

**GREATER DAYTON REGIONAL  
TRANSIT AUTHORITY  
REQUEST FOR PROPOSAL  
FOR**

**DUAL MODE ELECTRIC TROLLEY COACHES**

**CONTRACT BID NO. GD 12-21**



**PREPARED BY  
GREATER DAYTON REGIONAL TRANSIT AUTHORITY**

**JULY 13, 2012**



# GREATER DAYTON REGIONAL TRANSIT AUTHORITY

## REQUEST FOR PROPOSAL (RFP)

SUBJECT: DUAL MODE ELECTRIC TROLLEY COACHES

DATE: JULY 13, 2012

PROPOSAL NO.: GD 12-21

PROPOSALS DUE: AUGUST 10, 2012

TIME: 2:00 p.m.

The Greater Dayton Regional Transit Authority (RTA) requests proposals for the purchase of four (4) DUAL MODE ELECTRIC TROLLEY COACHES two (2) 600 volt overhead catenary system/diesel electric and two (2) 600 volt overhead catenary system/battery dual mode drive system, with a one year test period and an option for up to two hundred (200) coaches in accordance with the specifications, terms and conditions enclosed herewith.

One Original and Eight (8) copies of the proposal MUST be received at the RTA's office of the Manager, Procurement by the date and time set forth above. One of the copies for the vehicles must be clearly marked "original" with original signatures. The envelope or package in which the proposal is submitted shall be addressed and marked as follows:

Deborah Howard  
Manager, Procurement  
Greater Dayton Regional Transit Authority  
4 S. Main Street  
Dayton, OH 45402

REQUEST FOR PROPOSAL NO. GD 12-21

DUAL MODE ELECTRIC TROLLEY COACHES

The RTA reserves the right to postpone, accept, or reject any and all proposals and to waive any informality in the RFP process as RTA deems in its own best interest.

All Proposers  
JULY 13, 2012  
Page Two

**\* \* \* \* EXTREMELY IMPORTANT \* \* \* \***

PRE-PROPOSAL CONFERENCE: To aid Offerors in preparing their proposals, the RTA will hold a pre-proposal conference in the Board Room at 4 South Main Street, Dayton, Ohio 45402 to answer any questions regarding the general description of the services desired and the RTA's terms and conditions. The conference will be held at 10:00 a.m. Dayton time on FRIDAY, JULY 25, 2012. Offerors are encouraged to attend. Prospective Offerors are requested to submit written questions to the Manager, Procurement in advance of the pre-proposal conference.

Sincerely,

*Deborah Howard*

Deborah Howard  
Manager, Procurement

Attachment

REQUEST FOR PROPOSAL

FOR

**DUAL MODE ELECTRIC TROLLEY COACHES**

ISSUED BY

GREATER DAYTON REGIONAL TRANSIT AUTHORITY

4 SOUTH MAIN STREET

DAYTON, OHIO 45402

JULY 13, 2012

LEGAL NOTICE RFP NO. GD 12-21

## TABLE OF CONTENTS

### DUAL MODE ELECTRIC TROLLEY COACHES

*GD 12-21*

JULY 13, 2012 .....	1
<b>PART I .....</b>	<b>7</b>
<b>SECTION I - INSTRUCTIONS TO PROPOSERS .....</b>	<b>7</b>
1. INTRODUCTION .....	9
2. DELIVERY OF BUSES .....	9
3. SOLICITATION SCHEDULE .....	9
4. PRE-PROPOSAL CONFERENCE .....	9
5. OFFEROR COMMUNICATIONS AND REQUESTS .....	10
6. AMENDMENTS TO REQUEST FOR PROPOSAL, CLARIFICATION, ADDITIONAL CORRESPONDENCE .....	10
7. CONDITIONS, EXCEPTIONS, RESERVATIONS OR UNDERSTANDINGS .....	11
8. LATE SUBMISSIONS, MODIFICATIONS, AND WITHDRAWALS OF PROPOSALS .....	11
9. INSTRUCTIONS FOR PROPOSAL PREPARATION .....	12
10. PROPOSAL EVALUATION, NEGOTIATION AND SELECTION .....	13
11. FORM OF THE TECHNICAL PROPOSAL .....	16
12. FORM OF PRICING PROPOSAL .....	21
13. EVALUATION CRITERIA .....	22
14. EVALUATION PROCEDURES .....	23
15. RESPONSE TO PROPOSALS .....	27
16. BID SECURITY .....	29
<b>SECTION II - TERMS AND CONDITIONS .....</b>	<b>30</b>
1. SCOPE AND GENERAL INFORMATION TO PROPOSERS .....	31
2. SELLER'S OBLIGATION .....	32
3. AUDITS AND INSPECTION .....	32
4. REPORTS AND INFORMATION .....	33
5. TERMINATION OF CONTRACT .....	33
6. OWNERSHIP OF DOCUMENTS .....	34
7. MAINTENANCE OF RECORDS .....	34
8. POLITICAL ACTIVITY .....	34
9. COVENANT AGAINST CONTINGENT FEES .....	34
10. INDEMNIFICATIONS .....	35
11. BONUS OR COMMISSION .....	35
12. INTEREST OF MEMBERS OF OR DELEGATES TO CONGRESS .....	35
13. TITLE VI, CIVIL RIGHTS ACT OF 1964, COMPLIANCE .....	35
14. NONDISCRIMINATION .....	37
15. EQUAL EMPLOYMENT OPPORTUNITY .....	38
16. DISPUTES .....	38
17. PUBLICATION, REPRODUCTION, AND USE OF MATERIAL .....	38
18. WAIVERS OR REVISION .....	39
19. BUY AMERICA .....	39
20. COMPETITION OF PROCUREMENT .....	39
21. PRIVACY .....	39
22. SEVERABILITY .....	40

23.	ENERGY CONSERVATION .....	40
24.	ENVIRONMENTAL VIOLATIONS.....	40
25.	INDEMNITY .....	41
26.	RECYCLED PRODUCTS.....	41
27.	COVENANT AGAINST GRATUITIES.....	41
28.	FEDERAL PARTICIPATION .....	41
29.	PATENT INFRINGEMENT .....	41
30.	COMMUNICATIONS.....	41
31.	CARGO PREFERENCE .....	42
32.	INTEREST OF PUBLIC OFFICIALS.....	42
33.	LABOR PROVISIONS .....	42
34.	BID PROTEST PROCEDURE .....	44
35.	INSURANCE.....	47
36.	NO GOVERNMENT OBLIGATION TO THIRD PARTIES.....	49
37.	PROGRAM FRAUD AND FALSE OR FRAUDULENT STATEMENTS AND RELATED ACTS.....	49
38.	CHANGES IN THE WORK/CHANGE ORDERS .....	50
39.	COMPLIANCE WITH LAWS .....	51
40.	LAWS OF OHIO.....	51
41.	HOMELAND SECURITY .....	51
42.	STATUS OF THE CONTRACTOR .....	51
43.	CLEAN AIR ACT AND CLEAN WATER ACT.....	52
44.	BUS TESTING .....	52
45.	PRE-AWARD AND POST-DELIVERY AUDIT REQUIREMENTS.....	52
46.	UNACCEPTABLE PROPOSALS.....	52
47.	DEBARRED BIDDERS PROVISION .....	53
48.	MANUALS/DOCUMENTATION.....	53
49.	SPARE PARTS.....	53
50.	WALSH-HEALEY PUBLIC CONTRACT ACT.....	53
51.	MOTOR VEHICLE POLLUTION REQUIREMENTS.....	53
52.	PERFORMANCE SECURITY.....	54
53.	DELAYS AND LIQUIDATED DAMAGES .....	54
54.	SINGLE PROPOSAL, IF RECEIVED .....	54
55.	DUTY TO INFORM.....	55
56.	TRANSPORTATION OF THE BUSES .....	55
57.	PAYMENT .....	55
58.	ASSIGNABILITY.....	55
59.	CONTRACTOR'S APPROVAL REQUEST AND RECORDS .....	56
60.	TITLE WARRANTIES AND TRANSFER.....	56
61.	RIGHTS AND REMEDIES .....	56
62.	COMPLIANCE WITH COPELAND ACT REQUIREMENT .....	56
63.	AMERICANS WITH DISABILITIES ACT OF 1990 (ADA).....	56
64.	WARRANTY ADMINISTRATION.....	57
65.	NEW RESTRICTIONS ON LOBBYING.....	58
66.	INCORPORATION OF FTA TERMS .....	65
67.	TRADE SECRET NOTIFICATION.....	65
68.	FLY AMERICA .....	66
69.	DEBARMENT AND SUSPENSION.....	66
<b>SECTION III - PROPOSAL SUBMISSION .....</b>		<b>67</b>
	<i>Summary of Proposal Requirements.....</i>	<i>68</i>
	<i>NON-COLLUSION AFFIDAVIT .....</i>	<i>69</i>
	<i>PERSONAL PROPERTY TAX AFFIDAVIT.....</i>	<i>72</i>
	<i>RTA CLEAN AIR POLICY .....</i>	<i>73</i>
	<i>ADDENDA ACKNOWLEDGMENT FORM .....</i>	<i>74</i>

<i>CERTIFICATION OF CONTRACTOR REGARDING DEBARMENT, SUSPENSION, AND OTHER INELIGIBILITY AND VOLUNTARY EXCLUSION</i> .....	75
<i>CERTIFICATION OF RESTRICTIONS ON LOBBYING</i> .....	76
<i>CERTIFICATE OF PROCUREMENT INTEGRITY</i> .....	77
<i>BUY AMERICA PROVISION</i> .....	78
<i>OFFEROR SERVICE AND PARTS SUPPORT DATA</i> .....	81
<i>SUPPLIER CERTIFICATION</i> .....	82
<i>CERTIFICATE OF COMPLIANCE WITH BUS TESTING REQUIREMENT</i> .....	84
<i>DBE APPROVAL CERTIFICATION</i> .....	85
<i>REQUEST FOR CHANGE OR APPROVED EQUAL</i> .....	86
<i>FORM FOR PROPOSAL DEVIATION</i> .....	87
<b>SECTION IV - PRICE PROPOSAL</b> .....	<b>88</b>
<b>SECTION V – CONTRACT EXAMPLE</b> .....	<b>89</b>
<b>THIS CONTRACT</b> .....	<b>90</b>
<b>REQUEST FOR PROPOSAL (TERMS AND CONDITIONS, .....</b>	<b>90</b>
<b>ARTICLE XII – ASSIGNABILITY</b> .....	93
<b>ARTICLE XIII – NONDISCRIMINATION</b> .....	93
<b>PART II - TECHNICAL SPECIFICATIONS</b> .....	<b>96</b>

**PART I**

**SECTION I - INSTRUCTIONS TO PROPOSERS**



## **REQUEST FOR PROPOSALS**

### **LEGAL NOTICE RFP NO. 12-21**

Notice is hereby given that the Greater Dayton Regional Transit Authority (RTA) is requesting proposals for:

#### **DUAL MODE ELECTRIC TROLLEY COACHES**

Copies of the Request for Proposals are available from the office of Manager, Procurement RTA 4 S. Main Street, Dayton, Ohio 45402.

All proposals must be submitted in accordance with requirements set forth in the RFP, and must be received in the office of Manager, Procurement at or before 2:00 p.m. Dayton time, AUGUST 10, 2012.

A pre-proposal meeting will be held on Wednesday, JULY 25, 2012, at 10:00 a.m., at 4 South Main Street, Dayton, OH 45402, Board Room.

RTA reserves the right to postpone, accept or reject any and all proposals and to waive any informality in the RFP process as RTA deems in its own best interest.

Deborah Howard  
Manager, Procurement

**REQUEST FOR PROPOSAL  
DUAL MODE ELECTRIC TROLLEY COACHES**

**SECTION I - INSTRUCTIONS TO PROPOSERS**

**1. INTRODUCTION**

- 1.1 This Request For Proposal ("RFP") is created for the purpose of obtaining proposals for a contract from qualified vendors for the manufacture and purchase of two (4) DUAL MODE ELECTRIC TROLLEY COACHES two (2) 600 volt overhead catenary system/diesel electric and two (2) 600 volt overhead catenary system/battery dual mode drive system, with a one year test period and an option for up to seventy-five (75) coaches of DUAL MODE ELECTRIC TROLLEY COACHES in accordance with the specifications, terms, and conditions set forth in this RFP.
- 1.2 There is no public opening of proposals. The RTA will open the proposals at an appropriate time after the time specified in the RFP and will distribute them to the evaluation committee for review.

**2. DELIVERY OF BUSES**

The RTA wishes to receive 4 prototype buses with a one year test period as soon as possible but not later than one year after notice to proceed. RTA is also requesting pricing for up to an additional seventy-five (75) option buses. Proposer must address delivery of buses under "Firm Capabilities/Performance." Proposer must address when the prototypes will be delivered (in maximum number of weeks from the date of notice to proceed).

**3. SOLICITATION SCHEDULE**

The following is the solicitation schedule for Offerors:

Pre-proposal Conference	JULY 25, 2012
Offeror Communications and Requests	DUE: JULY 31, 2012
Proposal Due Date	AUGUST 10, 2012

**4. PRE-PROPOSAL CONFERENCE**

A pre-proposal conference for this procurement will be held on the date and at the time and place as set forth on the RFP cover letter. The purpose of this conference is to provide prospective proposer a formal opportunity for clarification of base line technical requirements, procurement method and procedure, terms and conditions and other issues related to the procurement. Prospective Offerors are requested to submit written questions to the Manager, Procurement in advance of the pre-proposal conference. Questions and the official RTA responses will be mailed to all prospective proposers

known to have received the RFP. Oral communications made outside the pre-proposal conference shall not be relied upon. It is the obligation of each prospective proposer to raise pertinent issues at this conference. Failure to raise matters that could have been raised may result in a waiver of all claims based upon such matters that are asserted after announcement of award.

## **5. OFFEROR COMMUNICATIONS AND REQUESTS**

All correspondence, communication and/or contact in regard to any aspect of this solicitation or offers shall be with the Manager, Procurement, or her designated representative. Offerors and their representatives shall not make any contact with or communicate with any members of the RTA or its employees and consultants, other than the Manager of Procurement, in regard to any aspect of this solicitation or offers.

At any time during this procurement up to the time specified in "Solicitation Schedule" (Section 3), Offerors may request, in writing, a clarification or interpretation of any aspect, or a change to any requirement of the RFP or any addenda to the RFP. Requests may include suggested substitutes for specified items and for any brand names, which whenever used in this solicitation shall mean the brand name or approved equal. Such written requests shall be made to the Manager, Procurement and may be transmitted by email to [dhoward@greaterdaytonrta.org](mailto:dhoward@greaterdaytonrta.org), or facsimile, 937-425-8410. The Offeror making the request shall be responsible for its proper delivery to the RTA on the form provided in "Request for Pre-Offer Change or Approved Equal" (Section III). The RTA will not respond to oral requests except those made at the pre-proposal conference, which shall be tentative responses. Any oral response at a pre-proposal conference which is not confirmed by an addendum shall not be official or binding on the RTA. Any request for a change to any requirement of the contract documents must be fully supported with technical data, test results, or other pertinent information evidencing that the exception will result in a condition equal to or better than that required by the RFP, without substantial increase in cost or time requirements. Any responses to such written requests shall be provided by the RTA in the form of addenda only. Only written responses provided as addenda shall be official, and all other forms of communication with any officer, employee or agent of the RTA shall not be binding on the RTA.

If it should appear to a prospective Offeror that the performance of the work under the contract, or any of the matters relating thereto, is not sufficiently described or explained in the RFP or contract documents, or that any conflict or discrepancy exists between different parts thereof or with any federal, state, local or RTA law, ordinance, rule, regulation, or other standard or requirement, then the Offeror shall submit a written request for clarification to the RTA within the time period specified above

## **6. AMENDMENTS TO REQUEST FOR PROPOSAL, CLARIFICATION, ADDITIONAL CORRESPONDENCE**

The RTA may amend this Request for Proposals at any time before the time fixed for receipt of proposals. Amendments may be for any reason deemed necessary by the RTA including, without limitation, changes in quantity, quality, delivery, proposal date,

procedures, baseline technical requirements, or selection criteria. Written notice of such amendments will be provided to prospective Offerors officially known to have received the RFP.

Requests from potential proposers for clarifications not resulting in an amendment to the RFP will be responded to directly to the requester and may or may not be issued to all parties in possession of solicitation documents. If responses are issued to all parties, names of those requesting the clarification will be maintained as confidential. Clarifications issued to all parties will be included in all subsequently issued solicitation documents.

Any correspondence, questions or requests pertaining to this procurement should be directed in writing to Deborah Howard, Manager, Procurement, Greater Dayton Regional Transit Authority, 4 S. Main Street, Dayton, Ohio 45402, faxed (937) 425-8410 or emailed to [dhoward@greaterdaytonrta.org](mailto:dhoward@greaterdaytonrta.org).

No response will be issued for requests for clarification or amendments received after JULY 31, 2012.

## **7. CONDITIONS, EXCEPTIONS, RESERVATIONS OR UNDERSTANDINGS**

Proposals stating conditions, exceptions, reservations or understandings (hereinafter "deviations") relating to the RFP may be rejected. Offerors may submit an alternate proposal that states deviations so long as a basic proposal not containing deviations is submitted. Offerors may propose alternates either within one overall proposal or by submitting more than one proposal. Any alternate proposal shall include a price proposal in accordance with price proposal requirements" (Part I, Section I, Item 12).

Any and all deviations must be explicitly, fully and separately stated in the proposal by completing form(s) provided in "Form for Proposal Deviation" (Section III), setting forth at a minimum the specific reasons for each deviation so that it can be fully considered and, if appropriate, evaluated by the RTA. All deviations not found by the RTA to be unacceptable shall be evaluated in accordance with the appropriate evaluation criteria and procedures, and may result in the Offer receiving a less favorable evaluation than without the deviation.

## **8. LATE SUBMISSIONS, MODIFICATIONS, AND WITHDRAWALS OF PROPOSALS**

Any proposal received at the office designated in the solicitation after the exact time specified for receipt will not be considered.

The exact time (also referred to as official time) is the date and time the proposal is actually received in the RTA's Procurement Department.

The only acceptable evidence to establish the time of receipt at the RTA office is the time/date stamp of the RTA on the proposal wrapper or other documentary evidence of receipt maintained by the RTA.

Proposals may be withdrawn by written or telegraphic request received from proposers prior to the time set for the receipt of proposals. Proposals may be withdrawn in person by an Offeror or an authorized representative, if the representative's identity is made known and the representative signs a receipt for the proposal before award.

## **9. INSTRUCTIONS FOR PROPOSAL PREPARATION**

Response to this Request for Proposal shall be made in strict conformance with the following requirements. Failure to conform therewith may be cause for rejecting the proposal submitted. The RTA reserves the right to waive minor discrepancies at its sole discretion. The RTA also reserves the right to reject all proposals, or to award a contract without discussions with Offerors.

In the Request for Proposal, the RTA seeks solid information about the proposer's capacity to provide the buses (among other things) the RTA requires. Vague and lengthy discussions are not desired, nor is a bulky display of irrelevant information. A carefully prepared, graphically attractive submittal will be appreciated, but elaborate art work, printing and paper are not appropriate. The RTA seeks comprehensive information regarding the Offeror's capacity to provide the required services.

The submittal is required to be presented in two distinct forms of response; the first consisting of a technical proposal, and the second, a cost proposal.

The technical proposal should be specific and complete. The proposal should demonstrate a thorough understanding of the technical requirements. Legibility, clarity, and completeness of the technical approach are important.

Offerors who include in their proposals data that they do not want disclosed to the public for any purpose or used by the RTA except for evaluation purposes, shall;

### **9.1 Mark the title page with the following legend:**

"This proposal includes data that shall not be duplicated, used or disclosed in whole or in part, for any purpose other than to evaluate this proposal or quotation. If, however, a contract is awarded to this Offeror as a result of, or in connection with the submission of this data, the RTA shall have the right to duplicate, use or disclose the data to the extent provided in the resulting contract. This restriction does not limit the RTA's right to use information contained in this data if it is obtained from another source without restriction. The data subject to this restriction are contained in sheets (insert numbers or other identification of sheets)," and

### **9.2 Mark each sheet of data they wish to restrict with the following legend:**

"Use or disclosure of data contained on this sheet is subjected to the restriction on the title page of this proposal."

## **10. PROPOSAL EVALUATION, NEGOTIATION AND SELECTION**

Proposals will be evaluated, negotiated, selected and any award made in accordance with the criteria and procedures described below. The approach and procedures are those which are applicable to a competitive negotiated procurement whereby proposals are evaluated to determine which proposals are within a competitive range. Discussions and negotiations may then be carried out with Offerors within the competitive range, after which Best and Final Offers (BAFOs) may be requested. However, the RTA may select a proposal for award without any discussions or negotiations or request for any BAFO(s). Subject to the RTA's right to reject any or all proposals, the Offeror will be selected whose proposal is found to be most advantageous to the RTA, based upon consideration of the criteria of "Qualification Requirements" (Item 10.1) and "Proposal Evaluation Criteria" (Item 10.2) below.

### **10.1 *Qualification Requirements***

The following are the requirements for qualifying responsible Offerors. These requirements are not listed by any particular order of importance. The Offeror of any proposal that the Selection Committee finds not to meet these requirements, and cannot be made to meet these requirements, may be determined by the Selection Committee not to be responsible and its proposal rejected. The requirements are as follows:

- 10.1.1 Sufficient financial strength and resources and capability to finance the work to be performed and complete the contract in a satisfactory manner as measured by:
  - A. Willingness of any parent company to provide the required financial guaranty evidenced by a letter of commitment signed by an officer of the parent company having the authority to execute the parent company guaranty.
  - B. Ability to obtain required insurance with coverage values that meet minimum requirements evidenced by a letter from an underwriter confirming that the Offeror can be insured for the required amount.
- 10.1.2 Evidence that the human and physical resources are sufficient to perform the contract as specified and assure delivery of all equipment within the time specified in the contract, to include:
  - A. Engineering, management and service organizations with sufficient personnel and requisite disciplines, licenses, skills,

experience, and equipment to complete the contract as required and satisfy any engineering or service problems that may arise during the warranty period.

- B. Adequate manufacturing facilities sufficient to produce and factory-test equipment on schedule.
- C. A spare parts procurement and distribution system sufficient to support equipment maintenance without delays and a service organization with skills, experience, and equipment sufficient to perform all warranty and on-site work.

10.1.3 Evidence that Offeror is qualified in accordance with Item 11.4: Bus Quality.

10.1.4 Evidence of satisfactory performance and integrity on contracts in making deliveries on time, meeting specifications and warranty provisions, and parts availability. Evidence shall be by client references.

## 10.2 *Proposal Evaluation Criteria*

The following are the complete criteria, listed by their relative degree of importance, by which proposals from responsible Offerors will be evaluated and ranked for the purposes of determining any competitive range and to make any selection of a proposal for a potential award. Any exceptions, conditions, reservations or understandings explicitly, fully and separately stated on the "Form for Proposal Deviation (Section III) which do not cause the RTA to consider a proposal to be outside the competitive range, will be evaluated according to the respective evaluation criteria which they affect.

The award will be made on a "best value" basis. This evaluation criteria will form the basis for award.

### Evaluation Criteria

- Bus Quality

The information provided by the proposer relating to the product provided will be utilized to evaluate the proposal in relation to this factor.

Vehicle construction and system design as well as documented reliability may be used in this evaluation as well as other design and performance elements of the components which comprise these systems. At a minimum, test results, safety and maintenance factors and cost of operation for the product design and system components proposed may be

considered in determining a final value for this factor.

- **Cost/Price**

This factor will look primarily to the cost information provided by the proposer. The evaluation committee may consider the reliability of the parts to be provided as well as parts standardization, warranties and other factors in determining its assessment of points to be awarded. The time frame for contract performance and final delivery of the product may be considered as material elements of the price offered. The extent to which the RTA can analyze the cost and pricing data provided may impact the final point determination.

- **Firm Capability/Performance**

This factor will look mainly at the capabilities and reputation of the product manufacturer as presented in the proposal or as is determined by review of information available from references or other resources. The evaluation may look at the manufacturer's overall organizational and financial capabilities and consider key components such as organizational reporting structure, quality control, quality assurance, research and development, technical, training and parts support, response time, production and delivery capability, bonding capacity, and financial history as well as other considerations in reaching a final point determination. The evaluation committee may also look at judgments, liens, fleet defect history, warranty claims, and the steps that the manufacturer took to resolve those concerns in assessing the overall reputation of the manufacturer.

- **Parts Availability**

This information provided by the proposer in its technical submittal related to parts will be utilized to evaluate parts availability. The RTA requires various spare parts and components to maintain the vehicles according to agreed maintenance schedules. The evaluation will look at the replacement part plan. The parts catalog, spare parts and recommended spare parts list will also be evaluated.

Please advise on all of the above.



## **11. FORM OF THE TECHNICAL PROPOSAL**

### **11.1 *Proposal Section***

Proposals shall be submitted in two (2) sections. Each section shall be marked as specified below and shall contain all of the proposal documents for which the package is required to be marked and no other documents. These same requirements shall apply to any Best and Final Offers which may be requested.

#### **TECHNICAL PROPOSAL**

##### **DUAL MODE ELECTRIC TROLLEY COACHES**

1. Letter of Transmittal
2. Technical Proposal
3. References and Non-priced Information (if provided by Offeror)

### **11.2 *Transmittal Letter***

Address to: Deborah Howard  
Manager, Procurement  
Greater Dayton Regional Transit Authority  
4 South Main Street  
Dayton, OH 45402

This letter shall identify the firms participating in the proposal, state clearly the contractual relationship between them and provide the name, address and telephone number of the person who will represent the proposers in negotiating with the RTA. The function of the proposed sub-consultants must be clearly stated in order to be considered for the project.

### **11.3 *DBE Certification***

Pursuant to Title 49, Code of Federal Regulations, Part 23.67, an Offeror, as a condition of being authorized to respond to this solicitation, must certify by completing "DBE APPROVAL CERTIFICATION" (Section III), that it has on file with the Federal Transportation Administration (FTA) an approved or not disapproved annual Disadvantaged Business Enterprise (DBE) subcontracting participation goal.

### **11.4 *Bus Quality***

In this section, the RTA seeks information regarding the quality and capabilities of the specific product being offered, including the overall bus and key

subsystems and components. The contents of this section should include at a minimum:

- (a) A description of the vehicle and its key subsystems and components.
- (b) A history of the bus including the length of time the proposed model has been in transit service and transit agencies or entities operating the model.
- (c) Any significant proposed modifications from the model now in operation or production.
- (d) Available test data on the model offered, including but not limited to data from Altoona test facility.
- (e) Any available life cycle data regarding the bus and major subsystems and components in the configuration proposed.
- (f) Any proposed preventive maintenance program for the type of coach proposed including major systems and components.
- (g) Data regarding structural integrity and corrosion resistance for major components, including but not limited to the frame, chassis and its primary structural components, floor, support structures for the engine, and axles and air conditioning.
- (h) Configurations for mounting the engine, drive train, axles, air conditioning, fuel tanks, and air tanks
- (i) Any information relating to the warranties of the vehicle proposed.

#### 11.5 *Firm Capabilities/Performance*

In this section, the RTA seeks information regarding the company's capabilities and experience and those of the manufacturers of key subsystems and components. The contents of this section should include at a minimum:

- (a) A brief history of the firm's experience in the manufacture of transit buses.
- (b) The experience of the factory at which the buses will be built, with specific reference to production capacity, quality control and quality assurance.
- (c) A description of the company's purchasing practices and procedures, including product evaluation and testing, cost control and partnering arrangements.

- (d) Research and development capabilities including staffing, facilities and new technologies which may be available for this solicitation.
- (e) Capability to perform all testing required in this solicitation.
- (f) Capabilities for customer technical assistance, including expertise and experience, any third-party certifications, typical response times for both emergency and non-emergency situations.
- (g) Any lawsuits, claims or disputes arising between the company and any transit agency or entity over the past three years.
- (h) Description of any fleet defect problems experienced during the past three years, including a discussion of the defect, how it was discovered, and the company's response and handling of the matter.
- (i) A copy of certified, audited financial statements for the past three years for the company or, if it is a subsidiary or division, both the company and its ultimate parent.
- (j) Any judgments or liens filed against the company during the past three years.
- (k) A statement of the company's total bonding capability and the proportion of that capability which is currently available.
- (l) Other current and pending bus orders, identifying the number of buses, the customer, and dates of first and last production and deliveries.
- (m) Capabilities for provision and service of replacement parts, including availability and delivery times under both emergency and non-emergency situations; and standardization and interchangeability among various models and years.
- (n) Established programs for the training of both the company's personnel and the customer's personnel, including but not limited to the programs described in the scope of work/technical specifications.
- (o) Provide a statement listing the name, address and telephone number of responsible customers' representatives for five present or recent sales by the proposer comparable in type and quantity to this solicitation.
- (p) Established procedures for the development and updating of technical manuals and publications.
- (q) Delivery proposal (as required by Section I[2]).

#### 11.6 *Parts Availability*

In this section, the RTA is pursuing information concerning the parts. The contents of this section should include at a minimum.

(a) Replacement Parts. A supply of replacement parts for the coaches is to be guaranteed for a period of 15 years by issuing revised pages or otherwise notifying the RTA of new or superseding parts and maintenance practices.

(b) Parts Catalog. These shall enumerate, describe, and illustrate every component with its related parts, including the OEM supplier's number, the Contractor's number, the commercial equivalents and provisions for entry of RTA part numbers. The illustrated parts catalog shall be coach specific. Cutaway and isometric exploded drawings shall be used to permit identification of all parts. Parts common to different components (as for example bolts, nuts and washers) shall bear the Contractor's part number. Each part or component shall be identified as being part of the next larger assembly. Parts catalogs shall be delivered to RTA not less than six (6) weeks prior to delivery of the vehicles. Forty (40) parts catalogs shall be provided.

(c) Changes and Revisions. Following the issue of each publication the Contractor shall provide revised pages covering any changes, whether required by change of design or procedures or due to error, and the revisions shall be kept current. Manual and catalog revisions shall be supplied before or coincidental with the arrival of altered parts or components.

#### 11.6 *Spare Parts*

The Contractor shall guarantee the availability of replacement parts for the acquired coaches for at least fifteen (15) years after the date of acceptance of the last coach delivered to RTA. Spare parts shall be interchangeable with the original equipment and shall be manufactured in accordance with the highest quality assurance practices in the industry. Spare parts shall be obtainable through commercial distribution channels to the maximum extent practicable minimizing captive sole source distribution practices.

#### 11.7 *Recommended Spare Parts List*

The contractor shall prepare and submit to RTA not less than twelve (12) weeks prior to delivery of the first vehicle, a recommended spare and replacement parts list. The initial recommended spare parts package shall be included in the base price of the vehicles. This listing will become a working document to be used by RTA in the procurement of spare and replacement parts. The spare and replacement parts list shall group parts by the subsystem of the vehicle system.

This listing for each item shall give complete ordering and procurement information for that item. Long lead time items shall be specifically noted. Each item listing shall contain at least the following information: item name, description, rating, price, manufacturer's name, part number and drawing reference number. Items that are common to more than one (1) subsystem shall be suitably cross-referenced. The Contractor shall recommend the absolute minimum essential quantity of spare parts required to perform normal routine maintenance and to maintain the operation of the fleet assuming standard failure rates of component units. The Contractor shall state the expected failure rate of major components to the extent practicable.

#### 11.8 *Generic Specifications*

The Contractor shall supply generic specifications within sixty (60) days of award for consumable items used in the manufacture of the coaches supplied by this procurement. These specifications will facilitate maximum sourcing for replacement parts equal to the original equipment manufacturer. Each item must be identified by an O.E.M. part number, supplier's part and/or model number and generic specifications. These specifications shall include information such as: performance, dimensions, capacities, material composition, finish, tolerances, viscosity, hardness, circuit diagrams and other descriptions necessary to obtain replacement items equal to those used in manufacture. Specifications shall be provided for the following:

- All fluids/lubricants
- Replacement body panels/doors
- Brake linings
- Brake drums
- Brake slack adjusters
- Brake chambers
- Brake chambers diaphragms
- Replacement body panels/doors
- Passenger doors

#### 11.9 *Attachments*

The following attachments are included in this package and should be submitted with the technical proposal.

- (a) Summary of Proposal Requirements.
- (b) Delinquent Personal Property Tax Statement.
- (c) Certification Regarding Debarment, Suspension, Proposed Debarment and Other Responsibility matters.

- (d) Procurement Integrity Certification.
- (e) Homeland Security
- (f) Certification Regarding Restrictions on Lobbying.
- (g) Manufacturer's Data Sheet.
- (h) Buy America Compliance Certifications
- (i) Addenda Acknowledgment
- (j) Request for Pre-offer Change or Approved Equal
- (k) Offeror Service and Parts Support Data
- (l) DBE Approval Certification
- (m) Certificate of Compliance with Bus Testing Requirement
- (n) Form for Proposal Deviation
- (o) Non-collusion Affidavit
- (p) RTA Clean Air Policy

## **12. FORM OF PRICING PROPOSAL**

### **12.1 Pricing Section**

(Offeror's name and address)
------------------------------

<p><b>PRICE PROPOSAL</b></p>
------------------------------

<p><b>DUAL MODE ELECTRIC TROLLEY COACHES</b></p>
--

- |  |
|--|
| <ol style="list-style-type: none"> <li>1. Price and Proposal</li> <li>2. Pricing Schedule</li> <li>3. Supporting Data</li> </ol> |
|--|

No cost, price or financial information of any kind shall be included in Package No. 1 or in any of the proposal documents that it will contain.

Proposal packages shall be addressed and delivered to the address specified in 11.2.

## 12.2 *Price*

The RTA requests that each proposer submits a price offer, utilizing the Price Proposal form included with this RFP, to include:

- (a) A unit price for DUAL MODE ELECTRIC TROLLEY COACHES and option bus as specified.
- (b) Optional extended warranty costs.

All prices shall be shown in United States dollars. The price offered for each item shall be the full purchase price, including delivery charges, and include all premiums on bonds, labor and material costs, patent royalties and all other overhead charges of every kind and nature.

## 13. **EVALUATION CRITERIA**

The following evaluation criteria have been established by the RTA for this procurement. The criteria are presented to allow the RTA to analyze proposals received on an equal basis and to afford all proposers the opportunity to know the basis upon which their proposals will be evaluated.

Award will be made to the proposer whose final offer is most advantageous to the RTA, cost and other factors considered, after evaluation in accordance with the criteria set forth below. The award will be made on a “best value” basis. In any event, the RTA reserves the right to accept other than the lowest cost proposal, reject any and all proposals, or to negotiate separately with any source whatsoever in any manner necessary to serve the best interests of the RTA.

The proposal will be reviewed and evaluated based upon the following criteria in descending order of importance:

### 13.1 *Bus Quality*

The information provided by the proposer in its technical submittal relating to the product provided will be utilized to evaluate the proposal in relation to this factor. Vehicle construction and system design as well as documented reliability may be used in this evaluation as well as other design and performance elements of the components which comprise those systems. At a minimum, test results, safety and maintenance factors and cost of operation for the product design and system components proposed may be considered in determining a final value for this factor.

### 13.2 *Cost/Price*

This factor will look primarily to the cost information provided by the proposer. The evaluation committee may consider the reliability of the parts to be provided,

as well as parts standardization, warranties and other factors in determining its assessment of points to be awarded. The time frame for contract performance and final delivery of the product may be considered as material elements of the price offered. The extent to which the RTA can analyze the cost and pricing data provided may impact the final point determination.

### 13.3 *Firm Capabilities and Performance*

This factor will look mainly at the capabilities and reputation of the product manufacturer as presented in the proposal or as is determined by review of information available from references or other resources. The evaluation may look at the manufacturer's overall organizational and financial capabilities and consider key components such as organizational reporting structure, quality control, quality assurance, research and development, technical, training and parts support, response time, production and delivery capabilities, bonding capacity, and financial history as well as other considerations in reaching a final point determination. The evaluation committee may also look at judgments, liens, fleet defect history, warranty claims, and the steps that the manufacturer took to resolve these concerns in assessing the overall reputation of the manufacturer.

### 13.4 *Parts Availability*

This information provided by the proposer in its technical submittal related to parts will be utilized to evaluate parts availability. The RTA requires various spare parts and components to maintain the vehicles according to agreed maintenance schedules. The evaluation will look at the replacement part plan. The parts catalog, spare parts and recommended spare parts list will also be evaluated.

## **14. EVALUATION PROCEDURES**

All aspects of the evaluations of the proposals and any discussions/negotiations, including documentation, correspondence and meetings, will be kept confidential during the evaluation and negotiation process.

Proposals will be analyzed for conformance with the instructions and requirements of the RFP and Contract documents. Proposals that do not comply with these instructions and do not include the required information may be rejected as insufficient or not be considered for the competitive range. RTA reserves the right to request an Offeror to provide any missing information and to make corrections. Offerors are advised that the detailed evaluation forms and procedures will follow the same proposal format and organization as specified. Therefore, Offerors shall pay close attention to and strictly follow all instructions. Submittal of a proposal will signify that the Offeror has accepted the whole of the Contract documents, except such conditions, exceptions, reservations or understandings explicitly, fully and separately stated on the forms and according to the instructions of "Form for Proposal Deviation". Any such conditions, exceptions,



reservations or understandings that do not result in the rejection of the proposal are subject to evaluation under the criteria of “Proposal Evaluation Criteria”.

Evaluations will be made in strict accordance with all of the evaluation criteria taking into consideration the greatest value to RTA. The RTA will select for any award the highest ranked proposal from a responsible, qualified Offeror which does not render this procurement financially infeasible and is judged to be most advantageous to the RTA based on consideration of the evaluation.

#### 14.1 *Evaluations of Competitive Proposals*

- I. Qualification of Responsible Offerors.** Proposals will be evaluated to determine the responsibility of Offerors. Any proposals from Offerors whom the RTA finds not to be responsible and finds cannot be made to be responsible may not be considered for the competitive range. Final determination of an Offeror’s responsibility will be made upon the basis of initial information submitted in the proposal, any information submitted upon request by the RTA, information submitted in a BAFO and information resulting from RTA's inquiry of Offeror’s references and its own knowledge of the Offeror.
- II. Detailed Evaluation of Proposals and Determination of Competitive Range.** Each proposal will be evaluated in accordance with the requirements and criteria as specified.

The following are the minimum requirements that must be met for a proposal to be considered for the competitive range. All of these requirements must be met; therefore, they are not listed by any particular order of importance. Any proposal that the RTA finds not to meet these requirements, and may not be made to meet these requirements, may be determined by the RTA to not be considered for the competitive range. The requirements are as follows:

- A. Offeror is initially evaluated as responsible in accordance with the requirements of “Qualification Requirements” or that the RTA finds it is reasonable that said proposal can be modified to meet said requirements. Final determination of responsibility will be made with final evaluations.
- B. Offeror has followed the instructions of the RFP and included sufficient detail information, such that the proposal can be evaluated. Any deficiencies in this regard must be determined by the RTA to be either a defect that the RTA will waive in accordance with “Acceptance/Rejection of Proposals” or that the proposal can be sufficiently modified to meet these requirements.

- C. Proposal price would not render this procurement financially infeasible, or it is reasonable that such proposal price might be reduced to render the procurement financially feasible. The RTA will carry out and document its evaluations in accordance with the criteria and procedures. Any extreme proposal deficiencies which may render a proposal unacceptable will be documented. The RTA will make specific note of questions, issues, concerns and areas requiring clarification by Offerors and to be discussed in any meetings with Offerors that the RTA finds to be within the competitive range.

Rankings and spreads of the proposals against the evaluation criteria will then be made by the RTA as a means of judging the overall relative spread between proposals and of determining which proposals are within the competitive range, or may be reasonably made to be within the competitive range.

- III. Proposals not within the Competitive Range.** Offerors of any proposals that have been determined by the RTA as not in the competitive range, and cannot be reasonably made to be within the competitive range, will be notified in writing.

- IV. Discussions with Offerors in the Competitive Range.** The Offerors whose proposals are found by the RTA to be within the competitive range, or may be reasonably made to be within the competitive range, will be notified and any questions and/or requests for clarifications provided to them in writing. Each such Offeror may be invited for a private interview(s) and discussions with the RTA to discuss answers to written or oral questions, clarifications, and any facet of its proposal.

In the event that a proposal, which has been included in the competitive range, contains conditions, exceptions, reservations or understandings to any Contract requirements as provided in "Form for Proposal Deviation", said conditions, exceptions, reservations or understandings may be negotiated during these meetings. However, the RTA shall have the right to reject any and all such conditions and/or exceptions, and instruct the Offeror to amend its proposal and remove said conditions and/or exceptions; and any Offeror failing to do so may cause the RTA to find such proposal to be outside the competitive range.

No information, financial or otherwise, will be provided to any Offeror about any of the proposals from other Offerors. Offerors will not be given a specific price or specific financial requirements they must meet to gain further consideration, except that proposed prices may be considered to be too high with respect to the marketplace or unacceptable. Offerors will not be told of their rankings among the other Offerors.

- V. **Factory and Site Visits.** The RTA reserves the right to conduct factory visits to inspect the Offeror's facilities and/or other transit systems which the Offeror has supplied the same or similar equipment.
- VI. **Best and Final Offers (BAFO).** After all interviews have been completed, each of the Offerors in the competitive range may be afforded the opportunity to amend its proposal and make its BAFO. The request for BAFOs shall include:
- A. Notice that discussions/negotiations are concluded;
  - B. Notice that this is the opportunity for submission of a BAFO;
  - C. A common date and time for submission of written BAFOs, allowing a reasonable opportunity for preparation of the written BAFOs;
  - D. Notice that if any modification to a BAFO is submitted, it must be received by the date and time specified for the receipt of BAFOs and is subject to the late submissions, modifications, and withdrawals of proposals provisions of the Request for Proposal;
  - E. Notice that if Offerors do not submit a BAFO or a notice of withdrawal and another BAFO, their immediate previous Offer will be construed as their BAFO.

Any modifications to the initial proposals made by an Offeror in its BAFO shall be identified in its BAFO. BAFOs will be evaluated by the RTA according to the same requirements and criteria as the initial proposals "Proposal Selection Process". The RTA will make appropriate adjustments to the initial scores for any sub-criteria and criteria which have been affected by any proposal modifications made by the BAFOs. These final scores and rankings within each criterion will again be arrayed by the RTA and considered according to the relative degrees of importance of the criteria defined in "Evaluation Criteria".

The RTA will then choose that proposal that it finds to be most advantageous to the RTA based upon the evaluation criteria. The results of the evaluations and the selection of a proposal for any award will be documented in a report.

The RTA reserves the right to make an award to an Offeror whose proposal it judges to be most advantageous to the RTA based upon the evaluation criteria, without conducting any written or oral discussions with any Offerors or solicitation of any BAFOs.

Should a proposer be recommended for award by the RTA staff, the proposal will be presented to the Board of Trustees for approval. The Board of Trustees can either award a contract, based upon the price and the terms negotiated or reject the recommendation. If the Board of Trustees rejects the recommendation, all proposals may be rejected and, after review of the requirements, a new Request for Proposal process may be initiated.

#### 14.2 *Confidentiality of Proposals*

During the evaluation, negotiation and selection process, evaluation committee members may not disclose information from one proposer to another proposer. Except for the identity and background of the successful proposer and the contract price, all information provided by proposers remains confidential after the conclusion of the process, to the extent permitted by law.

The RTA will exempt from disclosure proprietary information, trade secrets and confidential commercial and financial information submitted in the proposal. Any such proprietary information, trade secrets or confidential commercial and financial information which an Offeror believes should be exempted from disclosure shall be specifically identified and marked as such. Blanket-type identification by designating whole pages or sections as containing proprietary information, trade secrets or confidential commercial and financial information will not assure confidentiality. The specific proprietary information, trade secrets or confidential commercial and financial information must be clearly identified as such.

### **15. RESPONSE TO PROPOSALS**

#### 15.1 *Acceptance/Rejection of Proposals*

The RTA reserves the right to reject any or all proposals for sound business reasons, to undertake discussions with one or more Offerors, and to accept that proposal or modified proposal which, in its judgment, will be most advantageous to the RTA, price and other evaluation criteria considered. The RTA reserves the right to consider any specific proposal which is conditional or not prepared in accordance with the instructions and requirements of this RFP to be noncompetitive. The RTA reserves the right to waive any defects, or minor informalities or irregularities in any proposal which do not materially affect the proposal or prejudice other Offerors.

If there is any evidence indicating that two or more Offerors are in collusion to restrict competition or otherwise engaged in anti-competitive practices, the proposals of all such Offerors shall be rejected and such evidence may be a cause for disqualification of the participants in any future solicitations undertaken by the RTA.

### 15.2 *Single Proposal Response*

If only one proposal is received in response to this RFP and it is found by the RTA to be acceptable, a detailed price/cost proposal may be requested of the single Offeror. A price or cost analysis, or both, possibly including an audit, may be performed by or for the RTA of the detailed price/cost proposal in order to determine if the price is fair and reasonable. The Offeror has agreed to such analysis by submitting a proposal in response to this RFP. A price analysis is an evaluation of a proposed price that does not involve an in-depth evaluation of all the separate cost elements and the profit factors that comprise an Offeror's price proposal. It should be recognized that a price analysis through comparison to other similar procurements must be based on an established or competitive price of the elements used in the comparison. The comparison must be made to a purchase of similar quantity, involving similar specifications and in a similar time frame. Where a difference exists, a detailed analysis must be made of this difference and costs attached thereto. Where it is impossible to obtain a valid price analysis, it may be necessary to conduct a cost analysis of the proposed price. A cost analysis is a more detailed evaluation of the cost elements in the Offeror's Offer to perform. It is conducted to form an opinion as to the degree to which the proposed costs represent what the Offeror's performance should cost. A cost analysis is generally conducted to determine whether the Offeror is applying sound management in proposing the application of resources to the contracted effort and whether costs are allowable, allocable and reasonable. Any such analyses and the results therefrom shall not obligate the RTA to accept such a single proposal; and the RTA may reject such proposal at its sole discretion.

### 15.3 *Cancellation of Procurement*

The RTA reserves the right to cancel the procurement, for sound business reasons, at any time before the Contract is fully executed and approved on behalf of the RTA.

#### 15.4 *Availability of Funds*

This procurement is subject to the availability of funding from the Federal Transit Administration. The RTA's obligation hereunder is contingent upon the availability of appropriated funds from which payment for the Contract purposes can be made. No legal liability on the part of the RTA for any payment shall arise until funds are made available to the Contracting Officer for this Contract and until the Contractor receives notice of such availability, to be confirmed in writing by the Contracting Officer. Any award of Contract hereunder will be conditioned upon said availability of funds for the Contract.

#### **16. BID SECURITY**

The Proposer's proposal shall be accompanied by the bid/proposal bond of surety company licensed in the State of Ohio, or a certified or cashiers check drawn on a solvent bank, conditioned that, if the proposal is accepted, a contract will be entered into and its performance properly secured. The amount of the bid/proposal bond or check shall be 5% of the base bid. The checks of unsuccessful proposers will be returned within thirty days after the award of a contract.

**PART I**

**SECTION II - TERMS AND CONDITIONS**

**REQUEST FOR PROPOSAL  
DUAL MODE ELECTRIC TROLLEY COACHES**

**PART I  
SECTION II - TERMS AND CONDITIONS**

**1. SCOPE AND GENERAL INFORMATION TO PROPOSERS**

1.1 The Greater Dayton Regional Transit Authority ("the RTA") is a political subdivision of the State of Ohio organized pursuant to Ohio Revised Code Sections 306.30 et seq and funded in part by grants from the Federal Transit Administration ("FTA", formerly known as the Urban Mass Transportation Administration or UMTA) of the United States Department of Transportation, pursuant to the Urban Mass Transportation Assistance Acts of 1982 and 1987. When so funded, this contract shall be subject to all rules and regulations promulgated pursuant thereto. The RTA's procurement procedures are governed by the foregoing Ohio statutes, by various federal statutes and regulations, by Office of Management and Budget Circular A-102, and by FTA Circular C4220.1B. These require, among other things, that procurements be made according to approved plans and specifications, which become a part of the Contract between the RTA and a successful proposer.

1.2 Pursuant thereto, the RTA solicits proposals for services in accordance with all terms, conditions, and requirements accompanying this Request for Proposal ("RFP"). To be considered, proposers must submit a complete response to all provisions of this RFP. No other distribution of proposals will be made by the proposer. Proposals must be signed by an official authorized to bind the proposer to its provisions.

1.3 The RTA reserves the right to postpone the times at which proposals must be received, and to amend the specifications, terms, and/or conditions. Prompt notice of such postponement or amendment shall be given by the RTA to all prospective proposers who have received copies of this RFP. If the RFP is amended, any proposer from whom a proposal has been received prior to the giving of such notice will be entitled to withdraw and resubmit its proposal.

1.4 *Rejection of Proposals*

The RTA reserves the right to reject any and all proposals received as a result of this RFP, or to negotiate separately with any source whatsoever in any manner necessary to serve the best interests of the RTA. The RTA does not intend to award a contract solely on the basis of any response made to this request or otherwise pay for the information.



### 1.5 *Oral Presentation*

Proposers who submit a proposal may be requested to make an oral presentation of their proposal to the RTA. These presentations provide opportunity for proposers to clarify their proposals to insure thorough mutual understanding.

### 1.6 *Economy of Preparation*

Proposals should be prepared simply and economically, providing a straightforward, concise description of the proposer's ability to meet the requirements of the RFP. Fancy bindings, colored displays, promotional material, etc., are not desired. Emphasis should be placed on completeness and clarity of content.

### 1.7 *Response Date*

To be considered, proposals must arrive at the RTA's Procurement Department on or before the date specified in the cover letter. Proposals received after the date and time specified will be returned unopened and will not be considered.

### 1.8 *Incurring Costs*

The RTA is not liable for any costs incurred by the Contractor prior to issuance of a contract.

### 1.9 *News Releases*

News releases pertaining to this RFP or the service, study or project to which it relates will not be made without prior written approval by the RTA.

### 1.10 *Acceptance of a Proposal Content*

The proposer acknowledges that the contents of the proposer's proposal, and all terms and conditions set forth within this request for proposal will become contractual obligations, if the RTA accepts the proposal for contract award.

## **2. SELLER'S OBLIGATION**

The general obligation of the successful proposer (also referred to as Contractor, shall be to transfer and deliver the goods and services, specified in complete accordance with the terms, conditions and specifications of the negotiated proposal.

## **3. AUDITS AND INSPECTION**

Contractor shall permit the authorized representatives of RTA, its member entities, the City of Kettering, Ohio, the Ohio Auditor of State, the U.S. Department of Transportation, and the Comptroller General of the United States access to any books,

documents, papers and records of the Contractor which are directly pertinent to this contract, for the purpose of making audit, examination, excerpts and transcriptions until the expiration of three (3) years after final payment under this contract. Contractor further agrees to include all its subcontracts hereunder, a provision to the effect that the subcontractor agrees that RTA, its member entities, the City of Kettering, Ohio, the Ohio Auditor of State, the U.S. Department of Transportation and the Comptroller General of the United States or any of their duly authorized representatives shall, until the expiration of three (3) years after final payment under the subcontract, have access to books, documents, papers and records of such subcontractor involving transactions, related to the subcontractor for the purpose of making audit, examination, excerpts and transcriptions. The term "subcontract" as used in this clause excludes (1) purchase orders not exceeding \$10,000 and (2) subcontractor or purchase orders for public utility services at rates established for uniform applicability to the general public.

The periods of access and examination described above, for records which relate to (1) appeals under the "Disputes" clause of this contract, (2) litigation of the settlement of claims arising out of the performance of this contract, or (3) costs and expense of this contract as to which exception has been taken by the Comptroller General or any of his duly authorized representatives, shall continue until such appeals, litigation, claims or exceptions have been disposed.

#### **4. REPORTS AND INFORMATION**

The Contractor shall, at such times and in such manner as the RTA may require, furnish the RTA with periodic reports and statements pertaining to the approved activities and annual work program and other related matters covered hereunder.

#### **5. TERMINATION OF CONTRACT**

##### **5.1 *Termination for Default***

In the event Contractor defaults in the performance of any of its obligations under this Contract, RTA shall have (in addition to and not in lieu of, all other rights, remedies and damages to which it may be entitled by reason of such default) the right and option to terminate this Contract. In the event RTA exercises such right and option to terminate for default, RTA shall be obligated to pay only for work performed and accepted by RTA prior to the date upon which RTA gives Contractor written notice of termination for default, less 1) the amount of all damages suffered by RTA by reason of such default and 2) any amount by which the commercially reasonable cost of correcting the default and/or completing the work exceeds the unpaid portion of amount which would have paid hereunder; if the sum of 1) and 2) plus all amounts previously paid exceed the value of the work performed and accepted by RTA prior to the giving of written notice of default, Contractor shall be liable to RTA for such excess.

## *5.2 Termination for Convenience*

Termination for convenience of RTA. RTA may terminate this Contract at any time at its convenience by giving notice in writing to Contractor, which notice shall state that it is a notice of termination for the convenience of RTA and shall specify the effective date of termination. Contractor shall promptly submit its termination claim, to RTA, and the parties shall negotiate the termination settlement to be paid Contractor. Contractor shall be paid pursuant to the contract for costs and expenses accrued to the date of termination. In such event, amounts previously paid to Contractor shall be credited against any amounts determined to be due to Contractor pursuant to this paragraph. Upon receipt of the notice of termination Contractor shall immediately cancel its outstanding orders for procurement of materials, supplies and other miscellaneous goods.

- 5.3 In the event of termination either for default or for the convenience of RTA, Contractor shall account for any property in its possession paid for from funds received from RTA, or property supplied to Contractor by RTA.

## **6. OWNERSHIP OF DOCUMENTS**

RTA shall be the owner of all plans, scope of work and related documents prepared pursuant to this Contract or provided to Contractor by RTA. Any re-use of the plans, scope of work or related documents by RTA for other than the purpose intended by this Contract shall impose no liability on the Contractor.

## **7. MAINTENANCE OF RECORDS**

The Contractor shall, at all times, maintain records of actual overhead costs and actual general and administrative costs in conformity with generally accepted accounting principles, and subject to Title 41 of the C.F.R. The Contractor shall maintain records of direct labor costs and other applicable payroll expenses. Labor and payroll records shall be in sufficient detail to indicate, at a minimum, employees by name, employee's time spent on the project and itemization of applicable fringe benefit expenses.

## **8. POLITICAL ACTIVITY**

No portion of program funds shall be used for any partisan political activity or to further the election or defeat of any candidate for public offices. All employees of the Contractor shall observe the limitations on political activities to which they may be subject under the Hatch Act. (5 U.S.C. 1501 et seq., 18 U.S.C. 595)

## **9. COVENANT AGAINST CONTINGENT FEES**

Contractor warrants that no person or selling agency has been employed or retained to solicit or secure this contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, except bona fide employees or bona fide established commercial or selling agencies maintained by Contractor for the purpose of securing business. For breach of violation of this warranty, RTA shall have the right to

annul this contract without liability or, at its discretion, to deduct from the contract price or consideration, or otherwise recover, the full amount of such commission, percentage, brokerage or contingent fee.

**10. INDEMNIFICATIONS**

Contractor shall indemnify and save harmless RTA, its trustees, officers and employees from and against all loss, costs, liability, damage and expense whether direct, consequential or incidental, for personal injury and for property damage, such loss, costs, liability, damage and expense arising out of, or resulting in whole or in part, directly or indirectly, from work or operations under the contract but not limited to the acts, errors, omissions and negligence of Contractor's employees and agents. Except to the extent of liability imposed due to RTA's own negligence.

**11. BONUS OR COMMISSION**

The Contractor shall not pay any bonus or commission for the purpose of obtaining the Contract or any approval by DOT, FTA, or the RTA, which may be necessary in connection with carrying out the contract.

**12. INTEREST OF MEMBERS OF OR DELEGATES TO CONGRESS**

No member of or delegate to the Congress of the United States shall be admitted to any share or part of this contract or to any benefit arising therefrom.

**13. TITLE VI, CIVIL RIGHTS ACT OF 1964, COMPLIANCE**

The Greater Dayton Regional Transit Authority (RTA), in accordance with Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42 U.S.C. 2000d to 2000d-4 and Title 49, Code of Federal Regulations, Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Nondiscrimination in Federally-Assisted Programs of the Department of Transportation issued pursuant to such Act, hereby notifies all bidders that it will affirmatively insure that in any contract entered into pursuant to this advertisement, minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

During the performance of this contract, the Contractor, for itself, its assignees and successors in interest (hereinafter referred to as the "Contractor") agrees as follows:

**13.1 *Compliance with Regulations***

The Contractor shall comply with the Regulations relative to nondiscrimination in federally-assisted programs of the Department of Transportation (hereinafter, "DOT") Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time, (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.

### 13.2 *Nondiscrimination*

The Contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Contractor shall not participate either directly or indirectly in the discrimination prohibited by Section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.

### 13.3 *Solicitations for Subcontracts, Including Procurements of Materials and Equipment*

In all solicitations either by competitive bidding or negotiation made by the Contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the Contractor of the Contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.

### 13.4 *Information and Reports*

The contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the RTA or the Federal Transit Administration (hereinafter, "FTA") to be pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information required of a Contractor is in the exclusive possession of another who fails or refuses to furnish this information, the Contractor shall so certify to the RTA, or the FTA as appropriate, and shall set forth what efforts it has made to obtain the information.

### 13.5 *Sanctions for Noncompliance*

In the event of the Contractor's noncompliance with nondiscrimination provisions of this contract, the RTA shall impose contract sanctions as it or the FTA may determine to be appropriate, including, but not limited to:

- (a) withholding of payments to the Contractor under the contract until the Contractor complies; and/or
- (b) cancellation, termination, or suspension of the contract, in whole or in part.

### 13.6 *Incorporation of Provisions*

The Contractor shall include the provisions of paragraphs (1) through (6) in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto. The Contractor shall take such action with respect to any subcontract or procurement as the RTA or the FTA may direct as a means of enforcing such provisions including sanctions for noncompliance: provided, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the Contractor may request the RTA to enter into such litigation to protect the interests of the RTA, and, in addition, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

## 14. **NONDISCRIMINATION**

During the performance of this contract, Contractor agrees as follows:

Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, creed, sex, disability, age or national origin. Contractor will take affirmative action to ensure that applicants are employed, and the employees are treated during the employment without regard to their race, religion, color, sex or national origin. 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. Contractor agrees to post in accessible places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause. 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, religion, color, creed, sex, disability, age or national origin.

Contractor 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 Contractor's commitments under this section, and shall post copies of the notice in accessible places available to employees and applicants for employment. Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations and relevant orders of the Secretary of Labor.

Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations and orders of the Secretary of Labor, or pursuant thereto, and will permit access to its books, records and accounts by FTA and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations and orders.

In the event of Contractor's non-compliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations or orders, this contract may be canceled, terminated or suspended in whole or in part and Contractor may be declared ineligible for further RTA contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, or by rule, regulation or order of the Secretary of Labor, or as otherwise provided by law.

Contractor will include the foregoing provisions of this paragraph in every subcontract or purchase order unless exempted by rules, regulations or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. Contractor will take such action with respect to any subcontract or purchase order as RTA may direct as a means of enforcing such provisions, including sanctions for non-compliance, providing, however, that in the event Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by RTA, Contractor may request the United States to enter into such litigation to protect the interest of the United States.

**15. EQUAL EMPLOYMENT OPPORTUNITY**

In connection with the execution of this contract, the Contractor shall not discriminate against any employee or applicant for employment because of race, religion, color, creed, sex disability, age or national origin. The Contractor shall take Affirmative Action to ensure that applicants are employed, and that employees are treated during their employment, without regard to their race, religion, color, sex or national origin. Such actions shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.

**16. DISPUTES**

Any dispute arising under this contract which is not disposed by agreement shall be decided by RTA, which shall reduce its decision to writing and furnish a copy of same to Contractor. RTA's obligation to provide a written decision shall be limited to its providing a written statement setting forth its conclusion; it shall not be required to state its reasoning, although it may choose to do so.

Pending any administrative decision or litigation concerning any dispute arising under this contract, Contractor shall proceed diligently with the performance with this contract.

**17. PUBLICATION, REPRODUCTION, AND USE OF MATERIAL**

No custom material produced in whole or in part under the Contract shall be subject to copyright in the United States or in any country. The RTA and the FTA shall have authority to publish, disclose, distribute and otherwise use, in whole or in part, any custom materials prepared under the Contract.

**18. WAIVERS OR REVISION**

To be valid, a waiver of any condition to the Contract, or any revision to the approved work program and budget must be in writing from a duly authorized official of the RTA or the FTA, whichever is applicable.

**19. BUY AMERICA**

The Contractor shall comply with the federal statute set out below, and complete the Buy America Certification included with this RFP.

The Contractor agrees to comply with 49 U.S.C. 5323(j) and 49 C.F.R. Part 661, which provide that Federal funds may not be obligated unless steel, iron and manufactured products used in FTA-funded projects are produced in the United States, unless a waiver has been granted by FTA or the product is subject to a general waiver. General waivers are listed in 49 C.F.R. 661.7, and include final assembly in the United States for 15 passenger vans and 15 passenger wagons produced by Chrysler Corporation, and microcomputer equipment and software. Separate requirements for rolling stock are set out at 49 U.S.C. 5323(j)(2)(C) and 49 C.F.R. 661.11. Rolling stock must be assembled in the United States and have a 60 percent domestic content.

The contractor agrees to comply with 49 U.S.C. 5323(j) and 49 C.F.R. Part 661, which provide that Federal funds may not be obligated unless steel, iron, and manufactured products used in FTA-funded projects are produced in the United States, unless a waiver has been granted by FTA or the product is subject to general waiver. General waivers are listed in 49 C.F.R. 661.7, and include final assembly in the United States for 15 passenger vans and 15 passenger wagons produced by Chrysler Corporation, and microcomputer equipment and software. Separate requirements for rolling stock are set out at 49 U.S.C. 5323(j)(2)(C) and 49 C.F.R. 661.11. Rolling stock must be assembled in the United States and have 60 percent domestic content.

A bidder or offerer must submit to the FTA recipient the appropriate Buy America certification (below) with all bids or offers on FTA-funded contracts, except those subject to a general waiver. Bids or offers that are not accompanied by a completed Buy America certification must be rejected as nonresponsive. This requirement does not apply to lower tier subcontractors.

**20. COMPETITION OF PROCUREMENT**

The Contractor shall comply with the Procurement standards requirements set forth in Attachment O of OMB Circular A-102, as amended, and with any supplementary guidelines or regulations as may be promulgated by DOT.

**21. PRIVACY**

In the event the Contractor or its employees administers any system of records on behalf of the Federal government pursuant to the Contract, the Contractor agrees:



- 21.1 to comply with the Privacy Act of 1974, 5 U.S.C. S552A (the Act) and rules and regulations issued pursuant to the Act when performance under the Contract involves the design, development or operation of any system of records on individuals to be operated by the RTA, its other Contractors or employees to accomplish the government function;
- 21.2 to notify DOT when the Contractor anticipates operating a system of records on behalf of the government in order to accomplish the requirements of the Contract, where such system contains information about individuals which will be retrieved by the individual's name or otherwise identified or assigned to the individual. A system of records subject to the Act may not be employed in the performance of the Contract unless the necessary approval and publication requirements applicable to the system have been carried out.

The Contractor agrees to correct, maintain, disseminate and use such records in accordance with the requirements of the Act, and to comply with all applicable requirements of the Act; and

- 21.3 to include the foregoing provisions in all contracts with subcontracts which in any way relate to the administering of systems of record on behalf of the Federal Government.

## **22. SEVERABILITY**

In the event any provision of the Contract is declared or determined to be unlawful, invalid or unconstitutional, such declaration shall not affect, in any manner, the legality of the remaining provisions of the Contract and each provision of the Contract will be and is deemed to be separate and severable from each other provision.

## **23. ENERGY CONSERVATION**

Contractor shall recognize 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 (P.L. 94-163).

## **24. ENVIRONMENTAL VIOLATIONS**

For all contracts and subcontracts in excess of \$100,000, Contractor agrees to comply with all applicable standards, orders, or requirements issued under Section 306 of the Clean Air Act, 42 USC (1857(h), Section 508 of the Clean Water Act, 33 USC 1368. Executive Order 11738 and Environmental Protection Agency regulations (40 CFR, Part 15) which prohibit the use under non-exempt federal contracts, grants, or loans of facilities included on the EPA List of Violating Facilities. Contractor shall report violations to FTA and to the U.S. EPA Assistant Administrator for Enforcement (EN0329).

**25. INDEMNITY**

Contractor shall indemnify and save harmless RTA, its trustees, officers and employees from and against all claims, suits, damages, injuries, deaths, costs, liability, damage and expense whether direct, consequential or incidental, for personal injury and for property damage, such loss, costs, liability, damage and expense arising out of, or resulting in whole or in part, directly or indirectly, from work or operations under the contract but not limited to the acts, errors, omissions and negligence of Contractor's employees and agents. Except to the extent of liability imposed due to RTA's own negligence.

**26. RECYCLED PRODUCTS**

The Contractor agrees to comply with all the requirements of Section 6002 of the Resource Conservation and Recovery Act (RCRA), as amended (42 U.S.C. 6962), including but not limited to the regulatory provisions of 40 CFR Part 247, and Executive Order 12873, as they apply to the procurement of the items designated in Subpart B of 40 CFR Part 247.

**27. COVENANT AGAINST GRATUITIES**

The Contractor shall not offer or provide gifts, favors, entertainment or any other gratuities of monetary value to any official, employee or agent of the RTA during the period of this contract or for a period of one year thereafter.

**28. FEDERAL PARTICIPATION**

The contract for the equipment specified herein is subject to the applicable terms and conditions of the RTA's financial assistance grant contract with the FTA, United States Department of Transportation. The Contractor understands that Federal laws, regulations, policies, and related administrative practices applicable to this contract may be modified from time to time, and the changed requirements will apply to the project as required.

**29. PATENT INFRINGEMENT**

The RTA will advise the Contractor of any impending patent suit and provide all information available. The Contractor shall defend any suit or proceeding brought against the RTA based on a claim that any equipment, or any part thereof, furnished under this contract constitutes an infringement of any patent, and the Contractor shall pay all damages and cost awarded therein, excluding incidental and consequential damages, against the RTA. In case said equipment or any part thereof, is in such suit held to constitute infringement and use of said equipment or parts is enjoined, the Contractor shall, at its own expense and at its option, either procure for the RTA the right to continue using said equipment or part, or replace same with non-infringing equipment, or modify it so it becomes non-infringing.

**30. COMMUNICATIONS**

Communications in connection with this contract shall be in writing and, unless otherwise stated, shall be effective on receipt. However, communications by registered

mail addressed to the officer(s) or employee(s) of the RTA and of the Contractor designated to receive communications shall be effective on mailing. Telephone calls may be used to expedite communications but shall not be official communication unless confirmed in writing.

### **31. CARGO PREFERENCE**

The Contractor agrees:

To utilize privately owned United States-flag commercial vessels to ship at least 50 (fifty) percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this Contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels.

To furnish within 20 (twenty) working days following the date of loading for shipments originating within the United States, or within 30 (thirty) working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, "on-board" commercial ocean bill-of-lading in English for each shipment of cargo described in the preceding paragraph to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590 and to the RTA (through the Contractor in the case of a subcontractor's bill-of-lading.)

### **32. INTEREST OF PUBLIC OFFICIALS**

No member, officer, employee, or agent of the RTA during his/her tenure or one year thereafter shall have any interest, direct or indirect, in this Contract or the proceeds thereof.

### **33. LABOR PROVISIONS**

#### **33.1 *Overtime Requirements***

No Contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any work week in which he or she is employed on such work to work in excess of forty hours in such work week unless such laborer or mechanic receives compensation at a rate no less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such work week.

#### **33.2 *Violation***

Liability for unpaid Wages; Liquidated Damages. In the event of any violation of the clause set forth in subparagraph (b) (1) of 29 CFR Section 5.5, the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a

territory, to such district or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (b) (1) of 29 CFR Section 5.5 in the sum of \$125/day for each calendar day on which such individual was required or permitted to work in excess of the standard work week or forty hours without payment of the overtime wages required by the clause set forth in subparagraph (b) (1) of 29 CFR Section 5.5.

### 33.3 Withholding for Unpaid Wages and Liquidated Damages

DOT, UMTA, or the RTA shall upon their own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any monies payable on account of work performed by the Contractor or subcontractor under any such contract or any other Federal Contract with the same prime Contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime Contractor, such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (b) (2) Of 29 CFR Section 5.5.

### 33.4 The Contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three (3) years from the completion of the contract for all laborers and mechanics, including guards and watchmen working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of or hours worked, deductions made, and actual wages paid. The records to be maintained under this paragraph shall be made available by the Contractor or subcontractor for inspection, copying, or transcription by authorized representatives of DOT, Department of Labor, UMTA, and/or the RTA. The Contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

### 33.5 *Subcontracts*

The Contractor or subcontractor shall insert in any subcontracts the clauses set forth in subsections 33.1 through 33.5 of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime Contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subsections 28.1 through 28.5 of this section.

## **34. BID PROTEST PROCEDURE**

A. The RTA will hear and consider a bona fide bid protest regarding its procurement actions in accordance with the following procedures. Due to the significantly limited role of FTA in bid protests, it is anticipated that the majority of all protests will be evaluated and the final decision rendered by RTA. The RTA intends to provide a thorough review of all bona fide bid protests. The RTA's primary concern is the timely procurement of needed capital equipment, supplies or services. It does not intend to allow the filing of bid protests to unnecessarily delay the procurement process.

Parties are encouraged to exhaust all methods described in the bid documents for resolving a procurement issue before filing a formal bid protest with the RTA.

1. RTA reserves the right to postpone bid openings/proposal due dates for its own convenience and to reject any and all bids/proposals received.
2. Changes to the specifications/Scope of Work, will be made by addendum only and sent to all bidders/proposers of record.
3. Prime bidders/proposers may make appointments to discuss the specifications/scope of work; however, this does not relieve proposers/bidders from submitting the written documentation required below.
4. Protests may be filed during the pre-award, award or post-award phases of the procurement. Bidders/proposers may protest a bid/proposal award as soon as practical, but not later than five (5) business days following the receipt of proposed recommendation of award or receipt of rejection notification. All protests must be submitted in writing and be addressed to RTA's Executive Director.

The protest shall:

- Name the protester;
- Name the solicitation/contract (e.g., GD 10-XX);
- State the grounds of the protest; and
- State the relief sought.

The protester shall submit with the protest any and all documents which he/she believes supports the protest. The protester shall state further if it wishes an informal conference in which to discuss the protest with the RTA.

5. If any information is omitted or incomplete, the RTA will notify the protester in writing and the protester shall be required to provide such information within (3) business days if the protest is to be further considered.
6. The Executive Director shall give consideration to all facts and issues involved. The RTA's Manager of Procurement shall present all relevant facts and issues to the Executive Director. The Executive Director may, at his/her own discretion, form a committee which may include the general counsel and the department or division head, who will benefit from the Contract, or any combination thereof.
7. If an informal conference is requested, the Executive Director shall give the protester written notice of the place, location and time of the informal conference, which shall be within three (3) business days of such notice. Any information to be considered in the protest decision must be submitted in writing within twenty-four (24) hours after the conference.
8. The Executive Director will return a written decision to the protester within ten (10) business days of the receipt of the protest including the submission of additional written information submitted to RTA under these rules as part of the protest process. The written response from the RTA shall address each substantive issue raised in the protest. Such decision is final unless a request for reconsideration is filed.
9. If the protester is dissatisfied with the initial decision made by RTA, it may request in writing a reconsideration based on data which was not previously known, or because there has been an error of law or regulation. The request shall be delivered to the Executive Director within three (3) business days of receipt of the initial decision made by the Executive Director. The request shall state the reason(s) why the decision should be reconsidered and any information to support such a position. The Executive Director, in the manner provided above for an initial protest, shall consider and decide the request for reconsideration and shall issue a written decision to the protester within ten (10) business days. The protester will be notified of the decision and all substantive issues, will be addressed that were raised in the request for reconsideration. Such a decision is final.
10. FTA will only entertain a protest that alleges RTA has failed to have or adhere to a protest procedure. A protest to FTA must be filed in accordance with FTA Circular 4220.1F.

11. RTA may only proceed with the procurement, when a protest is pending, when the conditions spelled out in FTA Circular 4220.1F have been met. RTA will not award prior to resolution of a protest, or open bids or proposals prior to resolution of a protest filed before bid opening/proposal due date, except as provided in FTA Circular 4220.1F.
12. Potential bidders/proposers will be advised of a pending protest if made before award.
13. Should the protester be dissatisfied with the decision rendered by the RTA, and the protest sent to the FTA has not been taken or relief granted thereunder, the protest would have to be taken to the appropriate state or local administrative or judicial authority.
14. All protest documents shall be faxed, hand delivered or sent by overnight courier with return receipt requested to the RTA Executive Director or the protestor and shall be deemed received on date delivered by fax, hand delivery, or overnight courier.

Potential protesters and other interested parties include all interested bidders/proposers and any subcontractor or supplier with a substantial economic interest in a portion of the IFB/RFP.

The FTA will be notified of any and all protests received. RTA will keep FTA informed of the status of the project.

## 35. INSURANCE

### **GREATER DAYTON REGIONAL TRANSIT AUTHORITY** **SUPPLIERS AND VENDORS INSURANCE REQUIREMENTS**

The Vendor shall maintain, at its own expense, throughout the period of the Contract and any extensions thereof the following minimum insurance coverages of the types and in the amounts described below that are applicable to the scope of work being performed:

**1. Workers Compensation and Employer's Liability Insurance.** Vendor must carry Workers' Compensation Insurance (including occupational disease) in compliance with Workers' Compensation statutes of any applicable jurisdiction in which the Work is to be performed. For the attainment of Workers Compensation in monopolistic states, including Ohio, coverage must be secured through the state fund. If Vendor is a qualified self-insurer in compliance with the laws of the state, this is also acceptable. A certificate of compliance from the appropriate workers' compensation bureau or board must be provided with the certificate of insurance.

Vendor must also carry Employer's Liability Insurance with minimum limits of \$500,000 each accident; \$500,000 for disease (per employee); and \$500,000 for disease (policy limit). This policy must include Ohio "Stop Gap" coverage.

**2. Commercial General Liability Insurance.** Vendor must carry Commercial General Liability Insurance written on ISO form CG 00 01 10 01 (or its equivalent) with limits of \$1,000,000 per occurrence and \$2,000,000 in the aggregate. RTA (including its directors, officers, employees and volunteers) must be named as an additional insured on the CGL for liability arising out of the acts or omissions of the Vendor, including coverage for liability arising out of products and completed operations. The coverage afforded to RTA shall be primary to any other insurance carried by the RTA, and the RTA's coverage shall not contribute to any loss made pursuant to this coverage grant.

**3. Commercial Auto Liability Insurance.** Vendor shall carry Commercial Automobile Liability Insurance covering all owned, leased and non-owned vehicles used in connection with the work to be performed under this contract, with limits of not less than \$1,000,000 combined single limit per accident for bodily injury and property damage. RTA shall be afforded coverage under this policy for any liability arising out of the acts or omissions of Vendor.

**4. Excess/Umbrella Insurance.** Vendor shall carry Commercial Excess or Umbrella Liability Insurance over the Commercial General Liability, Employer's Liability and Commercial Automobile Liability policies in the amount of \$5,000,000 combined single limit. The Excess/Umbrella policy is subject to all requirements of the underlying policies as set forth herein.



**5. Pollution Liability Insurance.** If the Work under this Contract includes the transportation of hazardous substances (including but not limited to fuel and oil) to, from or about RTA's premises, and/or the disposal of such substances at a waste disposal site, Vendor shall purchase and maintain pollution liability coverage of at least \$1,000,000 per occurrence. This policy shall cover property damage, bodily injury and cleanup/pollution remediation costs caused by a pollution event and otherwise excluded under Vendor's Commercial General Liability or Commercial Automobile Liability policy. RTA shall be afforded protection under this policy as an additional insured, including coverage for claims arising out of Vendor's products and completed operations.

**6. Aircraft/Watercraft Liability Insurance.** If the Vendor is using aircraft or watercraft in performance of the Work under this contract, Vendor shall disclose this to RTA prior to contract execution. Vendor shall carry aircraft and/or watercraft liability insurance, including coverage for non-owned and hired craft, and RTA shall determine the appropriate limits which must be carried by Vendor.

**7. Fidelity Bond/Crime.** If Vendor or its employees will be on the premises of RTA in connection with performance of the Work under this contract, Vendor shall carry no less than \$100,000 in Third Party Crime Coverage for the benefit of the RTA in the event of theft or other intentional harm to RTA's property by Vendor's employees.

**8. Requirements common to all policies.**

**a.** Vendor shall be solely responsible for reimbursing any deductible amount to the insurer, even if payment is being made on behalf of RTA as an additional insured on Vendor's policy. Any deductibles or self-insured retentions in excess of \$5,000 must be disclosed and approved in writing by RTA.

**b.** Vendor waives all rights of recovery it may otherwise have against RTA (including its directors, officers, employees and volunteers) to the extent these damages are covered by any of Vendor's insurance policies as required in this contract.

**c.** All insurance required hereunder shall be placed with insurers that have a minimum A.M. Best's rating of A-/X and shall be licensed, admitted insurers authorized to do business in the state of Ohio.

**d.** A certificate(s) of insurance showing that Vendor's insurance coverages are in compliance with the insurance requirements set forth below must be completed by the Vendor's insurance agent, broker, or insurance company after the contract has been awarded. All certificates (other than Ohio workers' compensation) shall provide for thirty (30) days written notice to RTA prior to cancellation or non-renewal of any insurance referred to therein. The certificate shall reference RTA's status as an additional insured with primary/noncontributory coverage under both the General Liability and Auto policies.

**e.** Failure of RTA to certificate(s) or other evidence of full compliance with these insurance requirements (or failure of RTA to identify and/or object to a deficiency in the

certificate(s) that is/are provided by Vendor) shall not be construed as a waiver of Vendor's obligations to maintain such insurance. RTA shall have the right, but no the obligation, to prohibit Vendor from beginning performance under this contract until such certificates or other evidence that insurance has been placed in complete compliance with the above insurance requirements is received and approved by RTA. Vendor shall provide certified copies of all insurance policies required above within ten (10) days of written request from RTA.

**f.** By requiring insurance herein, RTA does not represent that coverage and limits will necessarily be adequate to protect Vendor, and such coverage limits shall not be deemed as a limitation on Vendor's liability under the indemnities granted to RTA.

**g.** Any subcontractors engaged by Contractor to perform the Work shall comply with these insurance and indemnification provisions and shall provide primary/noncontributory coverage to RTA as set forth herein.

### **36. NO GOVERNMENT OBLIGATION TO THIRD PARTIES**

*Applicable to: All Contracts*

No Obligation by the Federal Government.

- (1) The Purchaser and Contractor acknowledge and agree that, notwithstanding any concurrence by the Federal Government in or approval of the solicitation or award of the underlying contract, absent the express written consent by the Federal Government, the Federal Government is not a party to this contract and shall not be subject to any obligations or liabilities to the Purchaser, Contractor, or any other party (whether or not a party to that contract) pertaining to any matter resulting from the underlying contract.
- (2) The Contractor agrees to include the above 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.

### **37. PROGRAM FRAUD AND FALSE OR FRAUDULENT STATEMENTS AND RELATED ACTS**

31 U.S.C. 3801 et seq. 49 CFR Part 31 18 U.S.C. 1001 49 U.S.C. 5307

*Applicable to: All Contracts*

- (1) The Contractor acknowledges that the provisions of the Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. 3801 et seq. and U.S. DOT regulations , "Program Fraud Civil Remedies," 49 C.F.R. Part 31, apply to its actions pertaining to this

Project. Upon execution of the underlying contract, the Contractor certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, or it may make, or causes to be made, pertaining to the underlying contract or the FTA assisted project for which this contract work is being performed. In addition to other penalties that may be applicable, the Contractor further acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement submission, or certification, the Federal Government reserves the right to impose the penalties of the Program Fraud civil Remedies Act of 1986 on the Contractor to the extent the Federal Government deems appropriate.

(2) The Contractor also acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission or certification to the Federal Government under a contract connected with a project that is financed in whole or in part with Federal assistance originally awarded by FTA under the authority of 49 U.S.C. 5307, the 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, to the extent the Federal Government deems appropriate.

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

### **38. CHANGES IN THE WORK/CHANGE ORDERS**

#### **38.1 *Written Change Orders***

Oral changes are not permitted. No change in this contract shall be made unless the RTA gives prior written approval therefor. The Contractor shall be liable for all costs resulting from, and/or for satisfactorily correcting any change in the work not ordered by the RTA in writing.

### 38.2 *Change Order Procedure*

Within fifteen (15) calendar days after receipt of a written change order, the Contractor shall submit to the RTA a detailed price and schedule proposal for the work to be performed. This proposal may be accepted by the RTA or may be modified by negotiations between the Contractor and the RTA. A change order amendment shall be executed in writing by both parties. Disagreements that cannot be resolved within negotiations shall be resolved in accordance with the contract disputes clause. Regardless of any disputes, the Contractor shall proceed with the work ordered, provided the RTA has obtained the prior concurrence of FTA. (Refer to **Price Proposal form, Section I (IV)**, for impact of equipment changes on price.)

### 39. **COMPLIANCE WITH LAWS**

The Contractor agrees that it will comply with all federal, state, municipal and local laws, rules and regulations that may be applicable to this Contract.

### 40. **LAWS OF OHIO**

The rights and duties of the parties hereto shall be determined by the laws of the State of Ohio and to that end the contract shall be considered as a contract made and to be performed in the City of Dayton and the State of Ohio.

### 41. **HOMELAND SECURITY**

Contractor shall comply with Homeland Security, Ohio Revised Code 2909.33 as applicable which requires that any person, company, affiliated group, or organization, and any person who holds, owns, or otherwise has a controlling interest in a company, affiliated group, or organization that conducts any business with or receives funding in an aggregate amount greater than one hundred thousand dollars annually from the state, any instrumentality of the state, and any political subdivision of the state, excluding the amount of any personal benefit, shall certify that it does not provide material assistance to any organization on the United States department of state terrorist exclusion list. Additional information can be found at <http://www.homelandsecurity.ohio.gov>.

### 42. **STATUS OF THE CONTRACTOR**

The Contractor shall be and remain an independent Contractor with respect to all service performance and goods supplied hereunder and agrees to and does hereby accept full and exclusive liability for the payment of any and all contributions or taxes for Social Security, unemployment insurance, or old age retirement benefits, pensions, or annuities now or hereafter imposed under any state or federal law which are measured by the wages, salaries, or other remuneration paid under this contract, and further agrees to indemnify and save harmless the RTA from any such contributions or taxes or liability therefor.

**43. CLEAN AIR ACT AND CLEAN WATER ACT**

Contractor must comply with the requirements of Section 508 of the Clean Water Act and Section 306 of the Clean Air Act which prohibits the use of facilities included in the Environment Protection Agency (EPA) "List of Violation Facilities." This provision also requires the reporting of any violations to RTA and the EPA.

**44. BUS TESTING**

A contract pursuant to this solicitation is subject to the requirements for bus testing as set forth in 49 CFR Part 665, "Bus Testing; Rule", dated August 23, 1989, as amended. It shall be the sole responsibility of the Contractor to ensure that any bus(es) delivered pursuant to this solicitation meets and satisfies all federal and state regulations with regard to bus testing.

**45. PRE-AWARD AND POST-DELIVERY AUDIT REQUIREMENTS**

The contractor agrees to comply with 49 U.S.C. 5323(1) and FTA's implementing regulation at 49 C.F.R. Part 663 and to submit the following certifications:

- (1) Buy America Requirements: The Contractor shall complete and submit a declaration certifying either compliance or noncompliance with Buy America. If the Bidder/Offeror certifies compliance with Buy America, it shall submit documentation which lists 1) component and subcomponent parts of the rolling stock to be purchased identified by manufacturer of the parts, their country of origin and costs; and 2) the location of the final assembly point for the rolling stock, including a description of the activities that will take place at the final assembly point and the cost of final assembly.
- (2) Solicitation Specification Requirements: The Contractor shall submit evidence that it will be capable of meeting the bid specifications.
- (3) Federal Motor Vehicle Safety Standards (FMVSS): The Contractor shall submit 1) manufacturer's FMVSS self-certification sticker information that the vehicle complies with relevant FMVSS or 2) manufacturer's certified statement that the contracted buses will not be subject to FMVSS regulations.

45.4 Subsequent Orders for Buses Under the Contract. Pre-Award and Post-Delivery Audits may be performed by the RTA for each subsequent order of buses under this contract. The Contractor shall facilitate these subsequent audits by providing the RTA the supporting documentation in a timely fashion, if and when requested by the RTA.

**46. UNACCEPTABLE PROPOSALS**

The RTA reserves the right to reject any proposal received from a Proposer that is currently in default on any obligation to the RTA, either contractually or financially as a

principal or surety, or who has failed to perform faithfully any previous contract with the RTA.

**47. DEBARRED BIDDERS PROVISION**

The Contractor, including any of its officers or holders of a controlling interest, is obligated to inform the RTA whether or not it is or has been on any debarred bidders' list maintained by the United States Government. Should the Contractor be included on such a list during the performance of this project, it shall so inform the RTA.

**48. MANUALS/DOCUMENTATION**

All part(s) manuals, maintenance manuals, and other documentation required by this solicitation shall be furnished in accordance with the applicable sections, and shall be written in the English language.

**49. SPARE PARTS**

Spare and replacement parts needed for the maintenance of buses and spare equipment purchased under this solicitation shall be readily available from sources within the United States of America in adequate quantities to insure timely delivery and continuous operation of buses in revenue service.

**50. WALSH-HEALEY PUBLIC CONTRACT ACT**

If this contract is for the manufacture of furnishing of materials, supplies, articles, or equipment in an amount which exceeds or may exceed \$10,000.00 and is otherwise subject to the Walsh-Healey Public Contracts Act, as amended (41 U.S.C. 34.45), there are hereby incorporated by reference all representations and stipulations required by said Act and regulations issued thereunder by the Secretary of Labor, such representations and stipulations being subject to all applicable ruling and interpretations of the Secretary of Labor which are now or may hereafter be in effect.

**51. MOTOR VEHICLE POLLUTION REQUIREMENTS**

The Contractor shall certify in writing that:

- 51.1 The horsepower of the vehicle is adequate for the speed, range, and terrain in which it will be required to operate and also to meet the demands of all auxiliary power equipment.
- 51.2 Engine exhaust emissions meet all applicable State of Ohio and federal emissions standards in effect on the date of coach manufacture.
- 51.3 Any and all products produced pursuant to this solicitation shall be in accordance with all Federal Environmental Regulations including, but not limited to, those provided under CFR Parts 85, 86, 600, and 1500; 42 U.S.C. Sections 1251, 1601, 1857, 4321 et seq., and any amendments or modifications made thereto.

## **52. PERFORMANCE SECURITY**

The successful Proposer shall furnish within ten (10) calendar days of request by the RTA, and at his/her own expense, a performance bond with surety satisfactory to the RTA in an amount of FIFTY THOUSAND DOLLARS (\$50,000) to ensure faithful performance of the contract. If the surety on said bond at any time fails financially or becomes insufficient security for the penalty of said bond, then the RTA may, on giving a ten (10) days notice thereof in writing require said Contractor to furnish a new and additional bond in place of the bond so having become insufficient, with such surety thereon as shall be satisfactory to the RTA. In any event, the surety company shall be licensed in the State of Ohio. In lieu of a performance bond, the successful Offeror may provide an irrevocable standby letter of credit from a bank approved by the RTA, in the aforesaid amount, and for the benefit of the Greater Dayton Regional Transit Authority, and in a form acceptable by the RTA.

## **53. DELAYS AND LIQUIDATED DAMAGES**

- 53.1 Immediately upon encountering any difficulties which threaten to delay the completion date of a bus or buses, the Contractor shall notify the RTA in writing and therein (1) state the facts concerning the contemplated delay and (2) request written acceptance of the delay by the RTA. Any RTA acceptance must be in writing to be effective and shall constitute a change order to this contract.
- 53.2 The Contractor shall be entitled to a reasonable extension of time from the RTA for the delays caused by damage to Contractor's and/or the RTA's property caused by fire, lightning, earthquakes, tornadoes and other extreme weather conditions, power failures, riots, acts of war and strikes and lockouts beyond the control of the Contractor and his subcontractors.
- 53.3 Absent written acceptance by the RTA, any delay other than one mentioned in Section 45.2 shall constitute a breach of the Contractor's contractual obligation and the RTA may recover liquidated damages for this breach.
- 53.4 The amount of liquidated damages shall be \$-0- for the prototype buses but \$200 will apply for the option coaches each calendar day late. Contractor agrees that actual damages would be uncertain and difficult to ascertain, that the amount stipulated is reasonable, and that such amount does not constitute a penalty. These damages may be deducted from any monies due, or which may thereafter become due, to the Contractor under this or any other contract, or may be separately recovered.

## **54. SINGLE PROPOSAL, IF RECEIVED**

If only a single proposal is received, the RTA may require that the Proposer provide a cost analysis or a price comparison between the proposed price and that of similar equipment, materials, supplies, and/or services to assure that the proposed price is fair and reasonable. If requested, the Proposer shall provide the cost analysis or price

comparison within seven (7) calendar days of the date requested. The RTA reserves the right to reject or accept the proposal on the basis of the cost analysis or price comparison.

**55. DUTY TO INFORM**

If at any time during the performance of this Contract, the Contractor becomes aware of actual or potential problems, fault or defect in the project or any nonconformance with any contract document, Federal, State, or local law, rule, or regulation, the Contractor shall give immediate written notice thereof to the RTA's Manager of Procurement.

**56. TRANSPORTATION OF THE BUSES**

Contractor shall be solely responsible for delivery of the Buses to the RTA's main overhaul base, 600 Longworth Street, Dayton, Ohio. All delivery costs for buses (and any other items ordered under this contract) are the responsibility of the Contractor.

The Contractor shall notify the RTA's Project Manager at least two (2) working days in advance of its intent to deliver the buses. Delivery shall be made between 7:30 a.m. and 3:00 p.m., Monday through Friday, excluding holidays. No Bus shall be delivered to the RTA with less than ten gallons of usable fuel in its fuel tank.

**57. PAYMENT**

57.1 The payment term of this contract shall be NET 30 DAYS.

57.2 The RTA shall mail payment to Contractor, on a per bus basis, within thirty (30) days of delivery and final acceptance by the RTA of the bus, and receipt by the RTA of the invoice and supporting documents, WHICHEVER OF THE ABOVE EVENTS OCCURS LAST. (All of these events shall occur before payment will be made.) Progress payments will not be made or considered.

57.3 Invoices shall be sent to: Greater Dayton Regional Transit Authority, Accounts Payable Department, 4 S. Main Street, Dayton, OH 45402.

**58. ASSIGNABILITY**

The terms and provisions of the Contract Documents shall be binding upon RTA and the Contractor and their respective partners, successors, heirs, executors, administrators, assigns and legal representatives. The rights and obligations of the Contractor under the Contract may not be transferred, assigned, sublet, mortgaged, pledged or otherwise disposed of or encumbered in any way. The Contractor may subcontract a portion of its obligations to other firms or parties but only after having obtained the written approval by RTA of the subcontractor, which approval shall not be unreasonably withheld. RTA may assign its rights and obligations under the Contract to any successor to the rights and functions of RTA or to any governmental agency to the extent required by applicable laws and governmental regulations or to the extent RTA deems necessary or advisable under the circumstances.



**59. CONTRACTOR'S APPROVAL REQUEST AND RECORDS**

59.1 These specifications require Contractor to obtain various written approvals from various representatives of the RTA.

59.2 For approvals, Contractor shall design and supply adequate forms showing the vehicle or component number, the applicable specification citation, a brief narrative of what is to be approved, signatures of authorized the RTA representatives, signatures of Contractor's representative, dates of signatures, and any other information required to adequately document the approval process. It shall be the sole responsibility of the Contractor to ensure that all written approvals are obtained in a timely fashion from the RTA's authorized representatives.

59.3 Contractor shall keep and file in an organized manner any and all such approvals for a minimum of three (3) years beyond the final payment or until an audit by the RTA or its representatives is completed and approved, whichever comes first. Copies of the approvals shall be provided to the RTA upon request.

**60. TITLE WARRANTIES AND TRANSFER**

Contractor warrants that the title to each bus delivered to the RTA will be free, clear, unencumbered and fully marketable, and that Contractor will have the right to convey such title to the RTA. Contractor shall present with each bus delivered to the RTA, Contractor's title documents and all other documents necessary for the transfer of title to the RTA. All documents or parts of documents which must be executed in order to transfer title to the RTA shall be fully and properly executed. All vehicles must arrive with 30 day temporary registration tags.

**61. RIGHTS AND REMEDIES**

The duties and obligations imposed by this Contract and the rights and remedies available hereunder shall be in addition to and not in limitation of any duties, obligations, rights and remedies otherwise imposed or available by law.

Failure of the RTA to act shall in no way constitute a waiver of any right afforded to it under this agreement, nor shall any such action or failure to act constitute an approval of or an acquiescence in any breach of this agreement, except as may be specifically agreed in writing by the RTA.

**62. COMPLIANCE WITH COPELAND ACT REQUIREMENT**

The Contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference.

**63. AMERICANS WITH DISABILITIES ACT OF 1990 (ADA)**

The Contractor agrees to comply with, and assure that any subcontractor under this Project complies with all applicable requirements of the Americans with Disabilities Act

of 1990 (ADA), 42 U.S.C. Sections 12101 et seq. and 49 U.S.C. Section 322; Section 504 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. Section 794; Section 16 of the Federal Transit Act, as amended, 49 U.S.C. app. Section 1612; and the following regulations and any amendments thereto:

- 63.1 U.S. DOT regulations, "Transportation Services for Individuals with Disabilities (ADA)," 49 C.F.R. Part 37;
- 63.2 U.S. DOT regulations, "Nondiscrimination on the Basis of Handicap in Programs and Activities Receiving or Benefiting from Federal Financial Assistance," 49 C.F.R. Part 27;
- 63.3 U.S. DOT regulations, "Americans With Disabilities (ADA) Accessibility Specifications for Transportation Vehicles," 49 C.F.R. Part 38;
- 63.4 Department of Justice (DOJ) regulations, "Nondiscrimination on the Basis of Disability in State and Local Government Services," 28 C.F.R. Part 35;
- 63.5 DOJ regulations, "Nondiscrimination on the Basis of Disability by Public Accommodations and in Commercial Facilities," 28 C.F.R. Part 36;
- 63.6 General Services Administration regulations, "Construction and Alteration of Public Buildings," "Accommodations for the Physically Handicapped," 41 C.F.R. Part 101-19;
- 63.7 Equal Employment Opportunity Commission (EEOC) "Regulations to Implement the Equal Employment Provisions of the Americans with Disabilities Act," 29 C.F.R. Part 1630;
- 63.8 Federal Communications Commission regulations, "Telecommunications Relay Services and Related Customer Premises Equipment for the Hearing and Speech Disabled," 47 C.F.R. Part 64, Subpart F; and
- 63.9 FTA regulations, "Transportation for Elderly and Handicapped Persons," 49 C.F.R. Part 609.

#### **64. WARRANTY ADMINISTRATION**

In the event of any action by the RTA to enforce the warranties herein or to recover damages for breach of such warranties, the Contractor agrees to pay the RTA for such damages and the costs associated with such action, including the reasonable attorneys' fees.

In the event any materials or equipment supplied hereunder are covered by warranties of the manufacturer or supplier other than the Contractor, then copies of such warranties must be furnished to the RTA at the time of delivery and, if required by the RTA, Contractor will assign such warranties to the RTA. Delivery or assignment of such

manufacturers' or suppliers' warranties shall in no event relieve Contractor of any of its obligations hereunder.

No disclaimer of liability, limitations on time of warranty, limitations on scope of warranty, or limitations on damages inconsistent with the warranties contained herein shall be effective for any purpose. No warranty contained herein nor otherwise given shall be construed to limit any other remedy available to the RTA by law nor to limit the time in which such other remedy may be sought.

## **65. NEW RESTRICTIONS ON LOBBYING**

A. *Definitions.* As used in this clause.

"Agency", as defined in 5 U.S.C. 552(f), includes Federal executive departments and agencies as well as independent regulatory commissions and Government corporations, as defined in 31 U.S.C. 9101(1).

"Covered Federal action" means any of the following Federal actions:

- (1) The awarding of any Federal contract;
- (2) The making of any Federal grant;
- (3) The making of any Federal loan;
- (4) The entering into of any cooperative agreement; and,
- (5) The extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

Covered Federal action does not include receiving from an agency a commitment providing for the United States to insure or guarantee a loan.

"Indian tribe" and "tribal organization" have the meaning provided in Section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450B). Alaskan Natives are included under the definitions of Indian tribes in that Act.

"Influencing or attempting to influence" means making, with the intent to influence, any communication to or appearance before an office or employee of a Member of Congress in connection with any covered Federal Action.

"Local government" means a unit of government in a State and, if chartered, established, or otherwise recognized by a State or the performance of a governmental duty, including a local public authority, a special district, an intrastate district, a council of governments, a sponsor group representative organization, and any other instrumentality of a local government.

"Officer or employee or any agency" includes the following individuals who are employed by an agency:

- (1) An individual who is appointed to a position in the Government under Title 5, U.S. Code, including a position under a temporary appointment;
- (2) A member of the uniformed services as defined in Section 101(3) Title 37, U.S. Code;
- (3) A special Government employee as defined in Section 202, Title 18, U.S. Code; and,
- (4) An individual who is a member of a Federal advisory committee, as defined by the Federal Advisory Committee act, Title 5, U.S. Code, Appendix 2.

"Person" means an individual, corporation, company, association, authority, firm, partnership, society, State and local government, regardless of whether such entity is operated for profit or not for profit. This term excludes an Indian tribe tribal organization, or any other Indian organization with respect to expenditures specifically permitted by other Federal law.

"Reasonable compensation" means, with respect to a regularly employed officer or employee of any person, compensation that is consistent with the normal compensation for such officer or employee for work that is not furnished to, not funded by, or not furnished in cooperation with the Federal Government.

"Recipient" includes all Contractors and subcontractors at any time in connection with a Federal contract. The term excludes an Indian tribe, tribal organization, or any other Indian organization with respect to expenditures specifically permitted by other Federal law.

"Regularly employed" means, with respect to an officer or employee of a person requesting or receiving a Federal contract, an officer or employee who is employed by such person for at least 130 working days within one year immediately preceding the date of the submission that initiates agency consideration of such person for receipt of such contract. An officer or employee who is employed by such person for less than 130 working days within one year immediately preceding the date of the submission that initiates agency consideration of such person shall be considered to be regularly employed as soon as he or she is employed by such person for 130 working days.

"State" means a State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, a territory or possession of the United States, an agency or instrumentality of a state, and a multi-state, regional, or interstate entity having governmental duties and powers.

B. *Prohibition*

1. Section 1352 of Title 31, U.S. Code, provides in part that no appropriated funds may be expended by the recipient of a Federal contract, grant, loan, or cooperative agreement to pay any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any of the following covered Federal actions: 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. The prohibition does not apply as follows:
  - (i) Agency and legislative liaison by Own Employees
    - a) The prohibition on the use of appropriated funds, in Paragraph (B)(1) of this Section, does not apply in the case of a payment of reasonable compensation made to an officer or employee of a person requesting or receiving a Federal contract if the payment is for agency and legislative liaison activities not directly related to a covered Federal action.
    - b) For purposes of Paragraph (B)(2)(i)(a) of this Section, the providing any information specifically requested by an agency or Congress is allowable at any time.
    - c) For purposes of Paragraph (b)(2)(i)(a) of this section, the following agency and legislative liaison activities are allowable at any time only where they are not related to a specific solicitation for any covered Federal action:
      - 1) Discussing with an agency (including individual demonstrations) the qualities and characteristics of the person's products or services, conditions or terms of sale, and service capabilities; and,
      - 2) Technical discussions and other activities regarding the application or adaptation of the person's product or services for any agency's use.

- d) For purposes of Paragraph (B)(2)(i)a) of this section, the following agency and legislative liaison activities are allowable only where they are prior to formal solicitation of any covered Federal action:
  - 1) Providing any information not specifically requested as necessary for an agency to make an informed decision about initiation of a covered Federal action;
  - 2) Technical discussion regarding the preparation of an unsolicited proposal prior to its official submission; and
  - 3) Capability presentations by persons seeking awards from an agency pursuant to the provisions of the Small business Act, as amended by public Law 95-507 and other subsequent amendments.
- (e) Only those activities expressly authorized by Paragraph (B)(2)(i) of this Section are allowable under Paragraph (B)(2)(i).
- (ii) Professional and technical services by Own Employees
  - (a) The prohibition on the use of the appropriated funds, in Paragraph (b)(1) of this Section, does not apply in the case of a payment of reasonable compensation made to an officer or employee of a person requesting or receiving a Federal contract or an extension, continuation, renewal, amendment, or modification of a Federal contract if a payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that Federal contract or for meeting requirements imposed by or pursuant to law as a condition for receiving that Federal contract.
  - (b) For purposes of Paragraph (B)(2)(ii)(a) of this Section, "professional and technical services" shall be limited to advice and analysis directly applying any professional or technical discipline. For example, drafting of a legal document accompanying a bid or proposal by a lawyer is allowable. Similarly, technical advice provided by an engineer on the performance or operational capability of a piece of equipment rendered directly in the negotiation of a contract is allowable. However, communications with the

intent to influence made by a professional (such as a licensed lawyer) or a technical person (such as a licensed accountant) are not allowable under this Section unless they provide advice and analysis directly applying their professional or technical expertise and unless the advice or analysis is rendered directly and solely in the preparation, submission or negotiation of a covered Federal Action. Thus, for example, communications with the intent to influence made by a lawyer that do not provide legal advice or analysis directly and solely related to the legal aspect or his or her client's proposal, but generally advocate one proposal over another are not allowable under this Section because the lawyer is not providing professional legal services. Similarly, communications with the intent to influence made by an engineer providing an engineering analysis prior to the preparation or submission of a bid or proposal are not allowable under this Section since the engineer is providing technical services but not directly in the preparation, submission or negotiation of covered federal action.

- (c) Requirements imposed by or pursuant to law as a condition for receiving a covered Federal award include those required by law or regulation, and any other requirements in the actual award documents.
- (d) Only those services expressly authorized by Paragraph (B)(2)(ii) of this Section are allowable under Paragraph (B)(2)(ii).

(iii) Reporting for Own Employees

No reporting is required with respect to payments of reasonable compensation made to regularly employed officers or employees of a person.

(iv) Professional and technical services by other than Own Employees.

- (a) The prohibition on the use of appropriated funds, in Paragraph (B)(1) of this Section, does not apply in the case of an reasonable payment to a person, other than officer or employee of a person requesting or receiving a covered Federal action, if the payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that Federal contract or for meeting

requirements imposed by or pursuant to law as a condition for receiving that Federal contract.

- (b) For purposes of Paragraph (B)(2)(ii)(a) of this Section, "professional and technical services" shall be limited to advice and analysis directly applying any professional or technical discipline. For example, drafting of a legal document accompanying a bid or proposal by a lawyer is allowable. Similarly, technical advice provided by an engineer on the performance or operational capability of a piece of equipment rendered directly in the negotiation of a contract is allowable. However, communications with the intent to influence made by a professional (such as a licensed lawyer) or a technical person (such as a licensed accountant) are not allowable under this Section unless they provide advice and analysis directly applying their professional or technical expertise and unless the advice or analysis is rendered directly and solely in the preparation, submission or negotiation of a covered Federal Action. Thus, for example, communications with the intent to influence made by a lawyer that do not provide legal advice or analysis directly and solely related to the legal aspect or his or her client's proposal, but generally advocate one proposal over another are not allowable under this Section because the lawyer is not providing professional legal services. Similarly, communications with the intent to influence made by an engineer providing an engineering analysis prior to the preparation or submission of a bid or proposal are not allowable under this Section since the engineer is providing technical services but not directly in the preparation, submission or negotiation of covered Federal action.
- (c) Requirements imposed by or pursuant to law as a condition for receiving a covered Federal award include those required by law or regulation, and any other requirements in the actual award documents.
- (d) Persons other than officers or employees of a person requesting or receiving a covered Federal action include consultants and trade associations.
- (e) Only those services expressly authorized by paragraph (B)(2)(iv) of this Section are allowable under Paragraph (B)(2)(iv).



C. Disclosure

1. Each person who requests or receive from an agency a Federal contract shall file with that agency a certification that the person has not made, and will not make, any payment prohibited by Paragraph (B) of this clause.
2. Each person who requests or receives from an agency a Federal contract shall file with that agency a disclosure form, Standard Form-LLL, "Disclosure of Lobbying Activities", if such person has made or has agreed to make any payment using non-appropriated funds (to include profits form any covered Federal action), which would be prohibited under Paragraph (B) of this clause if paid for with appropriated funds.
3. Each person shall file a disclosure form at the end of each calendar quarter in which there occurs any event that requires disclosure or that materially affects the accuracy of the information contained in any disclosure form previously filed by such person under Paragraph (C)(2) of this Section. An event that materially affects the accuracy of the information reported includes:
  - (i) A cumulative increase of \$25,000 or more in the amount paid or expected to be paid for influencing or attempting to influence a covered Federal action; or,
  - (ii) A change in the person(s) or individual(s) influencing or attempting to influence a covered Federal action; or,
  - (iii) A change in the officer(s), employee(s), or member(s) contacted to influence or attempt to influence a covered Federal action.
4. Any person who requests or receives form a person referred to in Paragraph (C)(1) of this Section a subcontract exceeding \$100,000 at any tier under a Federal contract shall file a certification, and a disclosure form, if required, to the next tier above.
5. All disclosure forms, but certifications, shall be forwarded from tier to tier until received by the person referred to in Paragraph (C)(2) of this Section. That person shall forward all disclosure forms to the agency.

D. Agreement

In accepting any contract resulting from this solicitation, the person submitting the offer agrees not to make any payment prohibited by this clause.

E. Penalties

1. Any person who makes an expenditure prohibited under Paragraph (B) of this clause shall be subject to civil penalty of not less than \$10,000 and not more than \$100,000 for each such expenditure.
2. Any person who fails to file or amend the disclosure form to be filed or amended if required by this clause, shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.
3. Contractors may rely without liability on the representations made by their subcontractors in the certification and disclosure form.

F. Cost Allowability

Nothing in this clause is to be interpreted to make allowable or reasonable any costs that would be unallowable or unreasonable in accordance with Part 31 of the Federal Acquisition Regulation. Conversely, costs made specifically unallowable by the requirements in this clause will not be made allowable under any of the provisions of Part 31 of the Federal Acquisition Regulation.

**66. INCORPORATION OF FTA TERMS**

The preceding provisions include, in part, certain Standard Terms and Conditions required by DOT, whether or not expressly set forth in the preceding. All contractual provisions required by DOT, as set forth in FTA Circular C4220.1D dated April 15, 1996, are hereby incorporated by reference. Anything to the contrary herein notwithstanding, all FTA mandated terms shall be deemed to control in the event of a conflict with other provisions contained in this Agreement. The Contractor shall not perform any act, fail to perform any act, or refuse to comply with any the RTA requests which would cause the RTA to be in violation of the FTA terms and conditions.

**67. TRADE SECRET NOTIFICATION**

Under Ohio Law, a proposal document may be a public record unless it meets an exception under the Public Records Law. One such exception is for trade secrets. Trade secrets must be treated with confidentiality. However, the proposer must notify the RTA in all of their proposal documents as to which portions of their proposal documents constitute trade secrets and are to be treated as confidential. As proposer, it is your responsibility to mark those parts of the bid which you wish to have treated as confidential. While this does not assure that these portions of the document will constitute a trade secret and be exempt from public records requests under Ohio Law, in the absence of notice from you to us that those documents are to be treated as trade secrets and to be held confidential, they will be made available to the public upon a public records request unless another exception applies to exempt them from disclosure.

**68. FLY AMERICA**

The Recipient understands and agrees that the federal government will not participate in the costs of international air transportation of any persons involved in or property acquired for the project unless that air transportation is provided by U.S.-flag air carriers to the extent service by these carriers is available, in accordance with the International Air Transportation Fair Competitive Practices Act of 1974, as amended, 49 U.S.C. §40118, and with U.S. General Services Administration (U.S. GSA) regulations pertaining to the use of United States flag air carriers, 41 C.F.R. §301-3.61(b), and any later regulations at 41 C.F.R. §301-10.131 et seq.

**69. DEBARMENT AND SUSPENSION**

The Contractor agrees to comply with U.S. Department of Transportation regulations, "Government Debarment and Suspension (Non-procurement)", 49 CFR Part 29, and otherwise comply with the requirements of those regulations. This includes the requirement of the bidder to submit the Certification of Primary Contractor Regarding Debarment, Suspension, and Other Ineligibility and Voluntary Exclusion for all projects when the total aggregate value of the Contract exceeds \$100,000 and to submit a Certification of Lower Tier Participation Regarding Debarment, Suspension and Other Ineligibility and Voluntary Exclusions for each subcontractor which will have a financial interest in this Project which exceeds \$25,000 or will have a critical influence on or a substantive control over the Project.

During the term of the Contract the Contractor agrees to immediately notify RTA of 1) any potential subcontractor that is subject to this provision and to submit the appropriate certification prior to award of the subcontract, 2) any information that its certification or certification of its subcontractors was erroneous when submitted, 3) any information that certifications have become erroneous by reason of changed circumstances.

The Contractor shall submit with each request for payment a list of all subcontractors to this contract which have a financial interest in this Project which exceeds \$25,000 or have had a critical influence on or substantive control over the Project and submit evidence that the appropriate certificate has been submitted and that they remain valid.

RTA will not make payment to the Contractor or subcontractor which 1) does not comply with this contract provision or 2) is not in compliance with the above-cited federal requirements.

**PART I**

**SECTION III - PROPOSAL SUBMISSION**

## PROPOSAL SUBMISSION

### Summary of Proposal Requirements

The following documents required for this proposal are enclosed.

- \_\_\_\_\_ Summary of Proposal Requirements
- \_\_\_\_\_ Non-Collusion Affidavit
- \_\_\_\_\_ Personal Property Tax Affidavit
- \_\_\_\_\_ RTA Clean Air Policy Verification
- \_\_\_\_\_ Acknowledgment of Addenda (As Required)
- \_\_\_\_\_ Letter of AAAP Approval from the City of Dayton, Human Relations Council
- \_\_\_\_\_ Certification of Contractor Regarding Debarment, Suspension and other Ineligibility and Voluntary Exclusion
- \_\_\_\_\_ Certification of Restrictions on Lobbying
- \_\_\_\_\_ Certification of Procurement Integrity
- \_\_\_\_\_ Buy America Certification (applicable if bid is over \$100,000)
- \_\_\_\_\_ Offeror Service and Parts Support Data
- \_\_\_\_\_ Supplier Certification
- \_\_\_\_\_ Certificate of Compliance with Bus Testing Requirement
- \_\_\_\_\_ DBE Approval Certification
- \_\_\_\_\_ Request for Change or Approved Equal
- \_\_\_\_\_ Form for Proposal Deviation
- \_\_\_\_\_ Homeland Security

\_\_\_\_\_  
NAME

\_\_\_\_\_  
TITLE

\_\_\_\_\_  
COMPANY

\_\_\_\_\_  
PHONE NUMBER

\_\_\_\_\_  
FAX NUMBER

\_\_\_\_\_  
EMAIL ADDRESS

DATE: \_\_\_\_\_

## NON-COLLUSION AFFIDAVIT

***IF YOU FAIL TO COMPLY, YOUR BID WILL NOT BE CONSIDERED.***

STATE OF \_\_\_\_\_ }  
 \_\_\_\_\_ } SS: **NON-COLLUSION AFFIDAVIT**  
 COUNTY \_\_\_\_\_ }

being first duly sworn deposes and says:

Individual only: That he is an individual doing business under the name \_\_\_\_\_  
of \_\_\_\_\_  
\_\_\_\_\_ At \_\_\_\_\_  
\_\_\_\_\_ in the City of \_\_\_\_\_,  
State of \_\_\_\_\_.

Partnership only: That he is the duly authorized representative of a partnership doing business under the name of \_\_\_\_\_ at \_\_\_\_\_  
\_\_\_\_\_ in the City of \_\_\_\_\_,  
State of \_\_\_\_\_.

Corporation only: That he is the duly authorized, qualified and acting \_\_\_\_\_ of \_\_\_\_\_, a corporation organized and existing under the laws of the State of \_\_\_\_\_, and that he, said partnership or said corporation, is filing herewith a proposal or bid to The Greater Dayton Regional Transit Authority in conformity with the foregoing specifications:

Individual only: Affiant further says that the following is a complete and accurate list of the names and addresses of all persons interested in said proposed contract: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Affiant further says that he is represented by the following attorney(s):

and is also represented by the following resident agents in the City of Dayton:

(This form is continued)

Partnership only: Affiant further says that the following is a complete and accurate list of the names and addresses of the members of said partnership: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Affiant further says that said partnership is represented by the following attorney(s): \_\_\_\_\_

and is also represented by the following resident agents in the City of Dayton: \_\_\_\_\_  
\_\_\_\_\_

Corporation only: Affiant further says that the following is a complete and accurate list of the officers, directors and attorney(s) of said corporation:

President: \_\_\_\_\_

Directors: \_\_\_\_\_  
\_\_\_\_\_

Vice President: \_\_\_\_\_

Secretary: \_\_\_\_\_

Treasurer: \_\_\_\_\_

Local Manager of Statutory Agent: \_\_\_\_\_

Attorney(s): \_\_\_\_\_

And that the following officers are authorized to execute contracts on behalf of said corporation: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Affiant further says that the bid filed herewith is not made in the interest of or on behalf of any undisclosed person, partnership, company, association, organization or corporation; that such bid is genuine and not collusion or sham; that said bidder has not, directly or indirectly, induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly, colluded, conspired, connived or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall

*(This form is continued)*

refrain from bidding; that said bidder has not in any manner, directly or indirectly, sought by agreement, communication or conference with anyone to fix the bid price of said bidder or of any other bidder or to fix any overhead, profit, or cost element of such bid price or that of any other bidder, or to secure any advantage against the Greater Dayton Regional Transit Authority, or anyone interested in the proposed contract; that all statements contained in such bid are true; that said bidder has not directly, or indirectly, submitted his price or any breakdown thereof or the contents thereof, or divulged information or data relative thereto, or paid or agreed to pay, directly or indirectly, any money or other valuable consideration for assistance or aid rendered or to be rendered in procuring or attempting to procure the contract above referred to, to any corporation, partnership, company, association, organization, or to any member or agent thereof, or to any other individual, except such persons as herein above disclosed to have a partnership or other financial interest with said bidder will not pay or agree to pay, directly or indirectly, any money or other valuable consideration to any corporation, partnership, company, association, organization or to any member or agent thereof, or to any other individual, for aid or assistance in securing contract above referred to in the event the same is awarded to

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Further Affiant saith not.

(Sign here) \_\_\_\_\_

Sworn to before me and subscribed in my presence this \_\_\_\_\_ day of \_\_\_\_\_ ,  
19\_\_\_\_ .

\_\_\_\_\_  
(Notary Public)

My Commission  
Expires: \_\_\_\_\_

(SEAL)



**The Greater Dayton Regional Transit Authority  
PROPOSAL REQUIREMENT**

**PERSONAL PROPERTY TAX AFFIDAVIT**

**(O.R.C. 5719.042)**

The person making a bid shall submit to the RTA Director of Administrative Services a statement affirmed under oath that the person with whom the contract is to be made was not charged at the time the bid was submitted with any delinquent personal property taxes on the general tax list of personal property of any county in which the taxing district has territory or that such person was charged with delinquent personal property taxes on any such tax list, in which case the statement shall also set forth the amount of such due and unpaid delinquent taxes and any due and unpaid penalties and interest thereon. If the statement indicates that the taxpayer was charged with any such taxes, a copy of the statement shall be transmitted by the Director of Administrative Services to the county treasurer within thirty (30) days of the date it is submitted.

STATE OF \_\_\_\_\_

COUNTY OF \_\_\_\_\_

The undersigned being first duly sworn states that he/she is (check one): \_\_\_\_\_ the bidder  
duly authorized representative of the bidder to whom a contract pursuant to Invitation for  
\_\_\_\_\_ Bid

No. GD 12-21 for DUAL MODE ELECTRIC TROLLEY COACHES was awarded; and further states that at the time the bidder's bid was submitted (check or check and complete):

\_\_\_\_\_ bidder was not charged with any delinquent personal property taxes on the general tax list of personal property of \_\_\_\_\_ .  
(County, State)

\_\_\_\_\_ bidder was charged with delinquent personal property taxes on the general tax list of personal property of \_\_\_\_\_ as follows:  
(County, State)

\$ \_\_\_\_\_ in due and unpaid delinquent taxes

\$ \_\_\_\_\_ in due and unpaid penalties and interest thereon.

Name of Bidder: \_\_\_\_\_

Authorized Signature: \_\_\_\_\_

Title: \_\_\_\_\_

Address: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

Sworn to before me and subscribed in my presence this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
(Notary Public)

My Commission  
Expires: \_\_\_\_\_

(SEAL)

**The Greater Dayton Regional Transit Authority  
PROPOSAL REQUIREMENT**

**RTA CLEAN AIR POLICY**

As the region's public transportation provider, the Greater Dayton Regional Transit Authority (RTA) recognizes its role in improving the environment, specifically air quality. Therefore, RTA is committed to environmentally sound solutions that adhere to its primary mission of affordable, flexible, reliable and convenient public transportation that meets the needs of an ever-changing regional community.

In order to meet this clean air commitment, RTA shall:

- Encourage use of the RTA system in an effort to offset the growing use of single-occupant vehicles, the greatest source of ozone pollution.
- Adjust and expand service, when feasible, in response to population shifts and regional needs in an effort to increase use of the system.
- Assure that RTA vehicles, either through adaptation or purchase, meet or exceed the emission standards of the Environmental Protection Agency (EPA). RTA will continue to investigate technologies developed to aid public transportation in its mission to improve air quality.
- Contract only with vendors and suppliers who comply with EPA Clean Air standards.
- Invite area employers to participate in RTA's corporate pass purchase program to increase ridership among their employees.
- Lobby for development of municipal land use ordinances and policies that encourage accessibility to mass transit.
- Maintain open communication with riders, taxpayers, public interest groups, private organizations, and government agencies to encourage free exchange of information regarding environmental issues and improvements.

***PLEASE EXECUTE: RTA CLEAN AIR POLICY VERIFICATION***

There is no action pending against

\_\_\_\_\_  
*(Name of Bidder)*

for violating the Environmental Protection Agency Clean Air standards.

Company: \_\_\_\_\_

By: \_\_\_\_\_ Date: \_\_\_\_\_  
*(Duly Authorized Company Representative)*

**The Greater Dayton Regional Transit Authority  
PROPOSAL REQUIREMENT**

**ADDENDA ACKNOWLEDGMENT FORM**

Addenda received (if none received write "none received")

Addendum No. \_\_\_\_\_ Date Received: \_\_\_\_\_

Addendum No. \_\_\_\_\_ Date Received: \_\_\_\_\_

Addendum No. \_\_\_\_\_ Date Received: \_\_\_\_\_

Addendum No. \_\_\_\_\_ Date Received: \_\_\_\_\_

Addendum No. \_\_\_\_\_ Date Received: \_\_\_\_\_

Addendum No. \_\_\_\_\_ Date Received: \_\_\_\_\_

Name of individual, partner or corporation:

\_\_\_\_\_

Street Address: \_\_\_\_\_

City, State, Zip Code: \_\_\_\_\_

Telephone Number: \_\_\_\_\_

Printed Name: \_\_\_\_\_

Authorized Signature: \_\_\_\_\_

Title: \_\_\_\_\_

**The Greater Dayton Regional Transit Authority  
PROPOSAL REQUIREMENT**

**CERTIFICATION OF CONTRACTOR REGARDING DEBARMENT, SUSPENSION, AND  
OTHER INELIGIBILITY AND VOLUNTARY EXCLUSION**

The undersigned, an authorized official of the Bidder stated below, certifies, by submission of this bid, that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

(If the undersigned is unable to certify to any of the statements in this certifications, such official shall attach an explanation to this bid).

THE UNDERSIGNED CERTIFIES OR AFFIRMS THE TRUTHFULNESS AND ACCURACY OF THE CONTENTS OF THE STATEMENTS SUBMITTED ON OR WITH THIS CERTIFICATION AND UNDERSTANDS THAT THE PROVISIONS OF 31 U.S.C. SECTIONS 3801 ET SEQ. ARE APPLICABLE THERETO.

Name of Bidder: \_\_\_\_\_

Address: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

Signature of Authorized Official: \_\_\_\_\_

Title of Official: \_\_\_\_\_

Telephone: \_\_\_\_\_ Date: \_\_\_\_\_

## CERTIFICATION OF RESTRICTIONS ON LOBBYING

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 any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a grant, loan, or cooperative agreement, the undersigned shall complete and submit standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
- (3) The undersigned shall require that all language of this certification be included in the award documents for all sub awards at all tiers (including subcontracts, sub grants, and contracts under grants, loans, and cooperative agreements) and that all sub recipients shall certify and disclose accordingly.

76

**The Greater Dayton Regional Transit Authority  
PROPOSAL REQUIREMENT**

**CERTIFICATE OF PROCUREMENT INTEGRITY**

I, \_\_\_\_\_ am the officer or employee responsible  
*(Name of Certifier)*

for the preparation of this offer or bid and hereby certify that, to the best of my knowledge and belief, with the exception of any information described in this certificate, I have no information concerning a violation or possible violation of Subsection 27(a), (b),(c), or (e) of the Office of Federal Procurement Policy Act\* (41 U.S.C. 423) (hereinafter referred to as "the Act"), as implemented in the FAR, occurring during the conduct of this procurement (Solicitation No. GD 12-21.) As required by Subsection 27(d)(1)(B) of the Act, I further certify that each officer, employee, agent, representative,

and consultant of \_\_\_\_\_ who has participated personally and  
*(Name of Offeror)*

substantially in the preparation or submission of this offer has certified that he or she is familiar with, and will comply with, the requirements of Subsection 27(a) of the Act, as implemented in the FAR, and will report immediately to me any information concerning any violation or possible violation of the Act, as implemented in the FAR, pertaining to this procurement.

Violations or possible violations: (Continue on plain bond paper if necessary and label it 'Certificate of Procurement Integrity (Continuation Sheet)'. ENTER 'NONE' IF NONE EXISTS)

---

---

---

\_\_\_\_\_  
*(Signature of the Officer or Employee  
Responsible for the Offer)*

\_\_\_\_\_  
*Date*

\_\_\_\_\_  
*(Typed name of the Officer or  
Employee Responsible for the Offer)*

\*Section 27 became effective on July 16, 1989.

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

**The Greater Dayton Regional Transit Authority**  
**PROPOSAL REQUIREMENT**  
**BUY AMERICA PROVISION**

Certificate of Compliance with 49 U.S.C 5323(j)(2)(C).

The bidder or offeror hereby certifies that it will comply with the requirements of 49 U.S.C. 5323(j)(2)(C) and the regulations at 49 C.F.R. Part 661.11.

Date \_\_\_\_\_

Signature \_\_\_\_\_

Company Name \_\_\_\_\_

Title \_\_\_\_\_

Certificate of Non-Compliance with 49 U.S.C. 5323(j)(2)(C)

The bidder or offeror hereby certifies that it cannot comply with the requirements of 49 U.S.C. 5323(j)(2)(C) and 49 CFR 661.11, but may qualify for an exception pursuant to 49 U.S.C. 5323(j)(2)(A), 5323(j)(2)(B), or 5323(j)(2)(D), and 49 C.F.R. 661.7

Date \_\_\_\_\_

Signature \_\_\_\_\_

Company Name \_\_\_\_\_

Title \_\_\_\_\_



## GOVERNMENT BUSINESS AND FUNDING CONTRACTS

In accordance with section 2909.33 of the Ohio Revised Code

### DECLARATION REGARDING MATERIAL ASSISTANCE/NO ASSISTANCE TO A TERRORIST ORGANIZATION

This form serves as a declaration of the provision of material assistance to a terrorist organization or organization that supports terrorism as identified by the U.S. Department of State Terrorist Exclusion List (see the Ohio Homeland Security Division Web site for reference copy of the Terrorist Exclusion List).

Any answer of "yes" to any question, or the failure to answer "no" to any question on this declaration shall serve as a disclosure that material assistance to an organization identified on the U.S. Department of State Terrorist Exclusion List has been provided. Failure to disclose the provision of material assistance to such an organization or knowingly making false statements regarding material assistance to such an organization is a felony of the fifth degree.

For the purpose of this declaration, "material support or resources" means currency, payment instruments, other financial securities, funds, transfer of funds, and financial services that are in excess of one hundred dollars, as well as communications, lodging, training, safe houses, false documentation or identification, communications equipment, facilities, weapons, lethal substances, explosives, personnel, transportation, and other physical assets, except medicine or religious materials.

### COMPLETE THIS SECTION ONLY IF YOU ARE AN INDEPENDENT CONTRACTOR

LAST NAME		FIRST NAME		MI
HOME ADDRESS				
CITY	STATE	ZIP	COUNTY	
HOME PHONE		WORK PHONE		

### COMPLETE THIS SECTION ONLY IF YOU ARE A COMPANY, BUSINESS OR ORGANIZATION

LAST NAME		FIRST NAME		MI
BUSINESS/ORGANIZATION NAME			PHONE	
BUSINESS ADDRESS				
CITY	STATE	ZIP	COUNTY	

### DECLARATION

In accordance with section 2909.32 (A)(2)(b) of the Ohio Revised Code

For each question, indicate either "yes," or "no" in the space provided. Responses must be truthful to the best of your knowledge.

1. Are you a member of an organization on the U.S. Department of State Terrorist Exclusion List? ☐ Yes ☐ No
2. Have you used any position of prominence you have with any country to persuade others to support an organization on the U.S. Department of State Terrorist Exclusion List? ☐ Yes ☐ No
3. Have you knowingly solicited funds or other things of value for an organization on the U.S. Department of State Terrorist Exclusion List? ☐ Yes ☐ No
4. Have you solicited any individual for membership in an organization on the U.S. Department of State Terrorist Exclusion List? ☐ Yes ☐ No
5. Have you committed an act that you know, or reasonably should have known, affords "material support or resources" to an organization on the U.S. Department of State Terrorist Exclusion List? ☐ Yes ☐ No



6. Have you hired or compensated a person you knew to be a member of an organization on the U.S. Department of State Terrorist Exclusion List, or a person you knew to be engaged in planning, assisting, or carrying out an act of terrorism? ☐ Yes ☐ No

In the event of a denial of a government contract or government funding due to a positive indication that material assistance has been provided to a terrorist organization, or an organization that supports terrorism as identified by the U.S. Department of State Terrorist Exclusion List, a review of the denial may be requested. The request must be sent to the Ohio Department of Public Safety's Division of Homeland Security. The request forms and instructions for filing can be found on the Ohio Homeland Security Division Web site.

#### **CERTIFICATION**

I hereby certify that the answers I have made to all of the questions on this declaration are true to the best of my knowledge. I understand that if this declaration is not completed in its entirety, it will not be processed and I will be automatically disqualified. I understand that I am responsible for the correctness of this declaration. I understand that failure to disclose the provision of material assistance to an organization identified on the U.S. Department of State Terrorist Exclusion List, or knowingly making false statements regarding material assistance to such an organization is a felony of the fifth degree. I understand that any answer of "yes" to any question, or the failure to answer "no" to any question on this declaration shall serve as a disclosure that material assistance to an organization identified on the U.S. Department of State Terrorist Exclusion List has been provided by myself or my organization. If I am signing this on behalf of a company, business or organization, I hereby acknowledge that I have the authority to make this certification on behalf of the company, business or organization referenced on page 1 of this declaration.

X

\_\_\_\_\_  
**APPLICANT SIGNATURE**

\_\_\_\_\_  
**DATE**

**The Greater Dayton Regional Transit Authority  
PROPOSAL REQUIREMENT**

**OFFEROR SERVICE AND PARTS SUPPORT DATA**

**Location of nearest Technical Service Representative to RTA**

Name \_\_\_\_\_

Address \_\_\_\_\_

Telephone \_\_\_\_\_

Offeror to describe technical services readily available from said representative.

**Location of nearest Parts Distribution Center to RTA**

Name \_\_\_\_\_

Address \_\_\_\_\_

Telephone \_\_\_\_\_

Offeror shall describe the extent of parts available at said center.

**Policy for Delivery of Parts and Components to be Purchased for Service and Maintenance**

Regular Method of Shipment \_\_\_\_\_

Cost to Procuring Agency \_\_\_\_\_

**GREATER DAYTON REGIONAL TRANSIT AUTHORITY  
PROPOSAL REQUIREMENT**

**SUPPLIER CERTIFICATION**

SUPPLIER CERTIFIES: (Check appropriate blocks and sign in the space provided below.)

- A. That he/she is \_\_\_\_, is not \_\_\_\_, a regular provider of the buses called for in this Request for Proposals.
- B. (1) That he/she has \_\_\_\_, has not \_\_\_\_, employed or retained any company or person (other than a full-time bona fide employee working solely for the supplier) to solicit or secure this Contract, and (2) that he/she has \_\_\_\_, has not \_\_\_\_, paid or agreed to pay to any company or person (other than a full-time bona fide employee working solely for the supplier) any fee, commission, percentage, or brokerage fee, contingent upon or resulting from the award of this Contract, and agrees to furnish information relating to (1) above as requested by the Contracting Officer.
- C. That, to the best of his/her knowledge and belief, cost and pricing data submitted to the Contracting Officer or his/her representative in support of the referenced procurement are \_\_\_\_, are not \_\_\_\_, accurate, complete, and current as of the date of execution of this certificate.
- D. (CERTIFICATE OF INDEPENDENT PRICE DETERMINATION)
  - (1) That, in connection with this procurement, he/she and the Officer he/she represents (and in the case of a joint proposal, each party thereto) to the best of his/her knowledge and belief:
    - (a) the prices in this proposal have been arrived at independently, without consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other offeror or with any competitor;
    - (b) unless otherwise required by law, the prices which have been quoted in this proposal have not been knowingly disclosed by the Offeror and will not knowingly be disclosed by the Offeror prior to award, directly or indirectly to any other offeror or to any competitor; and
    - (c) no attempt has been made or will be made by the Offeror to induce any other person or firm to submit or not to submit a proposal for the purpose of restricting competition.
  - (2) That each person signing this proposal represents with regard to collusive pricing that:

SUPPLIER CERTIFICATION

page 2

- (a) he/she is the person in the Proposer's organization (if any) responsible within that organization for the decision as to the prices being offered herein and that he/she has not participated and will not participate, in any action contrary to (1)(a) through (1)(c) above, or
  - (b) he/she is not the person in the Proposer's organization responsible within that organization for the decision as to the prices being offered herein, but that he/she has been authorized in writing to act as agent for the persons responsible for such decision in certifying that such persons have not participated, and will not participate in any action contrary to (1)(a) through (1)(c) above, and as their agent does not hereby so certify; and
  - (c) he/she has not participated, and will not participate, in any action contrary to (1)(a) through (1)(c) above.
- (3) A proposal will not be considered for award where (1)(a), (1)(c), or (2) above has been deleted or modified. Where (1)(b) above has been deleted or modified, the proposal will not be considered for award unless the Offeror furnished, with the proposal, a signed statement which sets forth in detail the circumstances of the disclosure and the Contractor, or his/her designee, determines that such disclosure was not made for the purpose of restricting competition.
- E. That within 15 days after the date of notification of selection of the successful Proposer, the successful Proposer will enter into an agreement with the Contractor.
- F. Type of business (check appropriate box)

☐ Individual    ☐ Partnership    ☐ Corporation

Incorporated in the State of \_\_\_\_\_.  
(Complete if corporation.)

Proposer's Signature \_\_\_\_\_

**The Greater Dayton Regional Transit Authority  
PROPOSAL REQUIREMENT**

**CERTIFICATE OF COMPLIANCE WITH BUS TESTING REQUIREMENT**

The undersigned certifies that the vehicles offered in this procurement comply and will, when delivered, comply with 49 U.S.C. § 5323(c) and FTA's implementing regulation at 49 CFR Part 665 according to the indicated one of the following three alternatives.

(mark one and only one of the three blank spaces with an "x")

1.    \_\_\_    The buses offered herewith have been tested in accordance with 49 CFR Part 665 on \_\_\_\_\_ (date). The vehicles being sold should have the identical configuration and major components as the vehicle in the test report, which must be submitted with this Offer. If the configuration or components are not identical, the manufacturer shall provide with its Offer a description of the change and the manufacturer's basis for concluding that it is not a major change requiring additional testing.
  
2.    \_\_\_    The manufacturer represents that the vehicle is "grandfathered" (has been used in mass transit service in the United States before October 1, 1988, and is currently being produced without a major change in configuration or components), and submits with this Offer the name and address of the recipient of such a vehicle and the details of that vehicle's configuration and major components.
  
3.    \_\_\_    The vehicle is a new model and will be tested and the results will be submitted to RTA prior to acceptance of the first bus.

The undersigned understands that misrepresenting the testing status of a vehicle acquired with federal financial assistance may subject the undersigned to civil penalties as outlined in the Department of Transportation's regulation on Program Fraud Civil Remedies, 49 CFR Part 31. In addition, the undersigned understands that FTA may suspend or debar a manufacturer under the procedures in 49 CFR Part 29.

Date: \_\_\_\_\_

Signature: \_\_\_\_\_

Company Name: \_\_\_\_\_

Title: \_\_\_\_\_

**The Greater Dayton Regional Transit Authority  
PROPOSAL REQUIREMENT**

**DBE APPROVAL CERTIFICATION**

I hereby certify that the Offeror has complied with the requirements of 49 CFR Parts 23 and 26, Participation by Disadvantaged Business Enterprises in DOT Programs, and that our goals have not been disapproved by the Federal Transit Administration.

\_\_\_\_\_ Signature of the Offeror's Authorized Official

\_\_\_\_\_ Name and Title of the Offeror's Authorized Official

\_\_\_\_\_ Date

**The Greater Dayton Regional Transit Authority**  
**REQUEST FOR CHANGE OR APPROVED EQUAL**

This form must be used for requested clarifications, changes, substitutes or approval of items equal to items specified with a brand name, and must be submitted as far in advance of the Due Date as specified in "Offeror Communications and Requests" (Section I, Item 5)

Request #: \_\_\_\_\_ Offeror: \_\_\_\_\_

Solicitation Ref: GD 12-21 Page: \_\_\_\_\_ Section: \_\_\_\_\_

Questions/Clarification or Approved Equal: \_\_\_\_\_

---

---

---

---

---

---

---

---

---

---

Procuring Agency: \_\_\_\_\_

---

---

---

---

---

---

---

**The Greater Dayton Regional Transit Authority**

**FORM FOR PROPOSAL DEVIATION**

The following form shall be completed for each condition, exception, reservation or understanding (i.e., deviation) in the proposal according to "Conditions, Exceptions, Reservations and Understandings" (Section I, Item 7). One copy without any price/cost information is to be placed in the technical proposal as specified in "Technical Proposal Requirements" (Section I, Item 12) and a separate copy with any price/cost information placed in the price proposal as specified in the "Price Proposal Requirements (Section I, Item 13).

Deviation #: \_\_\_\_\_ Offeror: \_\_\_\_\_

Solicitation Ref: GD 12-21 Page: \_\_\_\_\_ Section: \_\_\_\_\_

Complete Description of Deviation: \_\_\_\_\_

---

---

---

---

---

---

---

---

---

---

Rationale (Pros & Cons): \_\_\_\_\_

---

---

---

---

---

---

---

---



**PART I**  
**SECTION IV - PRICE PROPOSAL**  
**Greater Dayton Regional Transit Authority**  
**PROPOSAL FORM**

Description	Base Quantity	Unit Price	Total Price
Dual Mode Electric Trolley Coaches			
600 volt overhead catenary system/diesel electric	2	\$ _____	\$ _____
600 volt overhead catenary system/battery dual mode drive system	2	\$ _____	\$ _____

**OPTION YEARS**

Description	Quantity	Maximum PPI	Extended Price Based on Maximum PPI and Maximum Buses
2014 Additional Buses with Delivery in 2015	0-75	\$ _____	\$ _____

Option buses are contingent upon available funding and results of testing period.

All options will be exercised with five-years of contract award.

The Greater Dayton Regional Transit Authority

**OFFER**

By execution below Offeror hereby offers to furnish equipment and services as specified in RTA's Invitation for Bid No. GD 12-21 including General Provisions, Quality Assurance Provisions, Warranty Provisions, System Support Provisions, and Technical Specifications therein.

\_\_\_\_\_  
Name of Individual, Partner or Corporation

\_\_\_\_\_  
Address

\_\_\_\_\_  
City, State and Zip Code

\_\_\_\_\_  
Telephone Number

\_\_\_\_\_  
Fax Number

\_\_\_\_\_  
E-mail Address

\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

\_\_\_\_\_  
Printed Authorized Signature

\_\_\_\_\_  
Printed Title

**PART I**

**SECTION V – CONTRACT EXAMPLE**

**GREATER DAYTON REGIONAL TRANSIT AUTHORITY**  
**CONTRACT**

Agreement made this \_\_\_\_\_ day of \_\_\_\_\_, 2012, by and between the Greater Dayton Regional Transit Authority, Dayton, Ohio, a political subdivision organized and existing under and by virtue of the laws of the State of Ohio, hereinafter called "Authority," and \_\_\_\_\_ hereinafter called "Contractor."

The parties hereto, intending to be legally bound, hereby agree as follows:

**ARTICLE I - SCOPE**

The Contractor shall sell, and the Authority shall purchase, the following described goods and/or services:

---

all as more fully described in Legal Notice No. GD 12-21

All goods and/or services to be sold pursuant to this contract shall satisfy completely each and every specification appearing in the specifications and all other requirements, which may appear in the Contract Documents.

The Contractor shall furnish all supervision, technical personnel, labor, materials, machinery, tools, equipment and services which may be necessary to perform completely all services, and to deliver and install, if necessary, all goods to be sold pursuant to this Contract, all in strict accordance with the Contract Documents.

**ARTICLE II - CONTRACT**

Contract Documents shall consist of the following:

- A) THIS CONTRACT
- B) REQUEST FOR PROPOSAL (TERMS AND CONDITIONS,  
Scope of Work and Proposal Requirements)
- C) Signed Copy of Proposal
- D) Addenda Issued

The Contract Documents form the entire contract between the parties hereto, any oral understandings or agreements to the contrary notwithstanding.

### **ARTICLE III - TIME FOR PERFORMANCE**

Time is of the essence in the performance of this contract. The Contractor shall fully perform all of his obligations, including without limitation the satisfactory delivery and installation of all goods to be sold, and the satisfactory performance of all work to be done, but not later than \_\_\_\_\_. This article applies even in the event of a union or employee strike, as this is a foreseeable circumstance that can be prevented, mitigated, and expected by the Contractor.

### **ARTICLE IV - METHOD OF PAYMENT AND MAXIMUM COMPENSATION**

The maximum aggregate compensation payable by Authority to Contractor shall not exceed \_\_\_\_\_.

The Contractor shall, for the payment of all sums due under this contract, look solely to the monies provided the Authority from tax revenues resulting from duly authorized taxes which shall now or hereafter be levied by the Authority, and from grant contract funds, if any, which may actually be received by the Authority from the federal government under the Urban Mass Transportation Act of 1964, as amended, for the purpose of underwriting, in whole or in part, the Authority's costs pursuant to this contract.

It is expressly understood that the Authority shall be under no obligations whatsoever for any excess costs arising from changes, modifications or extra work orders not specifically approved by the Authority in one or more writings in which the excess cost or costs is specifically set forth.

The Authority will make payment to the Contractor within thirty (30) days after its acceptance of all of the goods and/or services to be sold pursuant to this contract.

### **ARTICLE V - TERMINATION OF CONTRACT FOR DEFAULT**

If, through any cause, the Contractor shall fail to perform fully, timely and in proper manner its obligations under this contract, or if the Contractor shall breach any of the covenants, conditions or agreements contained in the contract, the Authority shall thereafter have the right to terminate this contract by giving notice in writing which shall specify the effective date thereof, to the Contractor of such termination. In such event, any goods delivered and/or installed by the Contractor under this contract shall, at the option of the Authority, become the Authority's property and the Contractor shall be entitled to receive just and equitable compensation therefore, not to exceed the amount payable therefore under Article IV hereof. In the event of a termination pursuant to this Article, the Authority may elect instead to remove any goods delivered and/or installed and redeliver the same to the Contractor, all at the Contractor's sole expense, including reasonable charges for any time and/or labor expended by the Authority's employees.

Notwithstanding the above, the Contractor shall not be relieved of any liability to the Authority for damages sustained by the Authority by virtue of any breach of contract or warrants, or of both, by the Contractor for the purpose of setoff and/or recoupment until such time as the exact amount of damages due the Authority from the Contractor is determined.

## **ARTICLE VI - TERMINATION FOR CONVENIENCE OF THE AUTHORITY**

The Authority may terminate this contract any time by a notice in writing that shall specify the effective date thereof, from the Authority to the Contractor, at least thirty (30) days before the effective date of such termination. In that event, any goods accepted by the Authority prior to the effective date of the termination shall become the Authority's property and the Contractor shall be entitled to receive just and equitable compensation therefore and for any services accepted by the Authority prior to the effective date; provided, nevertheless, that the amount of such compensation shall not, in any event, exceed the amount of the total contract price, as set forth in Article IV, above, properly attributable to the goods and/or services so accepted.

Neither the acceptance, by the Authority, of any goods and/or services; the payment, by the Authority, for any goods and/or services; nor both acceptance and payment, shall be deemed to waive, to compromise, or to affect in any manner the liability of the Contractor for any breach of contract, of warranty, or both of contract and of warranty.

## **ARTICLE VII - CONTRACT CHANGES**

Any proposed change in this contract shall be submitted to the Authority for its prior approval, and shall not become effective unless it is contained in a writing signed by the Executive Director of the Authority.

## **ARTICLE VIII - INTEREST OF MEMBERS OF OR DELEGATES TO CONGRESS**

No member of or delegate to the Congress of the United States shall be admitted to any share or part of this contract or to any benefit arising there from.

## **ARTICLE IX - PROHIBITED INTEREST**

No member, officer or employee of the RTA or of a local public body during his/her tenure or one year thereafter shall have any interest, direct or in direct, in this contract or the proceeds thereof.

## **ARTICLE X - EQUAL EMPLOYMENT OPPORTUNITY**

In connection with the execution of this contract, the Contractor shall not discriminate against any employee or applicant for employment because of race religion, color, sex or national origin. The Contractor shall take Affirmative Action to ensure that applicants are employed, and that employees are treated during their employment, without regard to their race, religion, color, sex or national origin. Such actions shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.

## **ARTICLE XI - DISADVANTAGED BUSINESS ENTERPRISE**

In connection with the performance of this contract, the Contractor will cooperate with the Authority in meeting its commitments and goals with regard to the maximum utilization of disadvantaged business enterprises and will use its best efforts to ensure that minority, women or other disadvantaged business enterprises shall have the maximum practicable opportunity to compete for subcontract work, if any, and for the supply of materials or services, if any, which may be necessary or desirable for the performance of this contract.

## **ARTICLE XII – ASSIGNABILITY**

The terms and provisions of the Contract Documents shall be binding upon RTA and the Contractor and their respective partners, successors, heirs, executors, administrators, assigns and legal representatives. The rights and obligations of the Contractor under the Contract may not be transferred, assigned, sublet, mortgaged, pledged or otherwise disposed of or encumbered in any way. The Contractor may subcontract a portion of its obligations to other firms or parties but only after having obtained the written approval by RTA of the subcontractor, which approval shall not be unreasonably withheld. RTA may assign its rights and obligations under the Contract to any successor to the rights and functions of RTA or to any governmental agency to the extent required by applicable laws and governmental regulations or to the extent RTA deems necessary or advisable under the circumstances.

## **ARTICLE XIII – NONDISCRIMINATION**

During the performance of this contract, the Contractor agrees as follows:

(1) The Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, color, sex, or national origin. 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. The Contractor agrees to post in conspicuous places available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

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

(3) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(4) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(5) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(6) In the event of the Contractor's noncompliance with the non-discrimination clauses of this contract or with any of the said rules, regulations or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further

grantee contracts or Federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order, of the Secretary of Labor, or as otherwise provided by law.

(7) The Contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for non-compliance: Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

#### **ARTICLE XIV - AUDIT AND INSPECTION OF RECORDS**

In the event a single proposal is received, the following will be considered part of the contract.

In the case of all negotiated contracts, and contracts for construction, reconstruction, or improvement of facilities and equipment, which entered into under other than competitive proposal procedures, contractor agrees that the grantee, the Comptroller General of the United States, or any of their duly authorized representatives, shall, for the purpose of audit and examination shall be permitted to inspect all work, materials, payrolls, and other data and records with regard to the project, and to audit the books, records, and accounts with regard to the project.

Further, Contractor agrees to maintain all required records for at least three years after grantees make final payments and all other pending matters are closed.

IN WITNESS WHEREOF, the parties to this contract have set their hands to triplicate copies on the day and year hereinabove written with each copy to be considered an original.

#### **GREATER DAYTON REGIONAL TRANSIT AUTHORITY**

*Authority*

By: \_\_\_\_\_

Mark Donaghy  
Executive Director

Date: \_\_\_\_\_

Attest: \_\_\_\_\_

By: \_\_\_\_\_

*Contractor*

By: \_\_\_\_\_

Date: \_\_\_\_\_

Attest: \_\_\_\_\_

By: \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_

### **CERTIFICATE OF FUNDS**

I hereby certify that the funds estimated to be required to meet the payment called for in the Contract between the Greater Dayton Regional Transit Authority and \_\_\_\_\_ dated \_\_\_\_\_, 2012, have been lawfully appropriated for that purpose and are in the treasury or in the process of collection to the credit of the appropriate fund, free from any previous encumbrances.

\_\_\_\_\_  
Mary K. Stanforth  
Chief Financial Officer

Date: \_\_\_\_\_



## **PART II - TECHNICAL SPECIFICATIONS**

### **DUAL MODE ELECTRIC TROLLEY COACHES**

## **Technical Specifications**

The Greater Dayton Regional Transit Authority (RTA) is requesting proposals for four (4) dual mode electric trolley coaches using a 2013 model G27d102N4 BRT Gillig or approved equal chassis and body. The propulsion systems shall be designed to operate either by a 600volt overhead catenary system/diesel electric or a 600volt overhead catenary system/battery dual mode drive system. The coach shall have the same operating characteristics off wire as on. Up to two (2) coaches employing both propulsion systems shall be built for a total of four (4) coaches.

It shall be the responsibility of the Contractor to finish the coach to compliance with all aspects of the technical specifications. Final assembly inspection including water testing shall be completed at the final assembly site. The Contractor shall be responsible to coordinate with Gillig for the repair of any chaise or body defects found during the inspection.

### **1.1 GENERAL**

These Technical Specifications cover requirements for Heavy Duty Electric Transit Dual Mode coaches which may be used for rural, suburban, and urban transit service operations on urban streets and rural roadways in the general environmental and climatic conditions prevailing throughout the Authority operating area. It is intended for the widest possible spectrum of adult passengers, elderly, and the handicapped.

It is the intent of this specification to describe the design requirements for a Heavy Duty Electric Transit Dual Mode coach rugged enough to withstand rigorous intensive daily transit service operations and provide maximum reliability and availability, with a minimum of maintenance and repair time. The coach shall exhibit maximum passenger appeal in appearance, comfort and safety, combined with excellence in reliability, operating characteristics, efficiency, and economy of operation.

The coach shall be fully compliant with the applicable requirements of the Americans with Disabilities Act (ADA) and any revisions published by the Architectural and Transportation Barriers Compliance Board or The Federal Transit Administration for fixed route operations. Where these specifications exceed the requirements of ADA, the specification requirement shall apply.

Included in this specification is the description for standard configuration 40 foot heavy-duty transit coaches.

### **Low Floor Coach**

Length:	40 feet
Width:	102 inches
Height:	144.0 inches
Seating Capacity:	40

Floor Height:	11.0 inches
Front Step Height:	15.3 inches
Head Room Maximum:	95 inches
Aisle Width Minimum:	23 inches
Wheel Base:	279 inches
Turning Radius (front body corner) maximum:	43.3 feet
Approach Angle:	8.1 degrees
Departure Angle:	8.8 degrees
Curb Weight Max. GVW:	27,545 lbs
Vehicle Weight Max. GVWR:	39,100 lbs

## **1.2 REQUIREMENTS**

- a. Coaches are to be used in urban areas, but at the same time must be able to maintain speeds as listed below. Coaches shall be able to maintain a minimum of 20 MPH on a eight percent (8%) grade when loaded to GVWR.

<b>Mode</b>	<b>Speed</b>	<b>Range</b>
Diesel/Electric On Wire	48mph	unlimited
Diesel/Electric Off Wire	55mph	300 miles
Battery On Wire	48mph	unlimited
Battery Off wire	45mph	15 miles/charging time 60 minutes

- b. Coaches shall incorporate features essential for safe, fast, efficient and comfortable operation by the operator, features that ensure excellent road and traffic visibility under all driving conditions and adequate means for safe passenger movement. The coach shall be made capable of easy maneuvering in normal and heavy traffic.
- c. The coach shall be equipped with a remote diagnosis system capable of transmitting systems operational data by wireless LAN or 3G to a stationary PC.

## **1.3 MAINTENANCE AND INSPECTION**

Scheduled maintenance tasks shall be related and shall be grouped in maximum mileage intervals. Routine scheduled maintenance actions, such as filter replacement and adjustments, shall not be required at intervals of less than 6,000 miles, except for routine daily service performed during the servicing operations. Higher levels of scheduled maintenance tasks shall occur at even multiples of mileages for lower level tasks.

## **1.4 OPERATING ENVIRONMENT**

The coach shall achieve normal operation in the environmental conditions normally occurring in the area in which the Authority is located in temperature ranges of 10F to 120F, at relative

humidity between 5 percent and 100 percent.

## **1.5 CONFORMITY**

- a. All bidders must conform to these specifications and the product they furnish shall be of first-class quality and the workmanship shall be the best obtainable in various trades. The design of the body, chassis and equipment which the manufacturer proposes to furnish shall be such as to produce a coach of substantial and durable construction in all respects.
- b. No advantage shall be taken by the manufacturer in the omission of any part or detail which goes to make the coach complete and ready for service, even though such parts or detail are not mentioned in these specifications.
- c. All units or parts not specified shall be manufacturer's standard units. In all cases, material must be furnished as specified, but if the term, "approved equal" is used, the Authority must approve any material or equipment substitute for specified material or equipment.

## **1.6 RESPONSIBILITY**

Coach manufacturer shall assume responsibility for all material and accessories in the coach, whether the same are made by coach manufacturer or purchased ready made from an outside source.

## **General Testing**

- a. The vehicle provided shall be fully tested to assure compliance with the performance and safety requirements of the specifications. At the option of the Authority, Bidder and/or Contractor may be required to provide test results and/or certifications insuring compliance with the requirements of the specifications. Certifications or written documentation outlining test procedures and results shall be prepared by a Professional Engineer and/or test laboratory certifying compliance with the requirements of the appropriate section of the technical specification and shall be provided by the Bidder and/or Contractor for approval by the Authority.
- b. Contractor may be required to demonstrate compliance with any of the performance requirements of the technical specifications. Minimum testing that shall be required includes;
  - IR frequency
  - AC Performance
  - Acceleration
  - Gradability
  - Internal Noise
  - External Noise
  - Passenger Door(s) Opening and Closing Speeds
  - Lighting Levels
  - Turning Radius

- Water Test

## **1.7 INTERNAL NOISE**

- a. Maximum internal noise shall not exceed eighty (80) DBA in areas "1", "2", and "3", and no more than eighty three (83) DBA in area "4" as described below. Sound levels within the coach shall be measured with all doors and windows closed and all vehicle equipment operating. If some equipment operates on a cyclic basis, the sound level shall be measured with all equipment functioning simultaneously to determine the worst case noise level.
- b. Measurements shall be made with the vehicle empty, except for test personnel and equipment. Not more than three (3) persons shall occupy the vehicle during the measurements.
- c. Measurements shall be made at a height of four feet (4') above the floor and directly above the center line of the seats at the following locations:
  1. The operator's seat;
  2. The foremost passenger seat at the centerline of the coach;
  3. The seat nearest the center of the coach, and at the coach centerline;
  4. The rear-most seat at the centerline of the coach.
- d. Accelerate the coach at full power from standstill to test speed of sixty (60) miles per hour. Observe and record maximum sound level during this operating mode. The sound level recorded shall be the average of at least four (4) readings.
- e. Measurements shall be taken where there is no reflecting or absorbing surfaces to change the sounds emitting from the vehicle.

## **1.8 EXTERNAL NOISE**

Airborne noise generated by the coach and measured from either side shall not exceed 83 DBA under full power acceleration when operated at or below 35 mph at curb weight. The maximum noise level generated by the coach pulling away from a stop at full power shall not exceed 83 DBA. The coach generated noise at curb idle shall not exceed 15 DBA. If the noise contains an audible discrete frequency, a penalty of 5 DBA shall be added to the sound level measured. All noise readings shall be taken 50 feet from the perpendicular to the centerline of the coach with all accessories operating. Instrumentation, test sites, and other general requirements shall be in accordance with SAE Standard J366. The pull away test shall begin with the front bumper even with the microphone. The curb idle test shall be conducted with the rear bumper even with the microphone.

## **1.9 CRASHWORTHINESS**

- a. The coach body and roof structure shall withstand a static load equal to 150 percent of the curb weight evenly distributed on the roof with no more than a 6 inch reduction in any interior dimension. Windows shall remain in place and shall not open under such a load.

- b. The coach shall withstand a 25 mph impact by a 4,000 pound post-1973 American automobile at any point, excluding doorways, along either side of the coach with no more than 3 inches of permanent structural deformation at seated passenger hip height. This impact shall not result in sharp edges or protrusions in the coach interior.
- c. Exterior panels below the rubrail and their supporting members shall withstand a static load of 2,000 pounds applied perpendicular to the coach anywhere below the rubrail by a pad no larger than 5 inches square. This load shall not result in deformation that prevents installation of new exterior panels to restore the original appearance of the coach.
- d. The coach, at GVWR and under static conditions, shall not exhibit deformation or deflection that impairs operation of doors, windows, or other mechanical elements. Static conditions include the vehicle at rest with any one wheel or dual set of wheels on a 6 inch curb or in a 6 inch deep hole.
- e. All structure, body, and panel bending mode frequencies, including vertical, lateral, and torsional modes, shall be sufficiently removed from all primary excitation frequencies to minimize audible, visible, or sensible resonant vibrations during normal service.
- f. To protect passengers seated in low floor area, the basic low floor coach structure shall incorporate a substantial side impact barrier. The barrier shall include steel plate, continuous between the front wheel arches and the rear suspension (except in the width of the exit door opening).
- g. The impact barrier shall be an integral welded part of the undercarriage portion of the coach structure, and shall be angled such that vehicles impacting the coach side shall tend to subvert.
- h. To further increase both passenger safety and repairability, robust welded structures are required between the angled barrier and the coach side skins. These shall be designed to dissipate collision energy.

#### **1.10 MATERIAL**

- a. All materials used in construction of the coach and all its parts shall conform in all respects to American Society of Testing Materials, Society of Automotive Engineers, or similar association standards. Materials used shall be exactly duplicated in manufacture, design and construction on each coach model.
- b. Reinforced fiberglass and plastic materials shall be excluded from the basic body construction, except for replaceable panels, doors, and front and rear caps.
- c. All lumber shall be thoroughly kiln dried free from knots and checks and shall be of clear straight grain, dressed on all sides.
- d. All painted aluminum sheets shall be thoroughly cleaned and coated on the outside with

PPG DPU Low VOC primer, or approved equal, prior to assembly in coach.

- e. All joints shall be protected by application of PPG DPU Low VOC primer, Butyl Tape Sealer, or approved equal, at assembly.
- f. Plywood shall be of a marine grade with sealed waterproof edges.
- g. All bolts, nuts, washers and exposed linkage shall be zinc, cadmium plated, stainless steel or phosphate coated to prevent corrosion.
- h. All bolts, nuts, and washers shall be Domestic manufacture and be SAE Grade 5 or better.

### **1.11 CORROSION**

- a. The vehicle shall resist corrosion from atmospheric conditions and road salts. It shall maintain structural integrity and nearly maintain original appearance throughout its service life, provided it is maintained in accordance with the procedures specified in the manufacturer's service manual by the Authority. Materials exposed to the elements and all joints and connections of dissimilar metals (and remote from each other in the galvanic series), shall be corrosion resistant and shall be protected from galvanic corrosion.
- b. The entire body frame assembly, access doors, fenders, cab, underbody, wheel housings, lower skirt panels, including closed-off body panel sections, the interior of tubing structure and all welds shall be treated and rust-proofed with a commercial grade heavy-duty rust-proofing material. All metal body parts shall be given a thorough multiple-stage anti-corrosion treatment. The product used shall be listed as a qualified product under Mil Spec C-62218, Mil Spec C-0083933A (MR). Zinc chromate or zinc phosphate prime paint shall be applied to both aluminum and steel. Body panels that are one-side galvanized, two-side galvanized, two-side iron-zinc alloy, zincrometal, aluminum or tin coated, etc., or treated in any other method or procedure currently accepted by the commercial vehicle industry, are acknowledged as meeting this requirement and need no further treatment, except for finish prime/paint or undercoating where applicable. Representative samples shall withstand a 2-week salt spray test in accordance with ASTM Procedure B-117 with no visual or structural detrimental effects to normally visible surfaces, and no significant structural degradation or weight loss of over 1 percent for other members or components.

### **1.12 UNDERCOATING**

- a. Except as noted below, the entire body lower frame assembly, cab, underbody, understructure/frame, chassis, fenders, wheel housings, and lower skirt panels shall be completely undercoated.
- b. Undercoating shall be PPG Corashield 7972 material. Undercoating shall be applied to a uniform thickness throughout with no bare spots.
- c. Items and components that shall not be undercoated include non-metallic fender and

engine, transmission, driveshaft(s), differential/axle housing, brakes, lube fittings, exhaust system, and power steering.

### **1.13 AXLES**

Both front and rear axles shall have the load rating for the gross loads equal to or greater than the coach builder requires them to carry. The gross load shall include curb weight plus seated and standee passengers with the average weight of each passenger to be 150 pounds. Front and rear axles for the coaches shall have the highest GVWR capacity available. Front and rear hubs shall be of steel construction.

#### **Front Axle**

- a. A solid front axle shall be designed with proper wheel and axle geometry so that imperfect front axle operation shall not be encountered in service.
- b. Front axle shall be 14,100 lbs., minimum rating.
- c. Wheel bearings shall utilize "grease" lubrication.
- d. Remote grease points for king pins.

#### **Rear Axle**

- a. Rear axle shall have minimum rated capacity of 21,000 lbs.
- b. The rear axle shall be a heavy-duty, full floating type, Meritor Standard, or approved equal, incorporating a spiral bevel drive. The axle housing shall be a steel stamping and located to the roadside of the axle center. End tubes shall be removable and shall be threaded to allow for adjustment of wheel bearing nuts. The housing drain plug shall be magnetic.
- c. The differential carrier shall incorporate the differential assembly, drive pinion and pinion cage. Carrier shall be removable as a complete unit from the axle housing.
- d. The four (4) pinion differential gears shall be carried in a two piece case mounted on tapered roller bearings. Torque nuts and bolts are used to mount the dowel gear drive to the flanged half of the differential case.
- e. Axle shafts shall be the floating type with all wheel bearing loads carried on the axle housing end sleeves.
- f. The drive flanges at the outer end shall be attached to hub-piloted wheels.
- g. Wheel bearings shall utilize "grease" lubrication.

#### **Rear Axle Gear Ratio**



The differential gear ratio is subject to approval by the Authority prior to production after reviewing performance computer generated models.

### **Hubodometer**

The S&A JX55 Fleetwatch system shall be used.

## **1.14 BRAKES**

### **General**

Each coach must be equipped with both service and emergency brakes.

### **Brake Chambers**

Brake chambers shall be Anchorlok or MGM type 30 with protective boot over the push rod, or approved equal. Brake chambers shall be equipped with manufacturer's standard diaphragm and spring. Brake system shall be balanced to provide safe stop operation.

### **Service Brakes**

- a. Coaches shall be equipped with brake systems which conform to the requirements of all Federal and State regulations, designed so such conformance can be maintained throughout the normal adjustment cycle. A supplemental brake (transmission retarder) shall also be provided. The supplemental braking shall not be used in meeting regulatory criteria. The braking system shall include service brakes, a parking and emergency brake.
- b. Service air brakes shall be furnished on all wheels of each coach. The brake system shall be approved by the Authority.
- c. Control -The driver's brake pedal shall control the service brake in a coordinated manner to give a total braking effort depending on the position of the pedal up to the maximum capability of the braking system. Braking forces shall be proportioned among the axles to assure balanced braking and equalize lining life between axles. Braking shall be initiated at the second axle.
- d. Brake lights shall be activated as soon as the brake pedal is depressed and when any the brake retarder is applied.
- e. Brake Drums, Shoes and Linings - Rear brake drums shall be a minimum of 14.5 by 10 inches (368 by 254 mm). Front brake drums shall be a minimum of 14.5 by 6 inches (368 by 152 mm). Brake shoes shall be of two shoe type, heavy duty, fabricated steel, heavily ribbed to insure uniform pressure. Linings shall be non asbestos. A method of visually indicating wear of the brake lining shall be provided. 'S' cam brakes shall be supplied. Drums shall be labeled with the maximum safe diameter for drum refinishing. Other brake configurations, such as disc brakes may be supplied with the prior approval of the Authority.
- f. Brake Adjustment - Brakes shall be provided with "Haldex" or approved equal automatic

slack adjusters. All slack adjusters shall be removable without disassembly or removal of other components. Slack adjuster travel and geometry shall be designed not to exceed 90 degrees in relation to the pushrod, when properly adjusted, throughout the lining life.

- g. **Brake Hoses** Brake hoses shall be installed in locations where the possibility of damage is minimized. Hoses shall be clamped and supported by the coach structure to minimize long unsupported hose lengths and to eliminate rubbing and/or chafing.

### **Emergency Brake**

Coach shall be equipped with spring brakes Anchorlok #3030 or MGM #E3030T, with quick release yoke or manual "wind off", or approved equal, capable of bringing the coach to a stop from a speed of twenty (20) miles per hour at a deceleration rate equivalent to a stop within sixty feet (60') with a seated passenger load. Brake valve to be PP 1 40 PSI setting.

### **Slack Adjusters**

Automatic slack adjusters, as manufactured by Haldex, or approved equal, shall be furnished on front and rear brakes. Adjusting bolt and lock shall be positioned so adjustment can be made easily.

## **1.15 AIR SYSTEM**

### **Air Compressor**

The air compressor shall be driven by an A/C drive motor and shall be large enough to charge the system from 40 psi to the governor cut-off pressure in less than three (3) minutes while not exceeding the motor's rated speed.

### **Air DYER**

The air dryer shall prevent accumulation of moisture in the air system. It shall be vertical mounted, desiccant type with replaceable desiccant cartridge. The dryer shall be equipped with a thermostatically controlled heater element. It shall have automatic purge and drain cycle, and be cleanable through the bottom of the unit. The Air Dryer shall be a Wabco or Authority approved equal.

### **Air Tanks**

Air reservoirs shall be of adequate capacity for supplying the air volume needs of the coach. First tank shall be equipped with a Bendix #800191 PUROGUARD System filter and an automatic air dryer Bendix high volume standard SAEJ10 AD9, or approved equal, and shall operate in conjunction with the air governor or relay valve. All air tanks shall be equipped with drain valves located below floor level.

- a. There shall be low air pressure switches located on the air tanks. They shall monitor the primary and secondary reservoir air pressure.
- b. In combination with the visual and audible signals, there shall be single, dual needle air pressure gauge reading the pressures of the primary (rear brake) and secondary (front brake) reservoirs.

### **Brake Lines Body Mounted**

- a. All air lines shall be synflex nylon tubing, color coded or approved equal. Lines shall be securely mounted to frame to prevent chafing or wear. Clamps shall be of proper size. Lines shall be protected at clamps with heat resistant material.
- b. The main air line between the air compressor and first air tank shall be minimum three-fourths inch (3/4") I.D.
- c. Rubber grommets shall be used at all points where air lines pass through bulkheads or any supports.
- d. All air lines shall be protected to prevent freezing in cold weather.
- e. All clamps, fittings, etc., must be easily accessible and installed in such a manner that they are easily removed and replaced.

### **Brake Lines at Wheel**

Flexible brake lines shall be Parker 293, with nut and sleeve type fittings. They shall be of adequate length to prevent any strain, regardless of relative motion between brake valve and brake chamber, without allowing chafing or rubbing.

### **Brake Relay Valve**

A brake relay valve shall be provided. It shall be Bendix Westinghouse R-12, or approved equal.

### **Check Valve**

A check valve shall be provided between #1 and #2 tanks, adjacent to the second tank, and accessible for service.

### **Discharge Line**

Discharge line to first tank shall be #12, three-fourths inch (3/4") O.D. Teflon hose with braided stainless steel jacket and shall be properly supported every two feet to prevent chafing or damage and so assembled that the line shall be free of sharp bends, and shall drain all moisture into the reservoir. Discharge line on the low floor bus shall be a #16 hose.

### **Emergency Brake Control Valve**

The control valve shall be located to the left and adjacent to the driver for safe, convenient access. The valve shall be a Bendix Westinghouse type PP1, with 40 PSI setting, or approved equal.

### **Interlock Valves, Door, Accelerator and Brake**

Door, accelerator and rear brake interlock valves shall be mounted to minimize length of air lines.

### **Towing Air Line Connector**

An air line connector (Shrader or approved equal) shall be installed on the front end of the coach.

### **Switch, Low Air Pressure**

The switches shall be connected in parallel and shall trigger a red indicator "LOW AIR" light and an audible alarm when the air pressure of any reservoir is below 90 p.s.i.

## **1.16 PROPULSION SYSTEM**

The propulsion system shall provide adequate horsepower and torque to enable the ETB to meet the minimum acceleration, top speed, and gradability/recuperation and braking requirements given in this Specification. The Contractor shall consider these requirements as the minimum and the Contractor shall submit detailed performance curves for the ETB propulsion system for approval by RTA. This requirement includes testing and validation for traction, drive and axle components. The propulsion system shall have a design life of at least 18 years or 750,000 miles. The maximum current demand shall be limited to 465 amperes at normal line pressure.

A laboratory test shall be conducted on one set of propulsion equipment for the ETB including motors, power conditioning, protective devices, logic, controls and master controller using a dynamometer which simulates vehicle inertia by means of flywheels or programming of a motor-generator and which simulates bus resistance by means of a motor-generator. The physical layout of ETB components and cabling for this test shall simulate actual vehicle conditions. This test is for the purpose of demonstrating that the propulsion equipment functions properly and meets all requirements of specification. This set of propulsion equipment shall also be tested for radiated, conductive and inductive electromagnetic emissions.

## **OVERHEAD LINE CONDITIONS**

The overhead line consists of grooved phosphor bronze contact wires at twenty four (24) inches of separation nominal at a height of 18 feet nom., from the road surface. The overhead wire height can range from approximately 13.5' to 21' in operation. The system operates at voltages ranging from 415 to 670 volts direct current-normal mode. The usual polarity is positive wire left/negative wire right with the coach proceeding with the normal direction of traffic-reverse polarity wire conditions are necessarily required throughout the system-as such, polarity protection shall be provided however, RTA recognizes that regeneration in those zones is not possible. The mechanical overhead support arrangement is post insulators and clips arranged along perpendicular cross suspender(s). The feeder system is sectionalized for proper distribution characteristics with the longest feeder section being approximately 13,000 feet. Feeders are provided wayside and are normally carried upon cross arms and/or transferred through underground conduit. Feeder tap points are provided approximately every two thousand (2000) feet. The overhead system positive wire(s) are protected through a system of feeder and cathode circuit breakers, which are connected to various distributed rectifier substations. The positive feeder circuit breakers are time over-current type with no rate of rise protection. The overhead negative feeder system shall be considered to be earth bonded (DC path) due its connection to Surface Rail-rail return feeders and other mesh/leakage points.

The overhead system shall not be the cause of damage to the ETB's electrical and/or mechanical components under the following conditions; the coach shall be arranged and fitted with suitable reverse and over voltage protection at a minimum withstand of 2,500 volts for 50ms. Surge current shall be reactance or otherwise limited to a safe value specified and validated by the propulsion contractor. The Contractor shall perform all necessary validation testing/survey during the Pilot Test Program. The Contractor shall issue a report of test disclosing observed overhead line condition(s) occurring during the Pilot Test phase. At a period of time not to exceed 60 days after final production coach is delivered, the Contractor shall repeat the test/survey, (ETB fleet operational) they shall issue a report and shall be required to make whatever coach system modifications necessary to ensure proper coach operation within 120 days after final production coach delivery.

#### **ACCELERATING AND BRAKING PERFORMANCE/GRADE PERFORMANCE**

The ETB at line power shall be capable of a top speed (balancing) of 48mph on a straight level road at GVWR with all accessories operating to maximum capacity at GVWR. The ETB shall meet the requirements specified below by TABLE A:

<b>TABLE A SPEED (MPH)</b>	<b>TIME (SEC)</b>
10	3.05-3.10
20	7.6-8.0
30	13.8-15.5
43	26

#### **AUTONOMOUS PERFORMANCE**

The ETB in diesel/electric mode operating off wire shall be capable of a top speed of 55 mph on a straight level road at GVWR with all accessories operating to maximum capacity, at GVWR.

<b>TABLE B SPEED (MPH)</b>	<b>TIME (SEC)</b>
10	3.05-3.10
20	7.6-8.0
30	13.8-15.5

#### **OVERHEAD CURRENT COLLECTION SYSTEM**

The ETB current collection system shall consist of current collection slider inserts, shoe and harps, trolley poles, sprung for contact/pneumatically supervised for all other mechanical pole operations, base support and all necessary mechanical and electrical equipment. The system shall provide the proper mechanical and electrical attributes necessary to insure performance under all operating conditions. Stowed poles shall not contact parked and/or operational coaches in any mode of operation. Sleet cutter inserts shall be supplied for control of icing of the contact wire-2 per coach. It shall be the Contractors sole responsibility to provide a contact system that limits fouling of the overhead wire during operation through normal and special work contact areas. The Contractor shall perform a survey prior to the construction of the Pilot Vehicle in order to verify overhead wiring system attributes.

### **Carbon slider(s) and Shoes-Harp Assembly(s)**

Carbon sliders shall be designed to a ½” radius nominal to an offset of 5/8” from the top of the insert. The insert shall be mechanically arranged so that quick changes can be made with hand tools. The shoe and harp assemblies shall provide the necessary mechanical support and range of motion necessary to properly support overhead wire contact through all operating demands. The harp assemblies shall provide up 150% over-current capacity for 5 minutes of operation with out permanent damage. The Contractor shall provide two (2) supply sources (one shall be a domestic manufacturer) for current collection inserts.

### **Trolley Poles**

The nominal upward/sprung pressure shall be 24-27 pounds and the springs shall not derate for the life of the coach. The spring sets shall be adjustable. A load cell or other suitable gauge shall be provided by the Contractor@ 1 per 10 coaches. The pole base(s), turntables, springs and rigging and poles shall provide adequate contact for all modes of operation.

Trolley poles shall be of a length that provides 145” from the centerline of the overhead to a perpendicular position of a coach at normal contact height-1.5 traffic lanes. The poles shall be capable of operation to a velocity of 8.5mph at coach travel to within 10° perpendicular offset. The poles shall not resonate in operation or otherwise become unstable while operating under the various overhead line tension conditions for non-tension compensated catenary. The current collectors, poles and base system shall operate without dewirement from span position distance through the normal and expected acute contact wire deflection(s). The poles shall be the lightest weight possible while possessing the necessary structural requirements. The poles shall be electrically insulated from pole to pole and to the coach body. An automatic pole engagement system shall be installed.

### **OFF WIRE Operation**

The current collection system shall be designed to minimize damage to the overhead and current collection systems during any operating scenario of dewirement. The system shall act to monitor and control fugitive operational acceleration so that in any circumstance poles are braked and stowed prior to contact to a span point of the overhead or at a distance of less than 60 feet at a velocity of 35 mph. Said condition(s) shall be recorded to third party devices with date, time, geographic position and duration of event. Loss of overhead contact coincident to fugitive release shall cause an operator lamp and audible indication. Indication shall not reset until the following interlock condition is satisfied:

- i) Park Brake set applied position
- ii) Coach set to neutral at directional selector
- iii) Master Switch set to off position

### **Safety Flashers and Retriever Operating Requirements**

Upon fugitive release activation, the coach four-way exterior lighting system shall operate at a duty cycle that is different from the normal four-way sequence. The lighting sequence shall switch off upon normal operation-doors closed.

The pneumatic system shall release upon moderate ( $\approx 7$ -lbs) down ward force applied to the pole at the retrieval rope.

### **Pole(s) Operational Control**

The poles shall be lowered to the stowed position and raised and aligned on the wire by means of an automatic control system. The system shall be operated from the operator's seat. There shall be a manual release switch located at the rear of the coach to allow for the manual override of the system allowing for manual raising of the poles. There shall be a system to notify the dispatch by means of the radio system when the coach is operating with the poles down.

### **Pole Positon Indicator**

A pole position indicator system that will enable the operator to monitor both the vertical and horizontal position of the poles shall be installed.

### **Retriever**

The trolley pole retrieval rope shall be arranged in an ergonomically efficient way that shall not cause discomfort to the operator(s) or maintainance during re-wirement. The retrieval system shall include all necessary components, guides, take-up reels, necessary second order insulated structure. The system shall not degrade from normal use and/or environmental pollution and/or associated from carbon depositing. The take up reel system shall be housed in a manner that precludes its use as a handhold. If electronic components are integral to the system, they shall be sufficiently environmentally protected. The system shall provide for re-roping from outside the basic coach body/or as otherwise approved by RTA-subject to Pilot Inspection.

### **Current Collection Contactor**

A supervised double pole (across the line) contactor shall be provided. The contactor shall be arranged to operate so that any loss of overhead voltage exceeding an adjustable set point of 5 to 15 seconds shall cause it to drop out until line voltage resets it. The contactor shall be line voltage rated to peak reversal and rated to 150% of the highest expected line current. The contactor shall not be the principal line current break device. Any operation to a limit switch activation value that exceeds a characterized abnormal pole(s) position shall cause the contactor to drop out-until reset by stowing and redeploying both poles. The contactor shall drop out upon coach body faults exceeding upper limit safety values, Wheel Chair Ramp operation and where specified by other applicable sections of this document.

### **Overvoltage/Overcurrent Protection**

The Contractor shall apply the necessary electrolytic, reactance and/or resistive protection required to protect the coach electrical systems from damage due to line disturbances from lightning at or near (in terms of the overhead system) the current collection system. Over voltage and open fuse events shall be recorded to third party devices. The coach shall be equipped with semiconductor line fuses. Fuses shall be arranged for proper electrical/mechanical performance and ease for maintenance. All high voltage fuses shall be the semi-conductor type and shall be suitable mechanically retained devices.

### **Traction Motor**

A poly-phase asynchronous traction motor(s) shall provide the necessary propulsion and braking needed to meet the performance required where specified throughout this document. The motor by proper design, fabrication and application shall exhibit efficient application of power, robust performance attributes, long operating and service life. The motor shall be designed to operate for no less than eighteen (18) years and 750,000 miles of service. The bearings shall be designed for a minimum life of 750,000 miles of service. The thermal rise shall not exceed +40° C above ambient in any part of the primary and/or secondary structure(s) or windings in any mode of service when in forced ventilation mode. The motor primary shall be insulated to Class H standards using the latest materials and application techniques. The traction motor electrical connectors shall be arranged so that improper make up at termination point is mechanically prohibited. All auxiliary sensor(s), thermistors and like equipment shall be self-gapping and/or arranged in wells that require no special setting tools. Sensor wiring shall be arranged so that mis-termination cannot occur. All termination shall be of the highest quality available in the trade and said equipment shall not degrade from environmental effects and/or effects related to application and location. The traction motor shall be equipped with a galvanic test point terminal so that live voltage injection can be performed and leakage monitoring wiring continuity verified.

The traction motor shall be arranged so that special alignment tools and/or techniques are not required to properly replace and align the motor. The traction motor shall be galvanically isolated and monitored to a second order insulation level. The traction motor shall be mechanically arranged so that single point mechanical fastener failures cannot cause failure to the mounting of the motor. The second order isolation fasteners (mounts and drive shaft) shall be arranged so that they are either interchangeable or otherwise constructed to preclude misassemble of critical parts. All parts of this system shall be completely interchangeable between coaches.

### **Traction Motor Forced Ventilation, Filtration and Ducting**

The traction motor shall be forced ventilated by means of a permanent duct system that shall furnish the necessary air volume and pressure required to conduct reject heat away from system components. The forced ventilation system shall be powered by an asynchronous poly-phase auxiliary motor of sufficient horsepower to provide the required air-flow at ambient noise levels specified herein. The auxiliary motor shall be a NEMA standard frame type wound to a North American standard voltage. The motor supply if not galvanically isolated shall be monitored for leakage current to fault values as assigned by the Contractor. Test ports shall be provided on the induction and pressure sides of the blower(s). An additional port shall be located at the traction motor ducting adjacent/immediate vicinity of the motor. The ports shall be 0.25" NTP threads with captive plugs. The Contractor shall provide barometric values based on the coach attributes and incorporate those values in their maintenance catalogs.

The traction motor forced air system shall not require filtration media. The system shall be arranged to provide filtration using inertial methods. The intake, inertial filtration and ducting shall provide air qualities that maintain efficient delivery and pollution control throughout the



ventilation system. The system shall not collect or trap debris or otherwise accumulate foreign matter in any part of the system other than those designed for that purpose.

### **Intermediate and Final Drive System**

The intermediate and final drive system shall consist of a drive shaft, galvanic isolation coupling (if propulsion inverter is not galvanically isolated) intermediate reduction gearings (if not housed at final drive), drive shaft-mounting flanges and final reduction components. The drive system shall meet the following requirements:

- i. Torsional accelerations shall not exceed 400 Rad/sec/sec as measured at normal ride height.
- ii. Inertial accelerations shall not exceed 900 Rad/sec/sec as measured at normal ride
- iii. The final drive shall by design, fabrication and proper application not emit noise/vibration that is particularly noticeable when operating to its designed balancing velocity. The noise shall not be sufficiently narrow banded and/or of a quality where harmonic content shall generate or otherwise be the cause audible coupling (resonate) with other coach component(s) and/or systems.

The galvanic isolation shall be 2000 volts min., dielectrically polarized. The coupling shall not require special alignment techniques, shall be removable with or without the traction motor and final drive in place and shall either be reversible or keyed in a manner that prohibits mis-assembly of the components. The coupling shall not mechanically and/or electrically degrade in performance for the design life of the coach-18 years/750,000 miles.

The coach shall be driven by a single heavy-duty axle at the rear with a load rating sufficient for the coach load GVWR while meeting the power/load shear requirements specified herein. Transfer of gear noise to the coach interior shall be minimized. The drive axle shall be designed to operate for not less than 350,000 miles on the design operating profile without replacement and/or major repairs. The lubricant drain plug shall be "FEMCO" quick-change type. If a planetary gear design is employed, the oil level in the planetary gears shall be easily checked through the plug or sight gauge. The rear carrier assembly shall be removable with rear axle housing in place and without the removal of the traction motor. The drive shaft shall be guarded to prevent it striking the floor of the coach or the ground in the event of a coupler, tube or universal joint failure. Proper venting shall be provided and it shall be sufficiently well constructed so as not plug, kink or become otherwise degraded. The vent line shall be 3/8" ID minimum tubing and the run shall not exceed 5 feet with no more than 150° of curvature.

## **1.17 PROPULSION INVERTER/AUXILIARY EQUIPMENT**

### **GENERAL REQUIREMENT**

The traction inverter (DC to VFVV-poly phase current) shall be the IGBT type exhibiting high efficiency, low loss, low commutating noise, it shall provide the energy necessary to accelerate the traction motor/coach to specified requirements and shall facilitate the necessary recuperative energy transfer to the line and/or coach/rheostatic loads upon braking operation. The Contractor shall provide a system that affords full authority control of acceleration to the mechanical limits of the propulsion system. This functional control shall be enabled from the Pilot Inspection phase onward, however, RTA shall not modify the system attributes without agreement from the Contractor through the warranty and/or escrow period as defined by contract. Test ports for

service repair validation shall be provided at the operator's area of the coach. Fused, 24-volt lugging (wing nut retainers) shall be provided for the operation of portable inverters required for portable test equipment and/or PC's.

### **Inverter Module Serviceability and Arrangement of Equipment**

The inverter module(s)-groups shall be designed so that system and support components are logically arranged for efficient removal and replacement. All like modules shall be completely interchangeable and functionally grouped, as well as all interconnecting coach bars, connectors and terminals. Equipment weights that exceed 80# or 36kg, shall incorporate a lifting mechanism that facilitates component removal and replacement. Inverter, converter circuit control shall be arranged so as to prevent inadvertent propulsion system make-up and operation as well as the operation of converters encountering open, short circuited and other anomalous load conditions. As an integrated unit or as separate propulsion devices all equipment containers shall be removable with a jib crane, forklift adaptor or like equipment. The Contractor shall provide the necessary slings and adaptors as specified by attachment.

### **Intrinsic Safety and Failure Modes**

All inverters and converters shall be either mechanically or electrically double insulated (second order protected) to a degree that insures complete passenger safety during all modes of operation. All propulsion and auxiliary power supplies shall be monitored for leakage currents (galvanic leakage).

### **Propulsion System Input Voltage Tolerance**

The propulsion system shall operate under normal service loads with system voltages ranging from 405 to 720 volts.

### **Propulsion System Recuperative Performance**

The basic requirement for this system is the maximization of return energy to the overhead power supply system and/or to the coach loads and brake resistor when the line is not receptive, thereby maximizing overall system efficiency while maintaining the specified longevity of friction brake equipment.. This function shall be accomplished by a control algorithm(s) that ensure that maximum recuperation takes place to a safe margin below limit of adhesion while not exceeding specified deceleration rates. The Contractor shall supply a system that provides full authority control over this function and its related set points.

### **RegenerativePerformance**

The propulsion system shall monitor the line for receptivity and polarity and shall transfer as much energy to the power grid as possible. The propulsion supervisory system shall redirect load to line transfer to rheostatic/dynamic braking when line conditions are unsuitable, i.e., low to short circuited, open negative and/or positive conductor etc

### **Rheostatic Performance**

When overhead line is not receptive, the coach energy shall be dissipated through internal consumption and rheostatically by means of a brake resistor. The brake resistor shall be double

insulated from the coach body. The braking resistor shall be capable of 100% operation. The brake resistor shall be monitored for excessive leakage current and thermal overload. The brake resistor shall be designed for the basic life of the coach without mechanical, esthetic or performance related degradation. The brake resistors shall be appropriately sized to accept 100% of the dynamic braking energy if the overhead line is non-receptive. The resistor cage shall be stainless steel and shall not rust or corrode. The resistor shall be cooled by ambient air passively. If an escape hatch is located within hand reach of the resistor cage or structure then the unit shall be mechanically arranged to prevent contact with hot parts. Brake resistor operation shall not damage other coach parts either by radiation or conduction.

The frame shall be arranged to facilitate removal and replacement using the same lifting apparatus (sling/lifting eyes) as used by other traction system components, insulators/stays and like supporting structure shall not be Asbestos based and/or become friable upon removal/disassembly.

### **Propulsion Control Unit**

The propulsion control unit shall provide the necessary input/output interface, control and system regulation. The system shall monitor and report to third party devices via J1939 and/or equal message formats. Controller firmware, cable interfaces and software shall be windows based, all upgraded equipment and/or software shall either permit full backward compatibility or the Contractor shall provide updates to same for a period of no less than 18 years at no charge to RTA-this includes necessary re-training. Replacement of accelerator/brake assemblies shall be designed to permit recalibration by use of propulsion system software regimens, user interfaces shall either be graphical or numeric set up values. In regard to foot pedal interfaces the control system shall be capable of the following:

### **Accelerator Function**

- i). Accelerator function shall be smooth and jerkless throughout its travel from lift to full pedal stop.
- ii). The pedal control in propulsion make up, range selected-interlocks satisfied, shall apply the equivalent of 25- 35% available recuperative brake excitation upon accelerator lift pedal condition.
- iii). The pedal shall fault to a fail-safe mode when any wire or transducer function is deemed to be an illegal state of operation (open, shunted and/or drop-out). The safe mode shall apply the brake interlock and subsequently inhibit range selection. The fault occurrence shall be monitored and logged with a date, time and location stamp.
- iv). The pedal assembly shall be physically arranged so that objects, dirt and other obstructions cannot interfere with its operating parts. Transducer components shall not be remote cable and conduit types.
- v). The pedal assemblies (accelerator and brake) shall reside on an easily removable plate in order to facilitate removal and replacement. The connector(s) shall be the highest quality available and shall feed through to an area of the coach that is clean and dry at all times.
- vi). The propulsion controller shall be able to display acceleration values in velocity/time metrics via graphical interface.

### **Auxiliary Equipment Converters/Inverters**

All auxiliary equipment converters and inverters shall provide all energy necessary to operate all utilities at their maximum performance requirements to a rise in temperature not to exceed +40°C. All inverters shall operate all the same voltage-except where additionally specified herein. The converter/inverter(s) shall be equipped with full system monitoring, input/output voltage/current over load and thermal conditions and faults.

### **Auxiliary Equipment Converters/Inverters Failure Modes**

Auxiliary equipment shall upon failure due to conditions of input, output, over-temperature and/or other modes report failures either discretely or by J1939 can message formats.

### **1.18 Overhead Electric/BATTERY Dual Mode**

The battery pack shall provide the energy necessary to propel the coach with full on wire capability for a distance of 15 miles at a speed of 45 mph. The battery pack(s) shall be designed to perform in this application by design and application of battery technology and capacity that promotes an efficient and effective deep/to overall cycle life. Battery charging shall be accomplished by means of the 600 volt overhead wire. It shall take no more then sixty (60) minutes for the batteries to reach a full state of charge. The battery pack(s) shall be monitored for the following parameters:

- ii). Battery internal temperature-per pack
- iii). Pack status-available energy-total
- iv). Estimated cycle life
- v). Alarm to maximum discharge/warm-warm to shut down-shut down
- vi). Over temperature warn/shutdown
- vii). Fire/suppression activated/shut down propulsion 15 seconds after suppression activation
- viii). Maintenance required-specify cause J1939 format
- ix). Cable/terminal high resistance

The battery pack high voltage bus connectors shall be equipped with redundant fastener hardware and/or tension washers or other equal means of maintaining proper torque and termination properties.

### **1.19 Overhead Electric/Diesel Electric Dual**

#### **General**

Buses shall have a series diesel electric drive unit which coordinated with the rear axle drive ratio, enables the vehicle to achieve the required top speed, acceleration, and hill climbing capability while still maintaining passenger comfort and providing a smooth ride. The electric drive is to have the most current electronic control. It shall be designed to last the life of the bus. The engine and electric drive combination shall automatically prevent lugging when climbing

hills of any gradient on which the bus is designed to operate. The drive and its push-button shift select control head shall be designed or interlocked so the possibility of damage or uncontrolled acceleration due to driver misuse of the shift select control head is minimized.

The electronically controlled drive shall have on-board diagnostic capabilities, be able to monitor functions, store and time stamp out-of-parameter conditions in memory, and communicate faults and vital conditions to service personnel. The drive shall contain built-in protection software to guard against severe damage. A diagnostic reader device connector port, suitably protected against dirt and moisture, shall be provided in the operator's area.

Any devices cooled by engine coolant or oil shall have quarter-turn ball valves on each side of the device.

The drive shall be equipped with an overheat warning at the driver's station

**Engine:**

The engine shall be designed to operate for not less than 12,000 hours without major failure or significant deterioration. The electronically controlled, fuel injected engine shall provide adequate horsepower and torque to enable the coach to meet the minimum acceleration, top speed, and gradability requirements given in this specification. These requirements shall be met with all accessories at their optimum capacity. The Contractor shall consider these requirements as the minimum and the Contractor shall submit detailed performance curves for the coach for approval by RTA. The propulsion system shall have a design life of at least 10 years or 30,000 hours.

The engine shall meet all requirements of the technical specifications when operating on ULSD-diesel fuel, as certified by the engine manufacturer and specified by RTA. The engine shall be equipped with an electronically controlled management system, compatible with multiplex wiring systems and either 12- or 24-volt electrical systems. The engine control system shall be capable of receiving electronic inputs from the engine and other vehicle systems. Communication between these electronic systems shall be made using the SAE J1939 Recommended Practice communication link. The engine's electronic management system shall monitor operating conditions and provide instantaneous adjustments to optimize both engine and coach performance required to provide necessary generator input torque/speed conditions. The system shall be programmable to allow optimization of engine/propulsion system performance. The engine control system shall protect the engine against progressive damage. The system shall monitor conditions critical for safe operation and automatically derate power and/or speed and initiate engine shutdown as needed. The on-board diagnostic system shall trigger a visual and audible alarm to the operator when the engine control unit detects a malfunction and the engine protection system is activated.

The engine shall have on-board diagnostic capabilities, able to monitor vital functions, store out-of-parameter conditions in memory, and communicate faults and vital conditions to service personnel. Diagnostic reader device connector ports, suitably protected against dirt and moisture, shall be provided in operator's area and inside engine compartment. The on-board diagnostic

system shall inform the operator via visual and/or audible alarms when out-of-parameter conditions exist for vital engine functions.

A control shall be available to the operator, to allow temporary override (45 seconds) of the engine protection/shutdown system if engine power is required to move the coach in emergency conditions.

The temperature of the main engine and operating fluids on the coach shall be controlled by a cooling system. The cooling system shall be equipped with a removable coolant filter that also provides for the addition of supplementary coolant additives into the system. The cooling system shall be sized to maintain fluids at safe, continuous operating temperatures during the most severe operations possible with the coach loaded to GVWR, a fifty percent (50%) centered blockage of the front of the radiator, and ambient temperatures from - 20°F up to 110°F. Radiator heat reject performance shall be based on a maximum ambient condition @ 120° F and a maximum engine temperature of 205° F. The coolant shall be an inhibited ethylene glycol, specifically formulated for diesel engine service, and commercially available in the United States. The radiator cooling fan shall be thermostatically controlled. RTA shall waive the fifty percent (50%) radiator blockage requirement for a radiator which has no more than ten (10) fins per inch of the type as defined within this specification.

#### **GENERATOR:**

The generator shall provide the necessary propulsion and necessary auxiliary current when in off wire mode. The generator shall motor the engine to provide starting upon activation of off wire operations. The generator either air or hydraulically cooled, shall not rise to above 55° C during any operating mode. The generator control system shall report in a manner consistent with other propulsion system devices either discreetly or through J 19139 can link.

#### **POWER MODULE MOUNTING**

The power module shall be arranged so that the engine/generator and auxiliary equipment can be removed from the coach as a single unit. All power plant mounting shall be mechanically isolated to minimize transfer of vibration to the body structure. The engine shall be mounted to provide maximum isolation of audible frequencies in the range of 35 to 275 Hertz. The engine cradle (as the term applies) shall not interfere with the removal of the engine accessories.

#### **ARRANGEMENT**

The power plant 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 power plant. Two 3M mechanics shall be able to remove and replace the engine and generator assembly in less than 12 total combined man-hours. The muffler, exhaust system, air cleaner, air compressor, emergency auxiliary converter, radiator, all accessories, and any other component requiring service or replacement shall be easily removable and independent of the engine and generator removal. An engine oil pressure, coolant, and oil temperature gauge and engine hour meter shall be provided in the engine compartment. These gauges shall be easily read during service and mounted in an area where they shall not be damaged during minor or major repairs.

Engine-driven accessories shall be mounted for quick removal and repair. Accessory drive systems shall operate without unscheduled adjustment for not less than 50,000 miles in RTA service. These accessories shall be driven at speeds sufficient to assure adequate system

performance during extended periods of idle operation and low route speed portion of the design operating profile. Belt guards shall be provided as required for safety and shall be sturdy in design and installation and readily removable.

## **COOLING**

### **Radiator**

The radiator shall be of durable corrosion resistant construction with bolted-on removable tanks. Radiator core shall be copper dimple type clog resistant. Radiator piping shall be stainless steel or brass tubing, and, if practicable, rubber hoses shall be eliminated. Necessary hoses shall be premium silicone rubber type that are impervious to all coach fluids.

### **Charge Air Cooler**

A charge air cooler meeting the engine manufacturers specification shall be integrated into the radiator assembly. The cooler shall be replaceable as a separate unit.

### **Filler Neck and Cap**

- a. The sealed cooling system shall be provided with self unloading valve to prevent extreme pressure from injuring cooling system.
- b. A manual pressure release valve shall also be provided.

### **Surge Tank**

Heavy duty copper, brass (stress relieved), or stainless steel radiator surge tank shall be provided and mounted above the radiator and easily accessible for service. Sight glass shall be provided to allow check of fluid level without opening system. Filler cap shall be hinged type.

### **Water Pump**

Water pump shall have sufficient capacity to prevent any hot spots under all operating conditions.

### **Fan and Drive**

An EMP mini hybrid electric fan system, or approved equal shall be used

### **Hose**

Engine water and heater hoses shall be premium quality Armet or Flex-Fab silicon hose. All hoses shall be protected from engine heat which may cause premature failure.

### **Hose Clamps**

All hose clamps shall have constant tension. Hose clamps shall be 1/2 inch wide minimum, stainless steel worm type, socket tightened with collar. Breeze or approved equal.

**Coolant**

Coolant shall be LS antifreeze, an ethylene glycol with rust inhibitor Nal Cool 3000, or approved equal. Coolant shall be 40% ethylene glycol.

**1.20 ELECTRICAL**

The electrical system shall be multi voltage supplying both high voltage A/C and low voltage D/C. The system shall use as its main source of energy the 600 volt D/C supplied from the overhead catenary wire, batteries or diesel electric. The high voltage and low voltage circuits shall be isolated from each other and wiring shall not run in the same loom.

**Compliance with Regulations**

Turn signals and all interior and exterior lights shall meet all State and Federal requirements.

**Backup Alarm**

An electrical backup alarm producing an intermittent sound or a buzzer connected with backup lights shall be furnished. It shall be loud enough to be heard when the engine is running, yet not be too loud to annoy persons in their homes.

**Battery/low voltage**

Four deep cycle maintenance free batteries with 700 CCA and 910 20 AH rate requirements with top mount connections and molded handles shall be provided. Battery cables shall be 4/0 extra flexible cables with neoprene jackets

The Contractor shall be responsible for analysis of the loads and selecting a battery of adequate capacity to supply them. Other battery configurations may be used with the prior approval of the Authority.

**Battery Terminals/Wiring**

The battery wiring shall be terminated with properly sized ring terminals. The cable shall be permanently marked with a "+" and "-" at the battery end. Cables shall be extra flexible and routed in the battery box so as not to chafe or rub on the battery tray and other components. Cable ends shall be sealed to eliminate corrosion from battery acid and/or fumes. Cable ends shall be attached to the battery studs with non corroding flat washers, spring washers and brass nuts. The positive battery terminal shall be a 3/8 NC stud and the negative terminal shall be a 3/8 NC stud. Stud length shall be 1 inch (25 mm) as measured from the terminal face. Cable ends shall be coated with a corrosion inhibitor after being attached to the batteries.

**Electrical Panel**

Circuit breakers shall be provided to sectionalize and protect all branch circuits of the electrical system of each coach.

To the maximum practical extent, electrical distribution and control devices shall be grouped on an electrical panel arranged for ease of access, test, and replacement of components. The panel shall be large enough to avoid crowding of the components and leads. Component heat build up shall not affect the components or mounting locations. There shall be a test plug receptacle for



electronically diagnosing the engine using portable instruments.

A durable diagram shall be mounted, in the electrical panel that identifies the components and their function. Relays and circuit breakers shall be permanently labeled to correspond to this diagram. Switch controlled lights shall be provided to illuminate the main electrical panel.

### **Multi-Plex System Electrical. G-3 Dinex-MPX**

The main coach controller (MBC/HCNC) shall be located at the rear electrical enclosure panel (rear bulkhead). Additional DIO's (digital Input/Output Module) shall be located above the exit door, air tank compartment, driver's console, and in the rear electrical enclosure panel. The indicator lamp strip module shall be integrated into the multiplexing system to receive commands from the master module to turn appropriate indicator lights on and off according to programming commands. The system shall be connected by a "ring loop" hookup.

### **Electrical Main Switch**

An electrical main switch shall be provided to positively disconnect the battery from electrical loads when the coach is not in use or in emergency situations. The switch shall be located in an outside compartment which requires no tool(s) for access. The switch shall be totally sealed in its own sub compartment. It is preferred that the switch handle be non removable. If the switch handle is removable, it shall be attached to the switch housing using a small corrosion proof metal cable. Emergency flasher and radio power circuitry shall be independent of the main switch.

### **Main Switch Circuit Breaker**

A manually reset circuit breaker capable of interrupting a major short circuit shall be supplied on the positive side of the batteries. The breaker shall be located near the batteries in an easily accessible location, sealed from water and battery fumes.

### **Fare Equipment Power Supply**

Supply a coil of wire, through floor mounting hole for farebox wiring, powered by a dedicated circuit.

### **Radio Power Supply**

A separate electrical circuit, initiated at the batteries and terminating at the radio box shall be supplied. This circuit shall be independent of the electrical main switch, be capable of delivering 25 continuous amperes at 12 volts and be protected at the source with an adequate circuit breaker. No other electrical equipment shall be attached to this circuit. It shall be connected and placed to minimize electrical noise, hash and transients. If a 24 volt coach electrical system is used for the coach, an "Electric Transit Laboratories Inc. (ETL)" or approved equal converter shall be provided in the radio box to supply 12 volt power to the radio.

### **Low Voltage Wiring**

All wiring including cables shall be stranded copper, adequate in size to carry the electrical load. Each harness shall contain identified spare wires (10 percent, minimum one) and shall be installed with consideration of possible future need to remove and replace it. All low voltage

lighting shall run sufficiently cool so as to eliminate any damage to lamps, lenses, sockets, wiring or surrounding areas. Electrical junction boxes shall have sealed covers and openings.

### **Insulation**

Wiring shall be insulated with two-layer cross-link polyethylene. Insulation must be moisture proof and heat resistant. It shall be a design objective to route wiring and harnesses in areas with no temperature build-up. If wiring must be run in areas of heat build-up, it must withstand, without deterioration for the life of the coach, the highest temperature in the area served. Engine compartment wiring shall be heat, oil and flame resistant.

### **Voltage Drop**

There shall be no more than a 0.5 volt cumulative drop on any circuit, measured from the initiating source to the appliance load positive and from the appliance load negative to the reference ground with the load fully operational.

The initiating source for any 24 volt circuit is defined as the 24 volt output positive post of the series connected batteries.

The initiating source for any 12 volt circuit is defined as the 12 volt output positive post of the battery equalizer/splitter (Vanner).

The reference ground is defined as the most negative post of the series connected batteries.

### **Protection and Support**

Wiring shall be protected from weather and mechanical injury. Cables should be supported along their length and strain relieved near terminations so that connectors and terminals are not under stress. Wire and cable passing through holes in sheet metal, structural members, etc. shall be protected with a grommet or other approved device. Wire and cable subject to flexing shall be extra flexible and shall be installed to allow for continual flexing without damage to the conductors or insulation. Wiring routed next to or bent over other materials shall be chafe protected by approved means.

All under coach looms, cable runs, connectors, terminations and harnesses should be totally sealed to dirt, water and road hazards. Under coach wiring shall be run in sealed flexible plastic conduit.

### **Terminations**

All electrical connectors shall be replaceable. Engine and generator harnesses shall have sealed, quick disconnect connectors to facilitate engine and generator removal. All high current connection points shall be coated with approved conductive coating.

All wire termination loops shall have a minimum of 2 inches (51 mm) excess wire for additional end terminal installation which shall allow at least one replacement of the termination without disrupting the wiring harness. Wires shall not be spliced between terminations.

Cable terminations shall be pressure-type terminals applied with a full cycle correct tool of the same manufacturer as the terminal. All terminals shall be full-ring, interlocking or tongue-type sized for the terminal screw or stud.

All under coach connectors shall be of a locking type. Use of spade terminals shall be with Authority approval only. Connector terminals shall be coated with approved dielectric grease. Drip loops shall be supplied on all under coach termination points.

All electronics components and boxes shall have quick disconnect plugs attached. Hard wiring to these boxes is prohibited.

### **Wire Identification**

A numbered color coded wiring system shall be used to give an individual identifying designation to each wire for circuit tracing and shall be shown on all electrical diagrams. All junction panel terminals shall be numbered.

All wiring shall be identified with hot stamped, machine printed wiring numbers printed on the insulation itself with no more than six (6) inches (153 mm) of space between the identifying printed numbers along the continuous run of wire.

Wire markers and/or any type of heat shrink shall not cover any termination point or crimped lug without Authority approval.

Numbers shall not be removable by and be impervious to normal abrasion, oils, diesel, grease, Anti-Freeze and water

### **1.21 Console Assembly and Instrument Panel**

- a. Side Console Assembly shall contain the following switches, all of which shall have lighted legends.
  1. Master Switch: 4-position rotary switch identified with lighted legend "Engine Stop," "Run," "Night" and "Park" marked on the panel, in accordance with FMVSS requirements.
  2. Engine Start: Push button switch, marked "Start."
  3. Hazard Warning: 2-position On Off toggle switch with lighted hazard symbol. Legend to be "Hazard" or symbol.
  4. Defroster: 3-position toggle switch having "Low-Off-High" positions. Legend to be "Defroster."
  5. Chime Switch: 2-position toggle switch having "On-Off" positions with legend "Chime."

6. Interior Light Switch: 3-position toggle switch having "All-Off-Rear" positions with legend "Interior Lights."
  7. Radio "Emergency Call" switch. No legend allowed. Locate in sidewall panel near driver's left knee position.
  8. Door control handle.
- b. Instrument Panel shall be manufacturer's standard for heavy-duty service, with clear lettering for identification and shall house the following controls:
1. Panel light dimmer: A rotary rheostat, labeled "Panel Lights," which controls the intensity of the panel and legend lights.
  2. Wiper control: An air control for each side, with lighted legend "Wiper," which controls the windshield wipers.
  3. The instrument panel shall contain, at a minimum, the following indicator lights:
 

Left Turn Signal	Exit Door Open
Right Turn Signal	Charging Failure
Hot Engine	Brakes On
Low Engine Oil Pressure	High Beam Headlights
Low Air Pressure	Door Unlock Function
Fire Warning	Retarder
- c. Indicator lights shall be arranged across the top of the instrument panel.
- d. Turn signal switches shall be located on the floor near the driver's left foot and shall be constructed with polarized multi connector plugs.
- e. The instrument panel shall house the following monitor devices:
1. A dual needle gauge that monitors air pressure in the front and rear brake reservoirs.
  2. Speedometer: A speedometer with MPH as major markings, 0 80 MPH.
- f. The four way hazard lights shall be enable when the transmission is in reverse.

### **Door Electrical**

- a. Rear door shall be operator control.
- b. Locking and unlocking of doors shall be controlled by a door-control handle located on the driver's console. Door control handle, when in the "rear" position, shall energize a solenoid that unlocks the door. A LED green lamp, which indicates that door is openable, shall be located above rear door. A red "EXIT DOOR OPEN" indicator lamp on driver's panel

shall illuminate simultaneously with green lamp while door is open. A lamp mounted on the exterior, or door header above the front and the rear doors, shall be illuminated when the door is opened. Front and rear stepwell illumination lamps shall operate the same way. Lamps to be controlled by the master switch in the "Run" or "Night" position.

### **Engine Compartment and Rear Control Box**

- a. The engine compartment shall have a rear control box with engine oil pressure and water temperature gauges. Gauges shall be mechanical.
- b. The control box shall be located in the upper right corner of the engine compartment.
- c. Four (4) 21 c.p. LCD lamps shall be installed in the engine compartment in locations which shall provide maximum illumination for the mechanics.
- d. The engine and coach control switches on the face of the panel shall be as follows:
  - 1. Starter Switch Three position toggle switch, marked "Front Off Rear" for selection of engine start position. Must be weatherproof.
  - 2. Light Switch Two position toggle switch marked "Engine Compartment Lights." Must be weatherproof.
  - 3. Engine Start Push button switch marked "Start," with waterproof rubber cover, shall operate the starter motor only when the starter switch is in the "Rear" position and transmission is in neutral. The engine transmission down link port shall be provided. Throttle control must be variable speed.

### **Horn**

Dual electric horns mounted so as to be protected from road splash. Control shall be push button, located in center of steering wheel.

### **Exterior Lighting**

- a. Exterior lighting shall conform to FMVSS requirements.
- b. Headlamps shall be guide lamp, rectangular sealed beam, dual, 12 volt Halogen H50 54. Headlights shall be switched on with ignition switch. A dimmer switch shall be mounted on the floor between and above the turn signal switches. The instrument panel shall have a high beam indicator lamp. Vehicles shall be equipped with daytime running headlamps.
- c. Clearance, Marker and I.D. Lights: All clearance and I.D. lights shall be Dialight surface or flush mount LED type. The units shall protrude not more than 1.5 inches when mounted

on the vehicle. If a surface mount marker design is used, a custom guard to prevent damage to the light during contact shall be installed. All electrical connections to the LED light shall be by wire coming from the light housing and terminated with a Packard Weather Pak connector. No interim connector shall be allowed on the body of the light. All lenses shall be smooth to prevent dirt entrapment and ease the washing process.

- d. Front directional signals shall have amber lenses and shall be located on the right and left front corner areas of the coach.
  - e. Rear, tail, stop, backup and turn signal lamps shall be mounted on the right and left rear corner areas of the coach.
1. Third red LED with a white LED strobe high mount brake light bar shall be included. The strobe light will flash when the coach is stopped and the doors are opened.
  2. Top and third lamps (stop and tail) shall be red Dialight Series 40, or approved equal. The tail lights shall be fabricated with the use of a current regulator circuit to the LED's that allow for the operation of the device from 7 volts to 16 volts with constant intensity. All electrical connections to the LED light shall be by wire coming from the light housing and terminated with a Packard Weather Pak connector. No interim connector shall be allowed on the body of the light. All lenses shall be smooth to prevent dirt entrapment and ease the washing process. The entire LED assembly shall be specially coated to protect the light from chemical and abrasion degradation. If flange mounted 4" round lamps are used, the flange shall be constructed in a manner that water intrusion shall not be allowed between the lighted portion of the lamp flange.
  3. Middle lamp (turn) shall be amber Dialight Series 40, or approved equal. The turn lights shall be fabricated with the use of a current regulator circuit to the LED's that allow for the operation of the device from 7 volts to 16 volts with constant intensity. All electrical connections to the LED light shall be by wire coming from the light housing and terminated with a Packard Weather Pak connector. No interim connector shall be allowed on the body of the light. All lenses shall be smooth to prevent dirt entrapment and ease the washing process. The entire LED assembly shall be specially coated to protect the light from chemical and abrasion degradation.
  4. Bottom lamp (back-up lamp) shall be Grote No. C458, Weldon 3-2035-1100, or approved equal, with removable acrylic clear lens, replaceable 32 c.p. bulb number 1151, or approved equal.
- f. Side turn signal lamps shall be located on each side of the coach at the forward edge of the front wheel housing. The side signal lights shall be Dialight amber 18 Series lights. These lights shall be guarded for protection. The light shall be visible from the rear and front of the coach as well as outward. All electrical connections to the LED light shall be by wire coming from the light housing and terminated with a Packard Weather Pak connector. No interim connector shall be allowed on the body of the light. The same type side signal

lamp shall be located slightly above and slightly forward of the rear wheel housing.

- g. Intermediate side marker lights shall be Dialight LED Series 84, or approved equal, one on each side of coach.
- h. License plate lamp shall be a LED light.
- i. Curb lamps shall be positioned in manufacturer's standard location above the front and rear doors in such a manner as to illuminate the ground area in the immediate vicinity of the stepwell. Lamps shall be actuated when entrance door, exit door, or both, are opened.
- j. Directional lamps shall be equipped for simultaneous flashing for emergency use.
- k. All surface mounted lights shall be designed to be free of damage during normal was track operation.

### **Interior Lighting**

- a. Front stepwell shall be lighted by stepwell light, suitably mounted, so that entire stepwell and a portion of the ground area immediately outside the coach is illuminated.
- b. A programmable LED lighting system shall provide general illumination in the passenger compartment and shall be controlled independent of the run switch. The system shall provide a minimum of 25 foot candles of illuminance on a one square foot plane, centered 33 inches above the floor and 24 inches in front of the seat back at each seating position. The floor surface in the vestibule shall be illuminated at a minimum of 4 foot candles with the front door open and a minimum of 2 foot candles with the front door closed. Power consumption from the lamps shall not exceed 9.5 watts per linear foot of fixture length. LED light fixtures shall be located above the side windows at or near the juncture of the coach ceiling and the side wall and may be provided over the rear door. The fixture lenses shall have a cover with louvers or baffles to reduce glare in the windshield which affects driver visibility. Advertising media located in this area shall be illuminated by direct lighting, although the interior lighting requirements shall be attained without advertising media installed. The lighting system materials shall comply with the Federal Transit Administration Docket 90 A Specification.
- c. Interior advertisement racks shall be reinforced by use of structural members attached directly to the coach structure. The advertisement racks shall be hinged to provide access to the air plenum at every fixture location without removing the fixture from the coach structure. The card racks shall be retained in the closed position by use of threaded closing screws. The card racks shall be self retained in the open position to allow maintenance accessibility. The fixture shall be enclosed to inhibit the accumulation of dust and insects. The fixture lens cover shall be hinged to provide access to the LED lights and wiring interconnects, without removing the fixture from the coach structure. The lens cover shall be retained in the closed position by use of threaded closing screws. Wiring to the input connector and to the lamps shall be continuous, without splices or secondary connections.

The wiring to the lamps shall be contained in a wiring trough. Interchangeability of lamps, lenses fixtures, and power supplies shall be maximized.

- d. Lighting intensity for all cross seats, forward of the rear longitudinal seats, shall have a minimum average of fifteen (15) foot candles, with a minimum of twelve (12) foot candles at the seated passenger reading plane, that plane being thirty three inches (33") above the floor on a forty five (45) degree angle. An effective level of lighting shall also be provided for all other seated passengers.
- e. The lighting components shall be so located and constructed to prevent the entrance of water, contaminants and insects.
- g. Each fixture shall have an individual power supply.
- h. Lights shall operate without the engine running.
- i. Driver's light shall be recess mounted in the top of the window frame above driver's head. Do not impair use by location conflict with sun visor. Switch to be located on the bezel of the lamp.

#### **Passenger Chime Signal**

A chime operated by bell cords, running the length of both sides of the coach, shall be provided. Illuminated "STOP REQUESTED" sign, mounted above the destination sign access door or on the low floor air tank enclosure so as to be visible to all passengers, with automatic chime muting, shall be provided. A stop request pad shall be located at each wheelchair tie down position and will be accessible to passengers in wheelchairs.

#### **Engine Compartment Lines**

Flexible lines (air, fuel and oil) in the engine compartment, shall be Aero Quip Teflon lines or approved equal, with stainless steel reusable fittings. Water lines in the engine compartment are silicone. All lines shall be sufficiently secured so that there shall be no abrasive movement.

#### **Clamps**

All support clamps in the engine compartment and/or on the power module that have direct contact with the wire, cable, harness hose or line shall be insulated from contact with the wire, cable, harness hose, or line by stainless steel Breeze clamps.

#### **Insulation**

Engine side of rear seat shall be sealed so as to prevent smoke and fumes from entering passenger area and shall be insulated against both heat and sound. Thermal insulation shall assure there shall be a minimum eighty degree (80o) temperature differential between engine compartment and passenger area. Noise transfer to the passenger area shall not exceed 82 DBA.

#### **Accelerator Control System**

Accelerator shall be Williams with a 45o angle. The throttle pedal shall be mounted so that it is equal to or higher than brake pedal.



## **1.20 FUEL SYSTEM**

### **Fuel Tank**

- a. The fuel tank shall be constructed out of stainless steel with the capacity to support a range of 300 miles. The tank shall have internally baffled to prevent surging and rigidly supported by at least four (4) supports, arranged for easy removal. Tank shall incorporate a sump with a minimum one-half inch (1/2") hex head brass drain plug. A fuel level monitoring system with an indicator on the dash shall be installed.
- b. Tank shall be equipped with an audible signal to indicate when tank is almost full. Shall be equipped with Emco Wheaton Posi/Lock 105 with dry break, and shall be provided with hinged spring loaded cap and hinged access door. Fill rate shall be a minimum of 40 gallons per minute. Filler neck shall be located on the curb side of the coach. Contractor shall provide two Emco Wheaton fueling nozzles consistent with the Posi/Lock 105 system.
- c. Bottom draw configured fuel tank and fuel tank sending unit shall be provided to be accessible from underneath the coach.
- d. The fuel tank shall be designed so as to not permit the spillage of any fuel, with the filler cap properly closed, when the floor of the coach is at any angle from horizontal through 22 degrees from horizontal in any direction for any period of time. This shall be accomplished with the fuel tank filled to capacity as defined by published capacity and whistle cut off point.

### **Fittings and Installation**

Fittings on fuel and oil lines shall be SAE flared or inverted flare type. Fuel filter and lines shall be installed in such a manner as to avoid excessive heat and fire hazard. Restriction fittings, if applicable, shall be in fuel return line and of proper size so as to maintain fuel pressure under all conditions. A swing type check valve in the fuel supply line shall keep the supply line full of fuel when servicing filters or when fuel lines are disconnected in engine compartment.

### **Filters**

One (1) FleetGuard OptiGuard FS1020, or approved equal, remote mount fuel filter.

### **Fuel Lines**

- a. Fuel lines in engine compartment shall be Aero Quip FC350 black hose for the supply and return fuel lines from the engine compartment bulkhead to the fuel tank, or approved equal.
- b. Underbody fuel lines shall be sized to meet the requirements of the engine manufacturer.

### **Air and Oil Lines**

All lines shall be synflex nylon tubing, or approved equal throughout, except air compressor discharge and turbo oil feed lines, which shall be 2807 stainless steel braid, or approved equal. All hydraulic lines shall be equipped with quick disconnects in the engine compartment.

## **1.21 EXHAUST SYSTEM**

### **Type**

- a. The exhaust muffler shall be a stainless steel heavy plate type muffler designed with proper acoustical qualities and tailored to the engine requirements and installation.
- b. Exhaust pipes shall be constructed of stainless steel metal tubing direct from the muffler to a location in the upper left rear of the vehicle.
- c. The exhaust system shall meet all Federal and State clean air standards.

### **System Characteristics**

- a. Exhaust system shall be constructed so that it shall not cause back pressure in the engine or damage to the paint on the coach, and shall be anchored as near the end of the exhaust line as possible. It shall be mounted so as to maintain the integrity of its design throughout the life of the coach.
- b. Exhaust manifolds, muffler and single tail pipe assemblies shall be tight and allow no emission of fumes or smoke other than from open end of tail pipe.
- c. Access to test port on muffler shall be provided.

### **Tail Pipes**

- a. Exhaust tail pipes shall be constructed of stainless steel tubing.
- b. The use of the vertical exhaust outlet shall not increase the overall length of the vehicle, nor shall it be located in such a way as to present a burn hazard to the pedestrian traffic. The termination of the tail pipe shall be such that it complies with FMVSS 108 pertaining to side marker and clearance lights, and exhaust shall be deflected to the rear of the coach.

## **1.22 PROPELLER SHAFT AND DRIVELINE**

### **Propeller Shaft**

- a. Propeller shaft shall be a Dana 1710 series, or approved equal. It shall have a minimum

diameter of four inches (4") and shall be constructed of steel. The universal joints shall be heavy duty. Shaft shall have a protector guard.

- b. A slip joint shall be placed at the traction motor to compensate for vertical movement at the rear axle. Lubrication fittings shall be provided for the universal bearings and slip joint splines.

### **1.23 WHEELS AND TIRES**

#### **Type**

Coach shall be equipped with single front and dual rear wheels. Front wheels and tires shall be balanced and counter weighted where necessary. Aluminum wheels shall be provided included.

#### **Tires**

Tires shall be furnished by the Authority. One mounted spare tire will be furnished with each coach.

### **1.24 AIR SUSPENSION**

#### **System Characteristics**

- a. Coach shall be equipped with an air-suspension system. Air suspension system shall consist of four (4) rear and four (4) front Rolling Lobe Firestone air bellows and three (3) leveling valves, or approved equal, by which the air pressure is automatically regulated in proportion to the coach loading.

Leveling valve shall be installed in such a manner that shall prevent leveling valve roll-over.

- b. Air bellows shall act as a flexible connection between body and axle to absorb and cushion road shocks.
- c. Leveling valves (two rear and one front) shall also act to keep the coach body in relatively level position and contain a dampening or compensating feature to prevent excessive consumption of air resulting from high frequency axle movements over rough streets.
- d. Metal air chambers, if used, shall be guaranteed by the manufacturer for the life of the coach. Methods of construction and the materials used shall be of such manufacture as to permit easy and convenient replacement of bellows. Bellows shall be mounted to provide easy replacement under coach.
- e. The three (3) height control valves, one (1) at the front axle and two (2) at the rear axle, shall retain the height of the body in relation to the axles under all loading conditions.

#### **Radius Arm Assemblies**

- a. Each axle shall have four (4) rubber bushed (lubrication free) radius arm assemblies.

- b. Two (2) lower, one (1) upper, and one (1) lateral to locate the axle position and to transmit the driving, braking and cornering forces from the road to the coach understructure.
- c. The front upper radius arm assembly shall have a turn buckle to allow adjustment of the front axle caster without arm removal.

### **Shock Absorbers**

Shock absorbers, Koni or approved equal, shall be provided.

### **Axle Stops**

Rubber axle stops shall be provided between the axle and frame on each side of the axles to prevent axle and/or frame damage in severe bounce condition and to allow operation of the coach if one or more air bellows are deflated.

## **1.25 POWER STEERING**

### **Type**

Power steering shall be Ross Model TAS65, or approved equal. Steering gear shall be an integral type.

### **System Characteristics**

Steering effort and number of turns "lock to lock" shall be designed and coordinated to minimize driver fatigue. Steering forces and characteristics in the event of failure of the power boost shall enable the coach to be safely driven in this condition.

- a. Mounting of gear assembly shall be engineered to reduce road shock and vibration.
- b. Steering mechanism shall be mounted so that all adjustments can be made without dismounting. Steering units shall have hex head filler and drain plugs.
- c. The drag link assembly shall have a horizontal socket for attachment at the Pitman arm, and a vertical stud for attachment at the steering knuckle arm. Both ends shall have internal springs and lubrication fittings. The assembly shall have plus or minus .50 inch length adjustment.
- d. Front axle tie rod ends shall be threaded into the tube for adjustment without removal. Lubrication fittings shall be provided on the nonserviceable end assemblies.

### **Steering Wheel**

The steering wheel shall be twenty inches (20") minimum in diameter and shall be black color plastic or synthetic resin construction with a metal core. It shall be provided with puller holes in the hub.

### **Steering Column**

Shall be tilt with telescoping steering shaft.

## **1.26 BODY**

### **Construction: Body and Understructure**

- a. The basic body structure shall be an integral design. The structure shall be designed for maximum strength, reliability and durability.
- b. Body and understructure shall be adequately reinforced at all joints and points where stress concentration may occur so that the vehicle shall carry the required loads and properly withstand road shocks.
- c. The entire coach understructure, including the wheelhouses, shall be spray coated with PPG Corashield 7972, or approved equal.
- d. All interior and exterior metal surfaces shall be cleaned and treated to prevent rust and/or corrosion. After welding in areas where primer was previously applied, all joints shall be brushed to eliminate foreign matter and then the joint shall be cleaned with a phosphorus solution to provide a good base for good paint adhesion. Finally, the joint shall be painted with red oxide primer.
- e. Aluminum panels shall be properly prepared and primed before final paint. All bolts, nuts, washers, clamps, clips, and similar parts, shall be zinc or cadmium plated or phosphate coated to prevent corrosion.
- f. All exterior body seams, joints and overlapping panels shall be sealed against entry of water or dust. Where dissimilar metals meet, proper care shall be taken to prevent electrolytic corrosion.
- g. All material used in the body and chassis, including cross members, posts and panels, shall be of the required strength for the purpose intended and shall be properly treated to resist corrosion. All joints exposed to weather shall be made tight against leakage.

### **Low Floor**

- a. Understructure shall consist of structural stainless steel for maximum durability, reduced maintenance, and weight and improved corrosion resistance. It shall be welded and Huck bolted throughout.
- b. Conventional bolt construction shall be with Grade 8 (traceable) hardware, and shall be used only where necessary to allow for routine disassembly (e.g., the closing crossmember shall be bolted to allow for engine removal at overhaul). No movement at bolted joints

shall be allowed.

- c. Understructure at the coach sides in the low floor bus area shall have crash protection consisting of continuous minimum 3/11" stainless steel plate at an angle which shall tend to cause an impacting vehicle to subvert. The crash protective steel plate shall be an integral, welded part of the structure, continuous between the wheelwells except for the exit door. Effectiveness of the design shall be documented by successful application of crashworthiness test. Results of such testing shall be submitted prior to delivery of first coach, and must meet the standards set forth in Federal Register Volume 47, No. 195, Section 2.1.2.10.
- d. Understructure at the front and rear overhang (defined as the distance between axle centerline and bumpers) shall be sufficiently robust to permit towing or lifting without special rigging being required. The design shall be verified by submission of those part of the STRUAA (Altoona Test) which address towing/recovery.
- e. The understructure shall incorporate minimum 3/16" steel floor material in the area of the vestibule, the driver's platform and the exit door area. The installation shall be sufficiently rigid to prevent flexing, and to permit rigid mounting of a farebox.
- f. Understructure shall provide protected pathways for hydraulic lines, heater piping, airlines and electrical cabling. PVC tubing shall be used as protective conduit for wires and cables. Joints in lines, hoses, etc. shall be accessible for repairing.
- g. Body structure shall be modern, and aesthetically pleasing without protruding fasteners. Visible exterior fasteners shall be kept to an absolute minimum.
- h. All side panels shall be essentially flat, without ripples and with minimal visible joints.
- i. Side panels below the window line shall be aluminum, etched, primed and painted to the Authority's paint scheme. These side panels shall each be replaceable by a mechanic without assistance. Welding, riveting, or adhesive attachment is deemed unacceptable, although adhesive, as a secondary method to control panel resonance shall be permitted.
- j. Side panels shall be simple enough in shape to allow fabrication with no more tooling than a shear, brake, and edge roller. Metal panels with compound curves, fluting, curved indentations, etc. shall not be permitted.

#### **Construction: Exterior Panels**

All exterior panels above the rubrail shall be either riveted or welded to the body frame.

#### **Construction: Hardware**

Fasteners must be of non corroding material or finished to prevent rust and corrosion. Boron fasteners are not acceptable.

#### **Insulation**

- a. Interior of body, including roof, must be well insulated against heat, cold and noise.
- b. Roof insulation shall provide polystyrene EPS insulation.
- c. Sidewall insulation shall meet the same specifications as roof insulation. It shall be installed in all sidewalls, window post areas, and areas over the front and rear wheelhouses.
- d. The insulation referred to above, or other additional insulation, shall provide effective sound attenuation for the passenger. The maximum DBA allowable in the passenger compartment is 82.
- e. There shall be Barymat BYUF-14C one inch insulation in the engine compartment to restrict, to the maximum practical extent, the entry of fumes, odors and heat into the passenger area.

**Flooring: Plywood**

- a. Floor shall be constructed of marine grade, seven (7) ply 3/4", Greenwood XL, NT hardwood, or better, with sealed waterproof edges.
- b. The underside shall be primed with PPG Corashield 7972. The cut edges shall be sealed with either white lead, liquid neoprene, liquid urethane, Tuffcote, or Dolchem 606.
- c. Floor shall be laid in such a manner as to be free from squeaks. All edges shall be over underframe members.
- d. Floor shall be level throughout and all joints between the floor and vertical surfaces shall have a cove molding.
- e. Plywood shall be securely huck bolted to frame members.
- f. Underframe shall be stiff enough to prevent floor from excessive flexing under normal loads. The floor shall be supported so that when a person of 150 pounds or more steps on any area, there shall be no discernible flexing or movement.
- g. The area at the farebox shall be of adequate strength to support the farebox safely and durably.
- h. The entire wooden floor shall be thoroughly sanded in preparation for application of floor covering material.

An optional composite floor shall be priced.

## **Roof**

- a. Roof shall be constructed in accordance with the manufacturer's standard and of sufficient strength and stiffness to prevent vibration, drumming or flexing in service. The roof shall be one piece fiber reinforced plastic (FRP) sheet.
- b. A rear roof hatch shall be provided to meet the requirements of FMVSS 217.
- c. All seams, joints and overlapping panels, shall be thoroughly sealed to prevent the entry of water and dust. Where dissimilar metals meet, proper care shall be taken to prevent electrolytic corrosion.

## **Stepwells**

Front and rear stepwells shall be stainless steel reinforced with steel tubing.

Entrance and exit floor areas are to be sloped to prevent accumulation of water or ice. No risers are permitted, except aft of exit door and may not exceed 8 1/2" in height for each riser.

## **Wheelhouse**

Wheelhouses shall be of sturdy construction, manufactured of stainless steel, providing ample clearance at front and rear tires under load and under all positions of front wheel steering.

## **Fenders**

- a. Rubber fenders shall be furnished at each wheelhouse and shall be formed so as to effectively prevent road water/dirt from splashing up and onto driver's mirror and windows.
- b. Anodized aluminum retainers or moldings extending around wheelhouse to bottom of lower skirt panel shall be furnished on all wheelhousings.
- c. Splash Aprons, made of not less than one quarter inch (1/4"), three-ply rubberized fabric, or one-quarter inch (1/4") cured masticated tire friction material, black color, shall be provided at the rear of the wheelhousings, projecting downward to a point approximately six inches (6") above ground with coach loaded. Aprons shall have a maximum width compatible with the understructure of the coach.

## **Drip Moldings**

Water-deflecting roof gutters shall be provided over the side windows and doors.

## **Lines: Fuel, Oil and Water**

Fuel and oil lines shall be seamless annealed copper tubing or 213 Stratoflex or approved equal. Water lines shall be silicone and protected with loom when passing through supports and brackets. In the engine compartment, however, all flexible air, fuel and oil lines shall be 213 Stratoflex or approved equal. Brackets shall be installed at each cross frame bulkhead and support.



## **1.27 INTERIOR**

### **Floor Covering**

- a. Installation: Floor covering shall be butt joined. Should any gaps be unavoidable, they shall be filled with color matching material so as to be tight against any influx or seepage of water present in any uneven floor edges which might cause a person, walking on them, to trip. The floor shall be cleaned thoroughly before delivery.
- b. Step Treads: Steps at the front entrance and rear exit shall be covered with five sixteenths inch (5/16") ribbed flooring. Entrance and exit step treads shall include integral molded noses on stainless steel metal backing. Backing to be totally enclosed in rubber.
- c. Entrance Area: Entrance area and front standee area shall be covered with ribbed flooring not less than five-sixteenth inch (5/16") in thickness. The entrance area and the standee area are to be separated by a white strip molded into the flooring. A six-inch (6") stainless steel backing shall be furnished under standee line edge.
- d. Ribbed: Center aisle and rear exit door approach area shall be covered with a ribbed floor covering not less than three-sixteenths inch (3/16") in thickness. Center aisle strip shall be twenty two inches (22") wide.
- e. Smooth: Floor area under the seats, including driver's area, shall be covered with a mottled smooth floor covering not less than one eighth inch (1/8") in thickness. The material is to be thoroughly cemented into position throughout the entire area. The floor covering shall not be extended up on the wheelwell housing but shall terminate where the floor covering butts the housing. A stainless steel trim molding shall be installed on the flooring at the point the wheelwell housing and floor covering butt.
- f. Type and Color: Floor shall utilize RCA Transit floor covering. The color will be determined at the pre-production meeting.

### **Advertising Card Racks**

Interior advertising card racks, as integral parts of the light fixtures, shall be provided along each side of the coach to accommodate eleven inch (11") advertising card signs.

### **Modesty Panels**

**NOTE:** Bidder is advised to review the wheelchair accessibility requirements in earlier sections of this RFP, as they affect stanchion and modesty panel location and alignment.

Modesty panels shall be installed in the following locations:

- a. At the rear of front stepwell. This panel shall have adequate clearance from the front door, to prevent injury to passenger's hand(s) during the opening cycle.

- b. At the rear of rear stepwell.

Modesty panels shall be attached to handrails with counter sunk flush fasteners securely attached to stanchion and body side. Panels shall be attached to a bottom extruded anodized aluminum rail for stiffness.

Panels shall be constructed of 3/8 inch thick 14 inch Graylite Lexan. All modesty panels shall be raised three inches (3") above floor level.

### **Stanchions**

- a. In the following locations, vertical stanchions shall be mounted between either the floor or the modesty panel, and either the ceiling or the grab rail:
  - 1. At the right rear of the driver's seat.
  - 2. At the inside rear corners of front and rear stepwells.
- b. A handrail constructed of smoothly surfaced anodized extruded aluminum, or approved equal, shall extend from these stanchions to the side of the coach at a height of approximately thirty four inches (34") from the floor.

### **Grab Rails**

- a. An entrance grab rail shall be provided at the dashboard, minimum height thirty-six inches (31"). It shall be properly located to allow installation of the farebox and access of wheelchairs.
- b. Grab rails shall be installed at the front and rear doors to aid passengers in boarding and alighting.
- c. One full length standee grab rail shall be mounted on each side of the aisle. They shall be no more than seventy-two inches (72") above the coach floor, and their ends shall terminate either in ceiling connections or in elbows.

### **Stanchions and Grab Rails: Construction**

All stanchions and grab rails shall be one and one quarter inch (1-1/4") welded stainless steel tubing, with fittings that match tubing. Minimum tubing thickness shall be .065-inch. Fittings shall be constructed of stainless steel, cast aluminum, cast zinc, or a corrosion resistant material.

### **Driver's Barrier**

- a. A full height barrier beginning 6 inches (152 mm) above the floor shall be provided directly in back of the driver's station to separate the driver from the passenger compartment. The barrier shall extend from the left side coach wall to the stanchion at the right rear of the driver's station. This panel shall in no way interfere with the safe normal

operation of the coach or restrict movement of the driver's seat.

- b. The barrier assembly shall be rigid, shall not shake or rattle in service, and shall withstand forces from passengers using it as a handhold. Any screws and/or bolts protruding through the barrier shall have rounded heads to eliminate passenger injury.

### **Interior Trim**

Interior panels shall be applied to ensure a neat and finished appearance. Fasteners shall be of such type that they shall not loosen because of vibration. Panels shall be supported so as to prevent buckles, drumming, or flexing when the vehicle is in service. All panel joints shall be sealed and covered with protective trim strips to guard against sharp edges.

- a. Ceiling: Ceiling trim panels shall be Melamine, Melamine bonded to aluminum, or approved equal, one tenth inch (1/10") minimum thickness.
- b. Sidewall Panels: Sidewall trim/panels below the windows shall be Melamine, or approved equal, 0.12 inches minimum thickness.
- c. Sidewall Posts: Sidewall posts between the windows shall be covered with a suitable material and must be approved by the Authority.
- d. Front Area: All interior surfaces forward of the standee line shall be nonreflective black or a color complementary to the interior of the coach.
- e. Rear Area: Panel behind rear settee shall be installed to provide sound attenuation.
- f. **Trim Moldings:** All trim moldings around wheelwells, stepwells, sidewall, cove area, settee riser, front dash area, and panel below driver's window, shall be stainless steel.
- g. Color Scheme: A color scheme shall be furnished for Authority approval upon award of the contract.

### **Passenger Seats: Type**

Passenger seats shall be the American Seating INSIGHT with stainless steel back, or approved equal. Seating shall meet or exceed all Federal Motor Vehicle Safety Standards.

### **General**

The seat shall be ergonomically designed and shaped to provide optimal lumbar, kidney area and buttocks support.

The thickness of the transverse seat back shall be minimized to increase passenger knee room and coach capacity. The backrest shall not be thicker than 1" at the edges and ½" in the center when utilizing vandal resistant inserts. A curved insert shall allow the seat hip to knee measurements to be greater than the seat pitch.

Seat backrests shall taper toward the top to accommodate required aisle spacing. The aisle between the seats on a 102" wide coach shall be no less than 20" wide at seated passenger hip height and no less than 24" at standing passenger hip height.

Foot room, measured at the floor forward from a point vertically below the front of the seat cushion, shall be no less than 14". Seats immediately behind the wheel housings may have foot room reduced, provided the wheelhouse is shaped so that it may be used as a footrest.

- a. **Seat Frame:** Each seated position shall have its own seat frame assembly. The seat shall have well defined individual seating positions. All metal of the standard seat structure including the frame, cantilever, pedestals, beams, mounting brackets and other components shall be stainless steel with beaded finish. The frame shall be constructed of 25mm OD tube with 2mm wall thickness.

The passenger seat frame and its supporting structure shall be constructed and mounted so that space under the seat is maximized to facilitate cleaning. Cantilevered seats shall be mounted to the sidewall with sufficient strength for the intended service. The lowest part of the seat assembly that is within 12" of the aisle shall be at least 10" above the floor. Cantilever assemblies must be collapsible with pivoting linkages at the lower wall mounting bracket and the junction between the cantilever leg and beam assembly. The lowest part of a pedestal-mounted seat that is within 12" of the aisle, excluding the pedestal, shall be at least 10" above the floor.

The seat back and seat back handhold immediately forward of transverse seats shall be constructed of energy absorbing materials to provide passenger protection and, in a severe crash, allow the passenger to deform the seating materials in the impact areas in accordance with the Knee Impact and Head Impact Critical requirements. The minimum radius of any part of the seat back, handhold, or modesty panel in the head or chest impact zone shall be a nominal 1/4".

- c. **Grab Rail:** The back of each transverse seat shall incorporate a handhold no less than 7/8" in diameter for standees and seat access/egress. Individual handholds shall be mounted to each seat frame. The service time to exchange grab handles shall not exceed five minutes. The handhold shall not be a safety hazard during severe decelerations. The handhold of all aisle seats shall extend above the seat back near the aisle so that standees shall have a convenient vertical assist, no less than 4" long that may be grasped with the full hand. This handhold shall not cause a standee using this assist to interfere with a seated 50th-percentile male passenger. Handholds on seats not directly on the aisle shall be maximum 3" tall to allow maximum visibility of the seated occupants behind the seat. Each handhold shall also be usable by a 5th-percentile female, as well as by larger passengers, to assist with seat access/egress for either transverse seating position. The upper rear portion of the seat back and the seat back handhold immediately forward of transverse seats shall be padded and/or constructed of energy absorbing materials. All grab rails shall be curved to match the curve of an occupant's back torso. Longitudinal seats shall be the same general design as transverse seats but without grab rails.

d. Passenger Seats: Transverse

1. Seat colors shall be provided at pre-production meeting.
2. There shall be an end closure between the window end of the seat cushion and back and the interior panel below the window to prevent the accumulation of trash in that area.

e. Passenger Seats: Longitudinal

1. Longitudinal passenger seats shall be provided, two each, in the front and rear of the coach. They shall be of the same color, quality, make and construction as all other passenger seats.
2. Location of front seats shall be directly behind driver's seat and front stepwell between tie down equipped jump seats.
3. Rear longitudinal seats shall be located above the rear wheel wells.

f. Passenger Seats: Folding

Shall be used in wheelchair securement area.

g. Passenger Seats: Rear Cross

1. Rear seat shall be a 5-passenger unit.
2. Seat shall be of same color, quality, make and construction as all other passenger seats.

h. Wheelchair Accommodations

Two forward-facing locations, as close to the wheelchair loading system as practical, shall provide parking space and secure tie-down for a passenger in a wheelchair. Flip-up passenger seats will be installed in these positions. The latching mechanism for these seats will be of steel construction. Plastic release handles are not to be used.

Maneuvering room inside the coach shall accommodate easy travel of two passengers in wheelchairs from the loading devise through the coach to the designated parking area. No portion of the wheelchair or its occupant shall protrude into the normal aisle of the coach when parked in the designated parking space. As a guide no width dimension should be less then 34 inches. Areas requiring 90 degree turns of wheelchairs should have a clearance arc of no less the 45 inches and in the parking area where 180 degree turns are expected, space should be clear in a full 48 inch circle. A vertical clearance of 12 inches above the floor surface shall be provided on the outside of the turning area for wheelchair foot rest clearance.

The American Seating telescoping A.R.M. wheelchair restraint with Q'Straint belts and

retractors shall be installed.

## **1.28 DRIVER'S STATION AND CONTROLS**

### **Design Factors**

- a. The design of the driver's station shall have as its primary objective the provision of an environment for the driver that shall aid him or her to operate the coach safely and efficiently for long periods of time with minimum fatigue. Human factors design principles shall be used in the layout and proportioning of the driver's station and its components with attention given to safety, "comfort and fatigue," body support; the size, shape and location of switches, levers, pedals and gauges; and all other factors that affect the design objective.
- b. The driver's station shall accommodate drivers who are of various heights and body proportions by the use of human factors design in locating and proportioning the devices in the station and by the use of adjustable components such as the driver's seat and the steering column. It is required that the station accommodate drivers within a height range of 57 to 76.5 inches (145 to 194 cm).
- c. The Contractor shall, as a joint effort with the Authority, to determine the location of all equipment with respect to proper lighting, ease of operation, accessibility and passenger flow. Factors to be considered include, but are not limited to, the provision of mountings for and deterring the location of the farebox, radio speaker, radio control head and any other equipment supplied by the Authority. Complete details of the driver's station design shall be presented at the design review and at the prototype review for approval by the Authority.

### **Driver's Seat**

- a. The driver's seat shall be adjustable to provide comfort for drivers within the range of sizes given in the previous subsection. It shall have a full ten (10) inches of adjustment in the fore and aft direction without contacting any coach part. The seat back and seat cushion shall be adjustable, and the seat height shall be adjustable. The seat shall be installed in the same location in all coaches. All adjustments shall be easily made without the possibility of crushing or pinching the driver's hand or fingers. A dynamic load damper shall be provided on the seat to augment the springing and padding in the cushions. Rubber bumpers shall be provided to prevent metal-to-metal contact if the seat "bottoms out." Any electrical connections to the seat shall have quick disconnect provisions to allow easy removal and replacement of the seat. The driver's seat shall be a RECARO ERGO METRO with ABS back shell, lap belt auto lock retractors, air operated fore/aft, slide release, or approved equal without headrest.
- b. The entire face of the driver's seat and back cushions shall be fabric and no welt cord shall be used. Seat cushion edges shall be vinyl. Seat cushions shall be of a long lasting, fire resistant foam. Particular attention shall be given to providing a seat which is comfortable

in warm, humid weather and which gives full consideration to long period of occupancy.

- c. The seat shall be supplied with an inertia locked retractable and adjustable seat belt. The seat belt shall extend from left to right and shall have a usable travel of at least 70 inches measured from the open end of the protective boot to the end of the buckle or latch plate.

## **1.29 WINDOWS**

### **Windshield**

The windshield shall incorporate a two piece design constructed of one-quarter inch (1/4") thick safety plate laminated glass. Both right-hand and left-hand windshields shall be retained in the body structure with "zip-lock" black rubber extrusions for ease of maintenance. The driver's windshield shall be tilted 17 degrees-19 degrees to reduce windshield glare. Total glass area shall be twenty one square feet (21 sq. ft.) minimum.

### **Side Windows**

- a. Windows shall have black anodized aluminum frames and shall extend from the shoulder height of a 5th percentile seated female to the eye level of a 95th percentile standing male passenger. Vertical mullions between windows, including the trim, shall not exceed 10 inches in width. Window glazing shall be 1/4 inch nominal thickness tempered glass, with vandal guard. The material shall conform with the requirements of ANSI Z21.1- 1997 Standard for Type AS-5 Safety Glazing Materials. Window tint shall be 13% gray.
- b. All windows shall be seamless mounted upper transom with lower fixed design. The last three windows on each side shall be non-egress. All frames shall be bonded. They shall be easily replaceable without disturbing adjacent windows. Windows are fitted with emergency latches as per FMVSS -211. All egress handles shall be located towards the front of the coach. Windows shall be designed to prevent the entrance of air and water when windows are closed. Near each window there shall be instructions on decals or aluminum plates that sufficiently explain emergency exit procedures. Location of the metal decal shall be determined by the Authority.

### **Destination Sign Glass**

The destination sign glass shall be clear glass and equipped with an automatic defogging system.

### **Driver's Window**

Driver's window shall have black anodized aluminum frame with one horizontal sliding sash. The window shall have a ratchet mechanism to prevent uncontrolled sliding. The window shall have an upper fixed lower 3/4 slider window assembly. It shall be constructed so that it can easily be adjusted with one-hand operation.

### **1.30 WINDSHIELD WIPERS AND WASHERS**

Windshield wipers and equipment shall be air operated, or approved equal, and shall provide an adjustable time delay feature. The coach shall be equipped with variable speed windshield wiper for each half of the windshield with separate controls for each side. No part of the windshield mechanism shall be damaged by manual manipulation of the arm. At 60 MPH, no more than 10 percent (10%) of the wiped area shall be lost due to windshield wiper lift. Both wipers shall park along the edges of the windshield glass. Windshield wiper motor mechanisms shall be easily accessible for repairs or service from inside or outside the coach and shall be removable as complete units.

The windshield washer system shall deposit washing fluid on the windshield from nozzles attached to the wiper arms and shall evenly and completely wet the entire wiped area. The windshield washer system shall have a reservoir of at least two (2) gallons located for easy refilling. The reservoir itself shall be translucent for easy determination of fluid level. Reservoir, reservoir pumps, lines and fittings shall be corrosion resistant and protected from freezing.

### **1.31 PASSENGER DOORS**

Door structures, attachments, inside and out side trim and any mechanism exposed to the elements shall be durable and corrosion-resistant. Door construction shall be of extruded aluminum with bonded single skin construction. The door when fully open shall provide a firm support and not be damaged if used as an assist by passengers during ingress or egress. The doors system shall be the latest design with all available safety features.

#### **Front Entrance Door**

- a. The front door shall be of aluminum, two-section, slide-glide with minimum clear opening dimensions of 31.75 inches wide and 71-1/2 inches high, or approved equal.
- b. Door shall have stainless steel hinges with joints at the door posts covered by rubber seals, or approved equal. Meeting edges of door shall have four inches (4"), extruded overlapping type rubber safety edges two inches (2") on each half, or approved equal.
- c. Door shall be fully air-operated with Vapor, or approved equal, door motor. An air shut-off valve, located left of driver controls, shall be supplied. When valve is in "Off" position, front door shall be capable of being opened and closed manually.
- d. Front door area shall have a hand rail to aid in boarding the coach.
- e. Access door to door mechanism compartment shall have a chain or other acceptable device to hold door in the open position, when necessary.

#### **Rear Exit Door**

- a. Rear exit door shall be aluminum two section outward opening manually opened by the



operator and closed by spring loaded check mechanism. Clear opening of door shall be a minimum of 24.25 inches.

- b. The door operating mechanism, mounted on a removable steel base plate in a compartment directly above the door, shall be a Vapor Corporation, or approved equal, mechanical lock/electric unlock type. Door in closed position shall be locked by a spring loaded lock lever. To unlock door, lock lever shall be retracted by an electrical solenoid that is energized from a switch in driver's door control valve. When unlocked, door shall be able to be manually opened. Door closing shall be controlled by a return spring mechanism, and the rate of closing shall be retarded by a check cylinder designed to prevent slamming of the door. The rate of closing shall be adjustable, with a speed control valve on the check cylinder.
- c. Meeting edges of the door shall have four inch (4") extruded overlapping type rubber safety edges, two inches (2") on each half, or approved equal.
- d. Rear door shall incorporate safety features as required for power actuated doors not adjacent to the driver.
- e. Access door to door operating mechanism shall have a chain or other acceptable device to hold door in the open position, when necessary.

#### **Door Controls and Interlocks**

- a. Both front and rear doors shall be controlled by a five (5) position door operating control, with the following positions:
  - Front and rear door open
  - Front door open
  - Both doors closed
  - Rear door open
  - Rear and front door open.
- b. This control shall be located on the console to the left of the operator.
- c. A brake and accelerator interlock shall be provided that prevents movement of the coach when both the front and rear doors are open. The interlock equipment shall be mounted together as one assembly.
- d. A rear door override lever shall be provided for emergency exit. The lever shall be located in the rear, door control, compartment. The lever is used to release the rear door from the locked position for manual operation and also shall engage the interlock.
- e. A master interlock override switch shall be provided. It shall be located in the electric panel near the driver and shall be in a secure position.

- f. A front door, air override, control valve shall be provided. The valve shall control the release of all air to the front door so that the door may be opened manually.
- g. The rear door shall be operator only controlled.

### **Door Glass**

Each section of the door shall be glazed with one quarter inch (1/4") nominal laminated glass.

## **MIRRORS**

### **Interior Mirrors**

- a. Coaches shall be equipped with two inside rear view mirrors.
  - 1. Center rear view mirror above windshield shall be mounted on windshield header panel above and in front of driver. Dimensions shall be 8.25 inches by 16 inches. Mirror shall have a nonreflective black rim and mounting bracket made of steel. Mirror shall be positively mounted to allow for adjustment but to eliminate, to the maximum practical extent, mirror vibration.
  - 2. Right windshield header mirror shall be a six inch (6") round mirror. This mirror shall be located so as not to interfere with passengers, and shall have an adjustable mounting bracket.
  - 3. A mirror shall be mounted above the entrance door. It shall be 7" x 10" and shall have an adjustable mounting bracket.
- b. A twelve-inch (12") diameter mirror shall be mounted above and behind the rear exit door in such a way that it shall not interfere with passengers.

### **Exterior Mirrors**

#### **General**

Coaches shall be equipped with two (2) mirrors, one (1) mounted on the roadside front corner post and one (1) mounted on the curbside front corner post. Roadside mirror just above lower edge of driver's roadside window. Curbside mirror is not to extend further than a twelve inch (12") radius from the corner of coach and shall be mounted on the curbside front corner post.

#### **Curbside and Roadside Mirrors**

- a. Mirrors shall be roadside manual and curbside remote adjustable, B&R two piece, with all metal hardware, or approved equal. The controls shall be located to the roadside of the driver and provide for a full range of adjustment of both glazings of the mirrors. The glass shall be easily replaceable and be secured with Velcro.

- b. All arms, housings and hardware utilized for the exterior mirrors shall be stainless steel.
- c. Mirrors shall be mounted on retractable arms.
- d. Mirror type and location subject to final approval by the Authority

### **1.33 INTERIOR CLIMATE CONTROL**

The HVAC system shall be fully electric rear mounted in design. A roof mounted unit would be considered. The heating shall be electric resistance heat and shall include the following safety elements: fusible links, airflow safety switch and over-temperature safety switch.

The HVAC control system shall be equipped with a means to ensure continues system operations during periods of power loss do to the driving through dead spots and special work.

### **CAPACITY AND PERFORMANCE**

The polyphase current, electrically driven, hermetic sealed scroll compressor(s) equipped, completely modular climate control system shall maintain the interior of the vehicle at a level suitable for all climatological conditions found in the continental United States. The heating, ventilating, and cooling systems shall maintain an average passenger and operator area temperature of 68 degrees F for air conditioning and 70 degrees F for heating at relative humidity's of between 30 % and 50 %. The system shall maintain these conditions in ambient temperatures of between 10 to 110 degrees F with humidity's between 30% and 50%. The interior temperature shall not vary more than +/- 3 degrees at any interior measurement point on the vehicle. The system voltage shall be 460VAC 3-phase. The HVAC system shall be designed to maintain the aforementioned interior temperature(s) at all operating profiles. The refrigerant used in the system shall be R-407c. All refrigerant lines shall be hard piped.

#### **Electrical and Galvanic Requirements**

All HVAC unit motors shall operate at compressor voltage and frequency. The HVAC unit shall meet applicable 2<sup>nd</sup> order insulation requirements specified herein. The unit shall be monitored and shall report insulation failure via galvanic detection module/system. The compressor, high voltage motors, resistance heater elements and like supporting structure shall be galvanically monitored. The HVAC structure shall be provided with a voltage injection test point dedicated for testing and monitoring verification.

#### **Motor Performance**

The motors supplied for the operator's heat and ventilation, defroster and any auxiliary motors shall be asynchronous induction motors with a MTTF of 40,000 hours. The Contractor shall provide a tool kit that contains all necessary tools, bearing splitters etal, and they shall demonstrate the serviceability and repair routines at the Pilot Inspection-demonstration kit shall be property of RTA upon completion of demonstration. The motor and air delivery system shall be completely maintenance free during that period. All motor(s) shall be readily accessible for repair/replacement with no special tools at a MTTR of 0.50 hours maximum. Modules shall not be located in the HVAC or auxiliary system's recirculated air path. Modules shall be

electronically and mechanically configured to preclude thermal overhear failures. The modules shall incorporate an integral overhear failure trip indication device that operates coincidentally with the logic motor failure system.

#### **Door Operation Cycle**

At an initial interior temperature of 70 degrees F and at an ambient temperature of 0 degrees F, zero wind velocity, with the operator's heating system on and the vehicle at operating temperatures the interior temperature of the vehicle shall not drop below 68 degrees F with the front door open for 10 seconds out of every 2 minutes. The temperature shall be measured before the door opening cycle. At that time, the maximum temperature differential between any two (2) points in the defined interior volume shall not exceed 4 degrees F. Test duration shall be 10 operating cycles.

#### **HVAC Performance Test**

All HVAC system testing shall be performed to the specification(s) of the American Public Transportation Association, "Recommended Instrumentation and Performance Testing for Transit Coach Air Conditioning Systems and where modified by RTA". Contractor may obtain copies of the practice from APTA. All test procedures shall be delivered to RTA by the Contractor. Testing shall be reviewed and approved by RTA thirty (30) days in advance of the Contractor's scheduled test. Testing must be done on the PILOT INSPECTION VEHICLE. RTA may, at their option, be present during the HVAC test(s). Failure to supply the test plan at the specified date shall invalidate all testing and the pilot coach process shall not proceed.

#### **Modified Houston Pulldown Test**

The capacity of the air conditioning system shall meet all criteria of the "Modified Houston Pulldown Method" as described in the APTA recommended practice. The pass criteria for this test shall be as described in Section 8.4.6 of the APTA document and modified by RTA as, a pulldown from 100 degrees F to 70 degrees F +/- 3 degrees F within 30 minutes from the start of the air conditioning system. All four (4) thermocouples must be 70° ±3° F. in 30 minutes" (not an average).

#### **Heat Capacity Test**

The Contractor shall set up heating tests in accordance with APTA specifications using a combination of "In-House and "On-Road" methods as described in APTA guideline Section 9.1.3-A and B. Flow rates and temperature shall be a measured values not calculations. The Contractor shall submit in writing their test protocol based on the test procedure outlined by the APTA Heating Tests section, subject to the criteria of same.

#### **Performance Requirement**

The electronic control system shall provide total all season, seasonal dependent set point control and soft/hard system fault indication identification and data archive. The system shall be programmable through Contractor-supplied software and addressable through Contractor-supplied tools and/or resident to equipment. The system shall incorporate through transducers and sensors, microprocessor control, and software configured tables the ability to detect and protect against modes of operation that would cause damage to the system at any operating profile or mode, up to and including system shut down. The system, either through resident means or export ability shall provide indication and storage of operating and failure modes and shall have the capability to export those through a J-1939 or equal message format. All user

identified fault codes shall be time and date stamped. All load switching shall be “solid state” contactor-less systems except high voltage utilities. The system shall include integral compound gauges located in the return air portion of unit.

### **Layover HVAC System**

The HVAC control system shall facilitate the operation of the heating and cooling system when the coach main control switch is set to the OFF position with the poles connected to the overhead wire system. This system shall be enabled/disabled by software and/or a maintenance switch enabled by software. The layover control system shall be independently settable and adjustable and may be an integrated and/or separate control unit. The controller shall be equipped with a timer that shall enable and terminate the layover heating/cooling function by time/or by temperature. The control system shall provide user adjustable line current limit control and shall be equipped to operate to settable voltage limits.

### **Passenger Area**

The cooling mode of the interior climate control system shall introduce air into the coach at or near the ceiling height at a minimum rate of 25 cubic feet per minute (cfm) per passenger based on the standard configuration coach carrying a number of passengers equal to 150 percent of the seated load. Airflow shall be evenly distributed throughout the coach with air velocity not exceeding 100 feet per minute on any passenger. The ventilating mode shall provide air at a minimum flow rate of 20 cfm per passenger. Airflow may be reduced to 15 cfm per passenger (150 percent of seated load) when operating in the heating mode. The fans shall not activate until the heating element has warmed sufficiently to assure at least 70oF air outlet temperature. The heating air outlet temperature shall not exceed 120oF under any normal operating conditions. The air shall be composed of no greater than 20 percent outside air.

### **Operator's Area**

#### **Operator's Area Defrost Function**

The vehicle's defroster system shall meet or exceed the minimum requirements as defined by the SAE J-382 practice. Test procedure shall be SAE J-381.

If a cable-operated system is proposed for mode door control, the system shall have a cable and conduit assembly of sufficient quality to last the life of the vehicle. The aforementioned cable and conduit provision applies to all cable and conduit systems supplied for remote control actuation functions. A three (3) speed fan shall be provided.

#### **Operator's Area Climate Control**

The operator's area shall be equipped with a separately adjustable, multi-speed, forced air distribution system. The fan motor and cage shall be remotely located in an area that allows the efficient acquisition of treated air and delivery of that air flow to the operator without an increase in temperature of greater than 2° F from point of acquisition to point of delivery, as referenced by the air temperature measured at the HVAC unit outlet. The location of the motor and cage shall be readily accessible for repair with no special tools, and shall have a MTTR of 0.5 hours max. A separate floor heater shall be provided for the operator. The operator's floor heater shall deliver adjustable heated and flow controlled air to the operator's foot and leg areas, left, right, and center. RTA may allow the Contractor to integrate the operator's heater and defrost

functions, provided that the Contractor can demonstrate undiminished performance with that practice. The operator's area climate control outlets, with systems operating at maximum output, and all area systems on, shall not generate a noise level greater than 75 dBA as measured from the head projection area coincident to the 5th percentile female to the 95th percentile male operator. The Contractor shall conduct testing at the PILOT INSPECTION and provide a report to the site inspector.

### **Air Intake Systems**

All air intake systems shall be sufficiently integrated into the vehicles as not to require any special maintenance attention for the life of the vehicle. If filter(s) are supplied, they shall be integrated in a manner that ensures efficient and reliable operation and ease of maintenance. The air intake system shall not allow water and/or debris to lodge in, or collect near any intake or discharge area. The system shall be designed in a manner that precludes any foreign material from collecting on coils, heat exchangers, ducts or plenums. The structures constituting HVAC housings, ducts and hardware shall not rust and/or corrode for the life of the vehicle. Filter retention system shall preclude lifting of the filter media during operation up to and including clogged filter condition.

### **Air Filter Capacity**

Outside air openings for air intake shall be located to ensure cleanliness of air entering the climate control system, particularly with respect to engine exhaust emissions from the vehicle itself and other vehicle sources. All intake openings shall be designed to prevent the entrance of dirt, debris and other foreign material. Air filters shall be of disposable passive electrostatic type.

Outside air shall be filtered before discharge into the passenger compartment. The filter shall meet the ASHRAE requirement for 5% or better atmospheric dust efficiency, 50 % weight resistance, and a minimum dust holding of capacity of 120 grams per 1,000 cfm cell. The filters shall be cleanable and easily removable. The filters shall be designed to ensure proper operation of the HVAC system at service intervals of between 3,000 to 6,000 miles. Condensate drains shall be provided that shall remove all collected condensate from air handling areas. The drainage system shall not clog from the condensate collected, or from road dirt. Condensate piping shall be arranged to be self clearing.

### **ROOF VENTILATORS**

A single roof ventilator shall be provided in the roof of the coach, one approximately over or just forward of the front axle. Ventilators shall be easily opened and closed manually. When open with the coach in motion, this ventilator shall provide fresh air inside the coach. 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 open no less than 4 inches, or with all four edges raised simultaneously to a height of no less than 3-1/2 inches. An escape hatch shall be incorporated into the roof ventilator. Roof ventilator(s) shall be sealed to prevent entry of water when closed.

### **MAINTAINABILITY**

All HVAC units shall incorporate a diagnostic and function control panel. For maintenance purposes, the panel shall permit full manual operation of the HVAC unit. The first power up cycle shall reset all automatic operation. The panel shall incorporate/gateway all diagnostic

routines and test functions required to attain proper system operation during shop level repairs. No PC based external software shall be required to attain shop level maintenance. No reconfiguration of certain system settings or historical data shall be attainable or erasable at the diagnostic and function panel. All indication lamps and/or displays shall be solid state (LED). The HVAC unit shall be equipped with an LED indicator showing the status of galvanic protection. Lamp on, system OK, Lamp Flashing, system fault.

Manually controlled shutoff valves in the refrigerant lines shall allow isolation of the compressor and dehydrator filter for service. To the extent practicable, self-sealing couplings utilizing O-ring seals shall be used to break and seal the refrigerant lines during removal of major components, such as the refrigerant compressor. Shut-off valves may be provided in lieu of self-sealing couplings.

The condenser shall be located to efficiently transfer heat to the atmosphere, and shall not ingest air warmed above the ambient temperature by the coach mechanical equipment, or to discharge air into any other system of the coach. HVAC components located within 6 inches of floor level shall be constructed to resist damage and corrosion

### **Motors and Blowers**

The HVAC system and all other ventilation system motors shall be asynchronous induction type motors operating at 208/230 3-Phase 60 Hz, volts AC nominal. The supplied motors shall be maintenance free for the expected life of the coach with a minimum 40,000 MTTF. All motors defined by this section shall be replaceable at 0.25 hours MTTR. All wiring shall be modular and polarity protected. All fan cages shall be removable without force that would tend to distort or damage the cage so as to prevent reuse. Serial numbers or modification identifications shall be viewable without removal of units, motors, blowers, and motor modules for verification.

### **Electronic Controls-Environmental**

All electronic control boards shall be located in an area that permits pressure washing/cleaning of heating, evaporator and condenser coils without contaminating or damaging any electronic component in the HVAC system. If electronic components are located in the evaporator and/or the condenser area, the components and wiring must be “weather packed” and/or removable in 0.1 hours MTTR. The electronic control system may be remotely placed in order to meet the aforementioned requirements of this section. The electronic control system shall not exceed 0.25 hours MTTR. If circuit boards employing indication require maintenance attention, then said indication shall be readily visible and shall not be obstructed by other equipment. If the electronic control system employs an external communication means then the connection point shall be readily accessible and sealed when not in use.

### **ENTRANCE HEATING**

Heat shall be supplied to the entrance area to prevent accumulation of snow, ice, or slush with coach operating under design operating profile and corresponding door opening cycle.

### **FLOOR LEVEL HEATING**

Sufficient floor level heaters shall be provided that evenly supply heated forced air through floor ducts across the length of coach. Floor ducts may be discontinued at the upper level but

additional provisions to prevent cold floor and ensure temperature uniformity shall be included. Floor heater(s) may be used instead of floor ducts to ensure temperature uniformity. Control of the floor level heating shall be through the main HVAC system electronic control.

### **Electrical Wiring and Terminals**

All unit wiring shall be UL758, Style 3173/3196 having copper strands with tinned alloy coating rated for up to 600 volts. The insulation shall be cross-linked polyethylene, rated for 125 degrees C and shall be white in color with permanent video jet ink dot matrix style or hot stamp number coding the entire length at a spacing of 1 to 3 inches.

All terminals shall be machine crimped. Hand crimping is not acceptable. All terminations exposed to ambient shall be coated with Glyptol for corrosion protection.

### **1.34 RADIO, DESTINATION SIGNS AND FAREBOX**

The programming of the radio, destination sign and farebox will be an integrated control panel which shall program each system with one operator input. The destination sign will automatically change with a change in routing.

#### **Radio**

A Siemens ITS Transmaster communication system will be installed by RTA. The Contractor shall be responsible to install the following:

- a. A compartment shall be provided to accommodate the system. The radio box shall be located on inside of the coach within five (5) feet of the driver's seat. Its position shall be convenient for servicing. The compartment shall include a clear space twelve inches (12") high, eighteen inches (18") wide, and twenty four inches (24") deep for the radio. An eighteen inch (18") wide and twenty four inches (24") deep sliding tray shall be provided. The box and conduit shall be waterproof when the service door is closed and the door shall incorporate a keyed latch.
- b. A positive/negative dedicated and isolated power source with a minimum capacity of 30 amps/12 volts, using ten (10) wire shall be provided. The radio circuit shall be wired so that the radio is on when the master run switch is not in the off position.
- c. At a location convenient to the driver and subject to final approval by the Authority, Contractor shall provide and install a "silent alarm" switch. The switch shall not be marked or illuminated and be of durable design. The switch shall accommodate connection to the "silent alarm" feature of the radio. Two 12 gauge wires shall be provided from the switch to the transceiver.
- d. Three antenna reinforcement and ground plane plates, twelve inches x twelve inches x one/eighth inch (12" x 12" x 1/8") shall be mounted at locations on the roof body panel at approximately the coach center line.
- e. Contractor shall provide and install a low profile blade type antenna, or approved equal. One antenna shall be mounted approximately four feet (4') to the rear from the front of the



coach for GPS. The second antenna shall be located 15 feet (15') to the rear of the forward antenna for radio. A wide area network antennae shall be installed. The antennae locations shall have access plates in the interior roof panel below the reinforcement for access to the antenna cables.

- f. Contractor shall provide and install type RG 58 coaxial cable from the radio box to each antenna location.
- g. Contractor shall provide any required voltage converters and RF filters necessary to make the radio operate.
- h. Contractor to provide necessary noise suppression to prevent interference from alternator, fluorescent lighting and other sources.

#### **Destination Sign**

A Luminator Gen 4, 100% LED (amber), automatic electronic Passenger Information Display Sign System, or approved equal, shall be furnished and installed in the coach. The System shall consist of:

#### **Display Signs**

- a. Front Sign: 16 rows x 160 columns; display height minimum 7.7 inches, display width 13".
- b. Curbside Sign: 14 rows x 91 columns; display height minimum 4.2 inches, display width 42".
- c. Rear Sign: 16 rows x 48 columns; display height minimum 6.1 inches, display width 18".
- d. Operators Control Unit (OCU)
- e. Cables and Accessories

#### **Sign Locations**

The front sign shall be mounted on the front of the coach, near the top edge of the body, behind windshield protection, and in an enclosed but accessible compartment provided by the coach manufacturer.

The curbside sign shall be located behind the front door.

The rear sign (external) shall be mounted on a Luminator supplied brackets on the rear of the vehicle on an appropriate sized cutout provided by the coach manufacturer.

The entire display area of all signs shall be readable in direct sunlight, at night, and in all lighting conditions between those two lighting extremes, with evenly distributed illumination appearance to the un-aided eye.

### **Communications**

The System shall be microprocessor-based utilizing approved bi-directional serial communications, such as; S.A.E. J1708 or IBIS, E.I.A. RS-485, between System components, and shall utilize error detection techniques within the communication protocol.

Independent Controller Boards shall be mounted in the front and side destination sign. The System shall be capable of communicating with, and/or controlling additional information devices, such as interior information signs, Voice Annunciation devices, farebox, Automatic Vehicle Locator Systems, etc. The System shall provide for destination and/or Public Relations (P/R) message entry.

Flash memory integrated circuits shall be capable of storing and displaying up to 10,000 message lines. Message memory shall be changeable by the use of a flash card of not less than one (1) megabyte memory capacity but sized according to the message listing noted herein.

The System shall have the ability to sequentially display multi-line destination messages, with the route number portion remaining in a constant “on” mode at all times, if so programmed. It shall also be capable of accepting manual entry of Route Alpha/Numeric information on any/all signs.

The various signs shall be programmable to display independent messages or the same messages; up to two destination messages and one public relations message shall be pre-selectable. The operator shall be able to quickly change between the pre-selected messages without re-entering a message code. Public relations messages shall be capable of being displayed alternately with the regular text and route messages or displayed separately.

An emergency message shall be activated by a push button or toggle switch in a location to be approved by the Authority. The emergency message shall be displayed on signs facing outside the vehicle while signs inside the vehicle, including the OCU display, remain unchanged. The emergency message shall be canceled by entering a new destination code, or power cycling (after removal of the emergency signal).

The programming software shall provide means of adjusting the length of time messages are displayed in 0.1 second increments up to twenty-five seconds.

Power to the sign system shall be controlled by the master coach run switch. The signs shall operate in all positions of this switch except off. The signs shall be internally protected against voltage transients and RFI interference to ensure proper operation in the local environment.

### **Display and Display Illumination**

All sign displays shall consist of pixels utilizing high intensity Light Emitting Diode's (“LED”), for superior outdoor environmental performance, (of amber illumination appearance of light wavelength of 590 NM). LED should be made of AlInGaP II, superior UV resistant epoxy lens and superior resistance to the effects of moisture. Each pixel shall have a dedicated LED for illumination of the pixel in all lighting conditions. The Sign System shall have multi-level

intensity changes, which adjust automatically as a function of ambient lighting conditions. There shall be no requirement for any fan or any specialized cooling or air circulation.

This LED shall be mounted such as to be visible directly to the observer positioned in the viewing cone, allowing for full readability 65 degrees either side of the destination sign centerline. The LED shall be the only means of illumination of the Sign System. The LED illumination source shall have an operating life M.T.B.F. of not less than 100,000 hours. Each LED shall not consume more than 0.02 watts.

The characters formed by the System shall meet the requirements of the Americans with Disabilities Act (ADA) of 1990 Reference 49 CFR Section 38.39.

### **Sign Enclosures**

All signs shall be enclosed in a manner such as to inhibit entry of dirt, dust, water and other contaminants during normal operation or cleaning. Access shall be provided to clean the inside of the coach window(s) associated with the sign and to remove or replace the sign components. Access panels and display boards shall be mounted for ease of maintenance/replacement. Any exterior rear sign enclosure used shall be made of Polycarbonate material containing fiberglass reinforcement. The vehicle manufacturer shall comply with the sign manufacturer's recommended mounting, mounting configuration, and installation procedures to assure optimum visibility and service accessibility of the Sign System and System components.

### **Electronic System Requirements**

All electronic circuit boards used in the Sign System shall be conformal coated to meet the requirements of military specification MIL-I-46058C. All Sign System components shall be certified to have been subjected to a "burn-in" test of a minimum of twelve (12) hours operation in a temperature of 150 degrees F. prior to final inspection.

### **Front Sign**

The front sign message shall be readable by a person with 20/20 vision from a distance not less than 350 feet for signs of display height greater than 8 inches and from a distance not less than 275 feet for display heights less than 8 inches. The front sign shall have a viewing cone of equal readability at 65 degrees on either side of a line perpendicular to the center of the mean plane of the display. The intensity of the illumination of the display pixels shall appear, to the naked eye, to be approximately uniform throughout the full viewing cone.

### **Side Sign**

The side sign message shall be readable by a person with 20/20 vision, from a distance of not less than 110 feet. The side sign shall have a viewing cone of equal readability at 65 degrees on either side of a line perpendicular to the center of the mean plane of the display. The intensity of the illumination of the display pixels shall appear, to the naked eye, to be approximately uniform throughout the full viewing cone.

### **Rear Destination Sign**

The rear sign shall be capable of independently displaying alpha-numeric characters. Its message shall be readable by a person with 20/20 vision, from a distance of not less than 225

feet. The rear sign shall have a viewing cone of equal readability at 65 degrees on either side of a line perpendicular to the center of the mean plane of the display. The intensity of the illumination of the display pixels shall appear, to the naked eye, to be approximately uniform throughout the full viewing cone.

### **Operator Control Unit (OCU)**

The OCU shall be used to view and update display messages. It shall be recess mounted in a desirable location to best serve operator comfort and ease of use. The OCU shall utilize a multi-key conductive rubber pad keyboard and be designed for transit operating conditions.

The OCU shall contain a display of at least two lines of 20-character capability. The OCU shall contain an audio annunciator that beeps indicating that a key is depressed. The OCU shall continuously display the message associated with the selected destination readings (except the emergency message feature as noted above.)

The OCU shall also contain the capability to manually select the block number sign information (from 1 to 4 alpha-numeric characters) to be sent to the block number sign, independent of any pre-programmed destination sign message information.

If the IBIS interface is required in the Destination Sign System, an auxiliary RS232 (DB9) port shall be made optionally available on the OCU underframe for inputs from any wireless technology that might be envisioned in the future. This auxiliary RS232 port shall operate at 9100 baud and accept commands from a wireless source (such as Spread Spectrum receivers) and shall set destination sign addresses as if manually operated by the OCU operator.

If the J1708 interface is selected for the Destination Sign System, an auxiliary J1708 port shall be made available on the J1708 OCU so that auxiliary J1708 commands may be provided to the Destination Sign System from a wireless source that conforms to the J1708 command structure.

### **Programming**

The programming software package shall use the capability of a Pentium 400 Processor PC having not less than 11 megabyte of RAM, and not less than 850 Mb of available hard-disk space, to allow the flash cards to be programmed directly from the PC through a flash card Port. Two (2) such Personal Computers shall be supplied under this contract.

The programming software shall be intuitive, of design to facilitate ease of training, and use context-sensitive help features. Reasonable on-site training support shall be provided with the software.

This software shall provide capability for custom message writing by selection of preprogrammed standard variable width fonts. This allows for creation of a custom font by varying spacing between characters, words, or other message elements. This software also allows for creation of graphic displays with or without text; by selecting preprogrammed graphic sign images and by allowing use of multiple fonts within the same message and graphic symbols placed anywhere within the display area.

### **Message Memory Transfer and Update**

The Sign System shall be reprogrammable on the coach vehicle with the use of a flash card. A flash card slot shall be provided on the OCU face for this purpose. The maximum reprogramming time for a 10,000 line listing shall be one minute. Flash cards, of appropriate memory capacity based on requirements of the message listing noted below (but not less than 0.5 Megabyte) shall be supplied at the rate of one card for each 50 systems, or fraction thereof, but in any event not less than four such flash cards shall be supplied.

### **Interconnecting Cabling**

Data Communication	Single twisted pair (two conductors) cable
Power Cabling	Three conductors connecting to the switched and un-switched (battery) power and a return (battery)
OCU Unit Cable	Single twisted pair cable between the OCU and front sign.

### **Message Listing**

Upon receipt of the contract/purchase order the vehicle manufacturer shall supply to the sign manufacturer, within 14 days, a list of the message readings or listings such as to allow the Sign System to be preprogrammed with the correct readings.

### **Interior Headsign**

An all LED interior headsign compatible with Automated Voice Annunciator System and Automatic Vehicle Locator System shall be provided.

### **Farebox**

A mounting platform design for a GFI ODYSEY cash collection system shall be installed..

## **1.35 MISCELLANEOUS INTERIOR COMPONENTS**

### **Visor**

Padded visors or roller type shades shall be provided on driver's side; one shall be for the windshield and one shall be for the driver's side window. They shall be adjustable horizontally and vertically and shall meet requirements of State law. Visor shall be constructed of heavy duty material and assembled to last the life of the coach in normal operations. Visor shall incorporate a clip type lock to lock visor in front or side position.

### **Safety Equipment Compartment**

A Amerex Model 400T ABC , or approved equal, five pound (5 lb.) dry chemical fire extinguisher and KD #610-4645, or approved equal, safety triangle kit shall be installed. Safety triangle kit to be securely installed under the front right side longitudinal seat. Location of both the fire extinguisher and the kit to be approved by the Authority.

### **Coat Hook**

A coat hook shall be mounted on the rear post of the driver's window, or driver barrier frame.

### **Valuables Compartment**

A compartment/box for storing driver's purse or valuables shall be located under the front of the right front longitudinal seat or a driver's barrier (for the low floor). It shall be of aluminum or steel, 1" x 11" x 20" with a hinged door which can not be securely locked. Design and location to be approved by the Authority.

## **1.36 BUMPERS**

### **Type**

Energy absorbing front and rear bumpers shall be furnished.

## **1.37 TOWING EYES**

Two (2) front towing eyes, concealed and located above the bumper, shall be provided on the standard floor coach. Two rear towing hooks will be provided.

## **1.38 WHEELCHAIR ACCESSIBILITY**

### **Access Ramp**

An access ramp shall be provided at the entrance door. It shall be the Lift-U fold out, or approved equal. The ramp shall have a useable width of thirty-one inches (31") and meet all A.D.A. requirements. The ramp is to be operated by the driver from the seated position. In case of malfunction, the ramp shall be manually operated.

### **Requirements**

- a. Coach, front door entry area, aisle, tie down area, and tie downs shall be fully accessible to wheelchair passengers using standard electric wheelchairs in the 95th percentile of wheelchair size, length, width, height, tire size, and tire thickness. In any case, all conventional wheelchair designs shall be accommodated. Adequate provisions, including body modifications, as necessary, shall be made to enable wheelchair passengers to smoothly, quickly, and safely leave the passenger ramp in a forward position, pass the front door entry area, and move down the aisle to the tie down area, turn one hundred eighty (180) degrees, and then move into the tie down area.
- b. In addition to the above requirements, the following minimum distances shall be observed in order to ensure adequate accessibility.

Minimum unobstructed width of ramp	32 inches
------------------------------------	-----------

Minimum distance between stanchion at front stepwell and inside front body of coach	42 inches
---	-----------

NOTE: This area shall be unobstructed by stanchions, grab rails, heating vents or other structures.

Minimum distance between wheelwells	42 inches
Minimum unobstructed aisle width	42 inches
Minimum distance between stanchion at front stepwell and edge of dashboard facing front door	48 inches

### **Wheelchair Tie Down Area**

- a. Accommodations shall be provided for two (2) wheelchair passengers to be secured in a forward facing position in the area between the front longitudinal seats and the modesty panels facing the first transverse seats. The length of this area shall be fifty eight inches (58") or greater, and the width shall equal the length of the transverse seats and the modesty panels. Modesty panels shall be adequately reinforced to withstand impact of wheelchairs.
- b. Fold down longitudinal seats, equal in appearance, design, and quality to the passenger seats, shall be provided in the tie down areas for use by ambulatory passengers when no wheelchair passengers are on the coach. When the fold down seats is in the retracted position, there shall be adequate room for the operator to safely and quickly secure the wheelchair with the tie down equipment. Approximate dimensions of the seats shall be as follows:
  - Length: 51 inches
  - Width, when retracted: 9 inches
- c. Wheel securements shall accommodate the wide wheels now being used on some wheelchairs.
- d. A metal instruction plate attached to the bottom of the fold down longitudinal seats shall detail procedures for using the tie down equipment.

### **Tie-Down Apparatus**

- a. Both a seat and shoulder belt for securement of wheelchair passengers and their wheelchairs shall be provided. Both belts shall emanate from a position on the coach wall immediately to the side of the wheelchair user. Metal couplers for the seat belts shall be attached to the aisle end of the modesty panel behind the wheelchair. When the folding seats are not retracted, the seat belts shall attach to the bottom of the seat such that they are securely bound and not visible. One of the seat belts shall secure the wheelchair user around his lap.
- b. Adequate sheathing, or other reinforcement, shall be used to position the lap belt and coupler ends so that wheelchair passengers, when in the tie down securement position, may secure the lap belts without assistance and without bending, twisting, or leaning. Lap belts and couplers shall reach the hip level of the wheelchair user in such a way that no torso

movement is necessary throughout the tie down securement procedure.

### **1.39 ON-BOARD CAMERA SYSTEM**

The On-board Digital Recording System shall be a Kalatel Mobile View V Digital Video Recording System.

#### **Cameras**

Four color cameras shall be installed. Locations will be determined at the pre-production meeting

#### **Options**

Cellular Transmission System: The DVR shall be upgradeable to a video transmission system (DVRT). The transmission system shall utilize analog cellular technology. The Central Station shall support multiple simultaneous incoming video transmissions. The Central Station shall also have the ability to call out to the vehicle and request images at multiple resolution settings.

#### **System Upgrade**

- a. The system's hardware and software shall be capable of being upgraded in the field. The upgrade shall be easy and user friendly.
- b. The DVR may be programmed with time, date, and vehicle I.D., as well as camera input and capture rate via keypad programming or Ethernet port.

#### **Additional DVR Units**

2 additional DVR units shall be supplied under this contract to provide for spare replacement capabilities for the system.

#### **Hardware Warranty**

A 14-month hardware warranty, from the date of invoice, shall be provided.

#### **Extended Maintenance**

Extended maintenance shall be available through the seller of the DVR system.

### **1.40 REPLACEMENT PARTS**

A supply of replacement parts for the coaches specified is guaranteed for a period of fifteen (15) years by issuing revised pages or otherwise notifying the Authority of new or superseding parts and maintenance practices.

### **1.41 DRAWINGS**

During the approved equal period, bidder shall supply the Authority with floor plans and diagrams depicting the locations, distances, and dimensions of all seats, modesty panels, grab rails, stanchions and driver's barrier. The Authority reserves the right to make minor additions, alterations, or deletions.

### **1.42 PAINTING AND DECALS**



**Painting**

Dupont low VOC paint shall be applied to all exterior surfaces.

The Authority shall supply all paint schemes and color combinations at the pre production meeting as they are currently in development.

All exterior surfaces shall be smooth and free of wrinkles and dents. Paint shall be applied smoothly and evenly with the finished surface free of dirt and other imperfections.

Coach number location shall be finalized at the pre production meeting.

**Decals**

The following decals shall be provided. Preferred letter style is "HELVETICA MEDIUM, all upper case. The Authority shall furnish logos.

<b><u>MESSAGE</u></b>	<b><u>LOCATION</u></b>	<b><u>COLOR</u></b>	<b><u>*HEIGHT</u></b>
"No Smoking"	Interior above windshield	Black	2"
Coach number	Interior above windshield	White	2"
"Watch your step"	Front stepwell	Red (reflective)	2"
(Operating Instructions)	Above exit door	Black	Mfg. Std.
(Operating Instructions)	At emergency escapes	Black	Mfg. Std.
"For passenger safety, Federal law prohibits operation of this bus while anyone is standing forward of the white line"	Interior above windshield	Black	Mfg. Std.
"No Smoking"	Front destination sign door	Black	Mfg. Std.
"On Off"	Side console on valve	Black	Mfg. Std.
"Diesel Fuel"	Inside fuel filler door	Black	Mfg. Std.
"Oil"	Inside oil filler door	Black	Mfg. Std.
"Caution 'Water' Hot"	Inside surge tank filler door	Mfg. Std.	Mfg. Std.
"Caution – Negative Ground"	Inside battery compartment door	Mfg. Std.	Mfg. Std.

"Exit through back door"	Interior above windshield	Black	Mfg. Std.
"Wait for light"	Interior above rear door to right	Black	Mfg. Std.
"Push door to open"	2 locations-Interior on top panel of each door	Black	Mfg. Std.
"As a courtesy, please allow handicapped and elderly seats passengers to use these seats"	Above front longitudinal	Black	Mfg. Std.
International Handicapped Symbol (2)		Black	Mfg. Std.
Coach Number See Painting and Decals section on previous page	TBD at Pre production	Black on White, or White on Black	

\*On approval of the Authority, specified color may be changed in response to interior color scheme.

### **1.50 BIKE RACK**

The coach shall be equipped with a Sportworks DL2 bike rack.

## **2.0 QUALITY ASSURANCE REQUIREMENTS**

### **2.1 QUALITY ASSURANCE ORGANIZATION**

The Contractor shall establish and maintain an effective in-plant quality assurance organization. It shall be a specifically defined organization and should be directly responsible to the Contractor's top management. The Contractor must show the establishment of a program to obtain ISO 9000 certification.

- a. The QAO shall exercise quality control over all phases of production from initiation of design through rehabilitation and preparation for delivery. The organization shall also control the quality of purchased articles.
- b. The QAO shall 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.

### **2.2 QUALITY ASSURANCE ORGANIZATION FUNCTIONS**

The QAO shall include the following minimum functions.

- a. The QAO shall verify inspection operation instructions to ascertain that the manufactured buses meet all prescribed requirements.

- b. The QAO shall maintain and use records and data essential to the effective operation of its program. These records and data shall be available for review by the RTA's inspectors. Inspection and test records for this procurement shall be available for a minimum of three (3) years after inspections and tests are completed.
- c. The QAO shall detect and promptly assure correction of any conditions that may result in the production of defective buses. These conditions may occur in designs, purchases, manufacture, tests or operations that culminate in defective supplies, services, facilities, technical data or standards.

### **2.3 STANDARDS AND FACILITIES**

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

- a. The Contractor shall provide and maintain the necessary gauges and other measuring and testing devices for use by the QAO to verify that the buses conform to all specifications requirements. These devices shall be calibrated at established periods against certified measurement standards that have known valid relationships to national standards.
- b. When production jigs, fixtures, tooling masters, 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.
- c. The Contractor's gauges and other measuring and testing devices shall be made available for use by the RTA's 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 conditions and accuracy.

### **2.4 CONTROL OF PURCHASES**

The Contractor shall maintain quality control of purchases.

- a. The Contractor shall require that each supplier maintains a quality control program for the services and supplies that it provides. The Contractor's QAO shall inspect and test materials provided by suppliers for conformance to specification requirements, including Buy America. Materials that have been inspected, tested and approved shall be identified as acceptable to the point of use in the manufacturing or assembly process. Normally parts purchased from OEM sources go through QA procedures and do not require close inspection. Controls shall be established to prevent the inadvertent use of nonconforming materials.
- b. The Contractor shall verify that all applicable specification requirements are properly included or referenced in purchase orders of articles to be used on built buses.

### **2.5 PRODUCTION CONTROL**

The Contractor shall ensure that all basic production operations, as well as other processing and fabricating, are performed under controlled conditions. Establishment of these controlled

conditions shall be based on documented work instructions, adequate production equipment and special working environments if necessary.

- a. A system for final inspection and test of completed buses shall be provided by the QAO for the RTA's approval. It shall measure the overall quality of each completed bus.
- b. The QAO shall monitor the Contractor's system for controlling nonconforming materials. The system shall include procedures for identification, segregation and disposition.
- c. Statistical analysis, tests and other quality control procedures may be used when appropriate is the quality assurance process.
- d. A system shall be maintained by the QAO for identifying the inspection status of components and completed transit buses. Identification may include cards, tags or other normal quality control devices.

## **2.6 INSPECTION SYSTEM**

The QAO shall establish, maintain and periodically audit a fully documented inspection system. The system shall prescribe inspection and test of materials, work in progress and completed articles. As a minimum, it shall include the following controls:

- a. Inspection stations shall be at best locations to provide for the work content and characteristics to be inspected. Stations shall provide the facilities and equipment to inspect structural, electrical, hydraulic and other components and assemblies for compliance with the design requirements. Stations shall also be at the best locations to inspect or test characteristics before they are concealed by subsequent fabrication or assembly operations. These locations shall minimally include underbody structure completion, body framing completion, body prior to paint preparation, engine installation completion, underbody dress-up and completion, bus prior to final paint touch up, bus prior to road test and bus final road test completion.
- b. Sufficient trained inspectors shall be used to ensure that all materials, components and assemblies are inspected for conformance with the bus design.
- c. Acceptance, rework or rejection identification shall be attached to inspected articles. Articles that have been accepted as a result of approved materials review actions shall be identified. Articles that have been reworked to specified drawing configurations shall not require special identification. Articles rejected as unsuitable or scrap shall be plainly marked and controlled to prevent installation on the bus. Articles that become obsolete as a result of engineering changes or other actions shall be controlled to prevent unauthorized assembly or installation. Unusable articles shall be isolated and then scrapped.

Discrepancies noted by the Contractor or RTA's inspector during assembly shall be entered by the inspection personnel on a record that accompanies the major component, subassembly, assembly or bus from start of assembly through final inspection. Actions

shall be taken to correct discrepancies or deficiencies in the manufacturing processes, procedures or other conditions that cause articles to be in nonconformity with the requirement of the contract specifications. The inspection personnel shall verify the corrective actions and mark the discrepancy record. If discrepancies cannot be corrected by replacing the nonconforming materials, RTA shall approve the modification, repair or method of correction to the extent that the contract specifications are affected.

- d. The QAO shall establish and maintain a quality control audit program. Records of this program shall be subject to review by RTA.

## **2.7 RTA INSPECTOR**

- a. Representatives of RTA shall carry out all RTA inspection and acceptance functions under the Technical Specification. The Chief Maintenance Officer, RTA, will be in charge as the Project Manager.

RTA reserves the right to inspect and approve the quality of both work in progress and the final product. To that end, RTA will be represented at the Contractor's plant by one or more resident inspectors.

RTA inspectors shall be authorized to drive the bus during the portion of road test to approve the pre-delivery acceptance tests and to release the buses for delivery. Upon request to the quality assurance supervisor, the inspectors shall have access to the Contractor's quality assurance files related to this procurement. These files shall include drawings, material standards, parts lists, inspection processing and reports of defects.

No less than thirty (30) days prior to the beginning of coach manufacture the Chief Maintenance Officer and Resident Inspectors shall meet with the Contractor's Quality Assurance Manager. They shall review the inspection procedures and checklists. The Resident Inspectors may begin monitoring coach construction activities two (2) weeks prior to the start of coach fabrication.

The Contractor shall provide office space for the Resident Inspectors in close proximity to the final assembly area. This office space shall be equipped with desks, outside and interplant telephones, file cabinet, chairs, and clothing lockers sufficient to accommodate the Resident Inspectors' staff.

- b. Presence of RTA inspectors in the plant shall not relieve the Contractor of its responsibility to meet all of the requirements of this contract.
- c. The RTA inspection team will support the production schedule for the normal 8 hour, 5 day work week. This schedule should coincide with standard manufacturing programs. In the event the contractor needs additional coverage advance notice of one week must be provided to the Authority.

The Contractor shall conduct acceptance tests at its plant on each bus following completion

of manufacture and before delivery to RTA. The pre-delivery test shall include visual and measured inspections, as well as testing the total bus operation. The tests shall 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 requirements of the Technical Specification. This additional testing shall be recorded on the appropriate test forms provided by the Contractor.

The pre-delivery tests shall 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, shall be filed with the work and material records for reach bus. The under floor equipment shall be made available for inspection by the Resident Inspectors, using a pit or bus hoist provided by the Contractor to easily and safely inspect bus roofs. Delivery of each bus shall require written authorization of a Resident Inspector.

Authorization forms for the release of each bus for delivery shall be provided by the Contractor. An executed copy of the authorization shall accompany the delivery of each bus.

### **Visual Inspection**

Visual and measured inspections shall 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 that are designed to operate with the bus in a static condition do function as designed.

### **Bus Operation**

Total bus operation shall be evaluated during road tests. The purpose of the road tests is to observe and verify the operation of the bus as a system and to verify the functional operation of the subsystems that can be operated only while the bus is in motion. The RTA inspectors must be authorized by Contractor to drive the bus during portion of road test.

Each bus shall be driven for a minimum of 25 miles during the road tests. Observed defects shall be recorded on the test forms. The bus shall be retested when defects are corrected and adjustments are made. This process shall continue until defects or required adjustments are no longer detected. Results shall be pass/fail for these bus operations tests.

## **2.8 INSPECTIONS**

### **Inspections and Testing**

Fully documented tests shall be conducted on each RTA bus following manufacture to determine its acceptability to RTA. These acceptance tests shall include pre-delivery inspections and testing by the Contractor and inspections and testing by RTA after the bus has been delivered..

### **Pre-delivery Tests**

After final road test RTA reserves the right to have the bus raised or placed on a pit to allow the

RTA Inspector to visually inspect the undercarriage or engine compartment.

### **Post Delivery Tests**

RTA will conduct acceptance tests on each delivered bus. These tests shall be completed within 15 days after bus delivery and shall 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 RTA.

The post-delivery tests shall include visual inspection and bus operations. Buses that fail to pass the post-delivery tests are subject to nonacceptance. RTA Inspector shall record details of all defects on the appropriate test forms and shall notify the Contractor of nonacceptance of each bus within 5 days after completion of the tests. The defects detected during these tests shall be repaired according to procedure defined elsewhere in this specification.

### **Visual Inspection**

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

### **Bus Operation**

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

**Attention:** This pre-delivery configuration audit sheet, pre-delivery visual and measured inspection sheets, pre-delivery road tests, post-delivery visual inspection sheets and post-delivery road test sheets to be used are the same as those found in the UMTA (now FTA) Baseline Advance Design Transit Coach Specifications (White Book), 1978.

## **2.9 ACCEPTANCE**

When buses are received by RTA, receipts signed by RTA are understood to be simple acknowledgments and do not constitute acceptance by RTA.

All buses delivered to RTA shall be in conformance with these specifications, complete, and ready for revenue service.

As buses are received in Dayton, Ohio, the Project Manager will notify the Contractor, in writing, within fifteen (15) days after delivery if the bus has or has not been accepted. A letter of nonacceptance will furnish details of the deficiencies. Where deficiencies are noted, the Contractor will be required to make the necessary repairs, replacements, or adjustments. Acceptance is revocable in accordance with UCC Articles 1 and 2 (R.C. Chapters 1301 and 1302) until such time as the accepted coach has been used in revenue service for a period of seventy-five (75) days. Defects discovered after the seventy-fifth (75th) day of revenue service shall be deemed warranty items.

The Contractor shall begin repairs within 5 working days after receiving said notification of

nonacceptance from the Project Manager and shall complete such repairs in an expeditious manner. For its part, RTA shall make the bus available to complete such repairs in conformance with the Contractor's repair schedule. If possible, RTA will furnish reasonable space to Contractor. The Contractor shall provide, at its own expense, all spare parts, tools, and space required to perform the repairs. At its option, RTA may require the Contractor to remove the bus from RTA premises while repairs are being made. While said bus is under repair, the Contractor shall assume all risk of loss and shall indemnify and hold harmless RTA and its agents and employees for any liability as a result of said possession. Should such repairs require component substitutions or modifications, the Contractor shall be responsible for amending and correcting all documentation supplied RTA and required in this specification.

### **3.1 WARRANTY REQUIREMENTS**

Warranties in this document are in addition to any statutory remedies or warranties imposed on the Contractor. Consistent with this requirement the Contractor warrants that it will comply with the general and specific terms and requirements of the RTA Specifications for Advance Design Transit Coaches with respect to providing RTA with transit coaches, specific subsystems, components and replacement parts of the quality, design, materials and construction specified in the Technical Specifications as follows.

The entire coach, except for those items listed in paragraph 3.3, shall be warranted and guaranteed to be free from any defects for one (1) year or 50,000 miles, whichever comes first, beginning on the date of acceptance of each coach. During this warranty period, the coach shall maintain its structural and functional integrity. The warranty is based on regular operation of the coach under the operating conditions prevailing in the Dayton and Montgomery County area. The Contractor further warrants that it will cure any nonconforming deliveries according the Section 3.8. of the Warranty Provisions. Prior to delivery of the first production unit, any and all subcontractor and/or supplier warranties must be identified by the contractor and passed through the contractor to the Authority. In example if a supplier's normal warranty is 5 years this warranty must be identified and passed through the contractor to the Authority, at no additional cost. The contractor must ensure that suppliers understand and agree to the terms outlined under the fleet failure portion of this contract.

In addition to the warranties of Section 3.1.1., specific subsystems and components are warranted and guaranteed to be free from defects and related defects for the mileages given below:

#### **Subsystem and Component Warranty**

<u>Item</u>	<u>Years</u>	<u>Mileage</u>
Engine Assembly	2	200,000
Drive axle	2	100,000
Brake System (excluding Friction material)	2	50,000
Air Conditioning System	2	Unlimited
Basic Body Structure*	3	150,000 Structural Integrity
Corrosion	12	500,000
Floor Boards	12	500,000



\* - The Basic Body Structure contains the basic body (floor, sides, roof, front and rear) and the under-structure.

Contractor shall submit optional extended warranty costs on the following: Engine, transmission, basic body structure, structural integrity, corrosion. The Contractor is not liable for warranty if RTA voids the warranty as outlined in Section 3.2. If Basic Body Structure (floor, all sides, roof and understructure) fails or shows indication of imminent failure, RTA shall notify the Contractor of said defect. The Contractor within ten (10) calendar days shall inform RTA on how the Contractor will repair the bus. Repair or basic body structure failures will be the responsibility of the Contractor. Within fifteen (15) calendar days the Contractor shall begin the repair of the reported basic body structure defects. If the bus with the reported body structure defects is out of service for thirty (30) days or more calendar days because of the reported defects, RTA will assess as liquidated damages \$125.00 per calendar day per bus against the Contractor beginning on the thirtieth (30th) day and continuing until the structural defect is repaired.

### **3.2 VOIDING OF WARRANTY**

The warranty shall not apply to any part or component of the coach that has been subject to misuse, negligence, accident, or that has been repaired or altered in any way so as to affect adversely 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 recognized standards of the industry. The warranty shall also be void if RTA fails to conduct normal inspections and scheduled preventive maintenance procedures as recommended in the Contractor's maintenance manuals.

### **3.3 EXCEPTIONS TO WARRANTY**

The warranty shall not apply to scheduled maintenance items, and items such as tires and tubes, nor to items furnished by the RTA such as radios, fare boxes, 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.

### **Detection of Defects**

If RTA detects a defect within the warranty periods, it shall promptly notify the Contractor's representative. Within five (5) working days after receipt of notification, the Contractor's representative shall either agree that the defect is in fact covered by the warranty, or reserve judgment until the subsystem or component is inspected by the Contractor's representative or is removed and examined at the RTA property or at the Contractor's plant. In any event, RTA and Contractor shall attempt to mutually agree upon whether the defect is one covered by the warranty. Work necessary to effect shall commence within ten (10) working days after receipt of notification by the Contractor, even if RTA and the Contractor cannot mutually.

### **Scope of Work**

When warranty repairs are required, RTA and the Contractor's representative shall agree within five (5) days after notification on the most appropriate course for the repairs and the exact scope of repairs to be performed under warranty. If no agreement is obtained within the five (5) day

period, RTA reserves the right to commence the repairs.

The Contractor warrants that whenever any change is required to strengthen or correct a defect or deficiency of the coach, this correction will be made for all coaches where said defect or deficiency exists, at the Contractor's expense

### **3.4 FLEET DEFECTS**

A fleet defect is defined as the failure of identical items covered by the warranty and occurring in the warranty period in a proportion of the coaches delivered under this contract.

The proportion shall be twenty (20) percent. At the completion of \ corrective action for a fleet defect the warranty period for the j affected component shall be renewed. This extended warranty shall / start when the defect is corrected on each coach, on a coach by coach basis.

### **Correction of Defects**

The Contractor shall correct a fleet defect under the warranty provisions defined in Section 3.1, Warranty Provisions of these Technical Specifications.

After correcting the defect, the Contractor shall promptly undertake and complete a work program reasonably designed to prevent the occurrence of the same defect in all other coaches purchased under this contract. The work program shall include inspection and/or correction of the potential or defective parts in all of the coaches.

The fleet defect provisions shall not apply to coach defects caused by noncompliance with the Contractor's recommended normal maintenance practices and procedures.

Fleet defect warranty provisions shall not apply to damage that is a result of normal wear and tear in service to such items as seats, floor covering, interior trim, and paint. The provisions shall not apply to RTA supplied items such as fare boxes, radios, and tires.

### **3.5 REPAIR PERFORMANCE**

RTA shall require the Contractor or its designated representative to perform warranty-covered repairs if RTA determines that the lack of parts, manpower, or test equipment prevents timely repair by RTA. Other warranty work may be done by RTA's personnel with reimbursement by the Contractor. Repair of items identified as Fleet Failures must be completed by the contractor's personnel.

### **3.6 REPAIRS BY CONTRACTOR**

If RTA requires the Contractor to perform warranty-covered repairs, the Contractor's representative must begin work necessary to effect repairs within ten (10) working days after receiving notification of a defect from RTA. RTA shall make the coach available to complete repairs timely with the Contractor repair schedule.

The Contractor shall provide at its own expense all spare parts, tools, and space required to complete repairs. At RTA's option, the Contractor may be required to remove the coach from the RTA's property while repairs are being affected. If the coach is removed from the RTA's

property, the Contractor shall be responsible for the transportation costs and all repair procedures must be diligently pursued by the Contractor's representative.

### **Repairs by RTA**

If RTA performs the warranty-covered repairs, it shall correct or repair the defect and any related defects using Contractor-specified spare parts supplied by the Contractor specifically for this repair. RTA shall determine whether a component is repaired or replaced. Monthly, or at a period to be mutually agreed upon, reports of all repairs covered by this warranty shall be submitted by RTA to the Contractor for reimbursement or replacement of parts. The Contractor shall provide forms for these reports. Reimbursement for RTA supplied parts shall be calculated from the OEM parts price list in effect at the time of the repair, plus fifteen (15) percent handling costs. RTA may request that the Contractor supply new components or parts necessary for warranty covered repairs being performed by the RTA.

These parts shall be shipped prepaid to RTA from any source selected by the Contractor within ten (10) working days of the request for said parts.

The Contractor may request that parts covered by the warranty be returned to the manufacturing plant. The total cost for this action shall be paid by the Contractor. Materials shall be returned in accordance with Contractor's instructions except that returns shall be to the Contractor's plant, and not drop shipped to various suppliers.

RTA shall be reimbursed by the Contractor for labor. The amount shall be determined by multiplying the number of man-hours actually required to correct the defect at \$54.00 per hour. The cost of towing the coach shall be reimbursed if such action was necessary.

RTA shall be reimbursed by the Contractor for defective parts and for parts that must be replaced to correct the defect. The reimbursement shall be calculated from OEM parts price list in effect at the time of repair and shall include taxes where applicable and fifteen (15) percent handling charges. All warranty payments shall be made in U.S. funds drawn upon U.S. Banks.

### **3.7 WARRANTY AFTER REPLACEMENT/REPAIRS**

If any component, unit, or subsystem is repaired, rebuilt, or replaced by the Contractor or by RTA personnel, with the concurrence of the Contractor, such component, unit, or subsystem shall have a warranty period to be the same as the new component, unit or subsystem, starting on the date of return to service at RTA.

### **3.8 DISCLAIMER**

No disclaimer of these warranties by the Contractor shall be upheld as against any statements of fact or promise given which are found to be express warranties.

The Contractor shall reimburse RTA for all labor and parts within forty-five (45) days after RTA has submitted the monthly warranty claims, as described in Section 3.9.

### **4.0 SYSTEM SUPPORT SERVICES**

#### **4.1 GENERAL REQUIREMENTS**

This section establishes the requirements for Contractor supplied services in support of the purchase of advanced design transit coaches. These services shall be provided both prior to, during, and after delivery of vehicles to RTA. System support services includes, but is not limited to lesson plans and outlines, special studies to improve vehicle safety, reliability, general economy and RTA maintenance procedures related to the successful deployment of the acquired vehicles. This section outlines specific requirements for education/training, publications, field service engineering, spare parts and special tools and equipment for maintenance, fault diagnosis, and testing.

#### **4.2 TRAINING**

The Contractor shall provide a training program for RTA supervisory staff and maintenance personnel of a quality and depth sufficient to permit satisfactory deployment, use, servicing and maintenance of the vehicles furnished. The training program shall include formal and informal instruction with extensive use of slides, models, mock ups, samples, manuals, diagrams, part catalogs, schematics, wall charts and other training aids.

The Contractor shall assume that RTA has no knowledge of the features of the buses and shall design the education and training program to bring the level of knowledge to one fully adequate for the successful deployment,- operation and maintenance of the buses.

The Contractor may assume that RTA personnel have the basic skills pertinent to their crafts.

The Contractor's approach to this effort shall be based on the assumption that his own interests, immediate and long term, are best served by a satisfactory program. All courses of instruction shall be presented in the English language.

Training shall be conducted in two phases. The first phase shall be presented upon to delivery of the new vehicles and shall be designed to familiarize RTA operating instructors and equipment supervisors so that they are proficient in the operation, servicing, and periodic inspection of the advanced design buses to the extent that they may provide the instruction and training to RTA operators and guidance to equipment servicemen and mechanics not involved in the contractor's training courses. The second phase of instruction shall include in depth training oriented to the performance of corrective maintenance, heavy repair and overhaul of major subsystems.

#### **Training Plan**

The Contractor shall within fourteen (14) days after execution of the contract, submit to RTA for approval, an outline of the education and training program designed in accordance with these technical specifications. The program shall provide for formal classroom instruction and a period of time to perform maintenance functions in-coach and shop environments.

The RTA operating instructions and equipment supervisors and mechanics shall be exposed to the depth of detail during Phase I instruction that is oriented to coach operation, servicing, road call trouble analysis and corrective maintenance operations. The students shall be allocated adequate time for on-coach instruction utilizing the earliest delivered coaches as training aids.

Phase II Heavy Maintenance Instruction shall be oriented to the performance of scheduled (preventive) and unscheduled (corrective) maintenance operations. The students shall be allotted adequate time for performing the more complex maintenance operations on a bus in a shop in addition to learning troubleshooting techniques utilizing subsystem test devices. Phase II Training shall include:

- Body and Structural Repair - Front and Rear Axle
- Braking System including all pneumatic components
- Door Control System Electrical System, including battery, generator and all auxiliary circuits.
- Heating and Air Conditioning System and Controls
- Suspension System & Hydraulic Systems
- Propulsion System including engine, fuel system, lubrication, battery and cooling system.
- Electronic Destination. Electronic Destination Sign System.
- Electronic Control Printed Circuit Boards the depth of Phase II. Training shall include details in the performance of heavy repair and rebuilding selected components.

**Training Schedule** : The Contractor shall submit for RTA approval a tentative schedule for training at the time of the submittal of the Training Plan. All Phase Familiarization Training conducted by the Contractor shall be completed within 20 days of the acceptance of the first coach delivered. All Phase II Heavy Maintenance Training shall be conducted concurrent with coach delivery to the maximum extent practicable. Major unit overhaul, to include engine, transmission and air conditioning instructions, shall be performed three (3) months before the end of the manufacturer's warranty. RTA prefers that this part of the training be conducted by the O.E.M. suppliers with "hands on" training most beneficial.

Classes shall be scheduled to maximize participants without undue burden to day-to-day operation of RTA on a mutually agreed upon scheduling process. Some of the training may be conducted in the two (2) separate RTA facilities which are located directly across the street from one another. Also, in some cases there would be a need to conduct training on early morning, late afternoons and/or early evening hours or on Saturdays.

All courses of instruction shall have a length commensurate with the material required for in depth presentation. Class instruction periods shall normally be fifty (50) minutes in duration with a ten (10) minute recess between periods of instruction. Length of practical on-coach application periods is not fixed.

All training shall be conducted at RTA facilities and scheduled jointly by RTA and the Contractor.

### **Training Aids**

The following training aids shall be in DVR or CD format.

- Operation and Maintenance Manuals, parts Catalogs and Wiring Diagrams.
- Viewgraphs depicting hydraulic, pneumatic, and air conditioning systems shall include direction of flow for the particular medium.

Proper nomenclature for all components shall be applied and shall be in accordance with the terminology used on schematics and wiring diagrams incorporated in operating and maintenance manuals. Illustrations, drawings, diagrams, charts or tables to be used by an instructor during the courses shall be prepared in the form of a visual display that can be readily seen by a student at a minimum distance in an ambient light condition that permits student reference to a similar but smaller illustration

The content and format of audio-visual aids utilized in the training course or provided with the training equipment shall be approved by RTA.

Proper nomenclature for all components shall be applied, and shall be in accordance with the terminology used on schematics and wiring diagrams incorporated in operating and maintenance manuals.

All training materials, such as training aids and lesson plans, mock-ups and demonstration units shall become the property of RTA at the completion of the training program. The Contractor shall be responsible for the condition of these material for the duration of the training program, and shall replace all damaged materials unless the damage resulted from neglect by RTA. Lesson plans shall be updated as required during the course of instruction.

### **Classroom Instruction**

Classroom instruction shall inspire the respect of the students. Instructors shall have qualified themselves fully for their presentation. Qualifications will be considered to be adequate when (1) the designer of the system is the instructor and he has the desire and ability to communicate the facts about the system to others in understandable terms; or (2) when the instructor has been trained in teaching methods and has familiarized himself fully with the subject matter. In all cases, lesson plans shall be prepared and submitted to RTA at least thirty (30) days prior to the class. These lesson plans shall include an outline of the material to be presented and a list of the training aids to be used.

Training aids shall include actual samples of manually operable devices and working samples of devices, the functions of which can be displayed without dismantling the device, e.g., close controllers. The workings of other significant components shall be illustrated with diagrams, cutaway view, etc., displayed with sufficient scale and clarity to permit all to see clearly.

Wiring diagrams, when used as training aids and reference material, shall be divided to facilitate comprehension. There shall be single line functional diagrams of systems and schematic diagrams of each component in the systems. Where parts are identified by initials or reference numbers, there shall be a key to permit precise identification on the same sheet.

Classroom instruction shall include not only the anatomy and functioning of the parts under

discussion but the essentials of their routine care including lubrication schedules, materials, contractor's recommendations for test frequency, tolerance limits and methods for testing, including instruments required, when applicable. When methods of access, removal, dismantling, or application are not self evident to a reasonably intelligent individual, the instruction shall cover these matters. Overhaul procedures need not be included during the instruction phases oriented to routine maintenance operations.

The classroom instruction for maintenance personnel shall be conducted at designated location with classes not exceeding twenty-five (25) students and not exceeding eight (8) hours per normal working day. The location and class times, however shall be at the convenience of RTA. RTA will supply a reasonable amount of assistance in the movement of equipment, apparatus, etc., within its own property and it will furnish suitable furniture (desks, tables, lecterns, etc.). When instruction in courses is conducted requiring the use of buses as training aids, RTA will facilitate movement of a bus for the instruction. The Contractor shall supervise all classes. When audio-visual methods of instruction (movies, slides with synchronized sound, etc.) are required, there shall be a competent individual present to answer questions on the material presented. At the conclusion of the classroom instruction the Contractor shall furnish to RTA a complete set of lesson plans and all other soft material used in presenting the course, including film, slides and tapes and other apparatus.

#### **Field Instruction**

The extent of instruction in the Contractor's and subcontractor's shops shall be at the discretion of RTA. RTA may request access to these shops for a limited number of supervisory and technical personnel to familiarize them with assembly methods. The Contractor shall make a reasonable effort to comply with such a request, but not to detriment of production. Similarly, RTA operating supervision shall be granted access to all equipment for the purpose of familiarization.

#### **4.3 PUBLICATIONS AND CATALOGS**

The publications shall be designed for continuous, long term service except for a loose leaf feature which shall accommodate revisions to the manuals. All covers shall be heavy-duty, resistant to oil, moisture, and wear to a high degree commensurate with their uses. Diagrams and illustrations shall not be loose or in pockets. Line drawings are required in reduced size. All manuals shall be delivered no less than two (2) weeks prior to delivery of the first coach except as otherwise provided for herein. Manuals shall be provided on CD Rom as well as hard copies.

The coach shall be treated as a whole and not as a grouping of disassociated parts. The material in all manuals and the parts catalogs shall be similarly organized and indexed with a standard numbering system. The maintenance and service manuals shall be written in such a way as to present a clear and adequate explanation and illustration of their respective subjects.

#### **Operator's Manual**

This shall contain all information needed for the operation of the vehicle. The manuals shall be coach specific. It shall include general vehicle familiarization material, location, function, and operation of all controls, gauges, indicators and switches; emergency procedures; trouble

symptoms and diagnosis methods; safety devices and precautions.  
There shall be 400 operator manuals provided with this order.

### **Running Maintenance and Service Manual**

This manual shall enable the maintainer to have with him, in convenient form, all information needed for on-bus running maintenance and adjustment, and on-line trouble diagnosis of each system including such data as troubleshooting guides and schematics for the bus and each of its systems. Fifty (50) manuals shall be provided.

### **Air System Schematics**

Contractor shall furnish transparencies showing the schematic piping for all of the air equipment complete with sizing, part numbers and routing such as suspension, wipers, door controls, temperature control, brakes, etc. The transparencies shall be delivered concurrent with delivery of the first bus of the variety. The mylar used in these transparencies must be 3 mils thick. The individual circuit drawings must be drawn so they will be easily readable when reduced to 8-1/2 inches by 11 inches. Fifty (50) air system schematics shall be provided.

### **Electrical System Schematics**

The Contractor shall furnish fifty (50) sets of full size complete bus electrical system drawings suitable for workshop or classroom wall. These drawings shall be delivered within one month of first delivery.

The Contractor shall furnish mylar transparencies showing the schematic wiring for all of the electrical equipment complete with color codes, wire number, and terminal codes. The transparencies shall be delivered concurrent with delivery of the first bus of the variety. The mylar used in these transparencies must be 3 miles thick. The individual circuit drawings must be drawn so they will be easily readable when reduced to 8-1/2 inches X 11 inches. Standard electrical and mechanical symbols shall be used on these drawings.

Fifty (50) schematics shall be provided.

All terminals and junction blocks will be marked and the location on or in the bus will be noted on the schematics.

### **Heavy Repair Maintenance Manual**

Contractor shall provide fifty (50) parts and service manuals on all bus components.

This shall contain a detailed analysis of each component of the coach so that maintainers can effectively and safely service, inspect, maintain, adjust, troubleshoot, repair, replace, and overhaul the coach. The manuals shall be coach specific. Fifty (50) manuals shall be provided.

### **Parts Catalogs**

These shall enumerate, describe, and illustrate every component with its related parts, including the OEM supplier's number, the Contractor's number, the commercial equivalents and provisions for entry of RTA's part numbers. The illustrated parts catalog shall be coach specific. Cutaway and isometric exploded drawings shall be used to permit identification of all parts. Parts common to different components (as for example bolts, nuts and washers) shall bear the Contractor's part number. Each part or component shall be identified as being part of the next



larger assembly. Parts catalogs shall be delivered to RTA not less than six (6) weeks prior to delivery of the vehicles. Forty (40) parts catalogs shall be provided.

### **Changes and Revisions**

Following the issue of each publication the Contractor shall provide revised pages covering any changes, whether required by change of design or procedures or due to error, and the revisions shall be kept current. Manual and catalog revisions shall be supplied before or coincident with the arrival of altered parts or components.

## **4.4 DOCUMENTATION**

### **Vehicle Construction**

The Procuring Agency prefers a vehicle which has a demonstrably corrosion resistant and structurally sound construction and design. The bidder shall provide, at a minimum, the following information:

- a) Drawings or sketches showing the exterior of the vehicle, with all body panels including doors, identified as to the material used.
- b) Drawings or sketches showing the understructure, with identification as to the material used.
- c) A full description of the assembly and treatment method utilized to assure the life cycle corrosion resistance and structural integrity of the proposed vehicle. This should include material specifications, paint and undercoating specifications, and other features which help reduce life cycle maintenance costs.
- d) Test data which illustrates the life cycle structural integrity of the vehicle proposed. This should include actual endurance track testing, preferably by an independent agency, with suitable time concentration to assure an absence of key structural component failures over the expected vehicle life of 12 years/500,000 miles.
- e) Test data which demonstrates compliance with the crash worthiness specifications contained in the FTA Baseline Advanced Design Transit Coach Specifications. The tests should have been conducted by an independent agency on a bus structurally identical to that proposed.

### **Axles/Brakes/Suspension Components**

The Procuring Agency prefers a vehicle equipped with axles and suspension components that minimize the life cycle maintenance and operating costs. The bidder shall provide, at a minimum, the following information:

- a) A full description of the steering and drive axles proposed for is contract. This information should include model numbers, load ratings, and application approval certifications.
- b) A full description of the service and emergency braking system proposed for this

contract. This information should include basic system type (e.g. "S-CAM"); brake block size, area, and method of assembly; associated valving, brake chambers, slack adjusters; and proof of FMVSS 121 testing compliance.

- c) A full description of the suspension system proposed for this contract. This information should include a description of the air springs, shock absorbers, and all other related suspension components.

#### **Passenger Safety and Accessibility Factors**

The Procuring Agency prefers a vehicle that has been designed to maximize passenger safety, comfort, and accessibility. The bidder shall provide, at a minimum, the following information:

- a) A description of entry and exit door areas including first step height; riser heights; tread depths and widths; step notch dimensions if applicable; door opening dimensions; floor height; wheelchair maneuvering area and wheelchair securement area.
- b) A description of the proposed seating configuration including the general layout with hip-to-knee spacing, and seat pitch identified; aisle width; and stanchion position. Bidder shall also identify the specific seat model proposed, and provide test documentation which demonstrates compliance with the test and performance criteria specified in Sections 2.3.2.3 and 2.3.2.4 of the UMTA Baseline Specifications.
- c) A description of the window configuration proposed for this contract including glazing material; sash style and other construction details; and test documentation which demonstrates compliance with FMVSS 217 - window retention.

#### **Maintenance Access**

The Procuring Agency prefers a vehicle that provides maximum access to those areas requiring frequent maintenance. The bidder shall provide, at a minimum, the following information:

- a) Photos, drawings, and/or sketches showing all exterior maintenance access, with special emphasis on the engine compartment.
- b) Description of open able skirts including locations; method of opening; method of retaining skirts in both open and closed positions; and method of replacement.
- c) Photos, drawings, and/or sketches showing interior maintenance access, with special emphasis on destination sign compartment, and door operating mechanisms.
- d) Photos, drawings, and/or sketches which show the fluid check-and-fill access for daily maintenance activities.

#### **Operating Factors**

The Procuring Agency prefers a vehicle that provides low life cycle operating costs. The bidder shall provide, at a minimum, the following information:

- a) Description of power unit and associated accessories, including accessory drives.

- b) Time study data for normal maintenance tasks.
- c) Fuel economy and brake lining replacement estimates.
- d) Test data related to cooling system, HVAC performance, etc., showing that adequate testing has been conducted to ensure operational reliability.

#### **Vehicle Warranty**

The Procuring Agency encourages bidder to provide any enhanced warranty terms and conditions that may be available. The bidder shall submit all enhanced terms and conditions for review. The initial cost as well as the impact on long term operating costs will be evaluated.

#### **4.5 DELIVERY SCHEDULE**

The coaches shall be delivered at a rate not to exceed five (5) coaches per day Monday through Friday. Hours of delivery shall be 7:00 AM through 4:00 PM. Delivery shall be completed by the date proposed in the Contractor's proposal.

#### **4.6 SERVICE AND PARTS**

The bidder shall state below the representatives responsible for assisting the Procuring Agency, as well as the location of the nearest distribution center which shall furnish a complete supply of parts and components for the repair and maintenance of the coaches to be supplied. The proposer shall also state below, or by separate attachment, its policy on transportation charges for parts other than those covered by warranty.

Location of nearest Technical Service Representative to Procuring Agency:

<b>NAME:</b>	
<b>ADDRESS:</b>	
<b>TELEPHONE:</b>	

Location of nearest Parts Distribution Center to Procuring Agency:

<b>NAME:</b>	
<b>ADDRESS:</b>	
<b>TELEPHONE:</b>	

#### **4.7 FIELD SERVICE SUPPORT**

The Contractor shall have a competent engineering staff available to assist RTA in the solution

of engineering or design problems within the scope of these Technical Specifications that may arise during the expected service life of the vehicle.

### **Field Service Engineer**

The Contractor shall have competent technical personnel available to assist RTA in any problem which RTA might have on the buses after delivery at no additional cost to RTA. This does not relieve the Contractor of responsibilities under the Warranty Provisions of these Technical Specifications. The Contractor's field service engineer shall be capable of performing adjustments to each bus as required during the warranty period and providing technical support to RTA during revenue service operations. Such personnel shall be available to perform these tasks within twenty-four hours after being requested to do so by RTA at no additional cost to RTA.

### **Field Service Support**

RTA requires the Contractor to have a qualified service representative present when the coaches are delivered. The service representative should be on site for an eight hour period for each vehicle delivered. RTA expects the service representative to resolve minor technical deficiencies and answer questions from on-site maintenance personnel. Component manufacturers representative will be available when needed to solve problems with their component.

The service representative shall revisit the transit agency thirty (30) days after delivery, ninety (90) days after delivery, and one hundred and eighty (180) days after delivery. The purpose of each of these visits shall be to resolve warranty questions, answer technical questions from the maintenance personnel, and verify that the coaches are being correctly maintained. If the coaches are not being properly maintained, RTA needs to be advised of this fact.

A qualified service representative shall be present at the RTA, full time, for the first six months after the buses are placed in revenue service and visit the property a minimum of once a month after the first coach delivery, for a period of five years. Any vehicle defect must be repairable without the need for contractor preapproval.

## **4.8 SPARE PARTS**

The Contractor shall guarantee the availability of replacement parts for the acquired coaches for at least fifteen (15) years after the date of acceptance of the last coach delivered to RTA. Spare parts shall be interchangeable with the original equipment and shall be manufactured in accordance with the highest quality assurance practices in the industry. Spare parts shall be obtainable through commercial distribution channels to the maximum extent practicable minimizing captive sole source distribution practices.

### **Recommended Spare Parts List**

The Contractor shall prepare and submit to RTA not less than twelve (12) weeks prior to delivery of the first vehicle, a recommended spare and replacement parts list. The initial recommended spare parts package shall be included in the base price of the vehicles. This listing will become a working document to be used by RTA in the procurement of spare and replacement parts. The spare and replacement parts list shall group parts by the subsystem of the vehicle system. The listing for each item shall give complete ordering and procurement

information for that item. Long lead time items shall be specifically noted. Each item listing shall contain at least the following information: item name, description, rating, price, manufacturer's name, part number, and drawing reference number. Items that are common to more than one (1) subsystem shall be suitably cross-referenced. The Contractor shall recommended the absolute minimum essential quantity of spare parts required to perform normal routine maintenance and to maintain the operation of the fleet assuming standard failure rates of component units. The Contractor shall state the expected failure rate of major components to the extent practicable.

### **Generic Specifications**

The Contractor shall supply generic specifications within sixty (60) days of award for consumable items used in the manufacture of the coaches supplied by this procurement. These specifications will facilitate maximum sourcing for replacement parts equal to the original equipment manufacturer. Each item must be identified by an O.E.M. part number, supplier's part and/or model number and generic specifications. These specifications shall include information such as: performance, dimensions, capacities, material composition, finish, tolerances, viscosity, hardness, circuit diagrams, and other descriptions necessary to obtain replacement items equal to those used in manufacture. Specifications shall be provided for the following:

- All fluids/lubricants
- Replacement body panels/doors
- Brake linings
- Brake drums
- Brake slack adjusters
- Brake chambers
- Brake chambers diaphragms
- Replacement body panels/doors
- Passenger doors
- Heater/defroster cores
- Bumpers
- Lamps
- Wheels
- Shock absorbers
- Electric motors
- Motor brushes
- Hoses/fittings
- Logic boxes
- Batteries
- Radiator
- Glazing
- Cleaning products
- Steering system pins
- Bushings

### **Complete Spare Power Plant Assembly**

RTA requires concurrent with the delivery of the buses, the following:  
procured under this contract.

#### **4.9 SPECIAL TOOLS AND EQUIPMENT**

The Contractor shall prepare and submit to RTA prior to the delivery of the first vehicle, a recommended tool and equipment list. This listing will become a working document to be used by RTA to plan for the deployment, servicing and maintenance of the acquired vehicles. The tool list shall identify those items of equipment necessary for the removal and reinstallation of all units and component parts of the coaches. Tools and equipment not available through normal commercial distribution channels shall be specifically noted.

#### **Contractor Supplied Tools and Equipment**

The Contractor shall deliver to RTA, concurrent with delivery of the first advanced design bus, all special tools and equipment needed to maintain the current fleet of buses operated by RTA.

#### **Maintenance Tools**

Specialized tools and items of a proprietary design not available from normal commercial distribution channels and identified as such in accordance with the specified requirements shall be supplied to RTA in sufficient quantity to equip one (1) service garage and one (1) major overhaul facility. Minimum two (2) sets of tools and equipment.

#### **Towing Devices**

Two (2) sets of towing devices.

#### **Diagnostic Test Equipment**

Two (2) sets of a diagnostic test equipment for engine and transmission computers or control units and any other electronic controlled items or items on the vehicle.

#### **Electrical Connector Repair Kits**

Two (2) repair kits to accommodate the repair/replacement of all electrical connectors and terminals used on the proposed vehicles.

#### **Special Equipment**

Any support equipment necessary for normal operation, maintenance and trouble shooting of the vehicles must be included in the base purchase price of the buses.

This equipment requirement includes but is not limited to diagnostic tools, computer hardware and software and programs. Equipment must be supplied for each system and sub-system installed on the vehicles.