be trimmed in a one piece stainless steel strip of the precise height of the difference between the base floor and the platform. The stainless steel shall be insulated by rubber or foam backing to insure the strip does not squeak or rattle. The stainless steel shall be secured by removable machine screws.

4.3 FLOOR COVERING

4.3.1 The floor covering shall be attached continuously to the sub-flooring by **waterproof adhesive** without voids.

4.3.2 All seams and interfaces with the walls, wheel houses, etc., will be covered with trim that will provide a floor that is free of tripping hazards and is easy to clean by dry and wet wash methods with cleaning solutions.

4.3.3 Silicone caulking will be used at any and all points where moisture may enter the flooring. When the floor material is cut to fit the bus, all cuts must be made with a straight edge to ensure an even and uniform cut to avoid gaps in the flooring material.

4.3.4 The floor covering will be RCA Rubber or approved equal of rubber ribbed flooring with double-groove design, not less than 5/16" thick at highest point. The flooring material used must be skid resistant in all weather conditions. The color of the flooring will be TR852 Blue or approved equal of similar blue color from the standee line to the rear of the bus. If an Approved Equal for floor covering is to be submitted, bidder shall provide sample floor material at the time the Request for Approved Equals are to be submitted.

4.3.5 The front entrance platform area from the top step tread to center aisle shall be covered with RCA Rubber TR852 or approved equal of rubber ribbed flooring material with double-groove design, not less than 5/16" thick at highest point. The entrance area and the standee area are to be separated by a yellow strip measuring at least two inches in width which shall be molded into the floor material. A six inch metal backing will be provided under the standee edge line. The standee line will run from the base of the driver's barrier to the base of the forward modesty panel.

4.3.6 The floor covering in the center aisle will be RCA Rubber ribbed or approved equal of rubber ribbed flooring with double-groove design, not less than 3/16" thick. The flooring around the front and rear wheel wells will be so installed as to prevent punctures by high heels or other sharp objects.

4.3.7 The step riser at the front, center, and rear doors will have yellow nosing for safety.

4.4 FLOOR INSPECTION PLATES

4.4.1 If the bidder uses floor inspection plates for access to the engine compartment or suspension system, these inspection plates will be flush with the floor and of the lock down type. The access point for the engine compartment must be fireproof to prevent the spread of an engine fire into the passenger compartment. All access plates shall be sealed to prevent the entry of fumes, road noise and water into the interior of the bus.

4.4.2 The floor inspection plates, if any, will be completely reinforced to prevent sagging when walked upon by passengers.

4.4.3 The border of the inspection plates shall be made of stainless steel. Floor materials will be flush with the floor and placed under the stainless steel trim. Access openings shall be non-symmetrical so that the ribs of reinstalled plates will be properly aligned.

4.5 MODESTY PANELS

4.5.1 Modesty panel(s) will be provided immediately behind the rear exit door. If the floor is raised in this area, modesty panels will be provided on the curb side of the center aisle. The panels will be designed to separate the higher seating area from the lower section. These panels will be similar in construction to the modesty panel immediately behind the Driver. A stanchion will be provided on the aisle side of the panel and connect to the overhead grab rail.

4.5.2 The modesty panels shall be made of Lexan or similar approved sheet grade polycarbonate material for the modesty panel behind the driver's area. The design of the modesty panel will be subject to CATA's review and approval. Bidders will provide detailed drawings of the proposed modesty panels for review and submit them with their bid.

4.6 FRONT DOOR

4.6.1 To allow easy entry of passengers in the winter months the front door shall be forward of the front axle. The door shall be a two section slide glide type door. This door shall have a minimum clear opening of thirty three (33) inches. The front door operating mechanism shall be electric or approved equal. The design shall be subject to final review and approval of CATA.

4.6.2 The front door shall have windows which will allow a seated driver the ability to see the edge of a six-inch (6") curb when the door is closed and the bus is twelve (12) inches

away from the curb. The total surface area of the glass in the front door will equal at least a third of the total front door surface area. Glass in the front door will be single density, laminated safety glass, AS-2 tinted with a two-piece glazing which must comply with all FMVSS standards.

4.6.3 A sloping hand rail of not less than one and one-fourth inches in diameter and not less than ten inches in length shall be mounted on the front door to aid alighting and boarding passengers. Other grab rails and stanchions will be provided in the front entrance platform for passenger safety. Hand rails and stanchions shall be yellow.

4.6.4 Durable rubber weather stripping, two inches in width will be provided on each mating edge of the door panels. Weather stripping, including that around the edges of the door will preclude the entry of water, drafts, or objectionable noise. A heavy duty brush will be provided at the bottom of the door to help seal the bottom edge of the door. To preclude the entry of water into the bus, a rubber backing will be provided on the inside of the bus behind the lower door brush.

4.6.5 The front door will be powered by a single actuator which will be mounted over the front door. The location of the door actuator should be designed to allow for ease of maintenance. The door actuation and linkage associated with it should not, however, be visible to the passengers. The door motor should be rebuildable and repairable. The opening and closing speeds of the door shall be independently adjustable from two to five seconds. The door system should be designed to operate 25,000 miles between failures.

4.6.6 The front doors shall be controlled by means of a five position electric control handle mounted to the left of the driver. A control or toggle shut off switch will be provided to permit manual operation of the front door with the bus shut down.

4.6.7 The door will open in two to four seconds and close in three to five seconds. The door will close with a maximum force of ten pounds per square inch of any object struck by the closing door.

4.7 REAR DOOR/CENTER DOOR

4.7.1 The rear door will be located forward of the rear axle on the 40’ buses. The center door on 60’ buses will be located forward of the center axle but not closer than 120 inches from the centerline of the front door. The rear and center doors of the 60’ bus will be a two section Slide Glide-type door with a minimum clear opening of forty-four (44) inches. The door clear opening for 40’ buses shall be thirty-three (33) inches. The rear and center doors shall incorporate as part of their design weather-stripping, and seals, to ensure minimum penetration of water, dirt, and dust into the bus. The rear and center doors’ operating mechanism shall be electric. The design shall be subject to final review and approval of CATA.

4.7.2 The operation of the rear doors shall be as follows:

a. Driver brings the bus to a complete stop and places the door control handle in the rear open position.

b. The rear and center door interlock applies the brakes and the accelerator interlock is activated to keep the bus from being moved by either acceleration of the engine or releasing the brakes as long as the rear door is in the open position.

c. A green indicator light comes on above both rear and center exit doors to indicate that the operator will open the rear doors.

d. The rear doors will close when the driver moves the control lever to the center position.

4.7.3 The design of the rear doors shall have numerous redundant safety features necessary for the safe operation of the bus including, but not limited to, the following:

a. A sensitive edge on the rear doors will be designed and installed so that the doors will automatically stay open if a door strikes a passenger when closing.

b. An alarm bell in the driver's compartment which sounds when a rear door strikes a passenger. The alarm will continue to sound until the door is recycled.

c. The doors will not open under any circumstances when the bus is in motion.

d. The bus will not move with the rear doors open unless the driver activates the brake interlock bypass switch or releases the interlock upon activation of the service brake.

4.7.4 The rear and center doors will be powered by a single door actuator located above each door. This actuator must not be visible to passengers and yet mounted in a location designed for ease of maintenance. Access to the door actuator will be gained by a hinged panel held secure by a minimum of two thumb type locks. The door actuator will be both repairable and rebuildable. The actuator also must be designed to operate a minimum of 25,000 miles without failure.

4.7.5 An emergency relief switch will be provided above or next to each center and rear door to allow passengers in an emergency situation to manually open the doors. This switch will be easily visible to passengers and labeled to explain the operation of the switch.

4.7.6 The rear and center exit doors shall incorporate both service brake interlock and accelerator interlock to prevent the bus from moving unless the rear and center doors are completely closed. The service brake interlock shall be powered through the engine run switch.

4.7.7 The service brake interlock will be on the rear axle position. The service brake shall be promptly released after the driver's door control is moved in the closed position and the rear and center doors completely close. The interlock shall be adjustable. A bypass switch shall be provided to allow the driver to overrule the interlock system. This bypass switch shall be located in the front of the bus in a shielded location out of the operator compartment.

4.7.8 An indicator shall be provided in the driver's panel or console to indicate when the doors are open and the service brake is applied.

4.8 WINDOWS

4.8.1 The front windshield will be laminated safety float glass meeting or exceeding the requirements of FMVSS 205 and ANSI-Z; 26.1. The glass will be tinted and at least one quarter inch thick. The glass should not fog at the edges over the designed life span of the bus.

4.8.2 The driver's window shall open or have a section which is can open wide enough to allow the driver to easily adjust the left side mirror. Bidder shall submit a complete drawing of the driver's window for CATA's review and approval. Latches for securing the window must be strong enough to hold the window in either the open or closed position. To prevent the driver from being locked out of the bus, the driver's side window must be able to open from the exterior of the bus. The driver's side window shall be made of laminated safety glass with a light tint. The glass material used must meet or exceed FMVSS 205.

4.8.3 The side windows shall be made of a laminated safety glass. The glazing material used must conform to the requirements of ANSI-X26.1-1977 Standards for Type AS-5 Safety Glazing Material, except for Test Number 17. The window glazing material shall be at least one-quarter inch thick. CATA requires the bidder to prove that the safety glass used complies completely with all federal safety standards.

4.8.4 The side windows will have twenty-eight (28%) gray tint.

4.8.5 All side windows shall be upper tip in open type windows with the exception of the first window on the roadside immediately behind the driver's area and on the curbside immediately behind the front door. These two windows shall be fixed in place.

4.8.6 All side windows must meet FMVSS 217 emergency escape requirements. Adequate clearance will be provided between the seat backs and window frames to allow for quick access to the emergency latches. Instruction for emergency exit will be permanently affixed under each window (no decals).

4.8.7 The side window sash frames including the driver's window frame will be made of black anodized aluminum.

4.9 GRAB RAILS AND STANCHIONS

4.9.1 The bus shall be equipped with all the necessary grab rails and stanchions throughout the bus in accordance with the approved interior seating chart. Overhead grab rails shall run the full length of the bus from the modesty panel and driver partition to the rear of the bus. Passenger "Grab Loops" shall be incorporated to the grab rails on both sides of the isle in all buses. Eighteen (18) grab straps will be required nine (9) per side. These added straps shall be evenly installed in the lower section forward of the exit door. Grab

rails will be provided in the front entrance platform and the rear doors. CATA requires extreme care by the Bidder in the placement of all stanchions and grab rails to minimize the potential for falling accidents in the bus, especially in the front entrance platform area.

4.9.2 The grab rails and stanchions shall be made of stainless steel with matching fittings. All mounting hardware, brackets, fasteners, and other hardware for the grab rails and stanchions shall be made of corrosion resistant material.

4.10 CEILING AND INTERIOR PANELS

4.10.1 Interior panels may be integral with the basic structure of the bus or may be decorative, but should be of sufficient strength to resist vandalism. The material used must be easy to maintain and be durable with a smooth finish.

4.10.2 The panels under the side windows to the top of the floor covering or seat track shall be constructed of .1 inch color gloss melamine (color to be determined by CATA). The side window post cap mullions are to be constructed of .1 inch gloss material (color to be determined by CATA). Painted surfaces are not acceptable. The material used shall be subject to CATA's review and approval.

4.10.3 The ceiling panels behind the standee line shall be made of an approved off white melamine material. These panels shall be non-porous and non-textured for ease of cleaning. The ceiling panel's forward of the standee line will be an approved black material.

4.11 INTERIOR INSULATION

4.11.1 Because of the climate in which these buses will operate, it is imperative that the interior of the bus body, including the ceiling, walls, and the floor shall be fully insulated against heat, cold, and operating noise.

4.11.2 The insulation used between the outer and inner wall will be sealed in an approved wrapper to eliminate the entry of moisture into the insulation.

4.11.3 The insulation material will be non-hydroscopic, resistant to fungus and insects, and will meet or exceed the requirements of FMVSS 302. Polyurethane is not acceptable as an insulation material.

4.12 TRIM

4.12.1 All trim shall be made of stainless steel and applied at the floor covering edges at all wheelhouses, dash panels, and at wall joints.

4.12.2 All joints shall be sealed with clear silicone caulking.

4.12.3 Bidder's standard trim may be considered, provided samples are furnished for CATA's review and approval prior to the submission of the bid. The proposed trim material must be equal to or exceed the durability of the material specified.

4.13 DRIVER'S PARTITION

4.13.1 A partition shall be provided in back of the driver to provide security to the driver and limit passenger conversation. This partition shall extend from the floor of the bus to the ceiling and from the side wall to a vertical stanchion located to the right rear of the driver's seat. The partition must be so designed that the driver's seat will not come in contact with the partition regardless of the seat adjustment.

4.13.2 A large compartment shall be provided near the driver's seat for the storage of the driver's personal effects.

4.13.3 This partition shall be constructed of either reinforced aluminum, steel, or composite panel(s) of either a single piece design or with melamine paneling. The bidder shall submit at detailed prints of the driver partition for CATA's review and approval.

4.14 PASSENGER SEATING

4.14.1 The bidder will provide CATA with a complete interior-seating layout. The layout shall show all seating positions, dimensions, locations, aisle widths, and all other pertinent interior dimensions of the bus that the bidder is proposing for review and approval at the time the Requests for Approved Equals or clarification are submitted to CATA.

4.14.2 Both 40' and 60' buses must have a designated location to accommodate child strollers. This location will be on the curb side of the bus immediately behind the wheelchair securement area. Specifically, this area will have three perimeter-style flip up seats. One of these three seats will be independent and located in the forward-most position, immediately behind the barrier for the wheelchair securement area. The other two seats will consist of a two-place, bench-style flip up seat. A decal indicating the purpose of this seating location is described in Section 22.5, Decals and Monograms.

4.14.3 The 60' bus must have a minimum of forty-three (43) ambulatory seating positions, excluding the driver's position. The layout shall include two-wheelchair passenger seating positions, one located on each side of the coach. Additionally, on the curb side all seats forward of the center door are to be aisle facing. The first two seats directly behind the wheel chair securement area shall be single flip seats, the third seat shall be fixed in position. The rear seating shall be full perimeter aft of the rear exit door. There shall not be any floor or wall mounted barriers installed in the rear seating section of the coach. Safety barriers mounted to protect passengers from the exit door pinch areas are to be transparent.

The 40' buses shall have a minimum of thirty-four (34) ambulatory seating positions excluding the driver's position. The layout shall include two-wheelchair passenger seating positions, one located on each side of the coach. Additionally on the curb side, forward of the exit door, all seats are to be aisle facing. The first two seats directly

behind the curb side wheel chair securement area shall be single flip seats, the third seat shall be fixed in position. The 40' coach shall have full perimeter seating in the rear of the coach (behind the exit door). There shall not be any floor or wall mounted barriers installed in the rear seating section of the coach. Safety barriers mounted to protect passengers from the exit door pinch areas are to be transparent.

4.15 SEAT CONSTRUCTION

4.15.1 All passenger seats and driver's seat must meet or exceed the requirements of all relevant Federal Motor Vehicle Safety Standards including FMVSS 302.

4.15.2 All passenger seating shall be 4ONE Aries 4MA or ADA compliant approved equal that includes ergonomically contoured cushions, full width upholstery, powder coated carbon steel frames, injection molded grab rails, and complete mounting package. Seating shall meet or exceed all Federal Procurement Guidelines (White Book) standards and requirements.

4.15.3 Coloring shall be consistent throughout the seat material. All exposed metal will be stainless steel. The seat frame shall be designed and contoured for individuality, lateral support, and maximum comfort of the passenger. A series of concealed fasteners will be provided in the back of each passenger seat in the rear of the bus to allow a mechanic to replace the seat insert. The seat inserts shall have a wool-like fabric covering and will be made of low smoke neoprene or similar material with a flame index of less than 15 when measured to ASTM D-3675. Seat inserts will be secured to the seat frame by means of fasteners which must not be readily visible or accessible to the public. None of the passenger seats on the bus should have sharp edges or edges which may snag or injure passengers or service personnel. Seat inserts throughout the coach shall be cut and vandal resistant upholstered material. CATA currently utilizes Holdsworth wool fabric no. BQA254 on the seat backs and no. FEJ401 on the seat bottoms, and will consider seat inserts of equal or similar material and color (**see Attachment A for design specifications**).

4.15.4 Longitudinal seats will be provided over the rear wheelhouses. The seat shall be secured to both the wheelhouse and the wall of the bus.

4.15.5 Flip seats shall be provided at each wheelchair seating position to allow ambulatory passengers to occupy the area if a wheelchair is not present. The flip seats provided must not rattle. If they are found to rattle, CATA will not accept the bus as shipped. To minimize injuries resulting from ambulatory passengers falling in and around the wheelchair seating station, the bidder will provide a low barrier or modesty panel equal in height to the height of the passenger seat and a stanchion to the overhead grab rail. The securing belts for the wheelchair shall be mounted on the bottom of the flip seats and must not rest on the floor or be a tripping hazard.

4.15.6 The seat across the rear of the coach will be divided into three sections to allow the mechanics easier access to the engine compartment from inside the bus. The seats will be bolted in place. The center of the rear seat shall incorporate a hinge at the top of the seat allowing the seat to be raised and held in an upright position for ease of access to the

interior rear engine compartment. The rear seat shall have inserts using cut and vandal resistant materials. CATA currently utilizes Holdsworth wool fabric no. BQA254 on the seat backs and no. FEJ401 on the seat bottoms, and will consider seat inserts of equal or similar material and color (**see Attachment A for design specifications**).

4.15.7 CATA requires the bidder to provide full information on the passenger seat the vendor proposes to use. CATA also requires the vendor to guarantee in writing that parts and service support will be available for the proposed vehicle over the twelve year life span of the bus. The delivery date is important to CATA and therefore CATA encourages each vendor to select a seat manufacturer with a proven record of delivering seats on time. Late delivery of passenger seats will not be an accepted reason for late delivery of the buses. The seat shell shall be stainless.

4.15.8 CATA requires that two (2) USB charging ports be installed for each pair of seats. Ports shall be easily accessible and located in an area of the seat, such as underneath, in order to avoid collection of debris or provided with protective covers.

4.16 TECHNICAL SEAT DATA

4.16.1 The bidder will include in their proposal a certified test report as evidence of compliance with the requirements and test requirements contained herein.

4.16.2 The test report will contain a record of the static load tests, the performance test and the dynamic tests performed in accordance with Section 4.19. The report must show test diagrams, photos of the tests, and load results on representative seats completely assembled and fastened to a fixture simulating the vehicle attachment. The test data for each test will describe the test procedure and test equipment, the resultant deflection and permanent deformation, and statement of inspection and compliance with the specification requirements.

4.17 PHYSICAL PROPERTIES OF SEATS

Property	Test Method	Requirement
Density	ASTM D 1564-71	6.5-8.5 lbs. /cu. ft.
Tensile Strength Suffix T Ultimate	ASTM D 1564-71	5.0psi Minimum
Elongation	ASTM D 1564-71	80% Minimum
Indentation Load Deflection @ 25%	ASTM 2406-73 Method A	40. + 10 lbs. (3" thick sample)
Indentation Load Ratio (65% / 25%)	ASTM D 1055-69 Method A	3.0 Minimum
Compression Set @ 50% Deflection	ASTM D 1055-69 Method 19.1	20% Maximum
Thickness Loss	ASTM D 1055-69	5% Maximum

Resistance to Deterioration	ASTM D 1055-69 (By ASTM D 573-67)	
Indentation Load Change @ 25% Defl.	ASTM D 2406-73 Method A	-/+ 15% Maximum
Compression Set	ASTM D 1055-69	10% Maximum
Increase @ 50% Defl.	Method 19.1	
Resistance to Flex Fatigue	ASTM D 1055-69 Suffix H	
Compression Load Deflection Loss @ 25% Deflection	ASTM D 1055-69	20% Maximum
Resistance to Tears Suffix G	ASTM D 1564-71	0.6lbs./in. Minimum

Resistance to solvents, resistance to common cleaning agents, oil, food and drink. No objectionable odor.

4.18 STRENGTH REQUIREMENTS FOR ALL PASSENGER SEATS

Tests will be conducted on a representative transverse seat using various simulated conditions such as use of bus flooring and seat mounting and other conditions expected in normal use of the seat.

4.18.1 Static Loading Tests

a. 800 lbs. vertical downward with permanent set not to exceed¼ inch - 400 lbs. per passenger center of each seat bottom.

b. 800 lbs. vertical downward on front edge with permanent set not to exceed ¼ inch - 400 lbs. per passenger center of each seat.

c. 600 lbs. horizontal uniformly distributed along the top of back, both forward and rearward, with permanent set not to exceed one inch - 300 lbs. per passenger.

d. 300 lbs. of hand grip in any horizontal direction with permanent set not to exceed ¾ inch.

4.18.2 Performance Test Must Include the Following:

a. Vertical drop impact to the seat bottom with 40 pound weight from 6, 8, 10, and 12 inch heights -- 1,000 drops for each height.

b. Swing impact with 40 pound weight to the seat back from front and rear. Test will include impact through 6, 8, 10, and 12 inch horizontal distances -- 10,000 strokes for each distance. The pendulum length will be 36 inches.

c. Horizontal deflection to the grab rail:

Grab rail will be subjected to repeated deflections resulting from a 100 pound horizontal load placed on the grab rail and then removed. The load will be placed at the point of maximum grab rail deflection for 25,000 cycles.

4.18.3 Squirm Test

The seat assembly will be placed in a testing machine to simulate the actual field use of the seat cushions. The test is to determine and check conditions of performance of the cushion foam, upholstering, webbing, springs, structure attachments, etc., after being subjected to compression and squirm test.

The squirm test will consist of a 150 pound wood buttock dropped in unpredictable sequence and squirm twisting on the seat cushion for 100,000 cycles. The squirm test will run at 40 cycles. The squirm test machine will run 150 pound wooden buttocks squirming in the seat cushion utilizing a five inch vertical motion.

The seat assembly tested will be firmly anchored to a test platform simulating the actual attachments in the bus.

4.18.4 Occupant Crash Protection

a. Frontal Crash Protection - The rear of the seat back will withstand a declarative impact simulating two occupants in the seat directly behind being thrown forward in a vertical collision. The test equipment will consist of an impact device achieving velocity of 14.67 feet per second with a mass equal to the weight of two 95th percentile adult males (217 pounds each). Test recording equipment will meet the requirement of SAE Standard J211a.

The seat back will deflect in absorbing the energy of the impact, but not greater than 14 inches, measured at the top of the back. The seat components may deform; however, the seat will not separate from the vehicle attachments.

b. Grab Rail Head Form Impact Test - The grab rail will be subjected to a declarative impact simulating the head of an occupant in the seat directly behind, striking the grab rail in a vehicle collision. The test equipment will consist of a spherical head form per Paragraph 56.6-FMVSS No. 222 (571.222), 6 ½ inches in diameter with an effective weight of 11.5 pounds, affixed to an impact device achieving a velocity of 22 feet per second. Test recording instruments will meet the requirements of SAE Standard J211a. The resultant deceleration at the center of gravity of the head form will be such that the expression will not exceed 400, where “a” is the resultant deceleration expressed as a multiple of “g” (the acceleration of gravity), the “T1" and “T2" are any two points in time during the impact.

4.19 DRIVER’S SEAT

4.19.1 The driver’s seat will be a full air ride seat with air lumbar support. The seat must have a minimum of six inches of fore and aft travel and a vertical adjustment of five inches with

a seat height of 17 to 23 inches. A minimum of two inches of clearance shall be provided between the back of the seat and the driver's barrier when the driver seat is in the most aft travel position. The seat suspension system shall be dampened by two shock absorbers and two rubber bumper stops to prevent the suspension from bottoming out at its lowest height. The seat shall have a ten degree step-less seat tilt that is manually operated and shall be independent of seat height. The seat back shall be adjustable from 45 degrees forward to 125 degrees back. Seat bolsters shall be provided in the seat back, to control lateral movement of the driver. Adjustment of the bolster shall be achieved by inflating or deflating two bladders in the sides of the seat back. The seat shall not under any circumstance pitch or yawl as the bus travels down the street. The driver's seat shall be USSC group model 9100 ALX or approved equal that includes pneumatic pendulum suspension, bi-lateral adjustments, lumbar support, solid steel back, lift capacity of dead lifting 500lbs., riser, upholstered with black fabric inserts and vinyl boxing material.

4.19.2 CATA would be interested in obtaining pricing for both fixed and swivel driver's seats.

4.19.3 The back pad shall be made of low smoke neoprene foam upholstered in an approved black vinyl material.

4.19.4 A seat belt will be provided and securely mounted to the seat frame by means of brackets welded to the frame. The seat belt will be black in color and be capable of extending to a length of 84" minimum. Automatic retractors will be provided and vinyl boots will cover the base of the seat belts.

5.0 ANCILLARY EQUIPMENT

5.1 DESTINATION SIGNS/AUTOMATIC STOP ANNOUNCEMENT

5.1.1 The bus shall have fully automatic electronic exterior destination sign on the front, side, and rear of the bus (that meets all ADA requirements). All signs will be synchronized and controlled through a touch pad located in the driver's compartment at dashboard level. The position of this control panel shall not interfere with the serviceability of the farebox or any other component mounted in the front of the bus. The control panel shall include a monitoring devise to permit the driver to verify the entire message being displayed toward the front, side, and rear without having to leave the driver's seat. The destination signs shall be capable of interfacing with a fully automatic stop announcement system and talking sign through an RS232 port placed in the overhead sign compartment.

Each of the modules in the destination sign shall be capable of displaying all of the following:

- All numerals (0 through 9)
- All letters of the alphabet in upper case
- Ampersand
- Apostrophe
- Hyphen of dash
- Diagonal slash

The sign modules together shall be capable of displaying a two line message or flashing a multi-line message with a complete blackout at the end of the message. The time of display for each line of a multi-line message is to be adjustable within limits to be agreed upon by CATA. Control of the messages will be by means of three digit code number corresponding to each one or multi-line message in the memory bank and controlled by the Operator Display Keypad (ODK) of the automatic stop announcement system. There shall be a manual operation of the sign in the case of the necessity to override the automatic system.

The sign setting procedure will be as follows: The driver sets a code number, pre-assigned and corresponding to the route destination. The driver then operates an activating switch to cancel any display currently on view and cause the new reading to be displayed. The monitoring device will then repeat, line by line for multi-line exposures, the message displayed toward the outside of the bus on the signs. The electronic destination sign shall have a minimum usable memory of 2,000 lines of information. The sign shall automatically blank (display full black) when the engine run switch is placed in the off position.

5.1.2 The front destination sign shall be body mounted with a modular design with built in power to minimize cables. The sign panels shall be easily removable and designed to tilt for ease of maintenance and cleaning of the destination sign and glass. The destination sign unit shall be installed above the front windshield in an enclosed water tight compartment. The designation sign compartment shall be sealed to prevent the entry of dirt, dust, water and insects during normal operation. Access to the front destination sign compartment shall be by means of a door hinged at the top and held open by gas cylinders. A handle on the outside will be provided for ease of opening.

5.1.3 The front destination sign glass shall be AS-3, ANSI 2.61, and clear ¼ inch thick laminated or solid tempered safety glass and have electric defogger capabilities to maintain a clear glass in all weather conditions. The defogger will be active with the headlights. This glass must be separated from the front windshield glass. The masking for the front destination sign shall not be painted or attached to the front destination sign glass.

5.1.4 The characters on the front destination sign shall measure at least 9.4 inches high, but not more than 12 inches and be <u>double stroked</u>.

5.1.5 All three destination signs must be illuminated by means of white LED**.** The bidder shall furnish and install inside the front destination sign door a decal at both ends of the door reading either “Danger-High Voltage” or “Warning-High Voltage”.

5.1.6 The side electronic destination sign will be mounted in the forward curb side window. The side sign box must be mounted in a manner to minimize potential vibration and noise and have electric defogger capabilities to maintain a clear glass in all weather conditions. The defogger will be active with the headlights. The signs shall have characters at least 4.5 inches in height.

5.1.7 The rear route number sign corresponding to the number of the route being displayed shall be provided at the rear of the bus in a sealed compartment. The characters of the

sign will be the same size or larger than the characters in the side destination signs. The location of the sign will be subject to CATA's review and approval.

5.1.8 The Contractor shall provide with the first bus a portable programmer to allow CATA to quickly re-program the control console for the exterior destination signs without having to remove the console from the bus or disassemble the console on the bus. A shield plug will be provided on each control console to allow for the connection of the programmer.

5.1.9 The destination sign shall also be capable to transmit an audible voice message to aid visually impaired passengers. This message shall transmit and announce the bus destination to a hand held receiver. The system shall operate automatically by taking inputs from an integrated Voice Announcement and relaying the information through a controller and out through an infrared LED's on an emitter. The emitter is composed of infrared LED's and shall be mounted over the front door of the vehicle. The emitter shall be protected by a brush guard to prevent it from damage. The controller shall be mounted inside the bus in the overhead sign compartment. The control shall contain the computing power for the talking sign system and will interface with both an integrated voice system and the destination sign.

5.1.10 An Integrated voice system shall be installed in each coach. The system shall provide audio and visual destination and next stop information to passengers on the vehicle and to those waiting to board curbside. Control of signs and audio shall be integrated into a single multi-function system that is easy to operate, maintain, and modify for future route expansion. Included in the integration shall be the control of the destination signs and interior next stop information signs.

Automatic Stop Announcement Operation shall:

- Sequence through preprogrammed announcements utilizing GPS signals.
- Have a dead-reckoning backup system that will give location information to the system based off odometer input.
- Announce and display inside the vehicle information regarding upcoming stops, major intersections, and transfer points to adequately orient a hearing or visually impaired passenger as their progress along the route.
- Display the route and destination information on the outside of the vehicle and announce this information outside near the entrance door when the doors are open.
- Announcements are automatically directed to the interior and/or exterior speakers. The volume shall be automatically adjusted to compensate for both internal and external ambient noise levels.
- Provide operator capability to select a message for immediate announcement and/or display via pre-defined announcement buttons. This function shall not interfere with the normal next stop operation.
- Have control over all interior and exterior displays. This system shall have the capability of adding signs to the communication network without rewiring existing equipment.
- Have an integral System Control Unit that contains all of the critical system logic that control, integrated voice annunciation, ambient noise sensing, sign control, system memory, integrated public address sub-systems and additional

asynchronous serial interfaces.

- Be capable of storing up to 20 megabytes of memory without hardware modifications.
- Be controlled through a single point of entry called the Operators Display Keyboard (ODK). The signs shall also be able to have wireless downloading through a WLAN system. The supplier shall provide initial programming.

Interior information signs shall also function as the "Stop Requested' sign. These signs shall be an LED sign composed of a minimum of 8 rows by 96 columns with a character height of 1.8 inches minimum. These signs will also be interfaced with the bus to also display "Stop Requested" when activated by a passenger. The front sign shall be located either centered in the ceiling directly above the front "Standee" line or behind the operator facing the rear cabin of the bus. A second sign shall be installed in 60' buses. The sign shall be centered in the ceiling just rear of the edge of the accordion for 60' buses. In 60' buses the sign placement shall not interfere with the access panels for joint repair, inspection, or maintenance. The sign shall be placed to allow for the access panels to be fully opened and unlatched without interference with the sign. The bidder shall submit a detailed plan of the sign and its location for CATA's review and approval.

The fully automatic stop announcement system and talking sign shall be compliant with the Americans with Disabilities Act (ADA).

5.1.11 Automatic Vehicle Location (AVL) System

CATA is requesting a quote to include both provisions for and the installation of an Automatic Vehicle Location (AVL) system.
The system will require the following components;

- On Board Server (OBS) TME-Light
- Mobile Data Terminal (MDT)- Driver Command Console Direct (7")
- Public Data Tri Band (GPS/GPRS & WiFi)
- Public Data Modem
- Covert Silent Alarm Switch
- Hook Switch and MIC
- All Necessary mounts and harnesses
- NEMA enclosure
- AVL Mount that is double socket, capable of accepting 1 ½" ball mount. Length to be determined by CATA
- Vehicle operator manual
- Wiring harness
- Magnetic Card Reader
- All other necessary installation kits and equipment.

This system will require a secure mounting platform and enclosure. CATA is requesting the vendor to furnish drawings for a secure box enclosure to secure the required components of this AVL system. CATA will work with the successful bidder to determine the mounting location of this enclosure. CATA utilizes Trapeze for AVL.

5.2 DRIVER'S HEATING AND VENTILATION

5.2.1 A separate heating and ventilation system with a minimum rating of 40,000 BTU's shall be provided. The system must have independent operating controls for the driver. This heating and ventilation system shall also serve as the defroster unit for the front windshield and provide additional heat to the driver. Because of the winter climatic conditions, the performance of this unit is important to CATA. The unit must comply with all FMVSS and SAE standards. The driver shall have complete control of the flow of heat and fresh air.

5.2.2 An air duct shall be provided from the defroster to the front entrance platform to help melt any ice or snow, which may accumulate on the front entrance ramp and platform. CATA will consider a separate auxiliary heater for the front step well as an option.

5.3 WINDSHIELD WIPERS

5.3.1 The windshield wiper blades shall be the refillable type.

5.3.2 Windshield wipers will be powered by a variable speed electric powered wiper motor controlled by means of a switch located on the side or front instrument console. The control shall incorporate variable speed setting and washer activation.

5.3.3 The wiper motor must be capable of cleaning each side of the windshield and meet or exceed the requirements of FMVSS 104. The wiper motor must be accessible from the exterior of the bus through panels provided on the outside of the bus. The wiper arms shall be a self-parking type and shall be black in color and accommodate a beam-style blade.

5.4 WINDSHIELD WASHER

5.4.1 The windshield washer system shall meet or exceed the requirements of FMVSS 104 and shall be able to spray cleaning solution onto both the right and left side of the windshield by means of an electric powered pump. The washer jets will be mounted on the wiper arms.

5.4.2 The windshield washer reservoir will be easily accessible from the exterior of the bus and hold a minimum of two gallons of cleaning solution. The reservoir should be installed in a location where it will not be subject to damage from road debris.

5.4.3 The solution pump, lines, and fittings will be made of corrosion resistant material.

5.5 SUN SHADES

5.5.1 Two adjustable sun shades shall be provided. One mounted above the windshield in front of the driver the other mounted at the side operator window. The sun shades shall be a retractable, "scissor-type" design able to extend to cover at least 50% of the window area.

5.6 MIRRORS

5.6.1 The bus will be equipped with an exterior rear view mirror on each side of the bus. CATA requires a high-mount roadside mirror. The mirror housing shall be black. The mirrors shall be electric with remote operation from the driver's area. The mirror shall have a lower four inch high convex partition on the mirror. Both portions of the mirror shall be powered and operated with a toggle switch in the driver's area. The mirror arms should be black in color and spring loaded with stops to prevent the mirrors from hitting the side of the bus. The mirror and mirror arms must be able to fold flat against the side of the bus to preclude damage from automatic wash equipment.

5.6.2 An adjustable mirror shall be provided over the front dash to allow the driver to observe passengers in the back of the bus. The mirror should measure at least four (4) inches by fourteen (14) inches. The mirror shall be made of shatter resistant glass.

5.6.3 A convex mirror shall be mounted above the front door to allow the driver to completely see from the front door to the rear exit door. The mirror shall be an off -set ball mount to allow full range of adjustment.

5.6.4 A convex mirror measuring at least twelve (12) inches in diameter shall be mounted above each of the rear exit doors and a mirror four inches in diameter shall be mounted on the front destination sign door to allow the driver to see completely the rear exit door areas even if the bus has a full standee load.

5.7 DRIVER'S COAT HOOK

5.7.1 A stainless steel coat hook with securing strap for the driver's overcoat will be provided and mounted in the driver's compartment behind the driver's seat. The coat hook must be able to support the weight of a heavy winter jacket.

5.8 PASSENGER CALL BELL

5.8.1 The stop request activator for the customer shall be a stop request tape design with a tape switch between each window. A passenger call bell or chime shall be provided to inform the driver and the passenger that a stop has been requested. When the passenger call bell tape switch is activated a chime or bell (no buzzer) will ring once and a "STOP REQUESTED" notice will become illuminated and remain illuminated until either the front or rear door is opened. A yellow indicator light on the dash shall also come on informing the driver that a passenger has requested a stop. The indicator light for the operator must be located in a prominent location that is obvious to the bus operator and within line of sight.

5.8.2 The call bell tape switch shall be a highly-visible color, such as yellow, mounted between each side window.

5.8.3 A push button shall be mounted on the bottom of the flip seat at each wheelchair position and on a vertical stanchion located at the exit doors to allow passengers to communicate to the driver their desire to disembark.

5.8.4 A switch will be provided on the driver's console to disable the call bell or chime when desired.

5.9 PUBLIC ADDRESS SYSTEM

5.9.1 To allow the driver to communicate with the visually impaired passengers and to call out cross streets as required under the ADA, a public address system shall be installed in the bus. This system will consist of a boom microphone, a minimum of eight internal speakers, and one external speaker.

5.9.2 The speakers will be so placed inside as to allow passengers to clearly hear announcements made by the driver. The volume and squelch control will be in the driver's compartment area.

5.9.3 The driver will have the option of using only the external speaker, only the internal speakers, or both. A boom microphone will be provided with a switch on the microphone.

5.9.4 This system shall be fully operational independent of the automatic stop announcement system and will be utilized as a backup in the event of the malfunction of the automatic system.

5.10 TRANSFER CUTTER

5.10.1 CATA will not require this equipment.

5.11 FAREBOX

5.11.1 A location for a mounted farebox shall be provided in the front entrance platform as far forward as practical. The farebox shall be floor mounted and the final location will be determined with CATA and the successful vendor. The floor under the farebox shall be reinforced to help minimize and prevent the shaking of the farebox. There shall be access under the fare box for installation of farebox power wiring. The wiring harness shall be secured below the floor level under the position for the mounting of the fare box with easy access. The location of the farebox shall not restrict traffic in the front entrance platform. The farebox also must allow clear access to the driver's area and allow the driver to access all controls. CATA utilizes a GFI Odyssey Validating farebox with Magnetic Card Reader and T.R.I.M. unit. The fare box shall be provided loose in the vehicle, and mounted in the bus by CATA.

5.11.2 At the time the Requests for Approved Equals or clarification are submitted, the bidder shall provide CATA with detailed prints of the front entrance platform showing the proposed location of the farebox.

5.12 SCHEDULE RACK HOLDER

5.12.1 The schedule rack shall consist of a metal structure containing up to 28 schedule slots. The structure shall be 4 tiers tall and contain 7 slots in width. The slot opening shall measure a minimum of 2 inches deep by 3-1/4 inches in width. The base structure shall

measure 24 inches in width by 16-1/2 inches in depth. The structure shall be constructed using matte black textured steel.

6.0 WHEELCHAIR ACCOMMODATIONS

6.1 WHEELCHAIR RAMP

6.1.1 Space and body structural provisions will be provided at the front door of the bus to accommodate a power operated, flip type wheelchair loading ramp. The ramp must comply with all known ADA standards at the time of manufacture. The structural area around the door in which the ramp is installed must be reinforced so that the frame and body of the bus will not fail due to the weight of the wheelchair ramp during the intended life of the bus.

6.1.2 The wheelchair ramp must be able to accommodate wheelchairs up to a minimum of 30 inches wide and 48 inches long. CATA prefers that the ramp be a hydraulic operated design with no chain mechanism. The ramp angle encountered by the wheelchair moving on and off the lift platform will not exceed ten degrees. The ramp, when not in use, will not interfere with the use of the doorway by ambulatory passengers. With the lift ramp stowed, the minimum ground clearance will be no less than seven inches.

6.1.3 The bidder will provide full and complete information on the wheelchair ramp it is proposing to use including photographs of the installation and information on how the ramp is deployed.

6.2 RAMP CONTROLS

6.2.1 Controls for the ramp will be mounted so that the driver can access them and monitor the operation of the ramp. The controls will be configured and interlocked to eliminate the possibility of mishap and injury to the person using the ramp or damage to the equipment.

6.2.2 Accelerator and service brake interlocks will be provided to prevent the bus from moving with the ramp deployed. A safety system also will be provided to prevent the front door from closing with the ramp deployed. The deployment of the ramp must not be possible with the valve supplying air to the front door motor in the closed position.

6.2.3 Visual and audible warning devices will be provided to indicate when the ramp is being deployed or stowed. An audible warning will be electrically connected to the master ramp power enable switch and activate whenever the ramp is being deployed or stowed. This warning must have a sound different and distinct from the bus reverse drive alarm. The alarm must not be so loud as to prevent the driver from communicating with passengers. Four way flashers will be activated whenever the power enable switch for the wheelchair ramp is turned on.

6.3 RAMP DESIGN

6.3.1 The ramp platform must be capable of operating 20 consecutive complete cycles in -30 degrees F weather.

6.3.2 The surface of the lift platform shall be covered with the same material as the entire bus floor. Surface preparation will be per instructions of the coating manufacturer. The colors for the step nosing will be yellow with the rest of the material matching the floor material.

6.4 RAMP POWER SOURCE

6.4.1 The ramp will be hydraulically actuated. The power source for the system will be detailed by the bidder for CATA's review and approval.

6.4.2 The ramp must be capable of full manual operation by the operator in the event of a malfunction of the power control.

6.4.3 The ramp hydraulic manifold, test ports, and magnetic valves will be easily accessible for maintenance without having to go under the bus. Hydraulic power will not be supplied until lift power switch is activated.

6.5 RAMP SAFETY

The wheelchair ramp must not present a hazard or inconvenience to any passenger. No gaps greater than ½ inch should be provided between the ramp platform and the floor of the bus.

6.6 RAMP CONSTRUCTION

6.6.1 The ramp will be designed and built to be as maintenance free as possible. This includes sealed bearings and the use of premium stainless steel in the ramp platform and bracketry. Chain-driven ramps are not desired by CATA. Bidders shall present to CATA a detailed design and specifications of the proposed ramp at the time of Approved Equal submission.

6.6.2 CATA requires a five (5) year corrosion warranty on the ramp and supporting bracketry. The device must be capable of functioning 500 cycles or 5,000 miles in all weather conditions on the standard operating profile without the need for any adjustments or maintenance.

6.6.3 Electrical junction boxes will have an oil and waterproof diagram on the inside cover. All electrical components will be enclosed or shielded from road dirt and spray. A warm air duct from the bus heating system will be provided to help prevent the accumulation of ice and snow on the ramp. Skid plates will be supplied as specified in Section 3.9.

6.7 WHEELCHAIR SECUREMENT

6.7.1 Mobility device securement system shall be 4ONE Q'POD or approved equal that includes 3-point securement system, stabilizing bumper, scooter ring, paddle handle with audible alarm, flip seats, integrated wheelchair securements, and front-tensioning mechanism. Securement system shall meet or exceed all Federal Procurement Guidelines

(White Book) and ADA (Americans with Disabilities Act) standards and requirements and meet the following specifications.

This is a complete ADA securement station that is all connected and not separable. It consists of the following components:

Barrier with integrated paddle handle with audible and visual indicator.

- 3-Passenger Flip Seat
- 3-Point Occupant Restraint System
- Mobility Device Restraint System
  - Self-Tensioning Hook Belts
  - Ratcheting Tension Mechanism
  - Mobility Device Protection Pad

The system must have a completely integrated 3-point (shoulder and lap) occupant belt that is attached to the barrier. **ATTACHING THE BELT ON THE WALL OR WINDOW SPANNING BAR IS NOT ALLOWED.** System shall incorporate a padded bumper under the flip seat to protect any mobility device. System shall use a ratcheting tension mechanism on the forward belt to ensure proper securement. System shall use only three belts and the bumper pad to secure mobility device. All 3 hook belts shall be self-tensioning. All ADA Securement areas should be forward facing.

6.8 FLIP SEATS

6.8.1 The flip seat shall be a 3-passenger longitudinal flip seat to allow ambulatory passengers to occupy the area when wheelchairs are not present. The flip seat locking/unlocking mechanism must be user friendly and easily identifiable. The lock used to secure the seat shall be opened by means of a lever mounted under the flip seat. The seat shall lock in the up and down position. The front hook belt shall be located under the flip seat. The ratcheting tension mechanism shall be located on the outside of the flip seat main frame, user friendly, and easily identifiable. Operating instructions will be located on the underside of the flip seat cushions and will be legible when the flip-up cushion is in the up position. The flip seats provided must not rattle. If they are found to rattle, CATA will not accept the bus as shipped.

6.9 BARRIER

6.9.1 Barrier will be integrated with the flip seat and shall house the shoulder, lap and 2 rear restraint hook belts. The barrier shall house the integrated paddle handle. The paddle handle shall be completely manual in its design and functionality. Electronic audible and visual indicators are not permitted. Belts shall be easily accessible through a stainless steel access plate for maintenance. Barrier shall be constructed of carbon steel with a plastic enclosure.

7.0 POWER TRAIN

7.1 MOUNTING

7.1.1 The powerplant shall be "in-line" or "T-mounted" in the rear of the bus in a fabricated engine cradle. The mounting of the powerplant shall be isolated from the frame of the bus by means of rubber mounts to minimize the transfer of vibration from the engine to the structure of the bus. The powerplant shall be arranged so that accessibility for all routine maintenance is assured. No special tools, other than dollies and hoists shall be required to remove the powerplant. Two mechanics shall be able to remove, replace, and prepare the engine and transmission assembly for service in less than 20 total combined man-hours. The muffler, exhaust system, air cleaner, air compressor, starter, alternator, radiator, all accessories, and any other component requiring service or replacement shall be easily removable and independent of the engine and transmission removal.

7.2 ENGINE

7.2.1 Bus engine shall be wet sleeve construction, electronically controlled, four cycle, six-cylinder, turbocharged diesel engine capable of developing a minimum of 280 horsepower in the 40' buses and 60' buses when operating on number one Ultra Low Sulfur Diesel (ULSD) fuel. Engine shall meet all mandated emission regulations. The engines must be capable of operating five years or 300,000 miles, whichever occurs first, without a major failure or significant deterioration.

7.2.2 Bidder proposing an engine or transmissions with characteristics different from the engine specified must provide CATA with the following information before the request will be considered.

a. Full technical specifications of the engine being proposed including performance and torque charts.

b. The name of the local service representative who will be handling repairs to the engine during the warranty period.

c. The warranty the bidder is proposing on the engine.

d. Parts manual and price catalog showing the cost of the engine parts.

e. Complete list of transit systems in the United States using the proposed engine in transit buses. This list must show the date the buses were placed in service, the present chassis mileage on the buses, and contact person with telephone number for each system.

7.2.3 The engine must be able to meet or exceed all the performance requirements stated in the technical specifications. Complete performance charts including acceleration, gradability, and the bidder shall provide estimated fuel economy charts with the submission of their bid.

7.3 COOLING SYSTEM

7.3.1 The radiator shall be of sufficient capacity to maintain the desired optimum operating temperature of the engine when the outside ambient temperature is 110 degrees F and the

bus is operating with a full seated load plus a standee load equal to fifty percent (50%) of a seated load, on a ten percent (10%) operating grade.

7.3.2 The radiator shall maintain a consistent pressure and shall be a closed system equipped with a stainless steel surge tank with a manual pressure relief valve. The surge tank must also have a readily visible sight gauge.

7.3.3 If the surface area of the radiator is less than 900 square inches, the radiator must be a five core radiator. If the surface area of the radiator is greater than 900 square inches, the number of radiator cores may be reduced to four cores. The radiator must have a removable (bolted) brass or stainless steel top and bottom tanks with a copper core. To minimize the transfer of road and engine vibrations to the radiator, it must be mounted on rubber isolators. CATA will not accept or approve a lead based solder radiator. Only a beta weld radiator will be accepted.

7.3.4 The radiator and charge air cooler must be fully accessible for ease of cleaning and removal. The radiator and charge air cooler shall be designed to withstand thermal fatigue and vibration associated with the installed configuration. The charge air cooler shall NOT be permanently attached to the radiator.

7.3.5 The cooling system shall be equipped with low coolant and hot engine warning lights on the driver's instrument console. The engine must be protected from excessive engine temperatures by an automatic shutdown system incorporated as part of the electronic control system for the engine.

7.3.6 All water pipes shall be made of brass or stainless steel. All water hoses shall be of silicone and protected from excessive heat from the engine or transmission. All low points in the cooling and heating system shall be equipped with drain cocks. All hose clamps shall be premium constant tension hose clamps with a wide band designed for silicone hose.

7.3.7 The cooling systems shall be EMP TK unit, or approved equal compact single-fan thermal system, fully controllable, with reversibility, 12/24 VDC, standard 1" hose, and of sufficient size to maintain all engine and transmission fluids and engine intake air at safe, continuous operating temperatures during the most severe operations possible and in accordance with engine and transmission manufacturers' cooling system requirements. The cooling system fan/fans control should sense the temperatures of the operating fluids, at a minimum, and also the intake air, if possible, and if either is above safe operating conditions the cooling fan should be engaged. The fan control system shall be designed with a fail-safe mode of "fan on." The cooling system in new condition shall have an ambient capacity of at least 110° F with water as coolant and sea level operation.

7.3.8 The buses shall be delivered pre-charged with and a 50-50 mix of anti-freeze recommended by the engine and transmission manufacturer.

7.3.9 A properly sized spin on disposable water conditioner element shall be included as part of the cooling system. Easily accessible quarter turn shutoff valves shall be provided on each side of the element to allow the element to be changed without the loss of coolant.

7.4 ACCESSORIES

7.4.1 All engine driven accessories shall be mounted in such a manner as to allow for quick removal and repair of the components without having to remove the engine, transmissions, and/or the radiator.

7.5 EXHAUST SYSTEM

7.5.1 The exhaust from the engine shall be expelled through an exhaust stack located in the rear of the bus. The exhaust pipe shall extend above the left rear portion of the bus. The exhaust pipe must be installed in such a manner that the exhaust gases and soot do not mar the surface of the bus. The exhaust system and stack shall be constructed of stainless steel or heavy galvanized steel resistant to corrosion.

7.5.2 The engine and exhaust system shall meet all applicable federal and state emission requirements at the time the bus is manufactured.

7.6 ENGINE COMPARTMENT

7.6.1 The engine compartment shall be separated from the passenger compartment by fireproof bulkheads so designed as to prevent smoke, fumes, engine heat, and fire from entering the passenger compartment.

7.6.2 The engine compartment door shall be hinged at the top and open to the fullest extent possible to allow complete access to the engine compartment. All exterior engine compartment doors which are hinged at the top shall be equipped with nitrogen filled cylinders. These cylinders shall facilitate the opening of the doors to the fullest extent possible and incorporate positive locks to prevent the doors from accidentally closing. These cylinders shall also be the over center type and apply positive pressure to keep the engine compartment doors closed. Engine doors shall be equipped with positive locks to keep the doors in the closed position.

7.6.3 The engine, fuel pump, turbocharger, water pump, power steering pump, and air compressor shall be mounted to allow for ease of maintenance from the rear of the bus or from inside of the bus. Fully insulated access panels must be provided under the rear seat to allow for complete access to the engine. Two semi-skilled mechanics must be able to remove the engine and transmission from the bus in four (4) hours or less with a minimum of special equipment. CATA reserves the right to request documentation on the time to perform this task and list of equipment necessary to remove and install the engine.

7.6.4 A mechanical oil pressure gauge with a maximum oil pressure reading of 70 PSI and a water temperature gauge shall be provided along with an engine “run” switch, a starter cut out switch, engine compartment light switch, and a starter switch. The engine run switch, the starter cut out switch, and the engine compartment light switch must be toggle switches. The engine compartment shall be illuminated by a minimum of four (4), eight (8) candle power, sealed LED lights. All engine compartment switches need to be sealed toggle type switches.

7.6.5 All flexible fuel, oil, transmission, air, and water lines shall have reusable stainless steel fittings. All flexible lines should be kept to a minimum. Hoses shall be individually supported and will not touch one another or any part of the bus. All flexible lines shall be routed or shielded so that the failure of the line will not allow fuel or oil to be sprayed or drained onto any component with an operable temperature above the flash point temperature of the fluid.

7.6.6 A spring-loaded access door shall be provided to check the radiator water level. The access door to the surge tank shall be hinged at the leading edge to the filler neck and closed with spring pressure. All fluid fill locations shall be permanently labeled to help ensure that the correct fluid is added. All fluid add points shall be easily accessible with standard funnels, pour spouts, and automatic dispensing equipment. All lubricant sumps shall be fitted with a magnetic-type external hex head drain plug of a standard American size.

7.6.7 For safety of CATA employees a belt guard shall protect all belt driven components. The guard(s) shall be attached securely and shall not interfere with any exterior access doors. The guards shall be removable for ease of access to service or repair the belt driven component.

7.7 FILTERS

7.7.1 The engine shall be equipped with a heavy duty spin-on type long life oil filter with a 10 micron absolute rating of Beta 10=75 that is recommended by the engine manufacturer.

7.7.2 A combination primary/secondary fuel filter with maximum fuel filtration shall be provided. The filter shall have a clear cover with a self-priming port. The fuel filter shall be similar to the Davco Fuel Pro 380 or an approved equal.

7.7.3 The engine shall be equipped with a dry air cleaner with an easily accessible element. The filter must be the correct capacity of the engine provided as recommended by the engine and filter manufacturers. The location of the air intake point shall be so designed for the life of the filter and to minimize the entry of road dust and debris. The engine air duct must be shaped so as to minimize the entry of water into the air intake system. A passage shall be provided so that any water, which does find entry into the system, can be drained prior to entry into the filter. CATA reserves the right to review the location and design of the air intake system.

7.8 AUTOMATIC FIRE SUPPRESSION SYSTEM (OPTIONAL)

7.8.1 CATA is requesting an optional proposal for an Automatic Fire Sensing and Suppression System (AFSS) complete with fire detector(s), control panel, manual activation switch and fire extinguishing system. At a minimum any proposed AFSS shall provide protection of the engine compartment, Diesel Particulate/Muffler compartment and battery compartment. Final installation design of the AFSS shall be subject to the AFSS manufacturer and CATA approval.

The purpose of the AFSS is to ensure coach and passenger safety and survivability in the event of a fire. The AFSS shall detect fires in protected areas. Upon fire detection the AFSS shall immediately activate an audible and visual alarm in the vehicle operator's area. After a 15 second delay, the AFSS shall shutdown the vehicle engine and discharge extinguishing agent into the protected areas. The vehicle operator shall have the capability to extend or terminate the engine shutdown and extinguisher discharge delay.

The completed AFSS shall be tested and certified by the manufacturer. The test shall determine that the system has been properly installed and will function as intended; a Certification Report from the manufacturer shall be provided indicating such.

The AFSS manufacturer shall provide to CATA all necessary equipment, training and manuals to ensure complete working knowledge of the system. The training schedule shall be approved by CATA and cover all essential employees and shifts. A draft training plan shall be submitted with the proposal for CATA review.

A) FIRE DETECTOR FOR OPTIONAL AFSS

The fire detector(s) shall be optical infrared type and or linear (LTD). The optical detector(s) shall cause the AFSS to alarm when exposed to optical radiation emitted from a fire within a 90-degree field of view. The detector(s) shall be dual-band type and provide exceptional false alarm immunity to sources such as flashlights, sunlight, cigars/cigarettes, arc welding and more. Each individual optical detector shall have a status LED on its face that indicates its operational status. Detectors of differing types shall be compatible with each other, including linear thermal and spot thermal, for use independently or in combination up to a total of ten.

The linear detector(s) (LTD) shall be a thermally operated linear type encased in a stainless steel or similar protective loom. The detector(s) shall cause the AFSS to alarm when the ambient temperature surrounding the sensor exceeds its set alarm point.
The fire detector(s) shall be located under horizontal bulkheads above and downwind of critical fire hazards and in areas likely to be wetted by leaking flammable fluids. The fire detector(s) shall be located such that critical fire hazards and areas likely to be wetted by leaking flammable fluids are within the sensor's field of view.

B) CONTROL PANEL FOR OPTIONAL AFSS

The control panel shall provide the vehicle operator a visual and audible interface to the AFSS. As a minimum the panel shall have unique controls and / or indications (as applicable) for:

1) System 'OK'
2) Fire
3) Self-Test
4) Alarm silence
5) Delay of automatic engine shutdown and extinguisher discharge
6) Fire detector(s) fault
7) Extinguisher fault
8) System reset

The control panel shall be located in easy view of the operator but shall not impede his/her view of the road. Interface between the panel and the balance of the AFSS shall be accomplished through a single electrical connection. All other AFSS electrical interconnections shall be constructed using standard automotive-grade wiring and industry standard connectors (such as Weather pack or Deutsch). The use of shielded electrical cables or other specialty cables or connectors is not permitted.

C) MANUAL ACTIVATION SWITCH FOR OPTIONAL AFSS

The manual activation switch shall provide the operator a means to activate the AFSS to include immediate engine shutdown and extinguisher discharge. The switch shall be at least ¾" in diameter, red in color and clearly labeled 'FIRE'. A tamper-evident seal shall be included. The manual activation switch shall be located in easy view of the operator but shall not impede his/her view of the road.

D) FIRE EXTINGUISHING SYSTEM FOR OPTIONAL AFSS

The fire extinguishing system shall consist of an extinguisher and a distribution system designed for vehicle applications. The extinguisher shall be a stored pressure type and consist of a high-speed valve, DOT approved cylinder and a pressure gauge. The gauge shall be clearly visible when the extinguisher is installed on the vehicle. The extinguisher shall be filled with a minimum of 22 pounds of BC rated Purple-K or ABC dry chemical extinguishing agent but have an overall weight of no greater than 60 pounds. The extinguisher shall operate over a temperature range of at least –20 to +150 degrees F. The extinguisher shall be provided with a permanently attached anti-recoil safety device.

The extinguishing agent distribution system shall be installed per the recommendations of the AFSS manufacturer and the bus OEM shall provide a written sign off - 1st ARTICLE Report (from the fire suppression manufacturer) that all installation requirements have been met on the bus system.

7.9 ENGINE CONTROLS

7.9.1 The electronic control for the engine shall protect the engine from overheating, low water, and low oil pressure. These controls shall include an automatic engine shutdown system to protect the engine. A manual override feature shall be provided to allow for thirty (30) seconds of continued engine operation and this feature will be included as part of the engine control system.

7.9.2 To help the mechanics trouble shoot the engine a check engine light will come on each time the engine experiences a fault or failure. To allow the mechanic to interrogate the electronic control system the bidder will provide a diagnostic plug in both the engine area and in the driver area.

8.0 PERFORMANCE

8.1 ACCELERATION

8.1.1 The bus must be capable of obtaining a speed of 55 MPH from a standing start in 70 seconds, on level ground at sea level under the following conditions:

a. Have the equivalent weight on board equal to a full seated load plus three standees with an average weight of 150 pounds per person.

b. All tanks full.

c. All accessory equipment operating.

The bidder shall provide CATA with performance charts showing the acceleration of the bus with the engine the bidder is proposing to use.

8.2 TOP SPEED

8.2.1 The bus shall have a maximum speed of **65** MPH to allow the bus to safely pass slower vehicles.

8.3 GRADABILITY

8.3.1 Gradability requirements shall be met on grades with a surface friction coefficient of 0.3 and above SLW with all accessories operating. The engine and transmission that the bidder is proposing to use should be able to allow the bus to maintain a speed of 45 MPH on three percent grade with a full seated load.

8.4 JERK

8.4.1 Jerk, the rate of acceleration, shall be minimized throughout the acceleration and deceleration range and shall be no greater than 0.3 g/seconds. This requirement shall be achieved regardless of the driver's actions.

9.0 DRIVE UNIT

9.1 HYBRID DRIVE (OPTIONAL)

Pricing for hybrid drive for power propulsion shall be included in the proposal. The hybrid system shall be a series-parallel unit. A diesel engine shall power the unit and the bidder shall indicate all engine options available for this unit; CATA currently utilizes a Cummins engine as the power source. Hybrid drive unit will be the Allison EV-Drive or approved equal parallel drive unit.

9.1.1 The bidder must provide CATA with the following information at the time the Requests for Approved Equals or clarification are submitted:

a. Full technical specifications of the hybrid option being proposed.

b. The name of the service representative that will be handling repairs to the hybrid drive during the warranty period.

c. The warranty the bidder is proposing to provide with the hybrid drive.

d. Parts manual and price catalog showing the cost of the hybrid drive parts.

e. Complete list of transit systems in the United States using the proposed hybrid drive in transit buses. This list must show the date the buses were placed in service, the present chassis mileage on the buses, and a contact person and telephone number for each system.

9.1.2 The electronic controls for the hybrid drive shall be so designed that the bus is unable to go into forward position from the park or neutral position unless the engine speed is equal or less than the high idle speed of the engine. The hybrid drive control system must also contain a feature to allow the bus to limp back to the garage if the control system fails in service. To help the mechanics trouble shoot the hybrid drive the bidder shall provide a hand held diagnostic tool with printer (latest version available) that is capable of communicating with the electronic control system of the unit.

9.2 AUTOMATIC TRANSMISSION (OPTIONAL)

Pricing for automatic transmission for power propulsion shall be included in the proposal. The transmission shall be a heavy duty, fully automatic five or six speed transmission with both an integral hydraulic brake retarder. The retarder shall consist of a vane rotor driven at transmission output speed, which rotates a vane filled with transmission fluid, thus impeding rotation of the rotor and output shaft. The retarder level must be adjustable. A volume of fluid, stored in an external accumulator, is released upon activation to assist in charging the retarder cavity. The retarder housing is evacuated of fluid (and the accumulator is filled) when the retarder is not in use.

9.2.1 The transmission proposed must be properly matched to the weight and size of the vehicle and be able to meet all the stated performance requirements. All current and past service production modifications shall be incorporated into the transmission. The transmission shall be similar to Allison B500R or an approved equal for the 60’ buses with Allison B400R or approved equal furnished with the 40’ buses.

9.2.2 The bidder must provide CATA with the following information at the time the Requests for Approved Equals or clarification are submitted:

a. Full technical specifications of the transmission being proposed.

b. The name of the service representative that will be handling repairs to the transmission during the warranty period.

c. The warranty the bidder is proposing to provide with the transmission.

d. Parts manual and price catalog showing the cost of the transmission parts.

e. Complete list of transit systems in the United States using the proposed transmission in transit buses. This list must show the date the buses were placed in service, the present chassis mileage on the buses, and a contact person and telephone number for each system.

9.2.3 The transmission shall be equipped with a programmable electronic control system designed for the transmission, and recommended by the manufacturer of the transmission. The transmission shift selection switch shall be a push button switch mounted in an approved location in the driver's console or instrument panel. The transmission must be electronically controlled. CATA will not accept the use of manual shift selections and cables. The shift controls shall meet or exceed the requirements of the FMVSS 102.

9.2.4 The electronic controls for the transmission shall be so designed that the bus is unable to go into gear from the park or neutral position unless the engine speed is equal or less than the high idle speed of the engine. The transmission control system must also contain a feature to allow the bus to limp back to the garage if the control system fails in service. To help the mechanics trouble shoot the transmission the bidder shall provide a hand held diagnostic tool with printer (latest version available) that is capable of communicating with the electronic control system of the transmission.

9.2.5 The transmission shall be equipped with a large external heat exchanger capable of cooling the transmission. The heat exchanger shall be both repairable and rebuildable. The heat exchanger shall not be in front of or behind the radiator and shall be solely for the transmission.

9.2.6 The transmission shall be equipped with a starter interlock to prevent starting of the engine unless the transmission is in neutral. When the engine is turned off, the transmission shall automatically return to neutral.

10.0 DRIVESHAFT

10.1.1 If the driveshaft is twenty six (26) inches or longer in length, the bus shall be equipped with a guard or guards to prevent the driveshaft from hitting the ground or the floor of the bus.

10.1.2 The driveshaft shall be made of tubular steel at least 2½ inches in diameter. Grease joints shall be provided at each universal and slip joint.

11.0 CHASSIS

11.1 FRONT AXLE

11.1.1 The front axle shall be a solid beam type axle with air suspension capable of supporting all dynamic and static tests placed upon it which do not exceed the GVWR. The front axle shall have a minimum load rating of 13,000 pounds. CATA will not accept the use of an independent front suspension system.

11.1.2 The king-pins on the front axle shall be the low friction type designed to have a long service life.

11.2 CENTER AXLE (60' BUS)

11.2.1 Center axle shall be a heavy duty type with a load rating that shall be sufficient for the bus loaded to GVWR. Wheel bearings inner wheel seals shall be run on a replaceable chromed wiper ring on the tube. Rear axle shall be equipped with oil bath seals.

11.3 REAR AXLE

11.3.1 The rear axle shall be a heavy-duty low profile non-planetary hub disc brake axle system. Ring gear must be bolted instead of riveted. Rear axle shall have sufficient capacity to support all dynamic and static loads placed upon it which do not exceed the GVWR. The rear axle shall have a minimum load rating of 22,000 pounds.

11.3.2 The bearing journal area on each tube on the rear axle must be induction hardened for greater durability.

11.3.3 The drain plug on the rear axle shall be equipped with a magnetic plug.

12.0 BRAKES

12.1.1 The service brakes on the bus shall be air operated and must be able to meet or exceed the requirements of FMVSS 121 on the date of manufacture.

12.1.2 The front and rear brakes shall be disc type of sufficient size and diameter to meet the stopping requirements for the coach as built. The service life of the front brake system shall be so designed to last a minimum of 40,000 miles.

12.1.3 The bus shall be equipped with spring applied, air released brakes controlled by an automatic valve located on the driver's console. The control valve shall be a push-pull valve made of a metal material (plastic valve handle will not be accepted), and will provide a means to apply and release parking and emergency brakes. A lamp on the instrument panel shall indicate if the parking brake is on. This lamp shall be series with the run control switch.

12.1.4 A shielded switch shall be provided in the front of the bus to allow the operator to disable the retarder when desired because of street or operating conditions. The driver must leave the driver's seat to reach the switch. When the retarder is disabled, a yellow warning light shall be illuminated on the instrument console to inform the driver that the retarder has been rendered inactive.

13.0 AIR SYSTEM

13.1.1 The bus air system shall be capable of operating all accessories, the braking system, and the suspension system with an adequate reserve capacity. The engine driven air compressor shall be a heavy duty steel or iron piston rods or an approved equal

compressor with steel or iron connecting rods sized to charge the air system from 40 PSI to governor cutoff pressure in less than three (3) minutes while not exceeding the engine's rated high idle speed.

13.1.2 All air reservoir tanks shall be equipped with manual "pet cock" drain valves so located on the air tanks to allow complete draining of moisture in the tanks. If the air tanks are mounted in the roof structure, drain pipes shall be provided from the air tank to under the bus, in accessible locations. Drain valves will be so located as to avoid damage from road debris and other hazards.

13.1.3 A desiccant type dryer will be provided to prevent the accumulation of moisture in the air system. The air dryer will be vertically mounted with a thermostatically controlled heater element. The air dryer must also have a purge and drain cycle and be changeable through the bottom of the air dryer. Bidders shall provide CATA with a detailed drawing of the mounting location of the air dryer with bid submittal.

13.1.4 Air piping will be standard tubing meeting or exceeding the requirements of all applicable SAE and FMVSS standards. The tubing shall be color-coded using the following color codes:

GREEN	Primary Brake and Supply
RED	Secondary Brake
YELLOW	Compressor Governor Signal
BLACK	Accessory
BROWN	Parking Brake Control

All air lines shall be sloped toward an air tank and routed to prevent water traps. All air valves and fittings of less than ½ inch inside diameter shall slope toward an air tank if located in an area exposed to the weather. Grommets shall protect the airlines at all points where the airlines pass through under-structure components. Airlines shall be supported every two feet and routed in a conduit to keep ice and snow off the lines. New buses shall not leak more than six PSI in fifteen (15) minutes when measured at the front mechanical air pressure gauge.

13.1.5 The supply line from the air compressor to the first air tank shall be a minimum of ¾ inch in diameter and be made of either steel or copper. The flexible air compressor discharge line shall have a minimum inside diameter of ¾ inch with a flanged swivel connector at the air compressor. The air compressor discharge shall be made of stainless steel braided Teflon.

13.2 ELECTRIC DRIVEN AIR COMPRESSOR (OPTIONAL)

13.2.1 CATA is requesting an optional proposal for providing the bus air supply through an electric driven air compressor source. The air compressor shall be driven by an electric power source independent of the bus engine. Proposal shall note the location of the unit in relation to the bus, the power source proposed to power the air compressor and the unit must comply with the delivery specification for bus air noted in this specification.

14.0 SUSPENSION

14.1.1 The suspension system shall be a full air ride system designed to provide a smooth comfortable ride with the floor height remaining constant in relation to the axles regardless of the passenger loads. The leveling valves for the air bellows shall have a dampening or compensating feature to prevent excessive consumption of air during rapid axle fluctuations. **If leveling valves have electronic sensors equipped, a program will be supplied to CATA for the adjustment and override of the sensors**. The exhaust ports on the leveling valves shall be protected to avoid road dirt and debris. The air supply for the air bellows shall be protected with check valves protecting the system against air loss from the leaks or failures of the suspension system. The air bellows shall have a dedicated air reservoir tank with the air for the leveling valves being filtered by an in line air filter. The base of the air bellows shall be non-metallic to minimize the potential for corrosion and electrolysis.

14.1.2 At least one heavy-duty double action shock absorber with a minimum piston size of 1.75 inches shall be provided on each side of each axle. The shock absorbers shall have a minimum useful life of 50,000 miles. Elastomeric bumpers shall be provided at the limit of jounce travel.

14.1.3 All fasteners used in the suspension, steering, and axles shall be Grade 8.

15.0 KNEELING/RIDE HEIGHT FEATURE

15.1.1 A driver-actuated kneeling device shall be installed to lower the bus during the loading and unloading operations regardless of load. Vehicles shall have brake and throttle interlocks to prevent movement when the bus is kneeled.

15.1.2 The bus shall be capable of kneeling in a maximum of 1.5 seconds from the time the control is actuated. After kneeling, the bus shall rise within two (2) seconds to a height permitting the bus to resume service and shall rise to correct operating height within five (5) seconds. During the lowering and raising operation, the maximum acceleration shall not exceed 0.2 g and the jerk shall not exceed 0.3 g/sec. measured on the front door step tread.

15.1.3 Visible and audible indicators shall be provided to warn passengers that the bus is either being kneeled or raised. An indicator visible to the driver shall be illuminated until the bus is raised to a height adequate for safe street travel. The time to kneel and rise shall be adjustable from outside the bus, and shall require hand tools. The adjustment shall allow cycle times up to five (5) seconds.

15.1.4 If available, CATA requests a driver controlled, adjustable ride height feature. Specifically, the operator, by way of a guarded button or toggle switch, should be able to temporarily increase the front suspension height for sharp driveway departure angles. Any specifications, including location of the guarded switch, will be subject to CATA's approval.

16.0 STEERING

16.1.1 The bus steering system shall be either a hydraulically operated power assist steering system with power provided from an engine mounted hydraulic pump or an independent electric assisted power steering system operated independent of the engine. Both systems shall be designed so that the steering wheel makes no more than eight and one half turns from left to right axle stop. Steering geometry and power assist shall be arranged so that the steering is self-centering. Electric assisted power steering is an acceptable system for which CATA is requesting an optional proposal.

16.1.2 The steering mechanism shall be so designed so that all adjustments can be made without dismounting parts from the bus.

16.1.3 In the event of failure of the power steering system, the manual operation of the system will be so designed that any driver can safely return the bus to the garage.

16.1.4 The steering wheel shall be made of an approved dark padded material. The steering wheel shall measure at least 20 inches in diameter and shaped for a firm grip with maximum comfort for long periods of time. The steering columns shall be equipped so that adjustments can be made in angle and length of the column. This tilt and telescopic feature will allow the driver to adjust the location of the steering wheel to provide for maximum comfort to the driver. The steering wheel shall be removable with a standard or universal puller.

16.1.5 Power steering lines from the engine compartment in the rear of the bus to the power steering box in the front of the bus will be made of stainless steel and shall have replaceable filters in both the pressure and return side of the system.

17.0 WHEELS

17.1.1 The bus shall be equipped with single piece molded, ventilated steel wheels using hub mounting with a minimum of ten lug holes and five vent holes. Stainless steel wheel covers shall be provided for front wheel positions. Rear wheels will come painted with a gloss white finish.

17.1.2 All wheel rims shall have the same offset and be fully interchangeable with all wheel positions on the bus.

17.1.3 One spare wheel rim and tire will be provided with each bus delivered to CATA.

17.1.4 The bus shall be equipped with a mechanical hubmeter designed and mated to the tires on the bus. The hubmeter shall read in United States miles and shall be mounted in the rear axle on the curbside of the bus.

17.1.5 CATA does not prefer to utilize “cat’s eye” dual tire pressure equalizers.

18.0 TIRES

18.1.1 Tires supplied will be 305-70R-22.5 radial tire designed for transit service. Tires will be provided by CATA's present tire contractor.

18.1.2 The tires supplied must meet or exceed the requirements of FMVSS 119.

19.0 FUEL TANK

19.1.1 The fuel tank shall be a single tank with a minimum usable capacity of no less than 100 gallons but not more than 125 gallons. CATA will neither accept nor consider a dual fuel tank system in a 40 foot bus. The fuel tank shall be properly baffled internally to prevent surging of the fuel.

19.1.2 The fuel tank shall be mounted in such a manner that all repairs to the fuel tank can be easily made without the removal of the fuel tank, the fuel pickup tube and the related gaskets. CATA will consider the use of floor access panels. The fuel tank shall have a sump directly under the fuel pick up tube. The sump shall have a minimum of 1 inch standard pipe thread plug. This plug shall be made of brass with a hexagon head.

19.1.3 The fuel tank shall have a permanently attached plaque stating the manufacturer, certification, capacity, and date of manufacture. This plaque shall be clean and legible after the undercoating material process and shall comply fully with all EPA and FMVSS requirements. This plaque shall be visible when the fuel door is opened.

19.1.4 The fuel tank shall have an audible whistle to indicate when the tank is being fueled. The fuel filler neck shall be located within twenty (20) feet of the centerline of the front door, on the curbside of the bus. The fuel fill will be a dry break aircraft type single point fueling system capable of allowing twenty gallons of fuel per minute. CATA currently utilizes the Emco Wheaton system.

19.1.5 The fuel lines outside the engine compartment shall be in conformance of SAE standard J 844 for copper tubing and SAE standard J 844-Type 3B for nylon tubing. If nylon tubing is used, it must be orange in color.

20.0 ELECTRICAL SYSTEM

20.1 EXTERIOR LIGHTS

20.1.1 All exterior lighting will be sealed LED lamps for long life and to prevent the entry of and accumulation of dirt and moisture. Lamp fixtures will be interchangeable to the maximum extent possible. Taillights shall be a round LED light measuring at least 7" in diameter. The lamp configuration shall be from top to bottom: red, amber, red, then white. CATA will not accept a light arrangement consisting of less than four (4) lights per side.

20.1.2 Visible and audible warning devices will inform following vehicles or pedestrians of the reverse operation of the bus. Visible reverse operation warning will conform to SAE Standard J 593. Audible reverse warning will conform to SAE recommended practice J 994 Type C.

20.1.3 A license plate bracket will be provided at the rear of the bus. A LED light will be provided for the rear license plate.

20.1.4 The directional signals will be controlled by a set of momentary contact switches mounted on the floor to the left of the steering column in a location which allows the driver's left foot to easily operate the switches.

20.1.5 The directional signals will be provided on the front, rear and sides of the bus. The rear directional lights shall be amber in color. Side directional lights will be armor protected type with three lights to each side of the bus with an unobstructed amber lens. One directional light shall be mounted near the front axle, one near the center axle, and the other over or near the rear axle. The exact location will be subject to CATA's review and approval.

20.1.6 An override or emergency flasher switch will be provided to permit continuous flashing of all the directional lights. The electronic flasher unit will be a heavy duty electronic unit designed to operate a minimum of 10,000 hours. The flashing of the directional lights will not be canceled by an application of the service brakes. The four-way flashers will be controlled with a toggle switch located within easy access to the operator in the side console. Additionally, a floor mounted momentary switch shall be installed to allow the operator the option of activating the four-way flashers via their foot. The location of this switch shall be centered between and above the foot activated turn signal switches. The combined switch layout (left turn signal, four-way flashers, right turn signal) shall not be installed in a linear fashion, but more of a triangular layout with the four-way flasher switch located at the top. An auxiliary flasher unit will be installed in a manner to be used if the current flasher unit fails.

20.1.7 The bus will have flush mount roof lights at each corner of the bus and in the center of the bus both front and rear. The front clearance light will have amber lenses and the rear clearance lights will have red lenses. Lights shall be LED.

20.1.8 Exterior curb illumination will be provided at all doors. The curb illumination LED lamps will provide a minimum of two candlepower of illumination when measured on the street 24 inches from the bus in a horizontal direction. Four (4) inch flush mounted LED lamps will be provided. The LED lamps will be lit only when the door is open and the marker lights are on. The LED lamp will extinguish when the door is closed.

20.1.9 Reflectors will be provided on the sides and rear of the bus. The side reflectors will be amber and the rear reflectors red.

20.1.10 All exterior lighting and reflectors will meet or exceed the requirements of FMVSS 108.

20.2 INTERIOR LIGHTS

20.2.1 The interior lighting system will be a series of LED dome light fixtures running the full length of the bus. The interior lighting will be so designed that if one lamp fails the remaining lamps will remain on. The light fixtures or their power supply will not emit

objectionable noises. Ballast units will be accessible without removal of the entire light fixture.

20.2.2 Interior lighting will provide a minimum of eight candlepower of illumination, measured at the floor surface in the center of the aisle.

20.2.3 The interior lighting system will include all fixtures, power supplies, and controls necessary to make the system complete. The light fixtures will have a prismatic light control. The lens will be designed to keep out dust, insects, and moisture and be removable for cleaning.

20.2.4 The light panels shall be sized to fit interior passenger information on standard card stock material that is 11inches in height. The 11 inch card stock shall be supported fully on the top and bottom within the light panel fixture. CATA requires thirty (30) poster securement straps which will support the card stock to be supplied per vehicle.

20.2.5 The driver will have the option of keeping the forward dome light fixtures on or off. The dome lights will activate whenever the master run switch is placed in night run or park position. To minimize reflection in the front windshield when operated in the night run position the operation of the lighting system shall be as follows:

- Night Run- Front door open; all interior lights will illuminate on bright setting.
- Night Run-Front door closed; Forward dome lights on both curb and street side (and both forward facing lights in the articulating joint) will extinguish, the remaining lights will dim to a level approved by CATA.

20.3 DRIVER'S COMPARTMENT LIGHT

20.3.1 A driver's compartment light shall be LED with a minimum illumination value of six candlepower measured at the steering wheel will be provided and mounted in the ceiling above the driver's seat. The lamp will require tools to be removed.

20.3.2 The driver's compartment light will be controlled by a toggle switch mounted in the instrument panel in a location convenient for the driver.

20.4 BOARDING LIGHT

20.4.1 The front entrance and rear exit areas will be illuminated by LED lamps mounted so that the entire area is illuminated.

20.4.2 The LED boarding lamps will be wired so as to illuminate only when the door is opened and the marker lights are on.

20.4.3 The LED boarding lamps will be totally enclosed, splash proof, and designed for ease of cleaning. The lamps will not glare into the passengers' eyes. Boarding lamps will be protected from damage caused by passengers kicking the lenses, and fixtures will not be a hazard to passengers.

20.5 REAR STEP LIGHTS

20.5.1 If the floor is raised beyond the rear exit door, each step will be illuminated by a step well lamp assembly so positioned that a minimum of three candlepower of illumination are provided on each step. Lights shall be LED.

20.5.2 The step well light fixtures will be totally enclosed and designed for ease of cleaning. The lamp must not glare into the passengers' eyes or reflect on the front windshield. The step well lamps will be protected from damage caused by passengers kicking the lens. The lamp must not be a hazard to the passengers.

20.5.3 The lamps shall be on whenever the interior dome lights are on or whenever the master switch is placed in the night run position.

20.6 RADIO POWER SUPPLY

20.6.1 The bidder will provide a positive 12-volt DC lead for future installation of a two-way radio system. This power lead will be protected by a 30 AMP circuit breaker. The radio circuit will be electronically protected in the event of reverse current flow. Location for wiring and illustration of silent alarm switch will be provided. The silent alarm switch shall be a momentary toggle type switch covered with a spring-loaded cover to prevent accidental activation. The location of the switch shall be on the left side of the operators control panel and is subject to CATA's review and approval. The power supply shall be installed in a radio/electric box located inside the coach. The box shall be designed to house the Automatic route announcement controls, AVL control as and be secured with a lockable latch. CATA and the successful contractor shall determine the size and configuration of the box. Minimum dimensions of this box shall be 18x24x20.

20.6.2 The location and design of the radio circuit will be subject to CATA's review and approval.

20.6.3 For ease of use in future installation, a flexible conduit no smaller than 1" in diameter shall be installed from the radio cabinet to the antenna mounting location on the roof, which is located directly above the operator's seat. This conduit shall be out of sight as best as possible.

20.7 POWER SUPPLY

20.7.1 CATA prefers a 24 volt direct negative ground for engine operation, interior and exterior lighting, heating, and other electrical loads. The clearance light, directional lights, stop lights and engine compartment lights must be 12 VDC.

20.7.2 The electrical system will be complete and include circuit breakers for the control and protection of the entire electrical system. Electrical connections will be with screw or plugs. Spade terminals or push on connections are not acceptable. If plugs are used they must lock or screw together. Connections subject to the elements must be protected with an anti-oxidant or anti-corrosive material. The bus shall be equipped with an industrial programmable logic control system. The system shall be installed in the interior of the

coach at the ceiling level and secured from moisture and dirt. The electrical system shall be similar to a Vansco programmable control system, or approved equal. The manufacturer shall provide CATA with all equipment for the programming and diagnostics of the system prior to the delivery of the first bus.

20.7.3 A belt-driven alternator system is desired by CATA. The system must be capable of generating a minimum of 450 AMPS for both a 40-foot and 60 -foot bus applications. The system must be capable of providing the entire electrical load of the bus while providing a minimum of 20 percent of its output for charging the battery when the battery is fully discharged according to the battery manufacturer's specifications, whichever is greater. The system shall be of a heavy-duty construction designed for a maximum service life.

20.7.4 BELTLESS ALTERNATOR (OPTIONAL)

For any hybrid powered models proposed, a Beltless Alternator system is desired by CATA. The system must be capable of generating a minimum of 450 AMPS for both a 40-foot and 60 -foot bus applications. The system must be capable of providing the entire electrical load of the bus while providing a minimum of 20 percent of its output for charging the battery when the battery is fully discharged according to the battery manufacturer's specifications, whichever is greater.

The system shall be of a heavy-duty construction designed for a maximum service life. The system shall be similar to a Vanner Hybrid Beltless Alternator or approved equal.

20.8 BATTERY

20.8.1 The buses shall have four 1131 maintenance free batteries, 1200 CCA each with top stud terminals.

20.8.2 Battery units will be mounted in a location designed for the maximum ease of maintenance and service. If the batteries are mounted in a separate compartment, the battery units shall swing or slide out from the bus to allow maintenance and cleaning of the batteries. The battery tray and compartment must be made of an acid and corrosion resistant material. The batteries must be secured by acid resistant hold downs to prevent any movement of the batteries. The battery units cannot be placed in the passenger compartment. The battery units must be properly ventilated and have adequate drainage. The battery drains must not drain on any part of the bus. The door to the battery compartment will be insulated to prevent the battery terminals from shorting on the door if the door is damaged in an accident. The exterior of the bus will be clearly marked to indicate the location of the batteries and the emergency shut off switch.

20.8.3 The batteries will carry a standard warranty of the manufacturer and will bear an initial date no earlier than 60 days prior to delivery.

20.8.4 The bidder will install in the battery compartment a switch to disconnect the ground (negative) circuit. This switch isolates the battery unit(s) from the bus's electrical system.

The switch must be accessible without tools and or special knowledge in 30 seconds or less with the location of the switch clearly marked on the exterior of the bus.

20.9 CRANKING MOTOR (OPTIONAL)

20.9.1 For proposed models powered by an automatic transmission, the cranking or starting motor will have over crank protection. The starting motor provided must be capable of withstanding two brush changes and one commutator lathe turning. The electrical connections to the cranking motor will be sealed with electrical sealer to minimize corrosion.

20.10 MASTER RUN SWITCH

20.10.1 A master run switch will control the electrical system in the bus. The master switch shall be located on the side electrical console in the driver's compartment.

20.10.2 The master run control switch will have the following positions:

- OFF POSITION - All electrical systems off except the stop and directional lights and the horn.
- DAY RUN POSITION - All systems are on except headlights, clearance lights, instrument lights, dome lights, destination sign lights, and license plate light.
- NIGHT RUN POSITION - All systems on with no exceptions.
- NIGHT PARK POSITION - All systems are off except the systems listed in the off positions and the parking lights, clearance lights, tail lights, instrument lights, dome lights, and radio power.

20.11 DRIVER CONTROLS AND INSTRUMENT PANEL

20.11.1 The instruments and gauges will read in English units. The speedometer and odometer will read in United States miles. The odometer will be incorporated as part of the speedometer.

20.11.2 The switches and controls shall be marked with easy to read identifiers. All switches, except the master control, windshield wipers/washers, and dimmer switch for the dash lights will be metal toggle switches. CATA will not accept the use of rocker switches or push-pull switches. The layout and design of the instrument panel and control panel will be subject to CATA's review and approval.

20.11.3 All dash gauges will indicate the normal range of operation.

20.11.4 The instrument panel and control console will contain the following gauges:

a. Voltmeter or Charging Gauge for both 24v and 12v
b. Primary/Secondary Air Pressure Gauge (must be at least 3.5 inches in diameter)
c. Speedometer (must be electronic, not cable driven)
d. Oil Pressure Gauge
e. Water Temperature Gauge

20.11.5 The instrument panel and control console will contain the following indicator or telltale lights:

a. Low Coolant Light (buzzer)
b. Low Oil Pressure Light (buzzer)
c. High Water Temperature (buzzer)
d. Directional Signal Lights
e. High Beam on Light
f. Parking Brake Light
g. Door Open Light
h. Fire Alarm (bell)
i. Retarder Off
j. Stop Request (yellow)
k. Check Engine Light
l. Kneeler Light
m. Wheelchair Stop Request
n. Check Transmission Light
o. Muffler Alert/Warning
p. Low Fuel Indicator Light
q. Stop Engine Light
r. Service Brake Light

20.11.6 The intensity of the indicators will permit the determination of the on/off status of the indicators in bright sunlight, but will not cause a distraction or visibility problem at night. The indicator lamp will be designed so that the heat generated by the indicator will not distort or damage the indicator lamp assembly. The sensor will be closed circuit type. A contact switch on the instrument panel will be provided to allow testing of the indicators.

20.11.7 CATA would be interested in obtaining pricing for both fixed and adjustable pedals.

20.12 WIRING

20.12.1 All general-purpose wiring will be cross-linked polyethylene insulated low smoke wire of sufficient gauge for the circuit using the wires. All wiring over twelve inches in length will be color coded with the wiring code number clearly stamped every six inches along the entire wire. The color-coding and the numbering of the wiring will be designed so as to allow for the ease of identification of the wiring circuits.

20.12.2 Battery cables from the battery to the engine starter will be 4/0 gauge with a minimum of .075 inch wall plastic insulation with machine crimped cable ends.

20.12.3 All wiring harnesses over six feet in length and containing more than five wires will include 20 percent excess wires for spares. The excess wire will be the same gauge, with the exception of the battery cables, as the largest wire in the harness.

20.12.4 Grommets of elastomeric material will be provided at all points where wires penetrate metal or plastic structures.

20.12.5 All wiring connections will be completely waterproof to prevent corrosion. Wiring leaving the engine compartment must be routed above the floor of the bus to prevent corrosion and buildup of ice and snow on wiring harnesses. All electrical relay boxes and junctions below the side window must be completely sealed to prevent leakage of water. All wiring harnesses must be fully wrapped in armored polypropylene flexible plastic conduit. Wiring harnesses will be supported every two feet to minimize chafing and rubbing. All wiring harness runs, conduit, and protective materials are subject to final review and approval by CATA.

20.13 TERMINAL IDENTIFICATION

20.13.1 All relays, controllers, flashers, circuit breakers, in-line diodes, fuses and other electrical components will be clearly identified for service and maintenance personnel. The locations of these components will be easily accessible.

20.13.2 Cable termination will be terminals applied with a tool of the same manufacture as the terminal ends.

20.13.3 LIGHT BULB SOCKETS

All electrical system light bulb sockets, including sealed beam headlamp base connectors, will be standard American automotive lamp bulbs and sealed beam headlamp units.

20.14 HORN

20.14.1 The bus will be equipped with an "F" note and "D" note horns which must comply with all FMVSS requirements. To prevent entrapment of water, the horns must be turned down.

20.15 FIRE ALARM

20.15.1 The bus will be equipped with an electronic fire alarm system in the engine compartment. When activated, the fire alarm system will sound a bell in the driver's compartment and an indicator light will come on informing the driver of the fire. The fire alarm will be resettable.

21.0 HEATING, VENTILATION, AND AIR CONDITIONING

21.1 HEATING SYSTEM

21.1.1 All bidders should be aware of the winter climatic conditions in Lansing, Michigan. The performance of the heating system is important to CATA. This system will have a sufficient capacity to maintain an average inside temperature of 65 degrees F, + or - 3 degrees F throughout the interior of the bus with an outside ambient temperature of 0 degree F. This temperature will be held on the bus with the normal engine operating temperature. The temperature difference between the area six inches from the ceiling and six inches from the floor of the bus will not vary by more than 10 degrees F. Temperature readings will be taken at the four following locations:

a. The front entrance platform 12 inches behind the farebox.
b. Over the front axle.
c. Center of the bus.
d. Over the rear axle.

21.1.2 An under seat heater with a minimum rating of 45,000 BTU will be provided. This heater will provide additional heat to the front of the bus. This heater will turn on whenever the main heater is on. A separate thermostat will control this heater to prevent excessive heat in the front of the bus. This thermostat will be located in the front passenger area. An easily accessible filter will be installed in the air intake of the under seat heater. All under seat heater housings are to be stainless steel.

21.1.3 CATA reserves the right to request from the bidder certified test results from an independent third party on the performance of the heating system, or letters from four transit systems operating in climates as cold as CATA's, stating that the performance of the heating system is satisfactory.

21.1.4 The air from the main heating system will be distributed evenly on both sides of the bus and dispersed the full length of the side windows.

21.1.5 The heating and ventilation system will not project into the passenger comfort area. If the possibility of a passenger hitting an overhead duct exists, the bidder will be required to pad the duct to prevent injury to passengers. Any interior floor mounted heating equipment must be made from stainless steel to resist corrosion.

21.1.6 The heating and ventilation system will use approximately 90 percent re-circulated air and a minimum of ten percent outside air. All air entering the passenger compartment will be filtered. These filters will have metal frames and be the re-serviceable type and be located for convenient access for maintenance.

21.1.7 The heating system will be under the control of the driver. Once the system is turned on, the heating system will be a fully automatic system. The thermostat for the system will be in a locked compartment fully shielded to prevent tampering by drivers or passengers.

21.1.8 The front defroster motor and the heater blower motors will be premium brushless heavy duty motors with a constant rating of no less than 10,000 hours. All motors will be located to accommodate the entire motor replacement in 20 minutes or less.

21.1.9 The motor for the water-circulating pump will be a brushless electronically commutated, permanent magnet, totally enclosed motor with integral drive electronics. The pump shall be an EMP WP-29 or approved equal high performance, long life, severe duty electric water pump.

21.2 VENTILATION SYSTEM

21.2.1 The ventilation system will be designed so that it can be used as a power ventilation system during the summer months. In the ventilation mode the unheated air will be circulated when the ventilation mode is in use and hot air removed from the bus.

21.2.2 The blowers furnished will have a low speed for the heating mode and a high speed for the ventilation.

21.2.3 A small blower motor will be mounted over the driver's area to allow the driver to increase airflow in the driver's compartment. This motor will be controlled by means of a toggle switch on the side instrument console.

21.3 DRIVER'S HEATER AND WINDSHIELD DEFROSTER

21.3.1 An independently controlled front heater and defroster will be located under the front dash to provide heat for the driver and heated air to defrost the windshield.

21.3.2 Air for the front defroster will either come from the interior of the bus or from the outside environment. All air will be filtered before passing through the front heater core.

21.3.3 All controls will be within easy reach of the driver. The front defroster will have a minimum of two fan speeds.

21.3.4 An insulated duct will be provided to carry warmed air from the driver's heater to the front entrance platform to help melt any ice and snow, which may accumulate on the steps or ramp.

21.3.5 A fresh air vent shall be installed in the front of the bus to allow the operator to manually open and receive outside airflow into the operator's compartment.

21.4 AIR CONDITIONING

21.4.1 At 110 degrees F ambient temperature, the air conditioning system will have sufficient capacity to maintain a 25 degree, + of - 3 degrees, differential from the outside ambient temperature throughout the entire bus in thirty minutes with the engine operating at 1500 RPM. All doors and windows will be closed and the temperature will be measured at a point four feet above the front axle, in the center of the driver's compartment, in the middle of the bus and over the rear axle. Cool air from the air conditioning system will be evenly distributed throughout the bus, including the driver's compartment.

21.4.2 The bidder will provide with their bid complete information on air conditioning for the proposed bus for CATA's review and approval. This information will include performance data, design criteria, reliability studies, accessibility for maintenance, and other data lending credence to the performance and maintainability of the proposed air conditioning system. Failure to provide this data may result in the bidder's proposal being rejected.

21.4.3 The buses shall be based on the use of Class II refrigerant such as R134A. To keep the refrigerant clean and dry, the system will be equipped with a replaceable dryer of

sufficient size for the proposed system. To facilitate the servicing and testing of the air conditioning system, two back seated valves will be provided, one on each side of the dryer. The system will be equipped with a Schrader type valve for testing.

21.4.4 The 60-foot buses shall have the evaporator located on the roof of the vehicle with the condenser units mounted in the rear of the vehicle structure. The 40-foot buses shall have the units installed in the rear of the vehicle. Condenser/evaporator coil construction shall be copper fin and copper tubes coated and protected from corrosion. The placement of the evaporator should allow for ease of maintenance of the expansion valve, the return air filter, and electrical controls. The return air filter will have a replaceable filter element in a metal frame. A combination moisture indicator/sight glass will be provided in the liquid line directly before the expansion valve.

21.4.5 To help trouble shoot mechanical failures in the air conditioning system, the Contractor shall provide a fault indicator block showing which evaporator and blower motors are inoperative.

21.4.6 The air conditioning compressor for the buses shall be screw type. Compressor systems shall be belt driven with belt guarded. The compressor must be of sufficient size for the proposed system, have a minimum service life of 20,000 hours, and be completely rebuildable. Two back seated valves will be provided at the compressor to allow the compressor to be serviced without the loss of refrigerant. HVAC units will be similar to the Thermo King IntelligAIRE III or approved equal. Systems shall be of the same manufacture. All motors in the climate control system shall be brushless type or approved equal.

21.4.7 ELECTRICAL AIR CONDITIONING (OPTIONAL)

The electric air conditioning system shall be a self-contained unit which will include all components required to meet the climate control specification within for the comfort of our passengers and operators. The system shall be roof mounted requiring no external air conditioning mechanical components to operate.

21.5 ROOF VENTILATOR

21.5.1 Two combination pop open ventilator and emergency hatches will be provided in the roof of the bus.

21.5.2 The ventilator hatch will cover an opening measuring no less than 425 square inches. The hatch will be so designed that one edge can be positioned to act as a scoop. The hatch will raise no more than four inches. A safety wire shall be attached to the hatch to prevent the accidental loss of the hatch.

22.0 PAINTING

22.1 FINISH

22.1.1 Metal surfaces to be painted will be properly cleaned, etched, and primed as appropriate for the paint used prior to the application of paint so as to ensure a proper bond.

22.1.2 Paint will be applied smoothly and evenly with the finished surface free of dirt, runs, orange peel, and other imperfections.

22.1.3 All exterior surfaces will be impervious to diesel fuel, gasoline, and commercial cleaning agents in general.

22.1.4 All concealed metal surfaces will be given a coat of corrosion resistant protective paint. All non-anodized metal prior to painting must be thoroughly cleaned and treated to prevent rusting or corrosion before the primer coat is applied. Concealed non-anodized parts not normally painted must be treated to make them corrosion resistant.

22.2 INTERIOR COLORS

22.2.1 The ceiling will be Gloss White non-Textured either an approved vinyl clad steel or melamine white in color.

22.2.2 The rear bulkhead will be painted with a polyurethane paint with the color to be approved by CATA.

22.2.3 The front entrance door and the front dash will be of a dark color approved by CATA. If the dash and door are painted, the paint must be a polyurethane paint. The ceiling over the front entrance platform will be flat black. Samples of ceiling, front dash, and sidewall shall be submitted to CATA at the time the Request for Approved Equals are due.

22.3 EXTERIOR COLORS

22.3.1 All exterior paint will be a “wet look” type paint.

22.3.2 Entire bus body will be painted white with black around the side and front windows. The rear A/C cover will also be painted black. The exact paint schematic will be provided after the award of the bid.

22.3.3 As an option, vendor should include pricing for installation of CATA vinyl decals, logos, readings, and bus numbers. Buses shall have reflective three color vinyl, logos, readings and bus numbers around the exterior of the bus. The reflective material specification will be supplied by CATA upon issuance of the contract. The reflective vinyl shall be applied to the bus to match current CATA vehicles and is subject to review and approval of CATA.

22.3.4 As an option, CATA will accept proposals to have the vendor install reflective vinyl decals. CATA will supply all design and color specifications for these decals if this option is exercised.

22.3.5 The CATA buses shall have the bus number located on the roof of the bus. The numbers shall be applied by means of a vinyl stick-on decal with Helvetica Medium black capital letters approximately twelve (12) inches high.

22.4 UNDERCOATING

22.4.1 The underneath portion of the undercarriage and step well, including the underside of the wheel housings will be sprayed with an undercoating material.

22.4.2 All electrical components, airlines, brake system components, lube fittings, and drain valves will be protected from undercoating over spray.

22.4.3 The bidder will be required to provide a full three-year or 200,000-mile rust through protection warranty.

22.5 DECALS AND MONOGRAMS

22.5.1 The bidder will supply and affix to the interior and exterior those decals regarding safety and operating procedures. Decals shall use international symbols. Decals will include, but not be limited to, the following:

	Decal	Number	Location
a.	No Smoking, including electronic cigarettes	2	Interior above driver, rear bulkhead
b.	No Eating or Drinking on the Bus	1	Interior above driver
c.	Please Stand Behind Yellow Line	1	Interior above driver
d.	Priority seating for passenger strollers	1	c/s window in stroller securement area

(CATA will provide vendor with the stroller decal specifications)

Sample decals will be provided to CATA at the time Requests for Approved Equals or clarification are submitted to CATA.

22.5.2 The bidder will affix to the interior of the bus the assigned District fleet number in six inch high Helvetica numbers on the front destination sign door of each bus. The location of the number will be subject to CATA's review and approval.

22.5.3 The bidder will not affix to the exterior or interior of the bus any logos or identification without prior written permission from CATA

23.0 SAFETY EQUIPMENT

23.1 FIRE EXTINGUISHER

23.1.1 The bidder will provide and install a rechargeable ten pound dry chemical fire extinguisher with an ABC rating. The fire extinguisher must have a gauge indicating the condition of the charge.

23.1.2 A metal label will be attached to the fire extinguisher indicating that it has been listed and approved by Underwriters Laboratories and/or Factory Mutual Laboratories.

23.1.3 The fire extinguisher and appropriate mounting bracket shall be shipped loose and installed by CATA.

23.2 REFLECTORS

23.2.1 The bidder will provide three folding reflective triangles in accordance with Federal DOT Standard No. 125 in each bus.

23.2.2 The triangles will be stored in a fiberglass or aluminum container.

23.2.3 The container housing and the triangles shall be shipped loose and installed by CATA.

24.0 PARTS BOOKS, MANUALS, DRAWINGS, AND TRAINING

24.1 PARTS BOOKS

24.1.1 CATA will advise the bidder at least 40 days prior to the scheduled delivery of the first bus of any required modifications or changes to the parts manual which the bidder is required to provide.

24.1.2 Within twenty days after the delivery of the first bus the bidder will provide CATA with five complete parts books covering all items found on the bus.

24.1.3 The bidder will provide CATA with two copies of a parts price list in United States dollars. The bidder will be required to provide up-to-date supplements to the parts book's price list for at least ten years.

24.1.4 The bidder will carry an adequate supply of spare parts for 12 years in the continental United States and will clearly list in the parts books supplied, the United States base for said spare parts.

24.1.5 All parts publications must be in the English language with clear diagrams detailing each subsystem found on the bus.

24.1.6 Each parts book will have a complete alpha and numeric listing to allow for ease of use.

24.2 MAINTENANCE MANUALS

24.2.1 CATA will advise the bidder at least 40 days prior to the scheduled delivery of the first bus of any required modifications or changes to the maintenance manual, which the bidder is required to provide.

24.2.2 Within twenty days after the delivery of the first bus the bidder will furnish CATA with five (5) complete maintenance manuals.

a. Trouble shooting guide
b. Lubrications and adjustments required.
c. Replacement and repair procedures.
d. Preventive maintenance cycles and practice.
e. (25) laminated printed copies of the wiring diagrams for the bus as manufactured.
f. Engine Manuals.
g. Transmission Manuals.
h. Steering diagrams.
I. Steering Manuals.
j. Ramp Manuals.
k. Diagrams of the air system for the bus as manufactured.

24.2.3 The maintenance manual must be in English.

24.2.4 The maintenance manual shall have an alpha listing to allow for ease of use of the manual.

24.3 DRIVER MANUALS

24.3.1 The bidder will furnish CATA with five (5) driver's manuals for each bus order delivered.

24.3.2 The driver's manuals will explain the operation and location of various gauges and switches found in the driver's compartment.

24.3.3 The driver's manual will also instruct the driver as to what corrective action should be taken in the event of failure or malfunction of various subsystems found on the bus.

24.3.4 The driver's manuals will be furnished to CATA 15 calendar days prior to the delivery of the first bus.

24.4 DRIVER TRAINING

24.4.1 The bidder will provide with the delivery of the first bus a single training session at CATA for all designated employees on all the subsystems found on the bus.

24.4.2 The training session will be a minimum of two (2) hours.

24.5 MAINTENANCE TRAINING

24.5.1 The bidder will furnish with the delivery of the first bus an on-site maintenance instructor to provide instruction on the bus and its related subsystems and how to file warranty claims.

24.5.2 The instructor will be required to provide a minimum of eighty (80) hours of on-site instruction to CATA for each bus delivery of five (5) units or less. And additional forty (40) hours of training will be provided for each bus deliveries over five (5) units.

24.5.3 The bidder will have available classroom instruction on the engine, transmission, and air conditioning system for up to 8 CATA employees. This training may be provided by the manufacturers of the engine, transmission, and air conditioning at the CATA facility. The cost of this training will be borne by the Contractor.

25.0 TOOL LIST

25.1.1 The bidder will furnish CATA, 30 days prior to delivery of the first bus, a list of recommended tools for maintaining the bus and its subsystems. Said list will be in order of priority and clearly state the manufacturer, part number, and price of each tool.

26.0 SPARE PARTS LIST

26.1.1 The bidder will furnish CATA within 150 calendar days after contract award but at least 40 days prior to delivery of the first bus, a list of recommended spare parts. This list shall clearly describe each part including the original manufacturer and their part number, quantity recommended, and the unit cost.

27.0 BUS PRODUCTION

27.1.1 The successful bidder will agree to produce buses in consecutive runs (build units in sequence without interruption in the production process) for all orders of ten (10) units or less. All units will start in the production line and follow consecutively until completed. Orders greater than ten (10) units will be produced as closely together as possible.

28.0 TOWING

28.1.1 If the bus requires a special towing fixture, the manufacture will furnish one (1) adapter for each bus production.

29.0 LEGAL AND SAFETY REQUIREMENTS

29.1 NOISE LEVELS - EXTERIOR AND INTERIOR

29.1.1 Regulatory Requirements

All buses must meet all federal laws and regulations and all laws and regulations of the State of Michigan with regard to noise pollution in effect on the date of manufacture.

29.1.2 Exterior Noise

The maximum exterior noise generated will not exceed 82 dba when measured in accordance with the procedures specified in the SAE Standard J 366b, revised April, 1973. This test is a test in which vehicle noise is determined during full throttle

acceleration and closed throttle deceleration, measured at a distance of 50 feet with the air conditioning system operating.

29.1.3 Interior Noise

The maximum interior noise generated will not exceed 81 dba when measured at a point located 30 inches above the center of each seat, including the driver's seat. This sound measurement will be made with the operation in accordance with SAE Standard J366b, revised April, 1973; all windows and doors closed; drive engine at operating temperature; and air conditioning system operating with a maximum load condition.

29.2 VEHICLE EMISSIONS REQUIREMENTS

29.2.1 Vehicles Scheduled for Delivery

The Contractor will certify in writing upon delivery of each bus to CATA that the power plant in the bus meets the U. S. Environmental Protection Agency emission standards as of the date of manufacture. The Contractor will furnish certification in writing that each bus delivered meets the following:

a. Visible emissions from the exhaust will not exceed #1 on the Ringlemann Scale when measured six inches (152.4 mm) from the tailpipe with the vehicle in steady operation.

b. When the vehicle has been idled for three minutes and then accelerated to 80 percent of rated speed under load, the capacity of the exhaust will not exceed #2 on the Ringlemann Scale for more than five seconds, and not more than #1 on the Ringlemann Scale thereafter.

c. It is the responsibility of the Contractor to obtain the necessary certification and approval of the bus engine by the U. S. Environmental Protection Agency before any bus is accepted by CATA under contract.

29.3 MOTOR VEHICLE SAFETY REQUIREMENTS

29.3.1 Buses will comply with the federal motor vehicle safety standards as established by the U. S. Department of Transportation in effect on the date of manufacture.

29.3.2 Buses will comply with all requirements of the laws of the State of Michigan.

29.3.3 If the requirements of this section change between the date of the contract and the date of manufacture or delivery, any additional costs or cost reduction resulting from such changes will be negotiated to the mutual satisfaction of CATA and the Contractor.

29.4 FLAMMABILITY STANDARD OF MATERIALS

29.4.1 All materials that are used and become a permanent part of the bus will be as fire-retardant and smokeless upon burning as possible. Materials that meet Federal Standard FMVSS 302 will be acceptable for this purpose.

29.4.2 All fiberglass, plastic insulation, and laminated plastics used in the bus will be fire-retardant with a maximum 15 second self-extinguishing ASTM Designation D-1692-68. It is intended that the materials used in the bus should be self-extinguishing.

II. QUALITY ASSURANCE

1.0 CONTRACTOR'S IN-PLANT QUALITY ASSURANCE REQUIREMENTS

1.1 QUALITY ASSURANCE ORGANIZATION

The Contractor will establish and maintain an effective in-plant quality assurance organization. It will be a specifically defined organization and should be directly responsible to the Contractor's top management.

1.1.1 Control

The quality assurance organization will exercise quality control over all phases of production from initiation of design through manufacture and preparation for delivery. The organization will also control the quality of supplied articles.

1.1.2 Authority and Responsibility

The quality assurance organization will have the authority and responsibility for reliability, quality control, inspection planning, establishment of the quality control system, and acceptance/rejection of materials and manufactured articles in the production of the buses.

1.2 QUALITY ASSURANCE FUNCTIONS

The quality assurance organization will include the following minimum functions.

1.2.1 Work Instructions

The quality assurance organization will verify inspection operation instruction to ascertain that the manufactured product meets all prescribed requirements.

1.2.2 Records Maintenance

The quality assurance organization will maintain and use records and data essential to the effective operation of its program. These records and data will be available for review by the resident inspectors. Inspection and test records for this procurement will be available for a minimum of one year after inspections and tests are completed.

1.2.3 Corrective Actions

The quality assurance organization will detect and promptly assure correction of any conditions that may result in the production of defective buses. These conditions may occur in design, purchase, manufacture, tests, or operations that culminate in defective supplies, services, facilities, technical data or standards.

1.3 STANDARDS AND FACILITIES

The following standards and facilities will be basic in the quality assurance process.

1.3.1 Configuration Control

The Contractor shall maintain drawings and other documentation that completely describes a qualified bus that meets all of the options and special requirements of this procurement. The quality assurance organization shall verify that each transit bus is manufactured in accordance with these controlled drawings and documentation.

1.3.2 Measuring and Testing Facilities

The Contractor shall provide and maintain the necessary gauges and other measuring and testing devices for use by the quality assurance organization to verify that the buses conform to all specification requirements. These devices shall be calibrated at established periods against certified measurement standards that have known valid relationships to national standards. All torque wrenches shall be recalibrated at least once a month.

1.3.3 Production Tooling as Media of Inspection

When production jigs, fixtures, tooling master, templates, patterns, and other devices are used as media of inspection, they shall be proved for accuracy at formally established intervals and adjusted, replaced, or repaired as required to maintain quality.

1.3.4 Equipment Use by Inspectors

The Contractor's gauges and other measuring testing devices shall be made available for use by the Inspectors to verify that the buses conform to all specification requirements. If necessary, the Contractor's personnel shall be made available to operate the devices and to verify their condition and accuracy.

1.4 MANUFACTURING CONTROL

The Contractor will ensure that all basic production operations, as well as all other processing and fabrication are performed under controlled conditions. Establishment of these controlled conditions will be based on the documented work instructions, adequate production equipment, and special working environments if necessary.

1.4.1 Completed Items

A system for final inspection and testing of completed buses will be provided by the quality assurance organization. It will measure the overall quality of each completed bus.

1.4.2 Non-conforming Materials

The quality assurance organization will monitor the Contractor's system for controlling non-conforming materials. The system will include procedures for identification, segregation, and disposition.

1.4.3 Statistical Techniques

Statistical analysis, test, and other quality control procedures may be used when appropriate in the quality assurance process.

1.4.4 Inspection Status

A system will be maintained by the quality assurance organization for identifying the inspection status of components and completed bus. Identification may include cards, tags, or other normal quality control devices.

1.5 INSPECTION SYSTEM

The quality assurance organization will establish, maintain and periodically audit a fully documented inspection system. The system will prescribe inspection and test of materials, work in progress, and completed articles. At a minimum, it will include the following controls.

1.5.1 Inspection Stations

Inspection stations will be at the best locations to provide for the work content and characteristics to be inspected. Stations will provide the facilities and equipment to inspect structural, electrical, hydraulic, and other components and assemblies for compliance with the design requirements.

Stations will also be at the best locations to inspect or test characteristics before they are concealed by subsequent fabrication or assembly operations. These locations will minimally include under body structure completion, body framing completion, body prior to paint preparation, water test before interior trim and insulation installation, engine installation completion, under body dress-up and completion, vehicle prior to final paint touch-up, vehicle prior to road test, and vehicle final road test completion.

1.5.2 Inspection Personnel

Sufficient trained inspectors will ensure that all materials, components, and assemblies are inspected for conformance with the qualified vehicle design.

1.5.3 Inspection Records

Acceptance, rework, or rejections identifications will be attached to inspected articles. Articles that have been accepted as a result of approved materials review actions will be identified. Articles that have been reworked to specified drawing configurations will not require special identification. Articles rejected as unsuitable or scrap will be plainly marked and controlled to prevent installation on the vehicle. Articles that become

obsolete as a result of engineering changes or other actions will be controlled to prevent unauthorized assembly or installation. Unusable articles will be isolated and then scrapped.

Discrepancies noted by the Contractor or resident inspector during assembly will be entered by the inspection personnel on a record that accompanies the major component, subassembly, assembly, or vehicle from start of assembly through final inspection. Actions will be taken to correct discrepancies or deficiencies in the manufacturing processes, procedures, or other conditions that cause articles to be in nonconformity with the requirements of the contract specifications. The inspection personnel will verify the corrective actions and mark the discrepancy record. If discrepancies cannot be corrected by replacing the non-conforming material, the procuring agency will approve the modifications, repair, or method of correction to the extent that the contract specifications are affected.

1.5.4 Quality Assurance Audits

The quality assurance organization will establish and maintain a quality control audit program. Records of this program will be subject to review by the procuring agency.

1.6 RESIDENT INSPECTOR

1.6.1 CATA will be represented at the Contractor's plant by resident inspectors in accordance with 49 CFR Section 663. They will monitor, in the Contractor's plant, the manufacture of buses built under this procurement. The resident inspectors will be authorized to approve the pre-delivery acceptance tests, and to release the buses for delivery. Upon request to the quality assurance supervisor, the resident inspector will have access to the Contractor's quality assurance files related to this procurement. These files will include drawings, material standards, parts lists, inspection processing and reports, and records of defects.

No less than 30 days prior to the beginning of vehicle manufacture, the resident inspectors will meet with the Contractor's quality assurance manager. They will review the inspection procedures and checklists. The resident inspectors may begin monitoring vehicle construction activities two weeks prior to the start of vehicle fabrication.

The Contractor will provide office space for the resident inspectors in close proximity to the final assembly area. This office space will be equipped with desks, outside and interplant telephones, file cabinet, chairs, and clothing lockers sufficient to accommodate the resident inspector's jacket.

1.7 FEDERAL MOTOR VEHICLE SAFETY STANDARDS

1.7.1 The Contractor will provide CATA's inspector with a copy of the results of tests performed by the Contractor and/or independent third parties to verify compliance with Federal Motor Vehicle Safety Standards.

2.0 ACCEPTANCE TESTS

2.1 RESPONSIBILITY

2.1.1 Fully documented tests will be conducted on each production coach following manufacture to determine its acceptance to the procuring agency. These acceptance tests will include pre-delivery inspections and testing by the Contractor, and inspections and testing by the procuring agency after the buses have been delivered.

2.2 PRE-DELIVERY TESTS

The Contractor will conduct acceptance tests at its plant on each bus following completion of manufacture and before delivery to the procuring agency. These pre-delivery tests will include visual and measured inspections, as well as testing the total bus operation. The tests will be conducted and documented in accordance with written test plans. Additional tests may be conducted at the Contractor's discretion to ensure that the completed buses have attained the desired quality and have met the requirements in the technical specifications. This additional testing will be recorded on appropriate test forms provided by the Contractor.

The pre-delivery tests will be scheduled and conducted with sufficient notice so that they may be witnessed by the resident inspectors, who may accept or reject the results of the tests. The results of pre-delivery tests, and any other tests, will be filed with the assembly inspection records for each bus. The under floor equipment will be made available for inspection by the resident inspectors, using a pit or bus hoist provided by the Contractor. A hoist, scaffold, or elevated platform will be provided by the Contractor to safely inspect vehicle roofs. Delivery of each vehicle will require written authorization of a resident inspector. The Contractor will provide authorization forms for the release of each vehicle. An executed copy of the authorization will accompany the delivery of each bus.

2.2.1 Inspection - Visual and Measured

Visual and measured inspections will be conducted with the bus in a static condition. The purpose of the inspection testing is to verify overall dimensional and weight requirements, to verify that required components are included and are ready for operation and to verify that components and subsystems are designed to operate with the bus in a static condition to function as designed.

2.2.2 Total Vehicle Operation

Total vehicle operation will be evaluated during road tests. The purpose of the road test is to observe and verify the operation of the bus as a system and to verify the functional operation of the subsystem that can be operated only while the bus is in motion.

Each bus will be driven for a minimum of 15 miles during the road tests. Observed defects will be recorded on the test forms. The bus will be re-tested when defects are corrected and adjustments are made. This process will continue until defects or required adjustments are no longer detected. Results will be pass/fail for these bus operation tests.

2.2.3 Air Conditioning Performance Test

CATA reserves the right to require the Contractor to test the performance of the air conditioning system in the first bus before shipment to CATA, if they have reasonable cause to believe that the system may fail to comply with performance requirements. Before requiring this test, CATA will give the Contractor the opportunity to prove to CATA that the system will comply with the stated performance requirements.

The air conditioning test will consist of heating the vehicle to a uniform 100 degrees, + or - 2 degrees F, and soaking the bus at this temperature for a minimum of 12 hours. The interior temperature recordings will be taken at the following four locations: the driver's compartment, front axle, middle of the bus, and over the rear axle. Measurements will be taken four feet from the floor in the center of the aisle except the driver's compartment which will be taken directly above the driver's seat. After the bus has been heated and soaked at the prescribed temperature, the engine will be started and the air conditioning will be activated. All windows, vents, and passenger doors will be closed. Engine speed will stay at 1500 RPM. The outside temperature will stay at 100 degrees F, + or - 2 degrees. The temperature of the air discharged from the condenser will be monitored along with the high and low side readings of the air conditioning compressor. In 30 minutes or less the air conditioning system will bring the inside temperature to 72 degrees F, + or - 3 degrees when measured at all four points listed above.

The air conditioning test will be witnessed by the CATA resident inspector. No buses can be shipped until CATA determine if an air conditioning test is required. If the Contractor modifies the air conditioning system, or the design of ducts to allow the bus to pass the test, the modification must be made to the remaining vehicles. If the design of the air conditioning system is modified during the production, CATA reserve the right to have the air conditioning test performed on the modified system.

2.3 POST-DELIVERY TESTS

CATA may conduct acceptance tests on each delivered bus. These tests will be completed within 15 days after bus delivery and will be conducted in accordance with written test plans. The purpose of these tests is to identify defects that have become apparent between the time of bus release and delivery to the procuring agency. The post-delivery test will include visual inspection and bus operations.

Vehicles that fail to pass the post-delivery test are subject to non-acceptance. The procuring agency will record details of all defects on the appropriate test forms and will notify the Contractor of non-acceptance of each bus within five days after completion of tests. The defects detected during these tests will be repaired according to procedures defined in the solicitation, offer and award/contractual provisions.

2.3.1 Visual Inspection

The post-delivery inspection is similar to the inspection at the Contractor's plant and will be conducted with the bus in a static condition. Any visible delivery damage will be identified and recorded during the visual inspection of each bus.

2.3.2 Vehicle Operation

The road tests for total bus operation are similar to those conducted at the Contractor's plant. Operational deficiencies of each bus will be identified and recorded.

2.3.3 Acceptance

Within 15 calendar days after arrival at the designated point of delivery in Lansing, the bus will undergo a post-delivery inspection test. If the bus passes this inspection test, acceptance of the bus by CATA will occurs on the fifteenth day after delivery. Acceptance may occur earlier if CATA notifies the Contractor of early acceptance or places the bus in revenue service. If the bus fails the inspection test, CATA reserve the right to either have the Contractor make the required repairs or make the repairs itself. If CATA make the repairs, they will be handled in accordance with the Warranty Provisions.

III. WARRANTIES

1.0 WARRANTIES

1.1 WARRANTY REQUIREMENTS

Warranties in this document are in addition to all statutory implied warranties, remedies or warranties imposed on the Contractor. Consistent with this requirement, the Contractor warrants and guarantees to CATA each complete bus and specific subsystems and components as follows:

1.1.1 Complete Vehicle

The vehicle is warranted and guaranteed to be free from defects for one year or 50,000 miles, whichever occurs first, beginning on the date of acceptance of each vehicle. During this warranty period, the vehicle will maintain its structural and functional integrity. The warranty is based on regular operation of the vehicle under the operating conditions prevailing in Michigan.

1.1.2 Subsystems and Components

Specific subsystems and components are warranted and guaranteed to be free from defects and related defects for the time and/or mileage given in the table below.

SUBSYSTEM AND COMPONENT WARRANTY
WHICHEVER OCCURS FIRST

ITEM	YEARS	MILEAGE
Engine	5	500,000
Transmission	5	300,000
Drive Axle	2	100,000
Brake System (excluding friction material)	2	50,000
Air Conditioning System	2	N/A
Basic Body Structure	6	300,000

1.2 VOIDING OF WARRANTY

The warranty will not apply to any part or component of the bus that has been subject to misuse, negligence, accident, or that has been repaired or altered in any way to adversely affect its performance or reliability, except insofar as such repairs were in accordance with the Contractor's maintenance manuals and the workmanship was in accordance with the recognized standards of the industry. The warranty will also be void if CATA fails to conduct normal inspections and scheduled preventive maintenance procedures as recommended in the Contractor's maintenance manuals.

1.3 EXCEPTIONS TO WARRANTY

The warranty will not apply to scheduled maintenance items nor to items furnished by the

procuring agency such as radios, and other auxiliary equipment, except insofar as such equipment may be damaged by the failure of a part or component for which the contractor is responsible.

1.4 DETECTION OF DEFECTS

If CATA detects a defect within the warranty periods defined in Section 1.1.0. it will promptly notify the Contractor's representative. Within five working days after receipt of notification, the Contractor's representative will either agree that the defect is in fact covered by warranty, or reserve judgment until the subsystem or component is inspected by the Contractor's representative or is removed and examined at the procuring agency's property. At that time, the status of warranty coverage on the subsystem or component will be mutually resolved between the procuring agency and the Contractor. Work necessary to effect the repairs defined in Section 2.2 will commence within ten working days after receipt of notification by the Contractor.

1.5 SCOPE OF WARRANTY REPAIRS

When warranty repairs are required, CATA and the Contractor's representative will agree within five days after notification on the most appropriate course for the repairs and the exact scope of the repairs to be performed under warranty. If no agreement is obtained within the five-day period, the procuring agency reserves the right to commence the repairs in accordance with Section 2.2.

2.0 REPAIR PROCEDURES

2.1 REPAIR PERFORMANCE

At its option, CATA or their designated representatives may require the Contractor or its designated representative to perform warranty covered repairs that are clearly beyond the scope of CATA' capabilities. The work may be done by the procuring agency's personnel with reimbursement by the Contractor.

2.2 REPAIRS BY CONTRACTOR

If CATA require the Contractor to perform warranty covered repairs, the Contractor's representative must begin, within ten working days after receiving notification of a defect from the procuring agency, work necessary to make repairs. The procuring agency will make the vehicle available for complete repairs in time with the Contractor's repair schedule.

The Contractor will provide, at its own expense, all spare parts, tools and space required to complete repairs. At CATA' option, the Contractor may be required to complete repairs. At the procuring agency's option, the Contractor may be required to remove the vehicle from the procuring agency's property while repairs are being effected. If the vehicle is removed from the procuring agency's property, repair procedures must be diligently pursued by the Contractor's representative.

2.3 REPAIRS BY PROCURING AGENCY

2.3.1 Parts Used

If CATA perform the warranty covered repairs, they will correct or repair the defect and any related defects using contractor-specified spare parts available from its own stock or those supplied by the Contractor specifically for this repair. Monthly, or at a period to be mutually agreed upon, reports of all repairs covered by this warranty will be submitted by the procuring agency to the Contractor for reimbursement or replacement of parts. The Contractor will provide forms for these reports.

2.3.2 Contractor Supplied Parts

CATA may request that the Contractor supply new parts for warranty covered repairs being performed by the procuring agency. These parts will be shipped prepaid to the procuring agency from any source selected by the Contractor within ten working days of receipt of the request for parts.

2.3.3 Defective Components Return

The Contractor may request that parts covered by the warranty be returned to the manufacturing plant. The total cost for this action will be paid by the Contractor. Materials should be returned in accordance with the Contractor's instructions.

2.3.4 Reimbursement for Labor

CATA will be reimbursed by the Contractor for labor. The amount will be determined by multiplying the number of labor hours actually required to correct the defect by the current rate per hour, straight wage rate, plus 38 percent fringe benefits, plus the cost of towing the vehicle if such action was necessary and if the vehicle was in the normal service area. These wages and fringe benefit rates will not exceed the rates in effect in the procuring agency's service garage at the time the defect correction is made. CATA will not accept parts credit as reimbursement for labor.

2.3.5 Reimbursement for Parts

CATA will be reimbursed by the Contractor for defective parts and for parts that must be replaced to correct the defect. The reimbursement will be at the invoice cost of the part(s) at the time of repair and will include taxes where applicable and 15 percent handling cost.

2.4 WARRANTY AFTER REPLACEMENT/REPAIRS

If any component, unit, or subsystem is rebuilt or replaced by the Contractor or by the procuring agency's personnel, with the concurrence of the Contractor, the subsystem will have the un-expired warranty period of the original subsystem.

2.5 WARRANTY OF BASIC VEHICLE STRUCTURE

The Contractor will warranty the frame and suspensions members of the buses of six years or 300,000 miles, whichever occurs first. This warranty will not cover springs, shock absorbers or other normal wearing parts. The Contractor is not liable for warranty if CATA void the warranty as outlined in Section 1.2. If the frame or suspension fails or shows indication of imminent failure, CATA will immediately notify the Contractor of the defect. Within 10 calendar days of notification of failure the Contractor will inform CATA on how the Contractor will repair the vehicle. Repair of frame and suspension failures will be the responsibility of the Contractor. Within 20 calendar days of notification of the failure the Contractor will begin the repair of the frame and suspension defects. If the vehicle is out of service for 35 or more calendar days from the date of notification of failure, the Contractor will have to provide a substitute vehicle with equal or greater seating capacity or CATA will assess a maximum of $200 per day as liquidated damages against the contract, beginning on the fortieth day and continuing until the defect is repaired and the vehicle is returned to revenue service.

ATTACHMENT A

Seat Insert Specification (*Reference Appendix I, Section (I) 4.15*)

SEAT TYPE	ARIES
REV	A
DATE	07/23/16

FABRIC SPECIFICATION and REQUIREMENTS

OEM / BUILDER	END USER/PROPERTY		PO #	Fabric Number/Description/Code	
NFIL	LANSING, MI		TBD	HW# BQA254(LOGO BACK) HW# FEJ401(BOTTOM)	
# OF UNITS	# OF SEATS PER BUS	1ST UNIT SHIP DATE	FABRIC IN HOUSE REQ DATE		
7	36	09/27/16	27-Aug		

SEAT	TYPE	QTY PER BUS
1 Pas	Transverse	0
	Longitudinal	0
	Longitudinal Flip	5
	Slim Flip	0
2 Pas	Transverse	4
	Transverse Flip	0
	Longitudinal	0
	Longitudinal Flip	0
3 Pas	Longitudinal	4
	Longitudinal Flip	0
	Rear Deck	0
4 Pas	Longitudinal	0
	Longitudinal Flip	0
	Rear Deck	0
5 Pas	Rear Deck	1

PICTURE FOR REFERENCE BELOW