CNG Commuter Bus Procurement RFP# G109

Golden Empire Transit District

2019

Submittal:
One (1) original, one (1) copy, of the entire proposal must be received on or before **4:00 p.m. on Thursday, November 8, 2019**. In addition one (1) copy of the entire proposal on CD shall accompany the package.

Addressed To:
Golden Empire Transit District
1830 Golden State Avenue
Bakersfield, CA 93301

Package Marked:
Attention: Victor Honorato, Purchasing Agent
Golden Empire Transit District
RFP #G109

Proposals received after the time and dated stated above shall be returned unopened to the Offeror.

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1.1 REQUEST FOR PROPOSALS

1.1.1 SOLICITATION DATA

1.1.1.1 PROCURING AGENCY AND PURCHASING AGENT

Request For Proposals (RFP) No: G109

Date: October 7, 2019

Procuring Agency:

Golden Empire Transit District
Name

1830 Golden State Avenue, Bakersfield CA 93301
Address

Purchasing Agent:

Victor Honorato
Name

1830 Golden State Avenue, Bakersfield, CA 93301
Mailing Address

Telephone No.: (661) 324-9874 ext. 326 Fax No.: (661) 869-6393

E-mail vhonorato@getbus.org

1.1.1.2 SCOPE

Procuring Agency requests proposals for the manufacture and delivery of two (2) Commuter Transit Vehicles and an option for two (2) additional Commuter Transit Vehicles in accordance with the terms and conditions set forth below. The Contract shall be a firm-fixed price Contract.

1.1.1.3 SOLICITATION SCHEDULE

The following is the solicitation schedule for Offerors:

Offeror Communications and Requests	Sec. 1.1.2.2	Accepted through October 15, 2019
Proposal Due Date	Sec. 1.1.3.1	November 8, 2019 at 4:00 pm

1.1.2 PRE-PROPOSAL

1.1.2.1 PRE-PROPOSAL CONFERENCE

A pre-proposal conference will not be held. Prospective Offerors are requested to submit written questions to the Purchasing Agency via e-mail at vhonorato@getbus.org. Prospective Offerors are reminded that any changes to the RFP will be by written addenda only and nothing stated verbally shall change or qualify in any way any of the provisions in the RFP and shall not be binding on the Procuring Agency.

1.1.2.2 OFFEROR COMMUNICATIONS AND REQUESTS

All correspondence, communication and/or contact in regard to any aspect of this solicitation or offers shall be with the Purchasing Agent identified in “Procuring Agency and Purchasing Agent” (Section 1.1.1.1) above, or his/her designated representative. Offerors and their representatives shall not make any contact with or communicate with any members of the Procuring Agency, or its employees and consultants, other than the Purchasing Agent 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 1.1.1.3), Offerors may e-mail or fax a request for 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 Purchasing Agent and may be transmitted by e-mail or facsimile. The Offeror making the request shall be responsible for its proper delivery to the Purchasing Agent per “Procuring Agency and Purchasing Agent” (Section 1.1.1.1) on the form provided in “Request for Pre-Offer Change or Approved Equal” (Section 1.1.6.1). 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 Purchasing Agent 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 Procuring Agency shall not be binding on the Procuring Agency.

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 Procuring Agency law, ordinance, rule, regulation, or other standard or requirement, then the Offeror shall e-mail or fax a written request for clarification to the Procuring Agency within the time period specified above.

1.1.2.3 ADDENDA TO RFP

The Procuring Agency reserves the right to amend the RFP at any time. Any amendments to or interpretations of the RFP shall be described in written addenda. The Procuring Agency shall provide copies of Addenda to all prospective Offerors officially known to have received the RFP. Prospective Offerors, or their agents, shall be responsible to collect the addendum from the Purchasing Agent. Notification of or the addendum will also be e-mailed or delivered to all such prospective Offerors officially known to have received the RFP and to the e-mail address and/or mailing address provided by each prospective Offeror. Failure of any prospective Offeror to receive the notification or addendum shall not relieve the Offeror from any obligation under its proposal as submitted or under the RFP, as clarified, interpreted or modified. All addenda issued shall become part of the RFP. Prospective Offerors shall acknowledge the receipt of each individual addendum and all prior addenda in their proposals. Failure to acknowledge in their proposals receipt of addenda may at the Procuring Agency's sole option disqualify the proposal.

If the Procuring Agency determines that the addenda may require significant changes in the preparation of proposals, the deadline for submitting the proposals may be postponed by the number of days that the Procuring Agency determines will allow Offerors enough time to revise their proposals. Any new Due Date shall be included in the addenda.

1.1.2.4 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" (Section 1.1.3.3).

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 1.1.6.9), setting forth at a minimum the specific reasons for each deviation so that it can be fully considered and, if appropriate, evaluated by the Procuring Agency. All deviations not found by the Procuring Agency to be unacceptable shall be evaluated in accordance with the appropriate evaluation criteria and procedures, and may result in the Offeror receiving a less favorable evaluation than without the deviation.

1.1.3 INSTRUCTIONS TO OFFERORS

1.1.3.1 DUE DATE

Sealed proposals in original and one (1) copy must be received at the address shown in "Procuring Agency and Purchasing Agent" (Section 1.1.1.1) by *November 8, 2019 at 4:00 p.m.* for the provision of two (2) CNG Commuter Transit Vehicles with an option for two (2) additional CNG Commuter Transit Vehicles. All labor, equipment, and materials shall be furnished in strict accordance with the delivery schedule and conditions of the Contract Documents. Proposals and subsequent offers shall be valid for a period of 120 days. The term of this agreement shall be for two (2) years from date of award.

1.1.3.2 TECHNICAL PROPOSAL REQUIREMENTS

A letter of transmittal shall be addressed to the Purchasing Agent and must, at a minimum, contain the following:

1. Identification of the offering firm(s), including name, address and telephone number of each firm;
2. Proposed working relationship among offering firms (e.g., prime/subcontractor), if applicable;
3. Name, title, address and telephone number of contact person during the period of proposal evaluation;
4. A statement to the effect the proposal shall remain valid for a period of not less than 90 days from the date of submittal; and
5. Signature of a person authorized to bind the offering firm to the terms of the proposal.

Proposals shall be submitted in 8-1/2" x 11" size. Offers should be typed; double spaced, and should not include any unnecessarily elaborate or promotional material. Lengthy narrative is discouraged, and presentations should be brief and concise. Information should be presented in the order in which it is requested.

1.1.3.2.1 Technical Proposal

The Technical Proposal shall also contain each of the items listed below:

1. Acknowledgement of receipt of RFP addenda (1.1.6.2), if any;
2. Complete the Offeror Service and Parts Support Data (1.1.6.3), also see Section 1.1.3.2.2
3. Complete the Buy America Certification (1.1.6.4)
4. Complete the Debarment and Suspension Certification (1.1.6.5)
5. Complete the Lobbying Certification (1.1.6.6)
6. Complete the Non-Collusion Affidavit (1.1.6.7)
7. Complete the DBE Approval Certification (1.1.6.8), also see Section 1.1.3.2.4
8. Complete the Certification of Compliance with Bus Testing Requirement (1.1.6.9)
9. Complete the Federal Motor Vehicle Safety Standards Certification (1.1.6.10)
10. Complete the Form of Proposal Deviation (1.1.6.11), if any;
11. Complete the Pricing Schedule (1.1.6.12), also see Section 1.1.3.2.3
12. Complete the Component Checklist (1.1.6.13), see below
13. Include the proposed vehicle floor plan, approved during the approved equal process
14. Include the Bid Bond, see Section 1.1.3.2.5
15. Include verification of quality of Fit and Finish of interior and exterior
16. Include verification of Respect for the Environment, see Section 5.1.3.9

The Offeror shall complete the "Component Checklist Form" (Section 1.1.6.13) addressing the Technical Vehicle Specifications contained in Section 5 of this RFP that exhibits the Offeror's understanding of the Procuring Agency's needs and requirements. This form should fully explain the Offeror's proposed vehicle compared to the procuring agency's specifications and will be used to evaluate against the evaluation criteria of Section 1.1.4.3.2.

The Offeror may also propose enhancements to the Technical Vehicle Specification, which do not materially deviate from the objectives or required content of the program. The Offeror may state any exceptions to or deviations from the requirements of this RFP, segregating "technical" exceptions from "contractual" exceptions on the "Form of Proposed Deviation" (1.1.6.11).

1.1.3.2.2 Offeror Qualifications Statement

Provide a brief profile of the firm, including its principal line of business, the year founded, form of organization (corporation, partnership, sole proprietorship), number and location of offices, licenses held, number of employees, and a general description of the firm's financial condition. Identify any conditions (e.g. bankruptcy, pending litigation, planned office or plant closures, and impending merger) that may impede the Proposer's ability to complete the project. Describe the firm's experience in providing like equipment to that solicited in this RFP, and highlight the participation in such work by the key personnel proposed for assignment to this project. Identify subcontractors, if any, by company name, address, contact person, and telephone number and project function.

Provide the same information for each subcontractor as requested above, and describe any experience working with each subcontractor.

In addition, for each project cited as related experience, furnish the name, title, address and telephone number of the person(s) at the client organization who is most knowledgeable about the work performed. The Offeror may also supply references from other work not cited in this section as related experience. Listing of references shall include a detailed description of the work performed for the client referenced. Offeror must provide, as a minimum, three references.

The Offeror shall state on the form provided in "Service and Parts Support" (Section 1.1.6.3) 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 buses to be supplied. The Offeror shall also state its policy on transportation charges for parts other than those covered by warranty.

1.1.3.2.3 PRICE PROPOSAL REQUIREMENTS

The Offeror is required to complete and execute the "Pricing Schedule of Forms" (Section 1.1.6.10) and provide same in the price proposal. The Contractor shall be liable for payment of all local taxes applicable to the complete bus as delivered and should add these amounts to the Offer price. The Procuring Agency shall furnish to all prospective Offerors a list of applicable state and local taxes imposed by the Procuring Agency's state or local governments.

1.1.3.2.4 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 1.1.6.8), that it has on file with the Federal Transportation Administration (FTA) an approved or not disapproved annual Disadvantaged Business Enterprise (DBE) subcontracting participation goal.

1.1.3.2.5 BID BOND

No bid bond is required for this procurement.

1.1.3.3 PROPOSAL PACKAGING REQUIREMENTS

Proposals shall be submitted in two (2) separately sealed packages. Each package shall be marked as specified below and shall contain all of the proposal documents for which the package is required to be marked. These same requirements shall apply to any Best and Final Offers which may be requested.

PACKAGE NO. 1

TECHNICAL PROPOSAL

Golden Empire Transit District Procurement
RFP# G109

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

SUBMITTED BY:

(Offeror's name and address)

PACKAGE NO. 2

PRICE PROPOSAL

Golden Empire Transit District Procurement
RFP# G109

1. Price and Proposal
2. Pricing Schedule
3. Supporting Data

SUBMITTED BY:

(Offeror's name and address)

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. The CD shall contain all of the documents from Package No. 1 and all of the documents from Package No. 2.

Proposal packages shall be addressed and delivered to the address specified in "Purchasing Agent" (Section 1.1.1.1). Offeror shall provide one (1) original and one (1) copy of entire proposal, and one (1) copy of entire proposal on CD.

1.1.3.4 MODIFICATION OR WITHDRAWAL OF PROPOSALS

A modification of a proposal already received will be accepted by the Procuring Agency only if the modification is received prior to the Proposal Due Date, or is specifically requested by the Procuring Agency, or is made with a requested Best and Final Offer (BAFO). All modifications shall be made in writing and executed and submitted in the same form and manner as the original proposal.

An Offeror may withdraw a proposal already received prior to the Proposal Due Date by submitting, in the same manner as the original proposal, to the Procuring Agency a written request for

withdrawal executed by the Offeror's authorized representative. After the proposal Due Date, a proposal may be withdrawn only if the Procuring Agency fails to award the Contract within the proposal validity period prescribed in “Due Date” (Section 1.1.3.1) or any agreed upon extension thereof. The withdrawal of a proposal does not prejudice the right of an Offeror to submit another proposal within the time set for receipt of proposals.

This provision for modification and withdrawal of proposals may not be utilized by an Offeror as a means to submit a late proposal and, as such, will not alter the Procuring Agency's right to reject a proposal.

1.1.4 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 Procuring Agency may select a proposal for award without any discussions or negotiations or request for any BAFO(s). Subject to the Procuring Agency's right to reject any or all proposals, the Offeror will be selected whose proposal is found to be most advantageous to the Procuring Agency, based upon consideration of the criteria of “Qualification Requirements” (Sections 1.1.4.3.1) and “Proposal Evaluation Criteria” (Section 1.1.4.3.2) below.

1.1.4.1 OPENING OF PROPOSALS

Proposals will not be publicly opened. All proposals and evaluations will be kept strictly confidential throughout the evaluation, negotiation and selection process. Only the members of the Selection Committee and Evaluation Team and other Procuring Agency officials, employees and agents having a legitimate interest will be provided access to the proposals and evaluation results during this period.

1.1.4.2 EVALUATION COMMITTEE

An Evaluation Committee will be established from the District’s employees. The Committee will make all decisions regarding the evaluations, determination of responsible Offerors and the competitive range, negotiations and the selection of the Offeror, if any, that may be awarded the Contract. The Evaluation Committee will include officers, employees and agents of the Procuring Agency. The Evaluation Committee will carry out the detailed evaluations and report all of its findings to Steven Woods, Deputy Chief Executive Officer, for final approval.

1.1.4.3 PROPOSAL SELECTION PROCESS

The following describes the process by which proposals will be evaluated and a selection made for a potential award. Any such selection of a proposal by a responsible Offeror shall be made by consideration of only the criteria of “Qualification Requirements” (Section 1.1.4.3.1) and “Proposal Evaluation Criteria” (Section 1.1.4.3.2) below. Section 1.1.4.3.1 specifies the requirements for determining responsible Offerors, all of which must be met by an Offeror to be found qualified. Final determination of an Offeror’s qualification will be made based upon all information received

during the evaluation process and as a condition for award. Section 1.1.4.3.2 contains all of the evaluation criteria, and their relative order of importance, by which a proposal from a qualified Offeror will be considered for selection. An award, if made, will be to a responsible Offeror for a proposal which is found to be in the Procuring Agency's best interest, price and other evaluation criteria considered.

The procedures to be followed for these evaluations are provided in "Evaluation Procedures" (Section 1.1.4.4) below.

1.1.4.3.1 Qualification Requirements

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

I. 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. Offeror's financial statements prepared in accordance with United States Generally Accepted Accounting Principles (GAAP) and audited by an independent certified public accountant authorized to practice in the jurisdiction of either the Procuring Agency or the Offeror.

   B. Ability to secure required bond(s) as evidenced by a letter of commitment from an underwriter confirming that the Offeror can be bonded for the required amount; or to secure and provide a letter of credit for the required amount.

   C. 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

   D. 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.

II. 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.

III. Evidence that Offeror is qualified in accordance with Part 3: Quality Assurance Provisions.

IV. Evidence of satisfactory performance and integrity on contracts in making deliveries on time, meeting specifications and warranty provisions, parts availability, and steps Offeror took to resolve any judgments, liens, fleet defects history, and warranty claims. Evidence shall be by client references.

1.1.4.3.2 Proposal Evaluation Criteria

This section contains the complete proposal evaluation 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 1.1.6.9) which do not cause the Procuring Agency to consider a proposal to be outside the competitive range, will be evaluated according to the respective evaluation criteria and/or sub-criteria which they affect.

The criteria are listed numerically by their relative order of importance. However, certain criteria may have sub-criteria that are listed by their relative order of importance within the specific criterion they comprise. Also, certain sub-criteria may have sub-criteria that are listed by their relative degree of importance within the specific sub-criterion they comprise. Non-price factors when combined are more significant than the price alone.

Illustrative Evaluation Criteria (Completely Weighted Formula Illustrative Method)

I. **Affordability (pass or fail).** The price proposals will be assessed for affordability. The Procuring Agency will not make an award for any proposal which proposes prices that would render the procurement infeasible.

II. **Minimum Technical Requirements (pass or fail).** Technical proposals shall meet the following minimum technical requirements for any consideration for selection and award. A proposal not meeting all of these requirements may be rejected.

A. Passenger Capacity specified in 5.4.5.

B. Overall requirements specified in 5.1.3.

C. Performance (operating range) specified in 5.2.1.1.

D. Propulsion system requirements of 5.2.

E. Body structural and material requirements of 5.4.

F. Service proven technology

III. **Unacceptable Exceptions, Conditions, Reservations and Understandings (pass or fail).** Exceptions, conditions, reservations or understandings that are explicitly, fully and separately stated on the required form "Form for Proposal Deviation" (Section 1.1.6.9) will be evaluated for their acceptability. Each of any exceptions and/or conditions made in a proposal will be evaluated and the Procuring Agency will determine their individual acceptability. An unacceptable exception, condition, reservation or understanding, if not withdrawn by the Offeror upon the request by the Procuring Agency, would be cause for the proposal to be rejected. For the purposes of determining the competitive range a proposal containing unacceptable exceptions, conditions, reservations or understandings may be included on the basis that the proposal is capable of being made acceptable provided that the Offeror withdraw or modify the unacceptable exceptions, conditions, reservations or understandings. Any exceptions, conditions, reservations or understandings which do not cause the Procuring Agency to consider a proposal to be outside the competitive range, will be evaluated according to the respective evaluation criteria and/or sub-criteria which they affect.

IV. **Technical Proposal Scoring Criteria (weight = 40)** The transit bus offered in the technical proposal will be evaluated for the following factors which are listed in their relative order of importance:

A. Fit and Finish – Verification of the quality of the proposed interior and exterior fit and finish. The degree to which performance requirements of Part 5: Technical Specifications, for the interior and exterior design and finish are proposed to be met. The risk of development tasks (if any) will be assessed. (sub-weight = 20)

B. Green – The degree to which the Respect for the Environment requirements of Part 5: Technical Specifications are proposed to be met and how sustainable the manufacturing process is. The risk of development tasks (if any) will be assessed. (sub-weight = 10)

C. Chassis Components - Experience of previous users and test results of proposed major systems/subsystems in transit service. The degree to which performance requirements of Part 5: Technical Specifications, for each major system/subsystem are proposed to be met. The risk of development tasks (if any) will be assessed. (sub-weight = 10)

D. Quality Assurance - Sufficiency of in-place Quality Assurance Program and procedures to meet requirements. (sub-weight = 10)

E. Standard Warranty - Degree to which the standard warranty of Part 4 is proposed to be met or exceeded. (sub-weight = 5)

F. System Support - Demonstrated ability to meet or exceed reliability and maintainability requirements; suitability of test equipment; quality of manuals; and effectiveness of training programs. (sub-weight = 5)

V. **Proposed Price (weight = 50).** The lowest proposal price (among all proposals) will be divided by the proposal price being scored, and the resulting quantity will be multiplied by the weight for the proposed price criterion.

VI. **Qualifications (weight = 10).** Degree to which Offeror exceeds the required qualifications of Section 1.1.4.3.1 above.

A. Financial Strength and Resources (sub-weight = 5)

B. Record of Performance on Bus Contracts (sub-weight = 5)

1.1.4.3.3 Application of Evaluation Criteria. (Completely Weighted Formula Illustrative Method)

Proposals will be evaluated against the pass/fail Criteria Nos. 1, 2 and 3. Any proposal which meets all pass/fail criteria, or fails one or more of these criteria but is susceptible of being made to meet such failed criteria, will be considered within the competitive range. Otherwise, a proposal may not be considered to be within the competitive range.

Sub-criteria of Criteria Nos. 4 and 6 will be scored based on the reviewer's determination of the degree of compliance with Contract requirements, potential risks and benefits, and strengths and weaknesses. The score is reduced in proportion to the extent of non-conformance, discrepancies, errors, omissions, and risks to the Procuring Agency. Scores will be assigned according to the following:

9 - 10 Exceptional. Fully compliant with Contract requirements and with desirable strengths or betterments; no errors, or risks, or weaknesses or omissions.

6 - 8 Good to Superior. Compliant with Contract requirements; some minor errors, or risks, or weaknesses or omissions.

4 - 5 Adequate. Minimally compliant with Contract requirements; errors, or risks, or weaknesses or omissions; possible to correct and make acceptable.

1 - 3 Poor to Deficient. Non-compliant with Contract requirements; errors, or risks, or weaknesses or omissions; difficult to correct and make acceptable.

0 Unacceptable. Totally deficient and not in compliance with Contract requirements; not correctable.

Resultant scores for each sub-criterion will be weighed by the appropriate weight factors and a total score for each criterion determined. The scores of Criteria Nos. 4, 5 and 6 will then be weighed by the appropriate weight factors and a total score developed for the proposal. The following table illustrates the procedure.

ILLUSTRATIVE SCORING FORMAT

Manufacturer scored _____

1. Affordability					**Pass / Fail**	
2. Minimal Technical Requirements					**Pass / Fail**	
3. Unacceptable Exceptions, Conditions, Reservations and Understandings					**Pass / Fail**	
4. Technical						
a. Fit and Finish	_____	X	20	/ 10	= 0	
b. Environmentally Friendly	_____	X	10	/ 10	= 0	
c. Chassis Components	_____	X	10	/ 10	= 0	
d. Quality Assurance	_____	X	10	/ 10	= 0	
e. Standard Warranty	_____	X	5	/ 10	= 0	
f. System Support	_____	X	5	/ 10	= 0	
Total Technical			**40**			0
5. Proposed Price						
Lowest Price Proposed	_____	X	30	/ 10	= 0	
Total Price			**50**			0
6. Qualifications						
a. Financial Strength and Resources	_____	X	5	/ 10	= 0	
b. Record of Performance on bus contracts	_____	X	5	/ 10	= 0	
Total Qualifications			**10**			0
Total available points			**100**			
Total Weighted Score						0

Raters Signature _____

1.1.4.4 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. Procuring Agency 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 specified in "Instructions to Offerors" (Section 1.1.3). 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" (Section 1.1.6.9). Any such conditions, exceptions, reservations or understandings which do not result in the rejection of the proposal are subject to evaluation under the criteria of "Proposal Evaluation Criteria" (Section 1.1.4.3.2).

Evaluations will be made in strict accordance with all of the evaluation criteria and procedures specified in "Proposal Selection Process" (Section 1.1.4.3) above. The Procuring Agency will select for any award the highest ranked proposal from a responsible Offeror, qualified under "Qualification Requirements" (Section 1.1.4.3.1) which does not render this procurement financially infeasible and is judged to be most advantageous to the Procuring Agency based on consideration of the evaluation "Proposal Evaluation Criteria" (Section 1.1.4.3.2).

1.1.4.4.1 Evaluations of Competitive Proposals

I. **Qualification of Responsible Offerors**. Proposals will be evaluated in accordance with requirements of "Qualification Requirements" (Section 1.1.4.3.1) to determine the responsibility of Offerors. Any proposals from Offerors whom the Procuring Agency 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 Procuring Agency, information submitted in a BAFO and information resulting from Procuring Agency 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 specified in "Proposal Selection Process" (Section 1.1.4.3).

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 Procuring Agency finds not to meet these requirements, and may not be made to meet these requirements, may be determined by the Procuring Agency 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" (Section 1.1.4.3.1), or that the Procuring Agency 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 Procuring Agency to be either a defect that the Procuring Agency will waive in accordance with "Acceptance/Rejection of Proposals" (Section 1.1.5.1) 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 Procuring Agency will carry out and document its evaluations in accordance with the criteria and procedures of "Proposal Selection Process" (Section 1.1.4.3). Any extreme proposal deficiencies which may render a proposal unacceptable will be documented. The Procuring Agency will make specific note of questions, issues, concerns and areas requiring clarification by Offerors and to be discussed in any meetings with Offerors which the Procuring Agency finds to be within the competitive range.

Rankings and spreads of the proposals against the evaluation criteria will then be made by the Procuring Agency 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 Procuring Agency as not in the competitive range and cannot be reasonably made to be within the competitive range, will be notified in writing, including the shortcomings of their proposals.

IV. **Discussions with Offerors in the Competitive Range**. The Offerors whose proposals are found by the Procuring Agency 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 Procuring Agency 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" (Section 1.1.6.9), said conditions, exceptions, reservations or understandings may be negotiated during these meetings. However, the Procuring Agency 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 Procuring Agency 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 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 Procuring Agency 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 Procuring Agency according to the same requirements and criteria as the initial proposals “Proposal Selection Process” (Section 1.1.4.3). The Procuring Agency 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 Procuring Agency and considered according to the relative degrees of importance of the criteria defined in “Proposal Evaluation Criteria” (Section 1.1.4.3.2).

The Procuring Agency will then choose that proposal which it finds to be most advantageous to the Procuring Agency 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 Procuring Agency reserves the right to make an award to an Offeror whose proposal it judges to be most advantageous to the Procuring Agency based upon the evaluation criteria, without conducting any written or oral discussions with any Offerors or solicitation of any BAFOs.

1.1.4.5 CONFIDENTIALITY OF PROPOSALS

Access to government records is governed by the State of California. Except as otherwise required by the State of California, the Procuring Agency 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.

The Offeror may (or shall) submit proprietary information, trade secrets or confidential commercial and financial information, which an Offeror believes should be exempted from disclosure, in a separate volume specifically identified and marked as such as an appendix to the proposal.

The Procuring Agency shall employ sound business practices no less diligent than those used for the Procuring Agency's own confidential information to protect the confidence of all licensed technology, software, documentation, drawings, schematics, manuals, data and other information and material provided by Offerors and the Contractor pursuant to the Contract which contain confidential commercial or financial information, trade secrets or proprietary information as defined in or pursuant to the laws of the State of California against disclosure of such information and material to third parties except as permitted by the Contract. The Contractor shall be responsible for ensuring that confidential commercial or financial information, trade secrets or proprietary information, with such determinations to be made by the Procuring Agency in its sole discretion, bears appropriate notices relating to its confidential character.

1.1.5 RESPONSE TO PROPOSALS

1.1.5.1 ACCEPTANCE/REJECTION OF PROPOSALS

The Procuring Agency 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 Procuring Agency, price and other evaluation criteria considered. The Procuring Agency 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 Procuring Agency 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 Procuring Agency.

The Procuring Agency may reject a proposal that includes unacceptable deviations as provided in “Conditions, Exceptions, Reservations or Understandings” (Section 1.1.2.4).

1.1.5.2 SINGLE PROPOSAL RESPONSE

If only one proposal is received in response to this RFP and it is found by the Procuring Agency 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 Procuring Agency 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 Procuring Agency to accept such a single proposal; and the Procuring Agency may reject such proposal at its sole discretion.

1.1.5.3 CANCELLATION OF PROCUREMENT

The Procuring Agency reserves the right to cancel the procurement, for any reason whatsoever, at any time before the Contract is fully executed and approved on behalf of the Procuring Agency.

1.1.5.4 AVAILABILITY OF FUNDS

This procurement is subject to the availability of funding in the form of a grant from the Federal government. The Procuring Agency'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 Procuring Agency for any payment shall arise until funds are made available to the Purchasing Agent for this Contract and until the Contractor receives notice of such availability, to be confirmed in writing by the Purchasing Agent. Any award of Contract hereunder will be conditioned upon said availability of funds for the Contract.

1.1.5.5 PROTESTS

Any protests by an interested party regarding this procurement shall be made in accordance with Protest Procedures contained herein. After such administrative remedies have been exhausted, an interested party may file a protest with the Federal Transit Administration (FTA) of the U.S. Department of Transportation pursuant to the procedures provided in FTA C 4220.1D.
Failure to comply with the protest procedures will render a protest untimely and/or inadequate and shall result in its rejection.

1.1.5.5.1 PROTEST PROCEDURES

The agency's review of any protest will be limited to violations of state or local laws or/regulations, violations of the agency's purchasing procedures, or violations of the agency's protest procedures or failure to review a complaint or protest.

Protests based on restrictive or severely defective specifications or improprieties in any type of solicitations that are apparent prior to bid opening or closing date for bids, must be received no later than five (5) days before the scheduled bid opening.

Protests based upon the staff recommendation for contract award must be received within seven (7) calendar days from the date that the notice is sent to all bidders, of the staff's recommendation for award of the contract. The protest must clearly specify in writing the grounds and evidence on which the protest is based.

All protests must be in writing, stating the name and address of protestor, a contact person, contract number and/or title and shall specify in detail the grounds of the protest and the facts supporting the protest.

All protests must be addressed as follows:

For Special Delivery, U.S. Mail, or E-mail

Attention: Karen King
Golden Empire Transit District
1830 Golden State Avenue
Bakersfield, CA 93301

Protests not properly addressed may not be considered by the agency.

1.1.6 REQUIRED FORMS

1.1.6.1 REQUEST FOR PRE-OFFER 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 1.1.2.2).

Request #: _____ Offeror:
Solicitation Ref: _____ Page: _____ Section: _____
Questions/Clarification or Approved Equal: _____
Procuring Agency: _____

1.1.6.2 ACKNOWLEDGMENT OF ADDENDA

The following form shall be completed and included in the price proposal.

Failure to acknowledge receipt of all addenda may cause the proposal to be considered nonresponsive to the solicitation. Acknowledged receipt of each addendum must be clearly established and included with the Offer.

ACKNOWLEDGMENT OF ADDENDA

The undersigned acknowledges receipt of the following addenda to the documents:

Addendum No. _____, Dated _____
Addendum No. _____, Dated _____
Addendum No. _____, Dated _____
Addendum No. _____, Dated _____

Offeror: _____
Name

_____
Street Address

_____
City, State, Zip

_____
Signature of Authorized Signer

_____
Title

_____
Phone

1.1.6.3 OFFEROR SERVICE AND PARTS SUPPORT DATA

Location of nearest Technical Service Representative to Procuring Agency

Name _____

Address _____

Telephone _____

Offeror to describe technical services readily available from said representative.

Location of nearest Parts Distribution Center to Procuring Agency

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 _____

1.1.6.4 BUY AMERICA CERTIFICATION

Certificate of Compliance

The bidder hereby certifies that it will comply with the requirements of 49 U.S.C. Section 5323(j)(2)(C), Section 165(b)(3) of the Surface Transportation Assistance Act of 1982, as amended, and the regulations of 49 C.F.R. 661.11:

Date: _____

Signature: _____

Company Name: _____

Title: _____

Certificate of Non-Compliance

The bidder hereby certifies that it cannot comply with the requirements of 49 U.S.C. Section 5323(j)(2)(C) and Section 165(b)(3) of the Surface Transportation Assistance Act of 1982, as amended, but may qualify for an exception to the requirements consistent with 49 U.S.C. Sections 5323(j)(2)(B) or (j)(2)(D), Sections 165(b)(2) or (b)(4) of the Surface Transportation Assistance Act, as amended, and regulations in 49 C.F.R. 661.7.

Date: _____

Signature: _____

Company Name: _____

Title: _____

1.1.6.5 DEBARMENT AND SUSPENSION CERTIFICATION (LOWER TIER COVERED TRANSACTION)

The prospective lower tier participant (Offeror) certifies, by submission of this Offer, that neither it nor its "principals" as defined at 49 C.F.R. § 29.105(p) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

If the prospective lower tier participant (Offeror) is unable to certify to the statement above, it shall attach an explanation, and indicate that it has done so, by placing an "X" in the following space _____.

THE BIDDER OR OFFEROR, _____, CERTIFIES OR AFFIRMS THE TRUTHFULNESS AND ACCURACY OF EACH STATEMENT OF ITS CERTIFICATION AND EXPLANATION, IF ANY. IN ADDITION, THE BIDDER OR OFFEROR UNDERSTANDS AND AGREES THAT THE PROVISIONS OF 31 U.S.C. §§ 3801 ET SEQ. APPLY TO THIS CERTIFICATION AND EXPLANATION, IF ANY.

_____ Signature of the Bidder or Offeror's Authorized Official

_____ Name and Title of the Bidder or Offeror's Authorized Official

_____ Date

1.1.6.6 LOBBYING CERTIFICATION

The Bidder or Offeror certifies, to the best its knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of a Federal department or agency, a Member of the U.S. Congress, an officer or employee of the U.S. Congress, or an employee of a Member of the U.S. 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 thereof.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for making lobbying contacts to an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form--LLL, "Disclosure Form to Report Lobbying," in accordance with its instruction, as amended by "Government wide Guidance for New Restrictions on Lobbying," 61 Fed. Reg. 1413 (1/19/96).

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31, U.S.C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

THE BIDDER OR OFFEROR, _____, CERTIFIES OR AFFIRMS THE TRUTHFULNESS AND ACCURACY OF EACH STATEMENT OF ITS CERTIFICATION AND DISCLOSURE, IF ANY. IN ADDITION, THE BIDDER OR OFFEROR UNDERSTANDS AND AGREES THAT THE PROVISIONS OF 31 U.S.C. §§ 3801 ET SEQ. APPLY TO THIS CERTIFICATION AND DISCLOSURE, IF ANY.

_____ Signature of the Bidder or Offeror's Authorized Official

_____ Name and Title of the Bidder or Offeror's Authorized Official

_____ Date

1.1.6.7 NON-COLLUSION AFFIDAVIT

This affidavit is to be filled out and executed by the Proposer; if a corporation makes the bid, then by its properly executed agent. The name of the individual swearing to the affidavit should appear on the line marked "Name of Affiant." The affiant's capacity, when a partner or officer of a corporation, should be inserted on the line marked "Capacity." The representative of the Proposer should sign his or her individual name at the end, not a partnership or corporation name, and swear to this affidavit before a notary public, who must attach his or her seal.

State of _____, County of _____

I, _____, being first duly sworn, do hereby state that
(Name of Affiant)

I am _____ of _____
(Capacity) (Name of Firm, Partnership or Corporation)

whose business is _____

and who resides at _____

and that _____
(Give names of all persons, firms, or corporations interested in the bid)

is/are the only person(s) with me in the profits of the herein contained Contract; that the Contract is made without any connection or interest in the profits thereof with any persons making any bid or Proposal for said Work; that the said Contract is on my part, in all respects, fair and without collusion or fraud, and also that no members of the Board of Trustees, head of any department or bureau, or employee therein, or any employee of the Authority, is directly or indirectly interested therein.

_____ _____
Signature of Affiant Date

Sworn to before me this _____ day of _____, 20____. _____ _____ Notary public My commission expires	Seal

1.1.6.8 DBE APPROVAL CERTIFICATION

I hereby certify that the Offeror has complied with the requirements of 49 CFR 23.67, Participation by Disadvantaged Business Enterprises in DOT Programs, and that its 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

1.1.6.9 CERTIFICATE OF COMPLIANCE WITH BUS TESTING REQUIREMENT

The undersigned certifies that the vehicle offered in this procurement complies 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 two alternatives.

(Mark one and only one of the two blank spaces with an "x")

1.____ The vehicles 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 vehicle is a new model and will be Altoona tested, the results will be submitted to Procuring Agency 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: _____

1.1.6.10 FEDERAL MOTOR VEHICLE SAFETY STANDARDS

The Proposer and (if selected) 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.

Company name: _____

Name of signer: _____

Title: _____

_____ _____

Authorized signature Date

1.1.6.11 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 1.1.2.4). One copy without any price/cost information is to be placed in the technical proposal as specified in "Technical Proposal Requirements" (Section 1.1.3.2) and a separate copy with any price/cost information placed in the price proposal as specified in "Price Proposal Requirements" (Section 1.1.3.3).

Deviation #: _____ Offeror: _____
Solicitation Ref: Page: _____ Section: _____
Complete Description of Deviation _____
Rationale (Pros & Cons): _____

1.1.6.12 PRICING SCHEDULE

CNG Commuter Transit Vehicle
Cost and Pricing Form

The vehicles shall be delivered to Bakersfield, CA

Item	Description	Unit	Quantity	Unit price
1	STANDARD BASE MODEL VEHICLE	Each	2	
2	ADA EQUIPMENT COST			
3	DELIVERY			
4	SALES TAX 8.25%			
5	TOTAL			

CNG Commuter Transit Vehicle
Cost and Pricing Form For (2) Option Vehicles

The vehicles shall be delivered to Bakersfield, CA

Item	Description	Unit	Quantity	Unit price
1	STANDARD BASE MODEL VEHICLE	Each	2	
2	ADA EQUIPMENT COST			
3	DELIVERY			
4	SALES TAX 8.25%			
5	TOTAL			

1.1.6.13 COMPONENT CHECKLIST

COMPONENT CHECKLIST

Specification type	Manufacturer, or approved equal, or type requested	Manufacturer Bid	Model bid
Vehicle	CNG 45 Foot Commuter Bus		
Engine	Cummins ISX 12N (Natural Gas)		
CNG Fuel Tanks	Agility		
Transmission	Allison B500R Transmission		
Passenger Seating	4-One		
Interior Trim	Custom		
Operator's Seat	USSC		
Jump Start Connector	Anderson Model 350		
Fire Suppression	Amerex Fire Suppression and Detection		
Wheels	Alcoa Dura-Bright 22.5"		
Exterior Lighting	Dialight LED		
Wiper Motor	Electric		
Exterior Signs	Hanover LED		
Interior Signs	Hanover LED		
Radio	Motorola MOTOTRBO XPR 5580e		
Surveillance	4120 Safety Vision System		
W/C Restraints	Q-Straint		
Wheelchair Lift	Ricon Mirage		
Floor Covering	Altro Meta Storm		

1.2 OFFER

Offeror shall complete the following form and include same in the price proposal.

OFFER

By execution below Offeror hereby offers to furnish equipment and services as specified in Golden Empire's Request for Proposals # G109 including the General Provisions (Section 2), Quality Assurance Provisions (Section 3), Warranty Provisions (Section 4) and Technical Specifications (Section 5), therein.

Offeror: _____
Name

Street Address

City, State, Zip

Signature of Authorized Signer

Title

Phone

1.3 AWARD

1.3.1 NOTICE OF AWARD

By execution below, Procuring Agency accepts Offer as indicated above.

Purchasing Agent: _____
Signature

Date of Award: _____

1.3.2 NOTIFICATION OF AWARD AND DEBRIEFING

Proposer who submits a proposal in response to this RFP shall be notified in writing regarding the firm awarded the contract. Such notification shall be made at least seven (7) days prior to the date the contract is awarded.

Proposer who was not awarded the contract may obtain a prompt explanation concerning the strengths and weaknesses of their proposal. Unsuccessful Proposer who wish to be debriefed, must request the debriefing in writing and it must be received by the Purchasing Agent within three (3) days of notification of the contract award.

2 GENERAL CONTRACTUAL PROVISIONS

GENERAL CONTRACTUAL PROVISIONS TABLE OF CONTENTS

2.1 DEFINITIONS

The following are definitions of special terms used in this document.

Authorized Signer. The person who is executing this Contract on behalf of the Offeror/Contractor and who is authorized to bind the Offeror/Contractor.

Best and Final Offer (BAFO). The last Offer made by a proposer. If a BAFO is not specifically requested by the Procuring Agency, or if the proposer does not timely respond to a request for BAFO, the most recent, current Offer is the BAFO.

Procuring Agency. Golden Empire Transit District

Contract. The Offer and its acceptance by the Procuring Agency as manifested by the contract documents specified in "Contract Documents" (Section 2.2.2).

Purchasing Agent. The person who is executing this Contract on behalf of the Procuring Agency and who has complete and final authority except as limited herein.

Contractor. The successful Offeror who is awarded a Contract for providing all buses and equipment described in the contract documents.

Defect. Patent or latent malfunction or failure in manufacture, installation, or design of any component or subsystem.

Due Date. The date and time by which Offers (proposals or bids) must be received by the Procuring Agency as specified in "Instructions to Offerors" (Section 1.1.3 of Procuring Agency's solicitation).

Offer. A promise, if accepted, to deliver equipment and services according to the underlying solicitation of the Procuring Agency documented using the prescribed form in the solicitation, including any bid or proposal or Best and Final Offer.

Offeror. A legal entity which makes an Offer, including a bidder or proposer.

Related Defect. Damage inflicted on any component or subsystem as a direct result of a separate Defect.

Solicitation. Procuring Agency's Request for Proposals

Supplier or Subcontractor. Any manufacturer, company, or agency providing units, components, or subassemblies for inclusion in the bus. Supplier items shall require qualification by type and acceptance tests in accordance with requirements defined in Part 3: Quality Assurance Provisions.

Work. Any and all labor, supervision, services, materials, machinery, equipment, tools, supplies, and facilities called for by the Contract and necessary to the completion thereof.

2.2 CONTRACT AND MODIFICATIONS

2.2.1 CONTRACT AWARD AND EXECUTION

The acceptance of an Offer for award, if made, shall be evidenced by a notice of award of Contract in writing delivered in person or by registered mail to the Offeror whose Offer is accepted. No other act by the Procuring Agency shall evidence acceptance of an Offer. Such notice shall obligate said Offeror to commence performance under the Contract as specified in "Production of Documents" (Section 2.7.3).

2.2.2 CONTRACT DOCUMENTS

The Contract consists of the following:

- Part 1 – Contractor's Offer (or Best and Final Offer, if requested) and Procuring Agency's Notice of Award
- Part 2 – General Contractual Provisions
- Part 3 – Quality Assurance Provisions
- Part 4 – Warranty Provisions
- Part 5 – Technical Specifications
- Addenda – As issued
- Contractor's Proposal including any modifications explicitly incorporated in Contractor's Best and Final Offer

In case of any conflict among these documents where the parties' intended resolution is not clear, the order of precedence shall be:

First – Addenda issued by Procuring Agency
Second – Part 5, Technical Specifications
Third – Parts 2, 3 and 4 of this document
Fourth – Contractor's Offer
Fifth – Contractor's Proposal

2.2.3 MODIFICATIONS TO CONTRACT

2.2.3.1 CONTRACTOR CHANGES

Any proposed change in this Contract shall be submitted to the appropriate Procuring Agency for its prior approval.

2.2.3.2 WRITTEN CHANGE ORDERS

Oral change orders are not permitted. No change in this Contract shall be made unless the Purchasing Agent gives prior written approval, therefore. The Contractor shall be liable for all costs resulting from, and/or for satisfactorily correcting, any specification changes not properly ordered by written modification to the Contract and signed by the Purchasing Agent.

2.2.3.3 CHANGE ORDER PROCEDURE

As soon as reasonably possible but no later than 30 (thirty) calendar days after receipt of the written change order to modify the Contract, the Contractor shall submit to the Purchasing Agent a detailed price and schedule proposal for the work to be performed. This proposal shall be accepted or modified by negotiations between the Contractor and the Purchasing Agent. At that time a detailed modification 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.

2.2.3.4 PRICE ADJUSTMENT FOR REGULATORY CHANGES

If price adjustment is indicated, either upward or downward, it shall be negotiated between the Procuring Agency and the Contractor for changes that are mandatory as a result of legislation or regulations that are promulgated and become effective after the Due Date. Such price adjustment will be audited, where required.

2.2.4 PARTIES AND CHANGES IN PARTIES

2.2.4.1 PARTIES

The parties to the contract are the Procuring Agency as defined in "Definitions", (Section 2.1) and the Offeror as set out in the accepted Offer.

2.2.4.2 SUCCESSION

The Contract will be binding on the parties, their successors, and assigns.

2.2.4.3 ASSIGNMENT AND SUBCONTRACTING

Neither party will assign or subcontract its rights or obligations under the Contract without prior written permission of the other party, and no such assignment or subcontract will be effective until approved in writing by the other party.

2.2.5 SPECIFICATION AND OFFER OMISSIONS

Notwithstanding the provision of drawings, technical specifications, or other data by the Procuring Agency, the Contractor shall have the responsibility of supplying all parts and details required to make the bus complete and ready for service even though such details may not be specifically mentioned in the drawings and specifications. Communication equipment and other items that are installed by the Procuring Agency shall not be the responsibility of the Contractor unless they are included in this Contract.

Any request, condition, exception, reservation, understanding or other deviation by Contractor not separately stated as required by "Instructions to Offerors" (Section 1.1.3) of Procuring Agency's solicitation by completing the specified form(s) shall be invalid and shall not be binding on the Procuring Agency.

2.2.6 TERMINATION OF CONTRACT

2.2.6.1 TERMINATION FOR CONVENIENCE

The performance of work under this Contract may be terminated by the Procuring Agency in accordance with this clause in whole, or from time to time in part, whenever the Purchasing Agent shall determine that such termination is in the best interest of the Procuring Agency. Any such termination shall be affected by delivery to the Contractor of a notice of termination specifying the extent to which performance of work under the Contract is terminated, and the date upon which such termination becomes effective.

Settlement of claims by the Contractor under this termination for convenience clause shall be in accordance with the provisions set forth in Part 49 of the Federal Acquisition Regulations (48 CFR 49) except that wherever the word "Government" appears it shall be deleted and the word "Procuring Agency" shall be substituted in lieu thereof.

2.2.6.2 TERMINATION FOR DEFAULT

The Procuring Agency may, by written notice of default to the Contractor, terminate the whole or any part of this Contract if the Contractor fails to make delivery of the supplies or to perform the services within the time specified herein or any extension thereof; or if the Contractor fails to perform any of the other provisions of the Contract, or so fails to make progress as to endanger performance of this Contract in accordance with its terms, and in either of these two circumstances does not cure such failure within a period of 10 (ten) days (or such longer period as the Purchasing Agent may authorize in writing) after receipt of notice from the Purchasing Agent specifying such failure.

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

If the Contract is terminated in whole or in part for default, the Procuring Agency may procure, upon such terms and in such manner as the Purchasing Agent may deem appropriate, supplies or services similar to those so terminated. The Contractor shall be liable to the Procuring Agency for any excess costs for such similar supplies or services and shall continue the performance of this Contract to the extent not terminated under the provisions of this clause.
Except with respect to defaults of subcontractors, the Contractor shall not be liable for any excess costs if the failure to perform the Contract arises out of causes beyond the control and without the fault or negligence of the Contractor. If the failure to perform is caused by the default of a subcontractor, and if such default arises out of causes beyond the control of both the Contractor and subcontractor, and without the fault or negligence of either of them, the Contractor shall not be liable for any excess costs for failure to perform, unless the supplies or services to be furnished by the subcontractor were obtainable from other sources in sufficient time to permit the Contractor to meet the required delivery schedule.

Payment for completed supplies delivered to and accepted by the Procuring Agency shall be at the Contract price. The Procuring Agency may withhold from amounts otherwise due the Contractor for such completed supplies such sum as the Purchasing Agent determines to be necessary to protect the Procuring Agency against loss because of outstanding liens or claims of former lien holders.

If, after notice of termination of this Contract under the provisions of this clause, it is determined for any reason that the Contractor was not in default under the provisions of this clause, or that the default was excusable under the provisions of this clause, the rights and obligations of the parties shall be the same as if the notice of termination had been issued pursuant to termination for convenience of the Procurement Agency.

The rights and remedies of the Procuring Agency provided in this clause shall not be exclusive and are in addition to any other rights and remedies provided by law or under this Contract.

2.2.7 COMMUNICATIONS

Communications in connection with this Contract shall be in writing and shall be delivered via e-mail; or by facsimile; or by regular, registered, or certified mail addressed to the officer(s) or employee(s) of the Procuring Agency and of the Contractor designated to receive such communications. Telephone calls may be used to expedite communications but shall not be official communication unless confirmed in writing.

Communications shall be considered received at the time actually received by the addressee or designated agent.

2.3 DELIVERY AND TITLE

2.3.1 DELIVERIES

2.3.1.1 BUS DELIVERY PROCEDURE

Delivery of buses shall be determined by signed receipt of the Procuring Agency's designated agent(s) Chris James, Maintenance Manager, at the following point of delivery:

1830 Golden State Avenue, Bakersfield, CA 93301

2.3.1.2 DELIVERY SCHEDULE

Delivery shall be completed within 52 weeks of the executed contract documents. Hours of delivery shall be between 8 A.M. and 8 P.M. Monday through Friday.

2.3.1.3 PRE-DELIVERY TESTS AND INSPECTIONS

The manufacturer shall ensure all quality control inspections are in-place and sufficient to ensure completion and delivery of the vehicles specified in Section 5 (Technical Specifications). The manufacturer shall ensure the vehicles are visually inspected and road tested prior to delivery.

2.3.1.4 ASSUMPTION OF RISK OF LOSS

The Procuring Agency shall assume risk of loss of the bus on delivery, as defined in "Bus Delivery Procedure" (Section 2.3.1.1), if delivered by common carrier or driveway, or on release to the Procuring Agency's operators at the Contractor's plant. Prior to this delivery or release, the Contractor shall have risk of loss of the bus, including any damages sustained during the common carrier or drive away operation regardless of the status of title or any payments related to the bus. Operators shall keep a maintenance log en-route and it shall be delivered to the Procuring Agency with the bus.

2.3.1.5 ACCEPTANCE OF BUS

Within 15 (fifteen) calendar days after arrival at the designated point of delivery, the bus shall undergo the Procuring Agency tests defined in Part 4: Quality Assurance Provisions. The vehicle shall undergo the FTA required Post Delivery Review. Acceptance may occur earlier if the Procuring Agency notifies the Contractor of early acceptance or places the bus in revenue service. If the bus fails these tests or doesn't meet the technical specifications, it shall not be accepted, and title shall not be transferred until the repair procedures defined in "Repairs After Non-acceptance" (Section 2.3.2) have been carried out and the bus retested until it passes.

2.3.2 REPAIRS AFTER NONACCEPTANCE

The Contractor or its designated representative shall perform the repairs after non-acceptance. If the Contractor fails or refuses to start the repairs within 5 (five) days, then the work may be done by the Procuring Agency's personnel with reimbursement by the Contractor.

2.3.2.1 REPAIRS BY CONTRACTOR

After non-acceptance of the bus, the Contractor must begin work within 5 (five) working days after receiving notification from the Procuring Agency of failure of acceptance tests. The Procuring Agency shall make the bus 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 the repairs. At the Procuring Agency's option, the Contractor may be required to remove the bus from the Procuring Agency's property while repairs are being affected. If the bus is removed from the Procuring Agency's property, repair procedures must be diligently pursued by the Contractor's representatives, and the Contractor shall assume risk of loss while the bus is under its control.

2.3.2.2 REPAIRS BY PROCURING AGENCY

1. Parts Used. If the Procuring Agency performs the repairs after non-acceptance of the bus, it shall correct or repair the defect and any related defects using Contractor-specified parts available from its own stock or those supplied by the Contractor specifically for this repair. Monthly, or at a period to be mutually agreed upon, reports of all repairs covered by this procedure shall be submitted by the Procuring Agency to the Contractor for reimbursement or replacement of parts. The Contractor shall provide forms for these reports.

2. Contractor Supplied Parts. If the Contractor supplies parts for repairs being performed by the Procuring Agency after non-acceptance of the bus, these parts shall be shipped prepaid to the Procuring Agency from any source selected by the Contractor within 15 (fifteen) calendar days after receipt of the request for said parts.
3. Return of Defective Components. The Contractor may request that parts covered by this provision be returned to the manufacturing plant. The total costs for this action shall be paid by the Contractor.
4. Reimbursement for Labor. The Procuring Agency 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 by a per hour wage rate of $85.00, plus the cost of towing the bus if such action was necessary. These wage and fringe benefits rates shall not exceed the rates in effect in the Procuring Agency's service garage at the time the defect correction is made.
5. Reimbursement for Parts. The Procuring Agency shall be reimbursed by the Contractor for defective parts, plus 20% handling costs, that must be replaced to correct the defect. The reimbursement shall include taxes where applicable and handling costs.

2.3.3 UNAVOIDABLE DELAYS

2.3.3.1 CONTRACTOR'S DELAY

If the Contractor is delayed at any time during the progress of the work by the neglect or failure of the Procuring Agency or by a cause described below, then the time for completion and/or affected delivery date(s) shall be extended by the Procuring Agency subject to the following conditions:

1. The cause of the delay arises after the notice of award and neither was nor could have been anticipated by the Contractor by reasonable investigation before such award;
2. The Contractor demonstrates that the completion of the work and/or affected delivery(s) will be actually and necessarily delayed;
3. The effect of such cause cannot be avoided or mitigated by the exercise of all reasonable precautions, efforts and measures whether before or after the occurrence of the cause of delay; and
4. The Contractor makes written request and provides other information to the Procuring Agency as described in "Notification of Contractor Delay" (Section 2.3.3.2 below).

A delay meeting all the conditions of this section shall be deemed an excusable delay. Any concurrent delay which does not constitute an excusable delay shall not be the sole basis for denying a request hereunder.

None of the above shall relieve the Contractor of any liability for the payment of any liquidated damages owing from a failure to complete the Work by the time for completion that the Contractor is required to pay pursuant to "Liquidated Damages" (Section 2.3.4) for delays occurring prior to, or subsequent to the occurrence of an excusable delay.

The Procuring Agency reserves the right to rescind or shorten any extension previously granted, if subsequently the Procuring Agency determines that any information provided by Contractor in support of a request for an extension of time was erroneous; provided however, that such information or facts, if known, would have resulted in a denial of the request for an excusable delay. Notwithstanding the above, the Procuring Agency will not rescind or shorten any extension previously granted if the Contractor acted in reliance upon the granting of such extension and such extension was based on information which, although later found to have been erroneous, was submitted in good faith by the Contractor.

2.3.3.2 NOTIFICATION OF CONTRACTOR DELAY

Notwithstanding "Contractor's Delay" (Section 2.3.3.1), no extension or adjustment of time shall be granted unless (1) written notice of the delay is filed with the Procuring Agency within 14 (fourteen) calendar days after the commencement of the delay and (2) a written application therefore, stating in reasonable detail the causes, the effect to date and the probable future effect on the performance of the Contractor under the Contract, and the portion or portions of the Work affected, is filed by the Contractor with the Procuring Agency within 30 (thirty) calendar days after the commencement of the delay. No such extension or adjustment shall be deemed a waiver of the rights of either party under this Contract. The Procuring Agency shall make its determination within *30 (thirty)* calendar days after receipt of the application.

2.3.4 LIQUIDATED DAMAGES

It is mutually understood and agreed by and between the parties to the Contract that time is of the essence with respect to the completion of the Work and that in case of any failure on the part of the Contractor to complete the Work within the time specified in the agreement, except for any excusable delays as provided in ""Unavoidable Delays" (Section 2.3.3), or any extension thereof, the Procuring Agency will be damaged thereby. The amount of said damages, being difficult if not impossible of definite ascertainment and proof, it is hereby agreed that the amount of such damages due the Procuring Agency shall be fixed at $200 per calendar day per bus not delivered in substantially as good condition as inspected by the Procuring Agency at the time of acceptance as specified in “Acceptance of Bus” (Section 2.3.1.5).

The Contractor hereby agrees to pay the aforestated amounts as fixed, agreed and liquidated damages, and not by way of penalty, to the Procuring Agency and further authorizes the Procuring Agency to deduct the amount of the damages from money due the Contractor under the Contract, computed as aforesaid. If the monies due the Contractor are insufficient or no monies are due the Contractor, the Contractor shall pay the Procuring Agency the difference or the entire amount, whichever may be the case, within 30 (thirty) calendar days after receipt of a written demand by the Purchasing Agent.

The payment of aforesaid fixed, agreed and liquidated damages shall be in lieu of any damages for any loss of profit, loss of revenue, loss of use, or for any other direct, indirect, special or consequential losses or damages of any kind whatsoever that may be suffered by the Procuring

Agency arising at any time from the failure of the Contractor to fulfill the obligations referenced in this clause in a timely manner.

The Procuring Agency specifically reserves the right, without limitation of any other rights, to terminate the Contract in accordance with "Termination of Contract" (Section 2.2.6).

2.3.5 TITLE

Adequate documents for registering the bus in the City of Bakersfield shall be provided to the Procuring Agency at least three (3) working days before each bus is released to the common carrier drive away or to the Procuring Agency's operators. Upon acceptance of each bus, the Contractor warrants that the title shall pass to the Procuring Agency free and clear of all encumbrances.

2.4 PAYMENT

The Procuring Agency shall pay and the Contractor shall accept the amounts set forth in the price schedule as full compensation for all costs and expenses of completing the Work in accordance with the Contract, including but not limited to all labor and material required, overhead, expenses, storage and shipping, risks and obligations, taxes (as applicable), fees and profit, and any unforeseen costs.

The Procuring Agency shall make payment for buses at the unit prices itemized in the Price Schedule within *30 (thirty)* calendar days after the delivery and acceptance of each bus and receipt of a proper invoice. In the event that the bus does not meet all requirements for acceptance the Procuring Agency may, at its exclusive option, "conditionally accept" the bus and place it into revenue service pending receipt of Contractor furnished materials and/or labor necessary to effectuate corrective action for acceptance.

The Procuring Agency's right to offset payment shall be enforced for conditionally accepted vehicles and for liquidated damages.

For any conditionally accepted bus the payment shall be reduced by the amount to be withheld, and paid upon corrective action by the contractor, equal to twice the estimated cost for parts and labor for the corrective action.

All payments shall be made as provided herein, less a withholding of ten percent (3%) plus any additional moneys withheld as provided below and less any amounts for liquidated damages in accordance with "Liquidated Damages" (Section 2.3.4).

The Procuring Agency shall make a final payment for all withholding within *30 (thirty)* calendar days of receipt of a final proper invoice and the following:

1. Delivery and acceptance of all Contract deliverables, including manuals and other documentation required by the Contract, excluding training.
2. Rectification of any deficiencies found during the acceptance of buses.
3. Contractor provision of any certifications as required by law and/or regulations.
4. Completion of post-delivery audits required under the Contract.

PROMPT PAYMENT CLAUSE

Prime Contractor and Subcontractor Payments (if applicable)

Prime contractor agrees to pay each subcontractor under this prime contract for satisfactory performance of its contract no later than 10 days from receipt of each payment the prime contractor receives from the District. The prime contractor agrees further to return retainage payments to each subcontractor within 30 days after the subcontractor's work is satisfactorily completed. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of the District.

2.5 SERVICE AND PARTS

2.5.1 ENGINEER / SERVICE REPRESENTATIVES

The Contractor shall, at its own expense, have a competent engineering service representative(s) available on request to assist the Procuring Agency's staff in the solution of engineering or design problems within the scope of the specifications that may arise during the warranty period. This does not relieve the Contractor of responsibilities under Part 4: Warranty Provisions.

2.5.2 DOCUMENTS

The Contractor shall provide current maintenance manual(s), current parts manual(s), and standard operator's manual(s) as part of this Contract. The Contractor shall keep maintenance manuals available for a period of three years after the date of acceptance of the buses procured under this Contract. The Contractor shall also keep maintenance manuals, operator manuals, and keep parts books up-to-date for a period of 15 (fifteen) years. The supplied maintenance and operator's manuals shall incorporate all equipment ordered on the buses covered by this procurement. The following manuals shall be supplied as indicated in sets, such that a set consists of a hardcopy and CDROM.

Maintenance Manual Packages (one set for each bus delivered)
A set shall consist of the following:

- Service Manual to be used by maintenance mechanics as a repair guide. This manual will describe the operation of all vehicle systems, provide trouble shooting assistance, step by

step instructions for component removal, rebuilding and replacement, pictorial illustrations of disassembled components and schematics for the electrical, hydraulic and air system
- Engine Overhaul Manual
- Transmission Overhaul Manual
- Differential Overhaul Manual
- PM Inspection

The vehicle manufacturer will supply the Procuring Agency with a detailed inclusive routine preventive maintenance procedure. This procedure will contain the following:
- Change interval for all fluids and filters.
- Lubrication points identified by location, interval and lubricant type required.
- Items requiring periodic inspection and adjustment.
- Where gauge and instrument readings are required, the dimensions and tolerance will be specified.

Parts Manuals (one set for each bus delivered)
The Parts Manual shall contain each part used during the assembly of the vehicle on a production line ticket and also each part will be referenced in a manual by specific vehicle sub-system. The manual will be one produced specifically for the vehicle referenced. The manual will contain the following:
- Components and component parts indexes by (1) part nomenclature, and (2) bus manufacturer's part number
- Pictorial views as needed for illustration
- Components will be identified as an assembly and by individual breakdowns
- Engine Overhaul Parts Manual
- Transmission Overhaul Parts Manual
- Differential Overhaul Parts Manual
- Parts Bulletins will be provided as changes or updates are made to the original parts information for the service life of the vehicle.
- Two 8" x 10" glossy color photos of the bus being offered.

Operators Manuals (Five (5) for each bus delivered are to be provided)

Bulletins
Each and every time a change or modification is made to the vehicles described within this specification, the manufacturer will announce and initiate this action by issuing a bulletin. This bulletin service will start after the Procuring Agency's receipt of the first vehicle and remain active throughout the service life. Each bulletin will contain at least the following ingredients:
- Description of actual change or modification
- Date of implementation
- Replacement pages for service and/or parts manuals as applicable
- Method of implementation

TRAINING

The Contractor hereby guarantees to provide 6 weeks of vehicle maintenance training. The training will include but not limited to vehicle operations, mechanic diagnostics and preventative maintenance. Training will be provided on the District's property within 30 days of the first vehicle delivery. Additional training requirements may be added, but the overall training time will be a minimum of 6 weeks.

2.5.3 PARTS AVAILABILITY GUARANTY

The Contractor hereby guarantees to provide, within reasonable periods of time, the spare parts, software and all equipment necessary to maintain and repair the buses supplied under this Contract for a period of at least 15 (fifteen) years after the date of acceptance. Parts shall be interchangeable with the original equipment and be manufactured in accordance with the quality assurance provisions of this Contract. Prices shall not exceed the Contractor's then current published catalog prices.

Where the parts ordered by the Procuring Agency are not received within 10 calendar days of the agreed upon time/date and a bus procured under this Contract is out-of-service due to the lack of said ordered parts, then the Contractor shall provide the Procuring Agency, within 72 hours of the Procuring Agency's verbal or written request, the original suppliers' and/or manufacturers' parts numbers, company names, addresses, telephone numbers and contact persons' names for all of the specific parts not received by the Procuring Agency.

Where the Contractor fails to honor this parts guaranty or parts ordered by the Procuring Agency are not received within 30 (thirty) days of the agreed upon delivery date, then the Contractor shall provide to Procuring Agency, within 7 (seven) days of the Procuring Agency's verbal or written request, the design and manufacturing documentation for those parts manufactured by the Contractor and the original suppliers' and/or manufacturers' parts numbers, company names, addresses, telephone numbers and contact persons' names for all of the specific parts not received by the Procuring Agency. Contractor's design and manufacturing documentation provided to the Procuring Agency shall be for its sole use in regard to the buses procured under this Contract and for no other purpose.

2.5.4 INTERCHANGEABILITY

Unless otherwise agreed, all units and components procured under this Contract, whether provided by suppliers or manufactured by the Contractor, shall be duplicates in design, manufacture, and installation to assure interchangeability among buses in this procurement. This interchangeability shall extend to the individual components as well as to their locations in the buses.

2.5.5 SURVIVABILITY

Contractor's obligations under this Section 2.5 shall survive the nominal expiration or discharge of other Contract obligations and Procuring Agency may obtain any remedy under law, Contract or

equity to enforce the obligations of contractor that survive the manufacturing, warranty, and final payment periods.

2.6 AUDIT AND INSPECTION OF RECORDS

In accordance with 49 C.F.R. § 18.36(i), 49 C.F.R. § 19.48(d), and 49 U.S.C. § 5325(a), provided the Procuring Agency is the FTA Recipient or a subgrantee of the FTA Recipient, the Contractor agrees to provide the Procuring Agency, FTA, the Comptroller General of the United States, the Secretary of the U.S. Department of Transportation, or any of their duly authorized representatives access to any books documents, papers, and records of the Contractor which are directly pertinent to or relate to this Contract (1) for the purpose of making audits, examinations, excerpts, and transcriptions and (2) when conducting an audit and inspection.

A. In the event of a **sole source Contract, or single Offer, single responsive Offer, or competitive negotiated procurement** the Contractor shall maintain and the Purchasing Agent, the U.S. Department of Transportation *(if applicable)*, or the representatives thereof, shall have the right to examine all books, records, documents, and other cost and pricing data related to the Contract price, unless such pricing is based on adequate price competition, established catalog or market prices of commercial items sold in substantial quantities to the public, or prices set by law or regulation, or combinations thereof. Data related to the negotiation or performance of the contract shall be made available for the purpose of evaluating the accuracy, completeness, and currency of the cost or pricing data. The right of examination shall extend to all documents necessary for adequate evaluation of the cost or pricing data, along with the computations and projections used therein, including review of accounting principles and practices that reflect properly all direct and indirect costs anticipated for the performance of the Contract.

B. **For Contract modifications or change orders** the Purchasing Agent, the U.S. Department of Transportation *(if applicable)*, or their representatives shall have the right to examine all books, records, documents, and other cost and pricing data related to a Contract modification, unless such pricing is based on adequate price competition, established catalog or market prices of commercial items sold in substantial quantities to the public, or prices set by law or regulation, or combinations thereof. Data related to the negotiation or performance of the Contract modification or change order shall be made available for the purpose of evaluating the accuracy, completeness, and currency of the cost or pricing data. The right of examination shall extend to all documents necessary for adequate evaluation of the cost or pricing data, along with the computations and projections used therein, either before or after execution of the Contract modification or change order for the purpose of conducting a cost analysis. If an examination made after execution of the contract modification or change order reveals inaccurate, incomplete, or out-of-date data, the Purchasing Agent may renegotiate the contract modification or change order price adjustment and the Procuring Agency shall be entitled to any reductions in the price that would result from the application of accurate, complete or up-to-date data.

C. For any **cost reimbursable work** the Contractor shall maintain and the Purchasing Agent, the U.S. Department of Transportation *(if applicable)*, or their representatives shall have the right to

examine books, records, documents, and other evidence, including review of accounting principles and practices that reflect properly all direct and indirect costs incurred as related to said cost reimbursable work.

1. The materials described in Paragraphs A, B and C above shall be available at the Contractor's office at all reasonable times for inspection, audit, and making excerpts and transcriptions until three years from the date of final payment under the Contract except that the materials described in Paragraph A above shall also be available prior to any award and materials relating to "Service and Parts" (Section 2.5). For records relating to appeals under "Disputes" (Section 2.2.7), "Audit and Inspection of Records" (this Section 2.6), litigation, or the settlement of claims arising out of the negotiation or the performance of contract modifications, records shall be kept available until such appeals, litigation, or claims have been disposed of.

2. The Purchasing Agent and his/her representative and any other parties authorized under this clause shall employ sound business practices to protect the confidence of the data specified under this clause, for which the Contractor provides access, against disclosure of such information and material to third parties except as permitted by the Contract. The Contractor shall be responsible for ensuring that any confidential data bears appropriate notices relating to its confidential character.

3. The requirements of this section are in addition to other audit, inspection, and record-keeping provisions specified elsewhere in the Contract documents.

2.7 RISK

2.7.1 INSURANCE

During performance of the contract, Contractor shall maintain the following insurance, which shall be full-coverage insurance not subject to self-insurance provisions, and Contractor shall not of its own initiative cause such insurance to be canceled or materially changed during the term of this agreement.

1. Comprehensive General Liability, including Contractual, Independent, Contractors, and Personal Injury Liability; and Automobile Liability, including any autos; with at least the following limits of liability:
    a. Primary Bodily Injury Liability limits of $2,000,000 per occurrence; and
    b. Primary Property Damage Liability limits of $1,000,000 per occurrence; or
    c. Combined single limits of liability for Primary Bodily Injury and Primary Property Damage of $2, 000,000 per occurrence.

2. Workers Compensation Insurance with the limits established and required by the states where the vehicles will be manufactured.

3. Employer's Liability with limits of $2,000,000.

Prior to commencement of any work hereunder, Contractor shall furnish to the Procuring Agency's Purchasing Agent broker-issued certificate(s), including endorsements, of insurance listing the required insurance coverage for Contractor and further providing that:

1. The Procuring Agency, its officers, directors, employees, and agents, are named as an additional insured via endorsement on Comprehensive General Liability and Automobile Liability Insurance with respect to performance hereunder; and

2. The coverage shall be primary and noncontributory as to any other insurance with respect to performance hereunder; and

3. Thirty- (30) days prior written notice of cancellation or material change in coverage be given to the Procuring Agency.

"Occurrence" as used herein, means any event or related exposure to conditions, which result in bodily injury or property damage.

2.7.2 PERFORMANCE BOND

There is no performance bond required for this procurement with the understanding that the Contractor will not be paid any monies until vehicles are delivered and accepted by the District as being satisfactory and complaint with the technical specifications.

2.7.3 PRODUCTION OF DOCUMENTS

Upon award of the Contract to an Offeror, such Offeror shall commence performance under the Contract by executing all Contract Guaranty Agreements provided with the Offer, by furnishing any required bonds, and by furnishing copies of the certificates of insurance required to be procured by the Contractor pursuant to the Contract documents within 30 (thirty) calendar days after the date of receipt of the notice of award or within such further time as the Procuring Agency may allow. Failure to fulfill these requirements within the specified time is cause for termination of the Contract under "Termination for Default" (Section 2.2.5.2).

2.7.4 INDEMNIFICATION

The Contractor shall, to the extent permitted by law (1) protect, indemnify and save the Procuring Agency and its officers, employees and agents, including consultants, harmless from and against any and all liabilities, damages, claims, demands, liens, encumbrances, judgments, awards, losses, costs, expenses, and suits or actions or proceedings, including reasonable expenses, costs and attorneys' fees incurred by the Procuring Agency and its officers, employees and agents, including consultants, in the defense, settlement or satisfaction thereof, for any injury, death, loss or damage to persons or property of any kind whatsoever, arising out of, or resulting from, the negligent acts, errors or

omissions of the Contractor, including negligent acts, errors or omissions of its officers, employees, servants, agents, subcontractors and suppliers; and (2) upon receipt of notice and if given authority, shall settle at its own expense or undertake at its own expense the defense of any such suit, action or proceeding, including appeals, against the Procuring Agency and its officers, employees and agents, including consultants, relating to such injury, death, loss or damage. Each party shall promptly notify the other in writing of the notice or assertion of any claim, demand, lien, encumbrance, judgment, award, suit, action or other proceeding hereunder. The Contractor shall have sole charge and direction of the defense of such suit, action or proceeding. The Procuring Agency shall not make any admission which might be materially prejudicial to the Contractor unless the Contractor has failed to take over the conduct of any negotiations or defense within a reasonable time after receipt of the notice and authority above provided. The Procuring Agency shall at the request of the Contractor furnish to the Contractor all reasonable assistance that may be necessary for the purpose of defending such suit, action or proceeding, and shall be repaid all reasonable costs incurred in doing so. The Procuring Agency shall have the right to be represented therein by advisory council of its own selection at its own expense.

The obligations of the Contractor under the above paragraph shall not extend to circumstances where the injury, or death, or damages is caused solely by the negligent acts, errors or omissions of the Procuring Agency, its officers, employees, agents or consultants, including negligence in (1) the preparation of the Contract documents, or (2) the giving of directions or instructions with respect to the requirements of the Contract by written order. The obligations of the Contractor shall not extend to circumstances where the injury, or death, or damages is caused, in whole or in part, by the negligence of any third party operator, not including an assignee or subcontractor of the Contractor, subject to the right of contribution as provided in the next sentence below. In case of joint or concurrent negligence of the parties hereto giving rise to a claim or loss against either one or both, each shall have full rights of contribution from the other.

2.7.5 MATERIALS/ACCESSORIES RESPONSIBILITY

The Contractor shall be responsible for all materials and workmanship in the construction of the bus and all accessories used, whether the same are manufactured by the Contractor or purchased from supplier. This provision excludes tires, radios, and any equipment leased or supplied by the Procuring Agency, except insofar as such equipment is damaged by the failure of a part or component for which the Contractor is responsible, or except insofar as the damage to such equipment is caused by the Contractor during the manufacture of the buses. Risk of damage to or loss of the buses is the subject of "Assumption of Risk of Loss" (Section 2.3.1.4).

2.8 POLICIES FOR ALL TIERS

Contractor agrees to comply with the subsections of this Section 2.8 and to include these requirements in all subcontracts of every tier.

2.8.1 NO OBLIGATION BY THE FEDERAL GOVERNMENT

The Procuring Agency and the 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 Procuring Agency, Contractor, or any other party (whether or not a party to that Contract) pertaining to any matter resulting from the underlying Contract.

2.8.2 PROGRAM FRAUD AND FALSE OR FRAUDULENT STATEMENTS AND RELATED ACTIONS:

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. Accordingly, by signing the underlying Contract, the Contractor certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, it may make, or causes to be made, pertaining to the underlying Contract or the FTA assisted project for which this Contract work is being performed. In addition to other penalties that may be applicable, the Contractor also 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 awarded by FTA under the authority of 49 U.S.C. § 5301 et seq., the Government reserves the right to impose the penalties of 18 U.S.C. § 1001 and 49 U.S.C. § 5301 et seq. on the Contractor, to the extent the Federal Government deems appropriate.

2.8.3 INCORPORATION OF FTA TERMS

"General Contract Provisions" (this Section 2) includes, in part, certain standard terms and conditions required by DOT, whether or not expressly set forth in the Contract provisions. All contractual provisions required by DOT, as set forth in FTA Circular 4220.1E, as amended, 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 Procuring Agency requests which would cause Procuring Agency to be in violation of the FTA terms and conditions.

2.8.4 CHANGES IN FEDERAL LAWS AND REGULATIONS

Contractor shall at all times comply with all applicable FTA regulations, policies, procedures and directives, including without limitation those listed directly or by reference in the agreement between Procuring Agency and FTA that funds any part of this Contract, as they may be amended or promulgated from time to time during the term of this Contract. Contractor's failure to so comply shall constitute a material breach of this Contract.

2.8.5 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 Procuring Agency (through the Contractor in the case of a subcontractor's bill-of-lading.)

2.8.6 ENERGY CONSERVATION

The contractor agrees to comply with mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act. (42 U.S.C. 6321 et seq.)

2.8.7 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.

2.8.8 CIVIL RIGHTS

2.8.8.1 NONDISCRIMINATION

In accordance with Title VI of the Civil Rights Act, as amended, 42 U.S.C. § 2000d, section 303 of the Age Discrimination Act of 1975, as amended, 42 U.S.C. § 6102, section 202 of the Americans with

Disabilities Act of 1990, 42 U.S.C. § 12132, and Federal transit law at 49 U.S.C. § 5332, the Contractor agrees that it will not discriminate against any employee or applicant for employment because of race, color, creed, national origin, sex, age, or disability. In addition, the Contractor agrees to comply with applicable Federal implementing regulations and other implementing requirements FTA may issue.

2.8.8.2 EQUAL EMPLOYMENT OPPORTUNITY

The following equal employment opportunity requirements apply to the underlying Contract:

1. Race, Color, Creed, National Origin, Sex. In accordance with Title VII of the Civil Rights Act, as amended, 42 U.S.C. § 2000e, and Federal transit laws at 49 U.S.C. § 5332, the Contractor agrees to comply with all applicable equal employment opportunity requirements of U.S. Department of Labor (U.S. DOL) regulations, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor," 41 C.F.R. Parts 60 et seq., (which implement Executive Order No. 11246, "Equal Employment Opportunity," as amended by Executive Order No. 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," 42 U.S.C. § 2000e note), and with any applicable Federal statutes, executive orders, regulations, and Federal policies that may in the future affect construction activities undertaken in the course of the Project. The Contractor agrees to take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, creed, national origin, sex, or age. Such action 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. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue;

2. Age. In accordance with section 4 of the Age Discrimination in Employment Act of 1967, as amended, 29 U.S.C. §§ 623 and Federal transit law at 49 U.S.C. § 5332, the Contractor agrees to refrain from discrimination against present and prospective employees for reason of age. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

3. Disabilities. In accordance with section 102 of the Americans with Disabilities Act, as amended, 42 U.S.C. § 12112, the Contractor agrees that it will comply with the requirements of U.S. Equal Employment Opportunity Commission, "Regulations to Implement the Equal Employment Provisions of the Americans with Disabilities Act," 29 C.F.R. Part 1630, pertaining to employment of persons with disabilities. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

4. Veterans Employment As provided by 49 U.S.C 5325(k)

   To the extent practicable, Contractor agrees that it:

   1. Will give hiring preference to veterans (as defined in 5 U.S.C. 2108), who have the skills and abilities required to perform construction work required under a

third party contract in connection with a capital project supported with funds made available or appropriated for 49 U.S.C. chapter5 3, and
2. Will not require an employer to give a preference to any veteran over an equally qualified applicant who is a member of any racial or ethnic minority, female, an individual with disability, or a former employee, and

Contractor also assures that its sub-contractor will:

1. Will give hiring preference to veterans (as defined in 5 U.S.C. 2108), who have the skills and abilities required to perform construction work required under a third party contract in connection with a capital project supported with funds made available or appropriated for 49 U.S.C. chapter 53, and
2. Will not require an employer to give a preference to any veteran over an equally qualified applicant who is a member of any racial or ethnic minority, female, an individual with disability, or a former employee.

The Contractor also agrees to include these requirements in each subcontract financed in whole or in part with Federal assistance provided by FTA, modified only if necessary to identify the affected parties.

2.8.9 DISADVANTAGED BUSINESS ENTERPRISE

2.8.9.1 POLICY

It is the policy of the Department of Transportation that Disadvantaged Business Enterprises (DBEs) as defined in 49 CFR Part 23 shall have the maximum opportunity to participate in the performance of Contracts financed in whole or in part with Federal Funds under this agreement. Consequently the DBE requirements of 49 CFR Part 23 apply to this agreement.

2.8.9.2 DBE OBLIGATION

Contractor agrees to ensure that Disadvantaged Business Enterprises as defined in 49 CFR Part 23 have the maximum opportunity to participate in the performance of Contracts and subcontracts financed in whole or in part with Federal funds provided under this agreement. In this regard, all recipients or contractors shall take all necessary and reasonable steps in accordance with 49 CFR Part 23 to ensure that Disadvantaged Business Enterprises have the maximum opportunity to compete for and perform contracts. Recipients and their contractors shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of DOT assisted contracts.

2.8.9.3 REMEDY

Failure of the Contractor to comply with this section or to include it in any subcontract of any tier will constitute a breach of Contract and, after notification of DOT, may result in termination of the Contract by the Procuring Agency or such remedy as the Procuring Agency deems appropriate.

2.8.10 PATENT INFRINGEMENT

The Procuring Agency shall advise the Contractor of any impending patent suit related to this Contract against the Procuring Agency and provide all information available. The Contractor shall defend any suit or proceeding brought against the Procuring Agency 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 costs awarded therein, excluding incidental and consequential damages, against the Procuring Agency. 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 Procuring Agency the right to continue using said equipment or part, or replace same with non-infringing equipment, or modify it so it becomes non-infringing.

Contractor's obligations under this section are discharged and Procuring Agency shall hold Contractor harmless with respect to the equipment or part if it was specified by the Procuring Agency and all requests for substitutes were rejected, and the Contractor advised the Procuring Agency under "Offeror Communications and Requests" (Section 1.1.2.2) of a potential infringement, in which case the Contractor shall be held harmless.

2.8.11 PROPRIETARY RIGHTS / RIGHTS IN DATA

The term "subject data" used in this clause means recorded information, whether or not copyrighted, that is delivered or specified to be delivered under the Contract. The term includes graphic or pictorial delineation in media such as drawings or photographs; text in specifications or related performance or design-type documents; machine forms such as punched cards, magnetic tape, or computer memory printouts; and information retained in computer memory. Examples include, but are not limited to: computer software, engineering drawings and associated lists, specifications, standards, process sheets, manuals, technical reports, catalog item identifications, and related information. The term "subject data" does not include financial reports, cost analyses, and similar information incidental to Contract administration.

The Procuring Agency reserves a royalty-free, non-exclusive and irrevocable license to reproduce, publish, or otherwise use, and to authorize others to use, the following subject data for its purposes:

1. Any subject data required to be developed and first produced in the performance of the Contract and specifically paid for as such under the Contract, whether or not a copyright has been obtained; and
2. Any rights of copyright to which the Contractor, subcontractor or supplier purchases ownership for the purpose of performance of the Contract and specifically paid for as such under the Contract.

The Contractor agrees to include the requirements of this clause, modified as necessary to identify the affected parties, in each subcontract and supply order placed under the Contract.

2.8.12 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. (41 U.S.C. § 22.)

2.8.13 PROHIBITED INTEREST

No member, officer, or employee of the Procuring Agency or of a local public body during his tenure or two years thereafter shall have any interest, direct or indirect, in this Contract or the proceeds thereof.

2.9 POLICIES FOR SELECTED CONTRACTS

Contractor shall comply with the subsections of this Section 2.9 and to include these requirements, except "Contract Work Hours and Safety Standards Act" (Section 2.9.1), in all subcontracts exceeding $100,000 in value of every tier. Contractor will include "Contract Work Hours and Safety Standards Act" (Section 2.9.1) in all subcontracts exceeding $2,500 in value not including subcontracts for the purchase of supplies or materials or articles ordinarily available on the open market.

2.9.1 CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

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 workweek in which he or she is employed on such Work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1) of this section the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States 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 paragraph (1) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1) of this section.

3. Withholding for unpaid wages and liquidated damages. The Procuring Agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys 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 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 paragraph (2) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in 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 this section.

5. Payrolls and basic records. (i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

2.9.2 CLEAN AIR

The Contractor shall comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. §§ 7401 et seq. The Contractor shall report each violation to the Procuring Agency and understands and agrees that the Procuring Agency will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional Office.

2.9.3 CLEAN WATER

The Contractor shall comply with all applicable standards, orders or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. § 1251 et seq. The Contractor shall report each violation to the Procuring Agency and understands and agrees that the Procuring

Agency will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional Office.

2.9.4 DEBARMENT AND SUSPENSION CERTIFICATION REQUIREMENTS

1. By signing and submitting this bid or proposal, the prospective lower tier participant is providing the signed certification set out in "Debarment and Suspension Certification" (Section 1.1) of the Procuring Agency's solicitation.

2. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, Procuring Agency may pursue available remedies, including suspension and/or debarment.

3. The prospective lower tier participant shall provide immediate written notice to Procuring Agency if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

4. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," :"participant," "persons," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549 [49 CFR Part 29]. You may contact Procuring Agency for assistance in obtaining a copy of those regulations.

5. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is proposed for debarment under 48 CFR part 9, subpart 9.4, debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized in writing by Procuring Agency.

6. The prospective lower tier participant further agrees by submitting this proposal that it will include the clause titled "Debarment and Suspension Certification Requirements" and the certificate form, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

7. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not proposed for debarment under 48 CFR part 9, subpart 9.4, debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List issued by U.S. General Service Administration.

8. Nothing contained in the foregoing shall be construed to require establishment of system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

9. Except for transactions authorized under Paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is proposed for debarment under 48 CFR part 9, subpart 9.4, suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to all remedies available to the Federal Government, Procuring Agency may pursue available remedies including suspension and/or debarment.

2.9.5 LOBBYING CERTIFICATION AND DISCLOSURE STATEMENTS

In accordance with 31 U.S.C. (1352, and U.S. DOT regulations, "New Restrictions on Lobbying," 49 C.F.R. Part 20, the Contractor must have provided a certification to the Procuring Agency that the Contractor has not and will not use Federal appropriated funds to pay any person or organization to influence or attempt to influence an officer or employee of any Federal department or agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. See "Lobbying Certification" (Section 1.1) of Procuring Agency's solicitation.

2.10 POLICIES FOR PRIME CONTRACT

2.10.1 PRE-AWARD AND POST-DELIVERY AUDIT REQUIREMENTS

2.10.1.1 CERTIFICATIONS REQUIRED

The Offeror and (if selected) Contractor agrees to comply with 49 U.S.C. § 5323(l) and FTA's implementing regulation at 49 C.F.R. Part 663 and to submit the following certifications with its Offer and (if selected) after acceptance of the last bus:

2.10.1.1.1 BUY AMERICA REQUIREMENTS

The Offeror and (if selected) Contractor shall complete and submit a declaration certifying either compliance or noncompliance with Buy America. If the Offeror/Contractor 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 percentage of 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.

2.10.1.1.2 SOLICITATION SPECIFICATION REQUIREMENTS

The Offeror and (if selected) Contractor shall submit evidence that it will be capable of meeting the bid specifications by completing the "Component Checklist" form in the Required Forms section of this document.

2.10.1.1.3 FEDERAL MOTOR VEHICLE SAFETY STANDARDS (FMVSS)

The Offeror and (if selected) 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.

2.10.2 BUS ALTOONA TESTING

The Contractor agrees to comply with 49 U.S.C. § 5323(c) and FTA's implementing regulation at 49 CFR Part 665 and shall perform the following:

1. A manufacturer of a new bus model or a bus produced with a major change in components or configuration shall provide a copy of the final test report to the Procuring Agency prior to the recipient's final acceptance of the first bus.

2. A manufacturer who releases a report under paragraph 1 above shall provide notice to the operator of the testing facility that the report is available to the public.

3. If the manufacturer represents that the vehicle was previously tested, the vehicle being sold should have the identical configuration and major components as the vehicle in the test report, which must be provided to the Procuring Agency prior to Procuring Agency's final acceptance of the first vehicle. If the configuration or components are not identical, the manufacturer shall provide a description of the change and the manufacturer's basis for concluding that it is not a major change requiring additional testing.

3 QUALITY ASSURANCE PROVISIONS

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3.1 QUALITY ASSURANCE REQUIREMENTS

The Contractor, the Contractor's manufacturing plant and organization shall be certified to the appropriate ISO 9001 series of standards.

3.2 INSPECTIONS

This section shall always apply when procuring more than 10 buses. If procuring ten or fewer buses, the Procuring Agency is not required to send a resident inspector to the manufacturing site; however, it may choose to do so at its own discretion. To demonstrate compliance with the post-delivery purchaser's requirements certification requirement, the Procuring Agency will visually inspect and road test the buses prior to acceptance.

3.2.1 INSPECTION STATIONS

Inspection stations shall be at the 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, water test before interior trim and insulation installation, engine installation completion, underbody dress-up and completion, bus prior to final paint touchup, bus prior to road test, and bus final road test completion.

3.2.2 RESIDENT INSPECTOR

3.2.2.1 RESIDENT INSPECTOR ROLE

The Procuring Agency shall be represented at the Contractor's plant by resident inspectors. They shall monitor, in the Contractor's plant, the manufacture of transit buses built under the procurement. The presence of these resident inspectors in the plant shall not relieve the Contractor of its responsibility to meet all of the requirements of this procurement. The Procuring Agency shall designate a primary resident inspector, whose duties and responsibilities are delineated in "Pre-Build Meetings" (Section 4.2.2.2); "Authority" (Section 4.2.2.3); and "Pre-Delivery Tests" (Section 4.3.2). Contractor and resident inspector relations shall be governed by the guidelines included as Attachment A to this Part 3. "Quality Assurance" Provisions.

3.2.2.2 PRE-BUILD MEETINGS

The primary resident inspector may participate in design review and pre-build meetings with the Procuring Agency. At these meetings the configuration of the buses and the manufacturing processes shall be finalized, and all contract documentation provided to the inspector.

No less than 30 (thirty) days prior to the beginning of bus manufacture, the primary resident inspector shall meet with the Contractor's quality assurance manager and shall conduct a pre-build audit meeting. They shall review the inspection procedures and finalize inspection checklists. The

resident inspectors may begin monitoring bus construction activities two weeks prior to the start of bus fabrication.

3.2.2.3 AUTHORITY

Records and data maintained by the quality assurance organization shall be available for review by the resident inspectors. Inspection and test records for this procurement shall be available for a minimum of one year after inspections and tests are completed.

The Contractor's gauges and other measuring and testing devices shall be made available for use by the resident inspectors to verify that the buses conform to all specification requirements. If necessary, the Contractor's personnel shall be made available to operate the devices and to verify their condition and accuracy. The agency intends on performing all necessary test to conclude the vehicle will meet these specifications. The vehicle will need to be fully loaded to perform some of these tests and it will be the manufacturer's responsibility to perform these tests and correct any discrepancies.

Discrepancies noted by the resident inspector during assembly shall be entered by the Contractor's 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 requirements 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, the Procuring Agency shall approve the modification, repair, or method of correction to the extent that the contract specifications are affected.

The primary resident inspector shall remain in the Contractor's plant for the duration of bus assembly work under this contract. Only the primary resident inspector or designee shall be authorized to release the buses for delivery. The resident inspectors shall be authorized to approve the pre-delivery acceptance tests. Upon request to the quality assurance supervisors, the resident inspectors shall have access to the Contractor's quality assurance files related to this procurement. These files shall include drawings, assembly procedures, material standards, parts lists, inspection processing and reports, and records of defects.

3.2.2.4 SUPPORT PROVISIONS

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 staff.

3.3 ACCEPTANCE TESTS

3.3.1 RESPONSIBILITY

Fully-documented tests shall be conducted on each production bus following manufacture to determine its acceptance to the Procuring Agency. These acceptance tests shall include pre-delivery inspections and testing by the Contractor and inspections and testing by the Procuring Agency after the buses have been delivered.

3.3.2 PRE-DELIVERY TESTS

The Contractor shall conduct acceptance tests at its plant on each bus following completion of manufacture and before delivery to the Procuring Agency. These pre-delivery tests 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, approved by the Procuring Agency.

Additional tests may be conducted at the Contractor's discretion to ensure that the completed buses have attained the desired quality and have met the requirements in "Technical Specifications" (Part 5). The Procuring Agency may, prior to commencement of production, demand that the Contractor demonstrate compliance with any requirement in "Technical Specifications" (Part 5), if there is evidence that prior tests have been invalidated by Contractor's change of supplier or change in manufacturing process. Such demonstration shall be by actual test, or by supplying a report of a previously performed test on similar or like components and configuration. Any additional testing shall be recorded on appropriate test forms provided by the Contractor and shall be conducted before acceptance of the bus.

The pre-delivery tests shall be scheduled and conducted with 30 (thirty) days' 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 assembly inspection records for each bus. The under-floor equipment shall be available for inspection by the resident inspectors, using a pit or bus hoist provided by the Contractor. A hoist, scaffold, or elevated platform shall be provided by the Contractor to easily and safely inspect bus roofs. Delivery of each bus shall require written authorization of the primary resident inspector (when applicable). 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.

3.3.2.1 INSPECTION - VISUAL AND MEASURED

Visual and measured inspections shall be conducted with the bus in a static condition and loaded to GVRW. 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.

3.3.2.2 TOTAL 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.

Each bus shall be driven for a minimum of 15 (fifteen) 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 operation tests.

3.3.3 POST-DELIVERY TESTS

The Procuring Agency may conduct acceptance tests on each delivered bus. These tests shall be completed within 15 (fifteen) 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 the Procuring Agency. The post-delivery tests shall include visual inspection and bus operations. No post-delivery test shall apply criteria that are different from the criteria applied in an analogous pre-delivery test (if any).

Buses that fail to pass the post-delivery tests are subject to non-acceptance. The Procuring Agency shall record details of all Defects on the appropriate test forms and shall notify the Contractor of acceptance, conditional acceptance, or non-acceptance of each bus within five days according to "Acceptance of Bus" (Section 2.3.1.5) after completion of the tests. The Defects detected during these tests shall be repaired according to procedures defined in "Contractual Provisions" (Part 2, "Repairs After Non-acceptance" (Section 2.3.2).

3.3.3.1 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.

3.3.3.2 BUS OPERATION

Road tests will be used for total bus operation similar to those conducted at the Contractor's plant. In addition, the Procuring Agency may elect to perform chassis dynamometer tests. Operational deficiencies of each bus shall be identified and recorded.

3.4 GUIDE FOR INSPECTION

The “actual” acceptance inspection will be a basic visual/performance review, which will be supplemented by requirements learned through the effort of reviewing the first article, and the manufacturers recommended inspection guidelines. The basic inspection will consist of at least:

- Visual safety inspection
- Brake deceleration, retarder activation
- Vehicle stopping distance Driving test, performance

- Exterior water leak test
- Plumbing routing/clamps
- Critical fastener torque
- Data collection, VIN #, Serial #’s

4 WARRANTY PROVISIONS

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4.1 BASIC PROVISIONS

4.1.1 WARRANTY REQUIREMENTS

4.1.1.1 CONTRACTOR WARRANTY

Warranties in this document are in addition to any statutory remedies or warranties imposed on the Contractor. Consistent with this requirement, the Contractor warrants and guarantees to the original Procuring Agency each complete bus, and specific subsystems and components as follows.

4.1.1.2 COMPLETE BUS

The complete bus, propulsion system, components, major subsystems, and body and chassis structure, are warranted to be free from Defects and Related Defects for three years or 250,000 miles, whichever comes first, beginning on the date of acceptance, or conditional acceptance of each bus under "Acceptance of Bus" (2.3.1.5). The warranty is based on regular operation of the bus under the operating conditions prevailing in the Procuring Agency's locale.

4.1.1.3 BODY AND CHASSIS STRUCTURE

Body, body structure, and structural elements of the suspension are warranted to be free from Defects, Related Defects, and to maintain structural integrity for three years or 250,000 miles, whichever comes first. The Body shall remain free from water leaks for twelve years or 500,000 miles. Primary load carrying members of the bus structure, including structural elements of the suspension, are warranted against corrosion failure and/or fatigue failure sufficient to cause a Class 1 or Class 2 failure for the life of the bus.

4.1.1.4 PROPULSION SYSTEM

Propulsion system components, specifically the engine, transmission and drive and non-drive axles shall be warranted to be free from Defects and Related Defects for two years or 200,000 miles, whichever comes first. Propulsion system manufacturer's standard warranty, delineating items excluded from this warranty, submitted in accordance with "Offeror Communications and Requests" (Section 1.1.2.2 of Procuring Agency's solicitation), is attached.

4.1.1.5 MAJOR SUBSYSTEMS

Major subsystems shall be warranted to be free from Defects and Related Defects, for three years or 250,000 miles, whichever comes first. Major subsystem manufacturers standard warranty, delineating items excluded from this warranty, submitted in accordance with "Offeror Communications and Requests" (Section 1.1.2.2 of Procuring Agency's solicitation), is attached. Items included as Major Subsystems are listed below:

- Brake system, excluding friction material
- Destination signs
- Heating, Ventilating, and Air conditioning system
- Door systems
- Air compressor and dryer
- Wheelchair ramp system
- Starter and Alternator

4.1.1.6 EXTENSION OF WARRANTY

If, during the warranty period, repairs or modifications on any bus, made necessary by defective design, materials or workmanship are not completed due to lack of material or inability to provide the proper repair for 30 (thirty) calendar days, the applicable warranty period shall be extended by the number of days equal to the delay period.

4.1.2 VOIDING OF WARRANTY

The warranties shall not apply to the failure of any part or component of the bus that directly results from misuse, negligence, accident, or repairs not conducted in accordance with the Contractor provided maintenance manuals and with workmanship performed by adequately trained personnel in accordance with recognized standards of the industry. The warranty shall also be void if the Procuring Agency fails to conduct normal inspections and scheduled preventive maintenance procedures as recommended in the Contractor's maintenance manuals and that omission caused the part or component failure. Procuring Agency shall maintain documentation, auditable by the Contractor, verifying service activities in conformance with the Contractor's maintenance manuals.

4.1.3 EXCEPTIONS AND ADDITIONS TO WARRANTY

The warranties shall not apply to the following items scheduled maintenance items, normal wear items, and items furnished by the Procuring Agency, except insofar as such equipment may be damaged by the failure of a part or component for which the Contractor is responsible.

The warranties shall not apply to components and major subsystems specified by the Procuring Agency, and required by the Procuring Agency to be installed on the bus by the Contractor, if the following conditions apply: the Procuring Agency has rejected the Contractor's requests for approved equal under "Offeror Communications and Requests" (Section 1.1.2.2 of Procuring Agency's solicitation), and the component or major subsystem supplier declines to participate in this warranty; and the Contractor notifies the Procuring Agency in writing with, or before submitting, Contractor's original Offer. The Contractor shall pass on to the Procuring Agency any warranty, offered by a component supplier, that is superior to that required herein.

4.1.4 DETECTION OF DEFECTS

If the Procuring Agency detects a Defect within the warranty periods defined in "Warranty Requirements" (Section 4.1.1), it may at its discretion if it determines it needs to do so based on transit service or other requirements, perform the necessary repairs, and it shall notify the Contractor's representative via a warranty claim. Within five (5) working days after receipt of notification, the Contractor's representative shall either agree that the Defect is in fact covered by warranty, or reserve judgment until the subsystem or component is inspected by the Contractor's representative or examined at the Procuring Agency's property or at the Contractor's plant. At that time, the status of warranty coverage on the subsystem or component shall be mutually resolved between the Procuring Agency and the Contractor. Repairs will be conducted in accordance with "Repairs by Contractor" (Section 4.2.2).

4.1.5 FLEET DEFECTS

4.1.5.1 OCCURRENCE AND REMEDY

A fleet defect is defined as cumulative failures of any kind in the same components in the same or similar application where such items covered by the warranty and such failures occur in the warranty period in the specified proportion of the buses delivered under this contract. For deliveries of over 50 buses, the proportion shall be 20 (twenty) percent. For deliveries of 4 (four) to 49 (forty-nine) buses the proportion shall be 25 (twenty-five) percent.

The Contractor shall correct a fleet defect under the warranty provisions defined in "Repair Procedures" (Section 4.2). After correcting the Defect, the Procuring Agency and the Contractor shall mutually agree to and the Contractor shall promptly undertake and complete a work program reasonably designed to prevent the occurrence of the same Defect in all other buses and spare parts purchased under this contract. Where the specific Defect can be solely attributed to particular identifiable part(s), the work program shall include redesign and/or replacement of only the defectively designed and/or manufactured part(s). In all other cases, the work program shall include inspection and/or correction of all of the buses in the fleet via a mutually agreed to arrangement.

4.1.5.2 EXCEPTIONS TO FLEET DEFECT PROVISIONS

Fleet defect warranty provisions shall not apply to components and major subsystems specified by the Procuring Agency and required by the Procuring Agency to be installed on the bus by the Contractor, if the following conditions apply: the Procuring Agency has rejected the Contractor's requests for approved equal under "Offeror Communications and Requests" (Section 1.1.2.2 of Procuring Agency's solicitation) and the component or major subsystem supplier declines to participate in this warranty; and the Contractor notifies the Procuring Agency in writing with, or before submitting, Contractor's original Offer. The Contractor shall pass on to the Procuring Agency any warranty, offered by a component supplier, that is superior to that required herein.

4.2 REPAIR PROCEDURES

4.2.1 REPAIR PERFORMANCE

The Contractor is responsible for all warranty-covered repair work. To the extent practicable, the Procuring Agency will allow the Contractor or its designated representative to perform such work. At its discretion, the Procuring Agency may perform such work if it determines it needs to do so based on transit service or other requirements. Such work shall be reimbursed by the Contractor.

4.2.2 REPAIRS BY CONTRACTOR

The Contractor or its designated representative shall begin work on warranty-covered repairs, within five calendar days after receiving notification of a Defect from the Procuring Agency. The Procuring Agency shall make the bus 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 the Procuring Agency's option, the Contractor may be required to remove the bus from the Procuring Agency's property while repairs are being effected. If the bus is removed from the Procuring Agency's property, repair procedures must be diligently pursued by the Contractor's representative.

4.2.3 REPAIRS BY PROCURING AGENCY

4.2.3.1 PARTS USED

If the Procuring Agency performs the warranty-covered repairs, it shall correct or repair the Defect and any Related Defects utilizing parts supplied by the Contractor specifically for this repair. At its discretion, the Procuring Agency may use Contractor-specified parts available from its own stock if deemed in its best interest. Monthly, or at a period to be mutually agreed upon, reports of all repairs covered by this warranty shall be submitted by the Procuring Agency to the Contractor for reimbursement or replacement of parts. The Contractor shall provide forms for these reports.

4.2.3.2 CONTRACTOR SUPPLIED PARTS

The Procuring Agency may require that the Contractor supply new parts for warranty-covered repairs being performed by the Procuring Agency. These parts shall be shipped prepaid to the Procuring Agency from any source selected by the Contractor within 10 (ten) working days of receipt of the request for said parts. Parts supplied by the Contractor shall be Original Equipment Supplier (OEM) equivalent or superior to that used in the bus original manufacture.

4.2.3.3 DEFECTIVE COMPONENTS RETURN

The Contractor may request that parts covered by the warranty be returned to the manufacturing plant. The total cost for this action shall be paid by the Contractor. Materials should be returned in accordance with Contractor's instructions which shall be predetermined and furnished to the agency upon acceptance of the vehicles.

4.2.3.4 FAILURE ANALYSIS

The Contractor shall, upon specific request of the Procuring Agency, provide a failure analysis of fleet defect- or safety-related parts, or major components, removed from buses under the terms of the warranty, that could affect fleet operation. Such reports shall be delivered within 60 (sixty) days of the receipt of failed parts.

4.2.3.5 REIMBURSEMENT FOR LABOR

The Procuring Agency 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 by a per hour wage rate of $85.00, plus the cost of towing of the bus if such action was necessary and if the bus was in the normal service area. These wage and fringe benefit rates shall not exceed the rates in effect in the Procuring Agency's service garage at the time the Defect correction is made.

4.2.3.6 REIMBURSEMENT FOR PARTS

The Procuring Agency shall be reimbursed by the Contractor for defective parts and for parts that must be replaced to correct the Defect. The reimbursement shall be at the current price at the time of repair and shall include taxes where applicable and 15 (fifteen) percent handling costs.

4.2.3.7 REIMBURSEMENT REQUIREMENTS

The Contractor shall reimburse the Procuring Agency for warranty labor and/or parts within 60 (sixty) days of receipt of warranty claim.

4.2.4 WARRANTY AFTER REPLACEMENT/REPAIRS

If any component, unit, or subsystem is repaired, rebuilt or replaced by the Contractor, or by the Procuring Agency with the concurrence of the Contractor, the component, unit, or subsystem shall have the unexpired warranty period of the original.

The warranty on items determined to be fleet defects as defined in Section 4.1.6.1 shall be extended for the time and/or miles of the original warranty remaining at the time the fleet defect was identified. This extended warranty shall begin on the repair/replacement date for corrected items on each bus.

5 TECHNICAL SPECIFICATIONS

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5.1 GENERAL

5.1.1 SCOPE

The Procuring Agency is currently seeking bids for the Purchase of two (2) forty-five foot Compressed Natural Gas (CNG) Commuter Transit Coach with an option for two (2) forty-five foot Compressed Natural Gas (CNG) Commuter Transit Coach. The Contractor is to provide all materials, labor, and equipment necessary for this project.

5.1.2 LEGAL REQUIREMENTS

The contractor shall comply with all applicable Federal, state and local regulations. Local regulations are defined as those below the state level. These shall include, but not be limited to, Federal ADA as well as state and local accessibility, safety and security requirements. California Air Resource Board requirements are to be met by the contractor.

The bus shall meet all applicable FMVSS and shall accommodate all applicable FMCSR regulations in effect at the date of manufacture. The manufacturer will certify that the coach offered has been designed, manufactured, assembled, and tested for its intended use and will be fully functional.

In the event of any conflict between the requirements of this Specification and any applicable legal requirement, the legal requirement shall prevail.

5.1.3 OVERALL REQUIREMENTS

The contractor shall provide two (2) Commuter Transit Coaches that are Compressed Natural Gas powered with an option for two (2) additional Commuter Transit Coaches that are Compressed Natural Gas powered. These Vehicles shall be capable of extended daily use and be manufactured and tested for public transit use able to maintain speeds up to 70 MPH for relatively long distances between stops.

5.1.3.1 CAPACITY

The seating capacity shall be for at least 52 passengers. The seating arrangement shall be preapproved by the procuring agency. A floor plan meeting these requirements shall be submitted during the approved equal process for approval.

5.1.3.2 ACCESSIBILITY

All systems or components subject to periodic maintenance or that are subject to periodic failures shall be readily accessible for service and inspection. To the extent practicable, removal or physical movement of components unrelated to the specific maintenance and/or repair tasks involved shall be unnecessary.

As a goal, relative accessibility of components, measured in time required to gain access, shall be inversely proportional to frequency of maintenance and repair of the components.

5.1.3.3 OPERATING ENVIRONMENT

The bus shall achieve normal operation in ambient temperature ranges of -10 degrees to 115 degrees F, at relative humidity between 5 percent and 100 percent, and at altitudes up to 3,500 feet above sea level. Degradation of performance due to atmospheric conditions shall be minimized at temperatures below -10 degrees F, above 120 degrees F, or at altitudes above 7,500 feet. The vehicles shall be designed for the harsh environments with high ambient temperatures and intense ultraviolet rays.

5.1.3.4 MAINTENANCE INSPECTION

Scheduled maintenance tasks shall be related and shall be, in accordance with the manufacturer's recommended preventative maintenance schedule (along with routine daily service performed during the fueling operations). Routine scheduled maintenance shall not be required at intervals of less than 6,000 miles.

Test ports, as required, shall be provided for commonly checked functions on the bus, such as air intake, exhaust, hydraulic, pneumatic, charge-air and engine cooling systems. The coach manufacturer shall give prime consideration to the routine problems of maintaining the vehicle. All coach components and systems, both mechanical and electrical, which will require periodic physical Work or inspection process shall be installed so that a minimum of time is consumed in gaining access to the critical repair areas. It shall not be necessary to disassemble portions of the coach structure and/or equipment such as seats and flooring under seats in order to gain access to these areas. Each coach shall be designed to facilitate the disassembly, reassembly, servicing or maintenance, using tools and equipment that are normally available as standard commercial items.

Requirements for the use of unique specialized tools will be minimized. The body and structure of the coach shall be designed for ease of maintenance and repair. Individual panels or other equipment which may be damaged in normal service shall be repairable or replaceable. Ease of repair shall be related to the vulnerability of the item to damage in service. Contractor shall provide a list of all special tools and pricing required for maintaining this equipment. Said list shall be submitted as a supplement to the Pricing Schedule.

> NOTE: Tools such as compartment door keys, bellows gauges and other tools that are required for daily maintenance and inspections shall not be included in the special tool list but shall be furnished for each coach.

5.1.3.5 NOISE

5.1.3.5.1 INTERIOR NOISE

The combination of inner and outer panels and any material used between them shall provide sufficient sound insulation so that a sound source with a level of 80 dBA measured at the outside skin of the bus shall have a sound level of 65 dBA or less at any point inside the bus. These conditions shall prevail with all openings, including doors and windows, closed and with the engine and accessories switched off.
The bus-generated noise level experienced by a passenger at any seat location in the bus shall not exceed 83 dBA and the operator shall not experience a noise level of more than 78 dBA under the following test conditions. The bus shall be empty except for test personnel, not to exceed 4 persons,

and the test equipment. All openings shall be closed and all accessories shall be operating during the test. The bus shall accelerate at full throttle from a standstill to 35 mph on level commercial asphalt or concrete pavement in an area free of large reflecting surfaces within 50 feet of the bus path. During the test, the ambient noise level in the test area shall be at least 10 dBA lower than the bus under test. Instrumentation and other general requirements shall conform to SAE Standard J366. If the noise contains an audible discrete frequency as defined in Section 5.1.2, a penalty of 5 dBA shall be added to the sound level measured.

5.1.3.5.2 EXTERIOR NOISE

Airborne noise generated by the bus and measured from either side shall not exceed 83 dBA under full power acceleration when operated at or below 35 mph at curb weight and just prior to transmission upshift. The maximum noise level generated by the bus pulling away from a stop at full power shall not exceed 83 dBA. The bus-generated noise at curb idle shall not exceed 65 dBA. If the noise contains an audible discrete frequency as defined in Section 5.1.2, a penalty of 5 dBA shall be added to the sound level measured. All noise readings shall be taken 50 feet from, and perpendicular to, the centerline of the bus 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.

In addition, the Contractor shall comply with the exterior noise requirements defined in local laws and ordinances identified by the Procuring Agency.

5.1.3.6 FIRE SAFETY

The bus shall be designed and manufactured in accordance with all applicable fire safety and smoke emission regulations. These provisions shall include the use of fire-retardant/low-smoke materials, fire detection and suppression systems, firewalls, and facilitation of passenger evacuation.

All materials used in the construction of the bus shall comply with FMVSS 302.

Fire detection and suppression systems as required shall be provided in the engine compartment. A diagram of sensor locations shall be submitted for preapproval. The Fire suppression system shall be manufactured Amerex and must include temperature and optical sensors as well as methane detection.

Firewalls shall be provided between the bus interior areas and the engine compartment. The engine compartment shall include the areas in which the engine, transmission, and exhaust system are housed.

5.1.3.7 ELDERLY AND DISABLED PASSENGERS

The contractor shall comply with all applicable Federal requirements defined in the Americans with Disabilities Act, 49 CFR Part 38, and all state and local regulations regarding mobility-impaired persons. Local regulations are defined as those below the state level.

5.1.3.8 INTERCHANGEABILITY

Unless otherwise agreed, all units and components procured under this Contract, whether provided by Suppliers or manufactured by the Contractor, shall be duplicates in design, manufacture and installation to ensure interchangeability among buses in each order group in this procurement. This interchangeability shall extend to the individual components as well as to their locations in the buses. These components shall include, but are not limited to, passenger window hardware, interior trim, lamps, lamp lenses and seat assemblies. Components with non-identical functions shall not be, or appear to be, interchangeable.

Any one component or unit used in the construction of these buses shall be an exact duplicate in design, manufacture and assembly for each bus in each order group in this Contract. Contractor shall identify and secure approval for any changes in components or unit construction provided within a Contract. In the event that the Contractor is unable to comply with the interchangeability requirement, the Contractor must notify the Agency and obtain the Agency's prior written approval, including any changing in pricing. Agency shall review proposed product changes on a case-by-case basis and shall have the right to require extended warranties to ensure that product changes perform as least as well as the originally supplied products.

5.1.3.9 RESPECT FOR THE ENVIRONMENT

In the design and manufacture of the bus, the Contractor shall make every effort to reduce the amount of potentially hazardous waste. In accordance with Section 6002 of the Resource Conservation and Recovery Act, the Contractor shall use, whenever possible and allowed by the specifications, recycled materials in the manufacture of the bus.

5.1.4 PHYSICAL SIZE

With exceptions such as exterior mirrors, marker and signal lights, bumpers, fender skirts, washers, wipers, cameras, and rub rails, the bus shall have the following overall dimensions at static conditions and design height.

5.1.4.1.1 BUS LENGTH

For ease of use, the following tolerances will be allowable for each given bus length. Bus length shall not exceed 46 ft.

5.1.4.1.2 BUS WIDTH

Body width shall be 102 in. (+0, -1 in.).

5.1.4.1.3 BUS HEIGHT

Maximum overall height shall not exceed 140 in., including all rigid, roof-mounted items.

5.1.4.1.4 UNDERBODY CLEARANCE

The bus shall maintain the minimum clearance as defined in SAE Standard J689, regardless of load up to the gross vehicle weight rating.

5.1.4.1.5 RAMP CLEARANCE

The approach angle is the angle measured between a line tangent to the front tire static loaded radius arc and the initial point of structural interference forward of the front tire to the ground.
The departure angle is the angle measured between a line tangent to the rear tire static loaded radius arc and the initial point of structural interference rearward of the rear tire to the ground.
The breakover angle is the angle measured between two lines tangent to the front and rear tire static loaded radius and intersecting at a point on the underside of the vehicle that defines the largest ramp over which the vehicle can roll.

Breakover Angle

Angle	45-ft Bus
Approach	9.5 degrees
Front breakover	8.2 degrees
Departure	8.0 degrees

5.1.4.1.6 GROUND CLEARANCE

Ground clearance shall be no less than 9 in., (8 in. at jacking pad) except within the axle zone and wheel area.

5.1.4.1.7 FLOOR HEIGHT

Height of the step above the street shall be no more than 15.5 in. measured at the doorway. All floor measurements shall be with the bus at the design running height and on a level surface and with the standard installed tires.

5.1.4.1.8 INTERIOR HEADROOM

Headroom above the aisle and at the centerline of the aisle seats shall be no less than 78 in.

5.2 PROPULSION SYSTEM

5.2.1.1 OPERATING RANGE

The operating range of the coach run on the design operating profile shall be at least 400 miles with full fuel capacity. The bus shall be designed to operate in transit service for at least 12 years or 500,000 miles and it shall be capable of operating at least 40,000 miles per year.

5.2.2 ENGINE

The engine used shall be a Compressed Natural Gas (CNG) powered 400 hp Cummins ISX12N, or approved equal. The engine will utilize a full flow spin-on filter and the oil pan will have a magnetic drain plug. The engine shall meet or exceed all CARB and EPA requirements for the year of the vehicle manufactured. 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 near or 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.

The engine starter shall be protected by an interlock that prevents its engagement when the engine is running. The engine control system shall shutdown the engine automatically when parameters established for critical functions are exceeded. A control shall be available to the operator, to allow override of the engine shutdown system if engine power is required to move the bus in emergency conditions. Sacrificial metal skids shall be installed under the engine for additional protection. An automatic fast idle system shall be installed that sets fast idle when the vehicle is in neutral and the brake is set.

5.2.2.1 COOLING SYSTEM

The cooling systems shall be of sufficient size to maintain all engine and transmission fluids and engine intake air at safe, continuous operating temperatures during the most severe operations possible and in accordance with engine and transmission manufacturers' cooling system requirements. The cooling system in new condition shall have an ambient capacity of at least 120 degrees F with water as coolant and sea level operation. **The cooling system shall be filled with Fleetguard ES Complete polypropylene glycol.**

5.2.2.2 RADIATOR

Radiator piping shall be stainless steel, and if practicable, hoses shall be eliminated. Necessary hoses shall be impervious to all bus fluids. All hoses shall be secured with galvanized cushioned P-Clamps that provide a complete 360-degree seal. The clamps shall maintain a constant tension at all times, expanding and contracting with the hose in response to temperature changes and aging of the hose material.

5.2.2.3 CHARGE AIR PIPING

Charge air piping and fittings shall be designed to minimize air restrictions and leaks. Piping shall be as short as possible, and the number of bends shall be minimized. Bend radii shall be maximized to meet the pressure drop and temperature rise requirements of the engine manufacturer. The cross-section of all charge air piping shall not be less than the cross-section of the intake manifold inlet. Any changes in pipe diameter shall be gradual to ensure a smooth passage of air and to minimize restrictions. Piping shall be routed away from heat sources as practicable and shielded as required to meet the temperature rise requirements of the engine manufacturer.

Charge air piping shall be constructed of stainless steel, aluminized steel or anodized aluminum, except between the air filter and turbocharger inlet, where piping may be constructed of fiberglass. Connections between all charge air piping sections shall be sealed with a section of reinforced hose and secured with stainless steel constant tension clamps that provide a complete 360-degree seal.

5.2.2.4 CHARGE AIR COOLING

The charge air cooling system also referred to as after-coolers or inter-coolers shall provide maximum air intake temperature reduction with minimal pressure loss. The charge air radiator shall be sized and positioned to meet engine manufacturer's requirements. The charge air radiator shall not be stacked ahead of or behind the engine radiator and shall be positioned as close to the engine as possible unless

integrated with the radiator. Air ducting and fittings shall be protected against heat sources and shall be configured to minimize restrictions and maintain sealing integrity.

5.2.2.5 AIR CLEANER SYSTEMS

An air cleaner with a dry filter element and a graduated air filter restriction indicator shall be provided. The location of the air intake system shall be designed to minimize the entry of dust and debris and to maximize the life of the air filter. The engine air duct shall be designed to minimize the entry of water into the air intake system. Drainage provisions shall be included to allow any water/moisture to drain prior to entry into air filter.

5.2.3 TRANSMISSION

The transmission shall be an Allison B500R six speed transmission with Allison Transmission Electronic Controls and retarder, or approved equal. Transmission shall also include a port to take oil samples. Transmission will be filled with Allison approved synthetic automatic transmission fluid.

5.2.3.1 TRANSMISSION COOLING

The transmission shall be cooled by a dedicated heat exchanger sized to maintain operating fluid within the transmission manufacturer's recommended parameters of flow, pressure and temperature. The transmission cooling system shall be matched to the retarder and engine cooling systems to ensure that all operating fluids remain within recommended temperature limits established by each component manufacturer.

5.2.4 MOUNTING

All power plant mounting shall be mechanically isolated to minimize transfer of vibration to the body structure and provide a minimum clearance of 0.75 in. Mounts shall control the movement of the power plant so as not to affect performance of belt-driven accessories or cause strain in piping and wiring connections to the power plant.

5.2.5 SERVICE

The propulsion system shall be arranged for ease of access and maintenance. The Contractor shall list all special tools, fixtures or facility requirements recommended for servicing. The muffler, exhaust system, air cleaner, air compressor, starter, alternator, radiator, all accessories and any other component requiring service or replacement shall be easily removable and independent of the engine and transmission removal.

5.2.6 HYDRAULIC SYSTEM

Hydraulic system service tasks shall be minimized and scheduled no more frequently than those of other major coach systems. All elements of the hydraulic system shall be easily accessible for service or

unit replacement. A tamper-proof priority system shall prevent the loss of power steering during operation of the bus if other devices are also powered by the hydraulic system.
The hydraulic system shall operate within the allowable temperature range as specified by the lubricant manufacturer.

5.2.6.1 OIL AND HYDRAULIC LINES

Oil and hydraulic lines shall be compatible with the substances they carry. The lines shall be designed and intended for use in the environment where they are installed. For example, high–temperature resistant in the engine compartment, resistant to road salts near the road surface, and so on. Lines within the engine compartment shall be composed of steel tubing where practicable, except in locations where flexible lines are required. Hydraulic lines of the same size and with the same fittings as those on other piping systems of the bus, but not interchangeable, shall be tagged or marked for use on the hydraulic system only.

5.2.6.2 FLUID LINES, FITTINGS AND PIPE WORK

All fluid lines and air pipe-work shall be individually and rigidly supported with galvanized cushioned P-Clamps to prevent chafing damage, fatigue failures, and tension strain. Plastic tie-raps will not be used to support the lines.

Lines within the engine compartment shall be composed of steel tubing where practicable except in locations where flexible lines are specifically required by the Procuring Agency. All flexible lines used will be stainless steel crimp-on. Fittings will be manufactured by Aeroquip or approved equal.

5.2.7 FUEL TANKS

The CNG fuel cylinders must be designed, constructed, manufactured, and tested in accordance with at least one of the following:

U.S. Applications:

- NFPA 52-Standard for Compressed Natural Gas (CNG) Vehicular Fuel Systems
- FMVSS 304
- ANSI NGV-2.

The design and construction of the fuel system supplied by the OEM shall comply with federal and local regulations and be certified for a minimum useful life of 15 years without recertification.

5.2.7.1 INSTALLATION

Fuel cylinders shall be installed in accordance with ANSI/IAS NGV2 - 1998, Basic Requirements for Compressed Natural Gas Vehicles (NGV) Fuel Containers and NFPA 52, Compressed Natural Gas (CNG) Vehicular Fuel Systems Code, 1998 edition Section 303.

Fuel cylinders, attached valves, pressure relief devices, and mounting brackets should be installed and protected so that their operation is not affected by bus washers and environmental agents such as rain, snow, ice or mud. These components should be protected from significant damage caused by road debris or collision.

CNG fueled buses shall be equipped with an active automatic gas detection system which shall annunciate unsafe levels of methane. The automatic gas detection system shall be integrated with an onboard fire suppression system including temperature and optical sensors.

5.2.7.2 LABELING

CNG fuel systems shall be labeled in accordance with NFPA 52, "Compressed Natural Gas (CNG) Vehicular Fuel Systems Code," 1998 edition. The CNG tank labels shall be visible for maintenance.

5.2.7.3 PRESSURE RELIEF DEVICES (PRD)

PRDs must be designed, constructed, manufactured and tested in accordance with ANIS/IAS PRD1 - 1998, "Pressure Relief Devices for Natural Gas Vehicle (NGV) Fuel Containers" and ANSI/IAS NGV2-1998, "Basic Requirements for Compressed Natural Gas Vehicle (NGV) Fuel Containers." All natural gas fuel system piping, including the PRD vent line, shall be stainless steel. All PRDs must be vented to outside.

5.2.7.4 VALVES

Valves must be installed in accordance with ANIS/IAS NGV2 - 1998, "Basic Requirements for Compressed Natural Gas Vehicle (NGV) Fuel Containers" and NFPA 52, "Standard for Compressed Natural Gas (CNG) Vehicular Fuel Systems." The tank valves shall be installed to ensure that the tanks can be isolated individually for trouble shooting.

5.2.7.5 FUELING SYSTEM

The CNG fueling port receptacle shall be an ANSI/AGA NGV1 or NGV2 certified receptacle as designated by the Agency. The coach shall be capable of being fueled by a nozzle determined by the Agency. The fueling port receptacle location shall be such that connection by fueling personnel can be performed without physical strain or interference. A dust cap shall be permanently "tethered" to the fueling port receptacle. The fueling port receptacle access door shall be equipped with an interlock sensor that disables the engine starting system when the access door is open, to prevent drive-aways. The interlock shall be of the type such that if the sensor fails, the coach will not start. A Sherex 3600 and Sherex 5000 type fuel receiver, or approved equal, shall be installed.

5.2.7.6 DEFUELING SYSTEM

The CNG defueling port shall be an NGV-3.1/CGA-12.3 certified receptacle. The CNG defueling port shall be located on the curbside of the coach, in a location that is compatible with the Agency's defueling station operation. The de-fueling system shall incorporate the following characteristics:

- Dust cap permanently "tethered" to the defueling port.
- Device(s) to prevent inadvertent defueling. Specifications to be provided by Agency.
- Components compatible with Agency's defueling operation.
- The piping and fittings onboard the bus shall be sized to allow the fueling station to meet the following operating parameters:

5.2.7.7 FUEL LINES

Fuel lines shall comply with NFPA-52. All tubing shall be a minimum of seamless Type 304 stainless steel (ASTM A269 or equivalent). Fuel lines and fittings shall not be fabricated from cast iron,

galvanized pipe, aluminum, plastic, or copper alloy with content exceeding 70 percent copper. Pipe fittings and hoses shall be clear and free from cuttings, burrs or scale. Pipe thread joining material that is impervious to CNG shall be utilized as required. Fuel lines shall be identifiable as fuel lines only. High-pressure CNG lines shall be pressure tested to a minimum of 125 percent of system working pressure prior to fueling. CNG, nitrogen or clean, dry air shall be used to pressure test the lines/assembly. The bus manufacturer shall have a documented procedure for testing the high pressure line assembly.

Fuel lines shall be securely mounted, braced and supported using "split-block" type or galvanized cushioned P clamps; all mounting clamps shall be mounted to a rigid structure to minimize vibration and shall be protected against damage, corrosion or breakage due to strain, rubbing, or wear. "Floating clamps" (not mounted to a rigid structure) shall not be permitted. Fuel lines shall not be used to secure other components (wires, air lines, etc). Manifolds connecting fuel containers shall be designed and fabricated to minimize vibration and shall be installed in protected location(s) to prevent line or manifold damage from unsecured objects or road debris.
Fuel hose connections, where permitted, shall be made from materials resistant to corrosion and action of natural gas, and protected from fretting and high heat and shall be supported approximately every 12 inches.

5.2.8 EXHAUST SYSTEM

The exhaust system shall be of stainless steel construction with welded joints. Sufficient hangers with rubber isolators shall be used to ensure stability of the pipe during operation. All exhaust piping within the engine compartment must be covered by thermo protection. The tail pipe shall terminate at the rear of the vehicle and the exhaust tip should direct the fumes downward. The tail pipe must me mounted to provide maximum road clearance. The engine used shall meet EPA and CARB requirements for the year of vehicle it is used in. It is the manufacturer's responsibility to ensure compliance with all local, state and federal requirements.

5.2.8.1 EXHAUST AFTERTREATMENT

An exhaust after treatment system will be provided to ensure compliance to all applicable EPA, and CARB regulations in effect.

5.2.8.2 NOX AFTERTREATMENT

An exhaust after treatment system will be provided to ensure compliance to all applicable EPA, and CARB regulations in effect.

5.3 CHASSIS

1.1.1 SUSPENSION

5.3.1.1 DESIGN

The structure of the bus shall be designed to withstand commuter bus service conditions typical of an urban duty cycle throughout its service life. The vehicle structural frame shall be designed to operate with minimal maintenance throughout the 12-year design operating profile. The design operating profile specified by the Agency shall be considered for this purpose.

5.3.1.2 GENERAL REQUIREMENTS

The front and rear suspensions shall be pneumatic type. The basic suspension system shall last the service life of the bus without major overhaul or replacement. Adjustment points shall be minimized and shall not be subject to a loss of adjustment in service. Routine adjustments shall be easily accomplished by limiting the removal or disconnecting the components.

5.3.1.3 ALIGNMENT

All axles should be properly aligned so the vehicle tracks accurately within the size and geometry of the vehicle.

5.3.1.4 SUSPENSION TRAVEL

The suspension system shall permit a minimum wheel travel when the bus hits a bump (higher than street surface), and minimum rebound-downward travel when the bus comes off a bump and the wheels fall relative to the body. Elastomeric bumpers shall be provided at the limit of jounce travel. Rebound travel may be limited by elastomeric bumpers or hydraulically within the shock absorbers. Suspensions shall incorporate appropriate devices for automatic height control so that regardless of load the bus height relative to the centerline of the wheels does not change more than ½ in. at any point from the height required. The safe operation of a bus cannot be impacted by ride height up to 1 in. from design normal ride height.

5.3.1.5 DAMPING

Vertical damping of the suspension system shall be accomplished by hydraulic shock absorbers mounted to the suspension arms or axles and attached to an appropriate location on the chassis. Damping shall be sufficient to control coach motion to three cycles or less after hitting road perturbations. The shock absorber bushing shall be made of material that will last the life of the shock absorber. The damper shall incorporate a secondary hydraulic rebound stop.

5.3.1.6 LUBRICATION

All elements of steering, suspension and drive systems requiring scheduled lubrication shall be provided with grease fittings conforming to SAE Standard J534. These fittings shall be located for ease of inspection and shall be accessible with a standard grease gun from a pit or with the bus on a hoist. Each element requiring lubrication shall have its own grease fitting with a relief path. The lubricant specified shall be standard for all elements on the bus serviced by standard fittings and shall be required no less than every 8000 miles.

5.3.1.7 KNEELING

A kneeling system shall lower the entrance(s) of the bus a minimum of 2.5 in. during loading or unloading operations regardless of load up to GVRW, measured at the longitudinal centerline of the entrance door(s) by the operator. The kneeling control shall provide the following functions:

- Downward control must be held to allow downward kneeling movement.

- Release of the control during downward movement must completely stop the lowering motion and hold the height of the bus at that position.
- Upward control actuation must allow the bus to return to normal floor height within seconds without the operator having to hold the control.

The brake and throttle interlock shall prevent movement when the bus is kneeled. The kneeling control shall be disabled when the bus is in motion. The bus shall kneel at a maximum rate of 1.25 in. per second at essentially a constant rate. After kneeling, the bus shall rise within 3 seconds to a height permitting the bus to resume service and shall rise to the correct operating height within 6 seconds fully loaded to GVRW. During the lowering and raising operation, the maximum vertical acceleration shall not exceed 0.2g, and the jerk shall not exceed 0.3g/second.

An indicator visible to the operator shall be illuminated until the bus is raised to a height adequate for safe street travel. An audible warning alarm will sound simultaneously with the operation of the kneeler to alert passengers and bystanders. A warning light mounted near the curbside of the front door, a minimum 2.5 in. diameter amber lens, shall be provided that will blink when the kneel feature is activated. Kneeling shall not be operational while the wheelchair ramp is deployed or in operation.

5.3.1.8 WHEELS

All wheels shall be interchangeable and shall be removable without a puller. Wheels shall be compatible with tires in size and load-carrying capacity. Front wheels and tires shall be balanced as an assembly per SAE J1986. Alcoa Dura-Bright, or approved equal, Two-sided polished aluminum rims shall be installed and have chrome lug nut covers.

5.3.1.9 TIRES

Tires shall be suitable for the conditions of transit commuter service and sustained operation at the maximum speed capability of the bus. Load on any tire at GVWR shall not exceed the tire supplier's rating. Tires to be supplied shall be Michelin or approved equal.

5.3.1.10 STEERING

Hydraulically assisted steering shall be provided. The steering gear shall be an integral type with the number and length of flexible lines minimized or eliminated. Engine driven hydraulic pump shall be provided for power steering.

5.3.2 STEERING AXLE AND TAG AXLES

The front axle shall be solid beam, non-driving with a load rating sufficient for the bus loaded to GVWR and shall be equipped with sealed, oiled-type front wheel bearings. The unit will be filled with synthetic fluid.

All friction points on the front axle shall be equipped with replaceable bushings or inserts and, if needed, lubrication fittings easily accessible from a pit or hoist. The steering geometry of the outside (frontlock) wheel shall be within 2 degrees of true Ackerman up to 50 percent lock measured at the inside (backlock) wheel. The steering geometry shall be within 3 degrees of true Ackerman for the remaining 100 percent lock measured at the inside (backlock) wheel.

The tag axle shall be Meritor (Steerable) 14,000 lb (6,350 kg) with oil filled hub ends or approved equal.

5.3.3 DRIVE AXLE

The bus shall be driven by a heavy-duty axle with a load rating sufficient for the bus loaded to GVWR and filled with synthetic fluid. The drive axle shall have a design life to operate for not less than 300,000 miles on the design operating profile without replacement or major repairs. The lubricant drain plug shall be magnetic type and the unit will be filled with synthetic fluid. 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 axle and driveshaft components shall be rated for both propulsion and retardation modes with respect to duty cycle.

NOTE: The retardation duty cycle can be more aggressive than propulsion.

The drive shaft shall be guarded to prevent hitting any critical systems, including brake lines, coach floor or the ground, in the event of a tube or universal joint failure.

5.3.3.1 TURNING RADIUS

The maximum allowable turning radius is 47 feet.

5.3.3.2 ALTOONA TESTING

Prior to acceptance of first bus, the vehicle must have completed any FTA-required Altoona testing. Any items that required repeated repairs or replacement must undergo the corrective action with supporting test and analysis. A report clearly describing and explaining the failures and corrective actions taken to ensure any and all such failures will not occur shall be submitted to the Agency.

5.3.4 BRAKES

5.3.4.1 ACTUATION

Service brakes shall be controlled and actuated by a compressed air system. Force to activate the brake pedal control shall be an essentially linear function of the bus deceleration rate and shall not exceed 50 pounds at a point 12 inches above the heel point of the pedal to achieve maximum braking. The heel point is the location of the operator's heel when foot is rested flat on the pedal and the heel is touching the floor or heel pad of the pedal. Microprocessor controlled ABS and traction control shall be provided. The total braking effort shall be distributed between all wheels in such a ratio as to ensure equal friction material wear rate at all wheel locations.

5.3.4.2 FRICTION MATERIAL

The brake linings shall be made of non-asbestos material. In order to aid maintenance personnel in determining extent of wear, a provision such as a wear indicator light shall be supplied to the dash board indicating the thickness at which replacement becomes necessary shall be provided on each brake lining.

5.3.4.3 HUBS

Replaceable wheel bearing seals shall run on replaceable wear surfaces or be of an integral wear surface sealed design. Pre-loaded wheel bearing hubs assemblies with seals and lubricant shall be part of the axle hub design.

The bus shall be equipped with disc brakes on all axles, and the brake discs shall allow machining of each side of the disc to obtain smooth surfaces per manufacturer's specifications.

The brake system material and design shall be selected to absorb and dissipate heat quickly so that the heat generated during braking operation does not glaze brake linings.

5.3.4.4 PARKING/EMERGENCY BRAKE

The parking brake shall be a spring-operated system, actuated by a valve that exhausts compressed air to apply the brakes. The parking brake may be manually enabled when the air pressure is at the operating level per FMVSS 121.

5.3.5 PNEUMATIC SYSTEM

5.3.5.1 GENERAL

The bus air system shall operate all accessories and the braking system with reserve capacity. New buses shall not leak down more than 5 psi as indicted on the instrument panel mounted air gauges, within 15 minutes from the point of governor cut-off.

A quick disconnect fitting shall be easily accessible and located in the engine compartment and near the front bumper area for towing. Retained caps shall be installed to protect fitting against dirt and moisture when not in use. Air for the compressor shall be a filtered atmosphere intake. The air system shall be protected by a pressure relief valve set at 150 psi and shall be equipped with check valve and pressure protection valves to assure partial operation in case of line failures.

5.3.5.2 AIR COMPRESSOR

The engine-driven air compressor shall be sized to charge the air system from 20 psi to the governor cutoff pressure in less than 3 minutes while not exceeding the fast idle speed setting of the engine.

5.3.5.3 AIR LINES AND FITTINGS

Air lines, except necessary flexible lines, shall conform to the installation and material requirements of SAE Standard J1149 for copper tubing with standard, brass, flared or ball sleeve fittings, or SAE Standard J844 for nylon tubing if not subject to temperatures over 200 degrees F. Nylon tubing shall be installed in accordance with the following color-coding standards:

Green.	Indicates primary brakes and supply
Red.	Indicates secondary brakes
Brown.	Indicates parking brake
Yellow.	Indicates compressor governor signal
Black.	Indicates accessories

Line supports shall prevent movement, flexing, tension strain, and vibration. Copper lines shall be supported to prevent the lines from touching one another or any component of the bus. To the extent practicable and before installation, the lines shall be pre-bent on a fixture that prevents tube flattening or excessive local strain. Copper lines shall be bent only once at any point, including pre-bending and installation. Rigid lines shall be supported at no more than 5-foot intervals. Nylon lines may be grouped and shall be continuously supported.

The compressor discharge line between power plant and body-mounted equipment shall be flexible convoluted copper or stainless steel line, or may be flexible Teflon hose with a braided stainless steel jacket. Other lines necessary to maintain system reliability shall be flexible Teflon hose with a braided stainless steel jacket. End fittings shall be standard SAE or JIC brass or steel, flanged, swivel type fittings. Flexible hoses shall be as short as practicable and individually supported. They shall not touch one another or any part of the bus except for the supporting grommets. Flexible lines shall be supported at 2-foot intervals or less.

Air lines shall be cleaned and blown out before installation and shall be installed to minimize air leaks. All air lines shall be sloped toward a reservoir and routed to prevent water traps. Grommets shall protect the air lines at all points where they pass through understructure components.

5.3.5.4 AIR RESERVOIRS

All air reservoirs shall meet the requirements of FMVSS Standard 121 and SAE Standard J10 and shall be equipped with 2 inch minimum clean-out plugs and guarded or flush type drain valves. Major structural members shall protect these valves and any automatic moisture ejector valves from road hazards. Reservoirs shall be sloped a minimum of ½ inch toward the drain valve. The wet tank air reservoir shall have an auto-drain valve which discharge below floor level with lines routed to eliminate the possibility of water traps and/or freezing in the drain line.

5.3.5.5 AIR SYSTEM DRYER

A twin Bendix AD-9 air dryer, or approved equal, shall prevent accumulation of moisture and oil in the air system. The air dryer system will include a replaceable desiccant bed, electrically heated drain, and activation device.

5.4 BODY

5.4.1.1 GENERAL

5.4.1.2 DESIGN

The bus shall have a clean, smooth, simple design. The exterior and body features, including grilles and louvers, shall be shaped to facilitate cleaning by automatic bus washers without snagging washer brushes. Water and dirt shall not be retained in or on any body feature to freeze or bleed out onto the bus after leaving the washer. The body and windows shall be sealed to prevent leaking of air, dust, or water under normal operating conditions and during cleaning in automatic bus washers for the service life of the bus. Exterior panels shall be sufficiently still to prevent vibration, drumming or

flexing while the bus is in service. When panels are lapped, the upper and forward panels shall act as a watershed. The windows, hatches, and doors shall be able to be sealed. Accumulation on any window of the bus of spray and splash generated by the bus' wheels on a wet road shall be minimized.

5.4.1.3 CRASHWORTHINESS

The bus 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.

The bus shall withstand a 25-mph impact by a 4,000-pound automobile at any point, excluding doorways, along either side of the bus 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 bus interior.

Exterior panels below the rub rail and their supporting structural members shall withstand a static load of 2,000 pounds applied perpendicular to the bus 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 bus.

5.4.1.4 MATERIALS

Body materials shall be selected and the body fabricated to reduce maintenance, extend durability, and provide consistency of appearance throughout the service life of the bus. Detailing shall be kept simple; add-on devices and trim, where necessary, shall be minimized and integrated into the basic design. The body panels shall be aluminum.

5.4.1.5 CORROSION

The bus 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 by the Procuring Agency in accordance with the procedures specified in the Contractor's service manual. All exposed surfaces and the interior surfaces of tubing and other enclosed members shall be corrosion resistant. All materials that are not inherently corrosion resistant shall be protected with corrosion-resistant coatings. All joints and connections of dissimilar metals shall be corrosion-resistant and shall be protected from galvanic corrosion

5.4.1.6 FIRE PROTECTION

The vehicle shall conform to the National Fire Protection Associations Standards (NFPA52). The passenger and engine compartments shall be separated by a bulkhead(s) that shall, by incorporation of fire resistant materials in its construction, be a firewall. This firewall shall preclude or retard propagation of an engine compartment fire into the passenger compartment and shall comply with FMVSS 302. Only necessary openings shall be allowed in the firewall, and these shall be fire resistant. Any passageways for the climate control system air shall be separated from the engine compartment by fireproof material. Piping will be routed though the undercarriage of the vehicle to maintain the appearance. Piping through the bulkhead shall have copper, brass, or fireproof fittings sealed at the firewall with copper or steel piping on the forward side. Wiring may pass through the bulkhead only if connectors or other means are provided to prevent or retard fire propagation through the firewall.

Engine access panels in the firewall shall be fabricated of fire resistant material and secured with fireproof fasteners. These panels, their fasteners, and the firewall shall be constructed and reinforced to minimize warping of the panels during a fire that will compromise the integrity of the firewall.

5.4.1.7 FIRE DETECTORS

Temperature and optical fire sensors shall be provided. They shall be located in the engine compartment under all horizontal bulkheads, above and downwind of the major heat sources, and in areas likely to be wetted by leaking flammable fluids. Additional optical sensors shall be located in other potentially critical areas. The sensors shall detect over-temperature in the critical areas and shall activate the fire alarm bell and warning light in the operator's compartment. The sensors shall return to normal setting and deactivate alarms when the temperature returns to normal. A diagram of potential optical sensor locations shall be provided and preapproved prior to assembly. The Fire Suppression and Fire Detection system shall be Amerex or approved equal.

5.4.1.8 DISTORTION

The bus, loaded to GVWR and under static conditions, shall not exhibit deflection or deformation that impairs the operation of the steering mechanism, doors, windows, passenger escape mechanisms and service doors. Static conditions shall 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.

5.4.2 STRUCTURE

The structure of the bus shall be designed to withstand the commuter service conditions typical of an urban duty cycle throughout its service life. The structure of the bus shall have undergone appropriate structural testing and analysis, including Altoona testing, to ensure adequacy of design for the urban transit service.

5.4.2.1 TOWING

Towing devices shall be provided on each end of the bus. Each towing device shall withstand, without permanent deformation, tension loads up to 1.2 times the curb weight of the bus within 20 degrees of the longitudinal axis of the bus. The rear towing device(s) shall not provide a toehold for unauthorized riders. The front towing devices shall allow attachment of a rigid tow bar and shall permit lifting and towing of the bus, at curb weight, by the towing devices and the tow bar until the front wheels are clear of the ground. Air connectors shall be provided at the front bumper with caps positioned at the center of the bumper. The rear tow eyes shall permit lifting and towing of the bus for a short distance, such as in cases of an emergency. The method of attaching the tow bar shall require the specific approval of the Procuring Agency prior to submittal of bids/proposals. Each towing device shall accommodate a crane hook with a 1.25 inch throat.

5.4.2.2 JACKING

It shall be possible to safely jack up the bus, at curb weight, with a common 10-ton floor jack when a tire or dual set is completely flat and the bus is on a level, hard surface, without crawling under any portion of the bus. Jacking from a single point shall permit raising the bus sufficiently high to remove and reinstall a wheel and tire assembly. Jacking pads located on the axle or suspension near the wheels shall permit easy and safe jacking with the flat tire or dual set on a 3.5 inch-high run-up block

not wider than a single tire. The bus shall withstand such jacking at any one or any combination of wheel locations without permanent deformation or damage.

5.4.2.3 HOISTING

The bus axles or jacking plates shall accommodate the lifting pads of a 2-post hoist system. Jacking plates, if used as hoisting pads, shall be designed to prevent the bus from falling off the hoist. Other pads or the bus structure shall support the bus on jack stands independent of the hoist.

5.4.2.4 FLOOR

Sanded plywood used for flooring is a minimum of half inch (1/2"), seven (5) ply marine grade, waterproof type with sealed waterproof edges. The underside shall be undercoated.

The area at the farebox shall incorporate an under floor reinforcement plate of adequate strength to keep the farebox from weaving when the vehicle is in service.

5.4.2.5 DESIGN

The floor shall be essentially a continuous flat plane, except at the stepwells, ramp area and step under the front seat. Where the floor meets the walls of the bus, the surface edges shall be blended with a circular section of radius not less than 1/4 inch and a molding or cove shall prevent debris accumulation between the floor and wheel housings.

5.4.2.6 STRENGTH

The floor deck may be integral with the basic structure or mounted on the structure securely to prevent chafing or horizontal movement. Sheet metal screws shall not be used to retain the floor and all floor fasteners shall be serviceable from one side only. Tapping plates, if used for the floor fasteners, shall be no less than the same thickness as a standard nut and all floor fasteners shall be secured and protected from corrosion for the service life of the bus. The floor deck shall be reinforced as needed to support passenger loads. At GVWR, the floor shall have an elastic deflection of no more than 0.60 inches from the normal plane. The floor shall withstand the application of 2.5 times gross load weight without permanent detrimental deformation. Floor and step treads, with coverings applied, shall withstand a static load of at least 150 pounds applied through the flat end of a ?-inch-diameter rod, with 1/32-inch radius, without permanent visible deformation.

5.4.2.7 CONSTRUCTION

The floor shall consist of the subfloor and the floor covering. The floor, as assembled, including the sealer, attachments and covering shall be waterproof, non-hydroscopic, and resistant to mold growth. The subfloor shall be resistant to the effects of moisture, including decay (dry rot) and impervious to wood destroying insects such as termites.

The floor deck may not be integral with the basic structure but shall be mounted on the structure securely to prevent chafing or horizontal movement. Sheet metal screws shall not be used to retain the floor. All floor fasteners shall be secured and protected from corrosion for the service life of the coach. The floor deck shall be reinforced as needed to support passenger loads. At GVWR, the floor shall have an elastic defection of no more than 0.375 in. (10 mm) from the normal plane. The floor

shall withstand the application of 3.0 times gross load weight without permanent detrimental deformation.

5.4.2.8 STEPWELL

All step treads shall be of uniform depth which shall be no less than 11 inches and the plane of the step treads shall be parallel to the plane of the floor. Treads shall be covered with 5/16-inch, nonskid, composition-rubber material that shall remain effective in all weather conditions. Color of the tread covering shall match the vestibule flooring. The edge of the vestibule floor shall conform to ADA requirements and shall have a maximum 5/16-inch overhang at the step riser. The edge of the vestibule floor and the end of the step tread shall have a bright, contrasting, yellow band no less than 2 inches wide on the full width of the step. The color shall be permanently blended into the tread covering material.

Stepwell shall be corrosion-resistant throughout the service life of the bus. Stepwell shall be replaceable as units if they are constructed of nonmetallic material. The steps shall simultaneously support 300-pound loads evenly distributed over the center half of each step tread without permanent deformation and with elastic deflection of no more than 0.125 inches. Each step tread shall support a load of 500 pounds evenly distributed over the center half of the tread without permanent deformation. The steps shall be sloped only sufficient to preclude water accumulation in the stepwell.

5.4.2.9 WHEEL HOUSING

Sufficient clearance and air circulation shall be provided around the tires, wheels, and brakes to preclude overheating when the bus is operating on the design operating profile.
Interference between the tires and any portion of the bus shall not be possible in maneuvers up to the limit of tire adhesion with weights from curb weight to GVWR. Wheel housings shall be constructed of corrosion-resistant, fire-resistant material. Wheel housings, as installed and trimmed, shall withstand impacts of a 2-inch steel ball with at least 200 foot-pounds of energy without penetration.

5.4.3 EXTERIOR PANELS AND FINISHES

5.4.3.1 PEDESTRIAN SAFETY

Grilles, doors, bumpers and other features on the sides and rear of the bus shall be designed to minimize the ability of unauthorized riders to secure toeholds or handholds.

5.4.3.2 RAIN GUTTERS

Gutters shall be provided to prevent water flowing from the roof onto the side windows and passenger door and exterior mirrors. When the bus is decelerated, the gutters shall not drain onto the windshield, or operator's side window, or into the door boarding area. Cross sections of the gutters shall be adequate for proper operation.

5.4.3.3 LICENSE PLATE PROVISIONS

Provisions shall be made to mount standard size U.S. license plates per SAE J686 on the front and rear of the bus. These provisions shall direct mount or recess the license plates so that they can be cleaned by automatic bus washing equipment without being caught by the brushes.

5.4.3.4 FENDER SKIRTS

Features to minimize water spray from the bus in wet conditions shall be included in wheel housing design. Any fender skirts shall be easily replaceable. They shall be flexible if they extend beyond the allowable body width. Wheels and tires shall be removable with the fender skirts in place.

5.4.3.5 SPLASH APRONS

Splash aprons, composed of 1/4-inch-minimum composition or rubberized fabric, shall be installed behind each wheel and shall extend downward to within 4 inches of the road surface. Apron widths shall be no less than tire widths. Splash aprons shall be bolted to the bus understructure. Splash aprons and their attachments shall be inherently weaker than the structure to which they are attached. The flexible portions of the splash aprons shall not be included in the road clearance measurements. Other splash aprons shall be installed where necessary to protect bus equipment.

5.4.3.6 SERVICE COMPARTMENTS AND ACCESS DOORS

Conventional doors shall be used for the engine compartment and for all auxiliary equipment compartments including doors for checking the quantity and adding to the engine coolant. Access openings shall be sized for easy performance of tasks within the compartment, including tool operating space. Access doors shall be of rugged construction and shall maintain mechanical integrity and function under normal operations throughout the service life of the bus. They shall close flush with the body surface. All doors shall be hinged at the top or on the forward edge and shall be prevented from coming loose or opening during transit service or in bus washing operations. All access doors shall be retained in the open position. Latch handles shall be flush with, or recessed behind, the body contour and shall be sized to provide an adequate grip for opening. Access doors, when opened, shall not restrict access for servicing other components or systems

The battery compartment or enclosure shall be vented and self-draining. It shall be accessible only from outside the bus. All components within the battery compartment, and the compartment itself, shall be protected from damage or corrosion from the electrolyte and gases emitted by the battery. The battery tray shall be stainless steel. The inside surface of the battery compartment's access door shall be electrically insulated, as required, to prevent the battery terminals from shorting on the door if the door is damaged in an accident or if a battery comes loose.

5.4.3.7 SERVICE AREA LIGHTING

LED lights shall be provided in the engine and all other compartments, where service may be required, to generally illuminate the area for night emergency repairs or adjustments. The lights in the engine compartment shall be controlled by a switch located near the rear start controls in the engine compartment. Necessary lights, located in other service compartments, shall be provided with switches on the light fixture or convenient to the light.

5.4.3.8 BUMPERS

5.4.3.8.1 LOCATION

Bumpers shall provide impact protection for the front and rear of the bus. The bumpers shall wrap around the bus without exceeding allowable bus width. The bumpers shall be flared into the body to prevent a snagging hazard. Bumper height shall be such that when one bus is parked behind another, bumper faces will contact each other.

5.4.3.8.2 FRONT BUMPER

The front bumper assembly shall consist of energy absorbing modules that are self-restoring black urethane. The hollowed ribbed back urethane cover will have excellent resistance to tears, abrasion, salt, hydro-carbons detergents, UV sunlight, and will be repairable. An inner support structure constructed of aluminum shall provide a single, full length structural support for the bumper and modules. The bumper assembly must be hinged at the bottom to access the spare tire.

5.4.3.8.3 REAR BUMPER

The rear bumper will be constructed with a rigid aluminum inner support structure with repairable hollow ribbed black urethane cove. The bumper shall be shaped to wrap around the coach rear corners to protect the engine compartment doors and will incorporate an anti-ride feature to prevent unauthorized riders.

5.4.3.8.4 BUMPER MATERIAL

Bumper material shall be self-restoring black urethane and withstand repeated impacts of the specified loads without sustaining damage, a painted bumper is not acceptable. The black urethane cover will have excellent resistance to tears, abrasions, salt, hydro-carbons, UV sunlight, detergents and be repairable.

5.4.3.9 FINISH AND COLOR

All exterior surfaces shall be smooth and free of wrinkles and dents. Exterior surfaces to be painted shall be properly prepared as required by the paint system supplier, prior to application of paint to assure a proper bond between the basic surface and successive coats of original paint for the service life of the bus. Drilled holes and cutouts in exterior surfaces shall be made prior to cleaning, priming and painting. The bus shall be primed with a minimum thickness of 4 MILS. The bus shall be completely painted prior to installation of exterior lights, windows, mirrors and other items which are applied to the exterior of the bus. The exterior color shall be “White.” A Single Stage paint with a minimum thickness of 4 MILS shall be applied meeting the agencies requirements. Body filler materials may be used for surface dressing, but not for repair of damaged or improperly fitted panels.

Paint shall be applied smoothly and evenly with the finished surface free of dirt and the following other imperfections:

A. Blisters or bubbles appearing in the topcoat film.
B. Chips, scratches, or gouges of the surface finish.
C. Cracks in the paint film.
D. Craters where paint failed to cover due to surface contamination.

E. Overspray.
F. Peeling.
G. Runs or sags from excessive flow and failure to adhere uniformly to the surface.
H. Chemical stains and water spots.

To the degree consistent with industry standards for commercial vehicle finishes, painted surfaces shall have gloss and be free of orange peel. All exterior finished surfaces shall be impervious to petroleum products and commercial cleaning agents. Finished surfaces shall resist damage by controlled applications of commonly used graffiti-removing chemicals. Final decals and paint color shall be pre-approved by Golden Empire Transit District.

5.4.3.10 NUMBERING AND SIGNAGE

Monograms, numbers and other special signing specified by the Procuring Agency shall be applied to the inside and outside of the bus as required. Signs shall be durable and fade-, chip-, and peel-resistant; they may be painted signs, decals, or pressure-sensitive appliqués. All decals shall be sealed with clear, waterproof sealant around all exposed edges if required by the decal supplier. Signs shall be provided in compliance with the ADA requirements defined in 49 CFR Part, Subpart B, 38.27. Only 3M Vinyl, or approved equal, with a 7- year color guarantee will be used.

5.4.3.11 EXTERIOR LIGHTING

Exterior lighting and reflectors shall comply, as applicable, with Part 393, Subpart B of the FMCSA and FMVSS 108. All exterior lights shall be designed to prevent entry and accumulation of moisture or dust. Dialight LED lamps, or approved equal, shall be used. Lights mounted on the engine compartment doors shall be protected from the impact shock of door opening and closing. Lamps, lenses and fixtures shall be interchangeable to the extent practicable. Lamps at the rear of the bus shall be visible from behind when the engine service doors are opened. Light lenses shall be designed and located to prevent damage when running the vehicle through an automatic bus washer. Lights located on the roof and sides (directional signals) of the bus shall have protective shields or be of the flush mount type to protect the lens against minor impacts.

Lamps at the front and rear passenger doorways shall comply with ADA requirements and shall activate only when the doors open and shall illuminate the street surface to a level of no less than 1 foot-candle for a distance of 3 feet outward from the lowest step tread edge. The lights may be positioned above or below the lower daylight opening of the windows and shall be shielded to protect passengers' eyes from glare.

5.4.3.12 BACKUP LIGHT/ALARM

Visible and audible warnings shall inform following vehicles or pedestrians of reverse operation. Visible reverse operation warning shall conform to SAE Standard J593. Audible reverse operation warning shall conform to SAE Recommended Practice J994 Type C or D. A white LED reverse lamp shall be installed.

5.4.3.13 DOORWAY LIGHTING

LED lamps at the doorway shall comply with ADA requirements and shall activate only when the door open. These lamps shall illuminate the street surface to a level of no less than 1 foot-candle for a

distance of 3 foot outward from the outboard edge of the door threshold. The lights may be positioned above or below the lower daylight opening of the windows and shall be shielded to protect passengers' eyes from glare.

5.4.3.14 TURN SIGNALS

LED amber turn-signal lamps shall be provided on the rear of the bus with appropriately sized LED lamps on the front, curb and street sides in accordance with FMVSS 108 and Part 393, Subpart B of the FMCSA as applicable. A right-side turn alarm shall be incorporated into the system.

5.4.3.15 HEADLIGHTS

Headlamps shall be designed for easy replacement. Headlamps shall incorporate a daytime running light feature. Headlamps shall be LED and manufactured by Dailight.

5.4.3.16 BRAKE LIGHTS

Two red Dailight LED brake lamps shall be provided in accordance with FMVSS 108 and Part 393, Subpart B of the FMCSA as applicable. A LED third brake lamp strip shall be mounted center rear.

5.4.3.17 SERVICE AREA LIGHTING

LED lamps shall be provided in the engine and all other compartments where service may be required to generally illuminate the area for night emergency repairs or adjustments. These service areas shall include, but not be limited to, the engine compartment, the communication box, junction/apparatus panels and passenger door operator compartments. Lighting shall be adequate to light the space of the service areas to levels needed to complete typical emergency repairs and adjustments. The service area lamps shall be suitable for the environment in which they are mounted.

Engine compartment lamps shall be controlled by a switch mounted near the rear start controls. All other service area lamps shall be controlled by switches mounted on or convenient to the lamp assemblies. Power to the service area lighting shall be programmable. Power shall latch on with activation of the switch and shall be automatically discontinued (timed out) after 30 minutes to prevent damage caused by inadvertently leaving the service area lighting switch in the on position after repairs are made.

5.4.4 INTERIOR PANELS AND FINISHES

5.4.4.1 GENERAL

Materials shall be selected on the basis of maintenance, durability, appearance, safety, flammability, and tactile qualities. Trim and attachment details shall be kept simple and unobtrusive. Materials shall be strong enough to resist everyday abuse and vandalism; they shall be resistant to scratches and markings. Interior trim shall be secured to avoid resonant vibrations under normal operational conditions. Interior colors shall meet the agencies design requirements and will be preapproved during the prebuild meetings.

Safety triangle and a storage box shall be provided. A driver's coat hook is required in the driver's compartment area. A registration and insurance card holder shall be provided and mounted in the driver's area accessible to the driver.

5.4.4.2 FRONT END

The entire front end of the bus shall be sealed to prevent debris accumulation behind the dash and to prevent the operator's feet from kicking or fouling wiring and other equipment. The front end shall be free of protrusions that are hazardous to passengers standing or walking in the front of the bus during rapid decelerations. Paneling across the front of the bus and any trim around the operator's compartment shall be formed metal or plastic material. Formed metal dash panels shall be painted and finished. Plastic dash panels shall be reinforced, as necessary, vandal-resistant, and replaceable. All colored, painted, and plated parts forward of the operator's barrier shall be finished with a dull matte surface to reduce glare. Colors shall match or coordinate with the balance of the bus interior.

5.4.4.3 INTERIOR PANELS

Gray side interior shall be used throughout the vehicle. All interior colors are subject to final approval by Golden Empire Transit District. Ceiling material is melamine and painted. Stainless Steel Kick panels shall be used throughout the vehicle, location to be approved during the prebuild meeting.

5.4.4.4 GENERAL

Interior side trim panels shall be made of melamine covered in aluminum and the operator's barrier shall be polyurethane. Panels shall be easily replaceable and tamper-resistant. They shall be reinforced, as necessary, to resist vandalism and other rigors of transit bus service. Individual trim panels and parts shall be interchangeable to the extent practicable. Untrimmed areas shall be painted and finished. All materials shall comply with the FMVSS 302.

5.4.4.5 OPERATOR BARRIER

A barrier or bulkhead between the driver and the street-side front passenger seat shall be provided. The barrier shall minimize glare and reflections in the windshield directly in front of the barrier from interior lighting during night operation. Location and shape must permit full seat travel and reclining possibilities that can accommodate the shoulders of a 95th-percentile male. The partition shall have a side return and stanchion to prevent passengers from reaching the driver by standing behind the driver's seat. The lower area between the seat and panel must be accessible to the driver. The partition must be strong enough in conjunction with the entire partition assembly for mounting of such equipment as flare kits, fire extinguishers (1.2 kg), microcomputer, public address amplifier, etc. The panel should be properly attached to minimize noise and rattles. The driver's barrier shall extend from the floor area to the ceiling and from the bus wall to the first stanchion immediately behind the driver to provide security to the driver and to limit passenger conversation.

5.4.4.6 FASTENING

Interior panels shall be attached so that there are no exposed unfinished or rough edges or rough surfaces. Panels and fasteners shall not be easily removable by passengers. Interior trim fasteners, where required, shall be rivets or cross-recessed head screws.

5.4.4.7 INSULATION

All insulation material used between the inner and outer panels shall be sealed or self-sealing to minimize entry and/or retention of moisture. Insulation properties shall be unimpaired during the service life of the bus. Any insulation material used inside the engine compartment shall not absorb or retain oils or water and shall be protected or shielded from damage that may occur during maintenance operations. All insulation materials shall comply with FMVSS 302.

The engine compartment shall be insulated to provide adequate heat and noise suppression for the passenger areas. The combination of inner and outer panels on the sides, roof, wheel wells and ends of the bus, and any material used between these panels shall provide a thermal insulation. The bus body shall be thoroughly sealed so that the operator or passengers cannot feel drafts during normal operations with the passenger doors closed.

5.4.4.8 FLOOR COVERING

The floor covering shall have non-skid walking surface that remains effective in all weather conditions and complies with all ADA requirements. The Altro Meta Storm floor covering, as well as transitions of flooring material to the main floor and to the step well area, shall be smooth and present no tripping hazards. The standee line shall be at least 2 inches wide and shall extend across the bus aisle in line with the operator's barrier. This line shall be the same color as the edge of the steps. Color shall be consistent throughout the floor covering.

The floor in the operator's compartment shall be easily cleaned and shall be arranged to prevent debris accumulation. The floor under the seats shall be covered with smooth surface flooring material. The floor covering shall closely fit the sidewall cove or extend to the top of the cove.

5.4.4.9 FARE COLLECTION

A 1939 wire from the Connexionz AVL system to the farebox location shall be provided and a GFI recommended power and ground wire shall be installed to the pedestal to connect the farebox. The dashboard shall be notched to provide extra space to mount a fare collection device at the front entrance.

5.4.4.10 ACCESS PANELS AND DOORS

Access for maintenance and replacement of equipment shall be provided by panels and doors that appear to be an integral part of the interior. Access doors shall be hinged with stainless steel unpainted hinges and gas props or over-center springs, to hold the doors out of the mechanic's way. Retention of all interior access panels, except on the door actuator compartments, shall be with cross-recessed head screws. Panel fasteners shall be standardized so that only one tool is required to service all special fasteners within the bus. All hardware shall be silver.

Access openings in the floor shall be sealed to prevent entry of fumes and water into the bus interior. Flooring material shall be flush with the floor and shall be edge-bound with stainless steel, or other material that is acceptable to the Procuring Agency, to prevent the edges from coming loose. Access openings shall be asymmetrical so that reinstalled flooring shall be properly aligned. Fasteners shall tighten flush with the floor.

5.4.5 PASSENGER ACCOMMODATIONS

5.4.5.1 PASSENGER SEATING

The seating capacity shall be for at least 52 passengers. Seating shall be standard commuter reclining style seating without footrests or tray tables. Seating shall incorporate USB charging ports and /or 110-volt plugs for passenger convenience. The passenger seating shall be manufactured by 4-One, model Signa or approved equal.

5.4.5.1.1 ARRANGEMENTS

Passenger seats shall be arranged in forward-facing configuration with a minimum of 52 reclining and cushioned passenger seats. Seat covering shall be a high-quality vinyl. The material manufacturer shall be Camira and the color Koala or approved equal.

The Contractor will provide a seat layout to the District during preproduction meeting for approval.

5.4.5.1.2 CONSTRUCTION and MATERIALS

Seat cushions shall be supported by steel serpentine springs. Seat covering shall be high-quality vinyl manufactured by Camira. Seat foam padding shall be polyurethane. Seat upholstery shall be able to be removed with ease to aid for cleaning/replacement purposes.

5.4.5.1.3 STRUCTURE and DESIGN

Passenger seats shall be arranged in a transverse, forward-facing configuration.
No more than three seat assemblies must be adjustable to accommodate two wheelchair passengers occupying the securement positions.
Each transverse, forward-facing seat, except the rear seats, shall accommodate two adult passengers. Floor seat tracks shall be stainless steel and shall be welded to the coach frame and be nearly flush with the finished floor. The wall tracks shall be stainless steel or aluminum and shall be bolted to the sidewall. Seats shall be commuter coach reclining seats. Seat frames shall be constructed of high-strength, fatigue-resistant, welded steel with a durable powder-coated, corrosion-resistant colored finish that complements the coach interior. The seat frame shall be wall mounted with heavy gauge steel brackets and shall be attached to the coach floor with a heavy duty stainless steel T pedestal. The seat back shall recline a minimum of 1 inch to a maximum of 5 inches (127 mm) maximum with an infinite number of stops. The reclining seat backs shall be provided with a dress-up feature to facilitate coach cleaning. Seat width shall be a minimum of 36 inches and a maximum of 40.50 in. (1029 mm). Aisle shall not be less than 14 in. (356 mm) wide.

5.4.5.1.4 HIP-to-KNEE ROOM

Hip-to-knee room measured from the center of the seating position, from the front of one seat back horizontally across the highest part of the seat to vertical surface immediately in front, shall be a minimum of 26 in. At all seating positions in paired transverse seats immediately behind other seating positions, hip-to-knee room shall be no less than 27 in.

5.4.5.1.5 FOOT ROOM

Foot room, measured at the floor forward from a point vertically below the front of the seat cushion, shall be no less than 14 in.

5.4.5.1.6 AISLES

The aisle between the seats shall be no less than 14 in. wide at seated passenger hip height.

5.4.5.1.7 PARCEL RACKS

Passenger parcel racks shall be provided without compartment doors except for locations identified for electrical or air conditioning equipment. Retention cords shall be run the entire length of the rack housing. Passenger service modules shall be mounted on the underside. Passenger service modules shall include LED reading lights, an exit signal push button and individual air distribution outlets.

5.4.6 PASSENGER DOOR

5.4.6.1 GENERAL

Forward of the front wheels and under direct observation of the driver.

5.4.6.2 MATERIALS AND CONSTRUCTION

Structure of the doors, their attachments, inside and outside trim panels and any mechanism exposed to the elements shall be corrosion resistant. Door panel construction shall be of corrosion-resistant metal or reinforced non-metallic composite materials. When fully opened, the doors shall provide a firm support and shall not be damaged if used as an assist by passengers during ingress or egress. Door edges shall be sealed to prevent infiltration of exterior moisture, noise, dirt and air elements from entering the passenger compartment, to the maximum extent possible based on door types.
The closing edge of each door panel shall have no less than 2 in. of soft weather stripping. The door, when closed, shall be effectively sealed, and the hard surfaces of the doors shall be at least 4 in. apart (not applicable to single doors).The combined weather seal and window glazing elements of the front door shall not exceed 10 deg of binocular obstruction of the driver's view through the closed door.

5.4.6.3 ACTUATORS

The nominal door opening and closing speed shall be in the 3–5 second range. The maximum door opening and closing speeds will be regulated using fixed, maintenance free orifices and airline sizes. If required, door speeds can be decreased with the addition of a flow-restricting device. Actuators and the complete door mechanism shall be concealed from passengers but shall be easily accessible for servicing.

5.4.6.4 EMERGENCY OPERATION

In the event of an emergency, it shall be possible to manually open doors designated as an emergency exit from inside the bus using a force of no more than 35 lbs after actuating an unlocking device. The unlocking device shall be clearly marked as an emergency-only device and shall require two distinct actions to actuate. The respective door emergency unlocking device shall be accessible from the doorway area. The unlocking device shall be easily reset by the operator without special tools or opening the door mechanism enclosure. Doors that are required to be classified as "emergency exit" shall meet the requirements of FMVSS 217.

5.4.6.5 DOOR CONTROLLER

Doors shall be operated by toggle switch controls, conveniently located and operable within the driver's reach. The toggle switch shall be labeled.

5.4.7 ACCESSIBILITY PROVISIONS

5.4.7.1 GENERAL

A travel lift and two forward-facing mobility device securement areas shall be provided. The lift assembly shall comply with all current ADA and FMVSS 403 and 404 requirements. The lift shall be installed below the floor line at the number 2 right-hand luggage bay on the curbside of the coach. The lift shall be controlled by a dash-mounted toggle switch and a rear lift area toggle switch, and operated by up/down switches on a pendant mounted to the lift support bracket inside the number 2 baggage bay. The lift restraint belt must be buckled before the lift can be raised or lowered. The safety interlock circuit can be energized to operate the lift only if the transmission is in neutral, the park brake is applied, engine fast idle is on, the dash-mounted master switch is on, the lift secondary switch is on, and the lift restraint belt is buckled.

The wheelchair loading system shall provide safe, comfortable and rapid ingress and egress for applicable passengers from the street level or a curb. When not in use, the lift shall stow in the luggage bay. The lift mechanism shall include a threshold warning device to provide "passenger on platform" information and to prevent stowing the lift platform when a passenger is sensed. The outer barrier shall be automatically controlled and shall be such that it cannot be overridden by the loading system operator. A dash-mounted indicator light shall be provided and shall be illuminated when the loading system is activated. The interlock shall apply, the bus shall not move and the engine throttle shall be disabled whenever the wheelchair loading system is activated. If the lift door is open or ajar, the interlock shall remain engaged. Brackets, clamps, screw heads and other fasteners used on the passenger assists shall be anodized aluminum or stainless steel and shall be flush with the surface and free of rough edges.

The lift control mounted on the lift structure shall have push button up/down switches. The toggle electrical supply switch shall be located in close proximity to the controller. This toggle switch must be turned on prior to the lift operation. All lift control switches shall be permanently labeled. Decals shall not be permitted. The stow guard switch shall be red in color, and the stow/deploy switch shall be black in color. These switches shall be incorporated in a handheld pendant.

The lift shall include a hinged platform to bridge the coach floor to the lift platform. The bridge shall be hinged and locked in an upward position to act as a barrier when the lift is in use. The bridge shall be hinged and locked in an upward position to act as a barrier when the lift is in use. The bridge shall also allow lift passenger ingress/egress easily from the platform. Lift travel speeds and lift operation shall be adjusted to the lift manufacturer's specifications upon completion of the lift installation in to each coach and before coach delivery. The individual handrails shall incorporate a visual aid to ensure that they are folded in the proper order.

The lift shall include an emergency system in case of driver operation malfunction. Should an emergency situation occur, the lift operator shall release the push-button switch on the controller to immediately stop the lift cycle. The emergency hand pump handles and pump shall be located in an enclosed box at the rear wall of the number 1 right-hand luggage bay door. The handle shall be stored adjacent to the pump to allow immediate usage. The lift shall be a Mirage Model F9TF manufactured by Ricon or approved equal.

5.4.7.2 LIFT DOOR

The lift door shall be a single leaf design that operates in a sliding track mounted both above and below the door leaf. The door shall open by sliding to the rear of the coach and shall remain on a horizontal plane throughout the opening and closing process. No pin-hinged doors shall be provided. The transmission must be in neutral and the parking brake activated for the lift to operate. The accelerator shall be automatically disabled and the fast-idle system activated when either the lift master switch is turned on or the lift door is open in order to provide maximum safety and security. These features shall be wired to the lift master switch to allow activation only when the transmission is in neutral. The coach directional (hazard) lights will also flash on/off. After the lift operation is completed, the lift shall be properly stored and secured, with the access door closed and the lift master switch at the dash in the "off" position in order to move the coach.

The lift door shall have a window in line with the other passenger windows and shall not detract from the appearance of the coach. The door latch mechanism shall be located in the lower section of the door so that operators in the 5th percentile female range can operate the lift door.

The lift storage door shall not block the visual observation to the lift assembly while utilizing the manual override mode of the lift. A lift door design consisting of a horizontally hinged lift platform egress door mounted within a vertical motion pantograph luggage door is a preferred design.

5.4.7.3 LIFT WIDTH

The installation of the lift to the coach structure as well as the installation of the lift door into the sidewall of the coach shall not affect the structural integrity of the coach.

The parcel rack module above the wheelchair lift platform area shall be permanently removed to provide additional headroom. The modified rack shall be professionally finished at all ends.

A threshold warning module with a red warning light and an acoustic sensor shall be mounted in the ceiling structure above the wheelchair lift entrance doorway.

The heating and air ducts shall be rerouted around the lift area to ensure proper interior air conditioning/heating airflow and distribution.

A passenger chime tape switch shall be mounted on the sidewall at the two wheelchair securement positions.

Each coach shall have adequate information decals installed that detail the proper lift operation in both the normal and manual modes of operation.

5.4.7.4 PASSENGER INFORMATION

ADA priority seating signs as required and defined by 49 CFR, Part 38.27 shall be provided to identify the seats designated for passengers with disabilities. Requirements for a public information system in accordance with 49 CFR, Part 38.35 shall be provided. Requirements for a stop-request passenger signal in accordance with 49 CFR, Part 38.37 shall be provided. Requirements for exterior destination signs in accordance with 49 CFR, Part 38.39 shall be provided.

5.7.4.5 PASSENGER STOP REQUEST/EXIT SIGNAL

A passenger "stop requested" signal system that complies with applicable ADA requirements defined in 49 CFR, Part 38.37 shall be provided. The system shall consist of a heavy-duty push button located in the passenger overhead service module. At each wheelchair passenger position and at priority seating positions, additional provisions shall be included to allow a passenger in a mobility aid to easily activate

the “stop requested” signal. Separate notification will be provided on the dashboard indicator panel for notification from the securement areas.

5.4.8 OPERATOR PROVISIONS

5.4.8.1 GENERAL

The operator’s work area shall be designed to minimize glare to the extent possible. Objects within and adjacent to this area shall be a dark color wherever possible to reduce the reflection of light onto the windshield. The final interior color is subject to GET approval. The use of polished metal and light-colored surfaces within and adjacent to the operator’s area shall be avoided. Interior lighting located ahead of the standee line shall be controlled by the operator. The first section of overhead interior lighting behind the standee line on the curb side of the bus shall not be illuminated when the front passenger door is closed.

5.4.8.2 OPERATOR’S COMPARTMENT REQUIREMENTS

A separate heating, ventilation and defroster system for the operator’s area shall be provided and shall be controlled by the operator. The system shall meet the following requirements:

- The heater and defroster system shall provide heating for the operator and heated air to completely defrost and defog the windshield, operator’s side window, and the front door glasses in all operating conditions. Fan(s) shall be able to draw air from the bus body interior and/or the exterior through a control device and pass it through the heater core to the defroster system and over the operator’s feet. The operator shall have complete control of the heat and fresh airflow for the operator’s area.
- The defroster supply outlets shall be located at the lower edge of the windshield. These outlets shall be durable and shall be free of sharp edges that can catch clothes during normal daily cleaning. The system shall be such that foreign objects such as coins or tickets cannot fall into the defroster air outlets. Adjustable ball vents or louvers shall be provided at the left of the operator’s position to allow direction of air onto the side windows.

A ventilation system shall be provided to ensure operator comfort and shall be capable of providing fresh air in both the foot and head areas. Vents shall be controllable by the operator from the normal driving position. Decals shall be provided, indicating “operating instructions” and “open” and “closed” positions. When closed, vents shall be sealed to prevent the migration of water or air into the bus.

5.4.8.3 VISORS

Adjustable sun visor(s) shall be provided for the windshield and the operator's side window. Visors shall be shaped to minimize light leakage between the visor and windshield pillars. Visors shall store out of the way and shall not obstruct airflow from the climate control system or interfere with other equipment such as the radio handset or the destination control. Deployment of the visors shall not restrict vision of the rearview mirrors. Visor adjustments shall be made easily by hand with positive locking and releasing devices and shall not be subject to damage by over tightening. Sun visor construction and materials shall be strong enough to resist breakage during adjustments. Roll up blinds shall be included.

5.4.8.4 OPERATOR'S CONTROLS

All switches and controls necessary for the operation of the bus shall be conveniently located in the operator's area and shall provide for ease of operation. Switches and controls shall be essentially within the hand reach envelope described in SAE Recommended Practice, J287, Operator Hand Control Reach. Controls shall be located so that boarding passengers may not easily tamper with control settings.

Accelerator and brake pedals shall be designed for ankle motion. Foot surfaces of the pedals shall be faced with wear-resistant, nonskid, replaceable material.

Controls for engine operation shall be closely grouped within the operator's compartment. These controls shall include separate master run switch and start switch or button.

The door control, windshield wiper/washer controls, and run switch shall be in the most convenient operator locations. They shall be identifiable by shape, touch, and permanent markings. Doors shall be operated by a single control, conveniently located and operable in a horizontal plane by the operator's left hand. Turn signal controls shall be floor-mounted, foot-controlled, waterproof, heavy-duty, momentary contact switches.

All panel-mounted switches and controls shall be marked with easily read identifiers and shall be replaceable, and the wiring at these controls shall be serviceable from the vestibule or the operator's seat. Switches, controls, and instruments shall be dust- and water-resistant.

5.4.8.5 TURNING EFFORT

Steering effort shall be measured with the bus at GVWR, stopped with the brakes released and the engine at normal idling speed on clean, dry, level, commercial asphalt pavement and the tires inflated to recommended pressure.
Under these conditions, the torque required to turn the steering wheel 10 degrees shall be no less than 5 ft-lbs and no more than 10 ft-lbs. Steering torque may increase to 70 ft-lbs when the wheels are approaching the steering stops, as the relief valve activates.
Power steering failure shall not result in loss of steering control. With the bus in operation, the steering effort shall not exceed 55 lbs at the steering wheel rim, and perceived free play in the steering system shall not materially increase as a result of power assist failure. Gearing shall require no more than seven turns of the steering wheel lock-to-lock.
Caster angle shall be selected to provide a tendency for the return of the front wheels to the straight position with minimal assistance from the operator.

5.4.8.6 STEERING WHEEL

The steering wheel diameter shall be approximately 20 in.; the rim diameter shall be ⅞ in. to 1¼ in. and shaped for firm grip with comfort for long periods of time.
Steering wheel spokes and wheel thickness shall ensure visibility of the dashboard so that vital instrumentation is clearly visible at center neutral position (within the range of a 95th-percentile male, as described in SAE 1050a, Sections 4.2.2 and 4.2.3). Placement of steering column must be as far forward as possible, but either in line with or behind the instrument cluster.

5.4.8.7 STEERING COLUMN TILT

The steering column shall have full tilt capability acceptable by the District.

5.4.8.8 STEERING WHEEL TELESCOPING ADJUSTMENT

The steering wheel shall have full telescoping capability acceptable by the District.

5.4.8.9 ON-BOARD DIAGNOSTICS

The bus shall be equipped with an on-board diagnostic system that will indicate conditions that require immediate action by the operator to avoid an unsafe condition or prevent further damage to the bus. This diagnostic system shall have screen located in the dash to communicate visual and audible indicators to the operator. The diagnostic indicator lamp panel shall be located in clear sight of the operator but need not be immediately in front of him. The intensity of indicator lamps shall permit easy determination of on/off status in bright sunlight but shall not cause a distraction or visibility problem at night. All indicators shall have a method of momentarily testing the operation of the lamp. The audible alarm shall be temper resistant and shall have an outlet level between 80 and 83 dBA when measured at the location of the operator's ear. Wherever possible, sensors shall be of the closed-circuit type, so that failure of the circuit and/or sensor shall activate the malfunction indicator. Dash indicator lamps, locations and diagnostic programing requirements shall be determined during pre-build meetings.

5.4.8.10 WINDSHIELD WIPERS

The bus shall be equipped with a variable speed electric windshield wiper and electric windshield washer for each half of the windshield, with separate controls for each side. No part of the windshield wiper mechanism shall be damaged by manual manipulation of the arms. Both wipers shall park along the edges of the windshield glass. Windshield wiper motors and mechanisms shall be easily accessible for repairs or service from inside or outside the bus and shall be removable as complete units. The fastener that secures the wiper arm to the drive mechanism shall be corrosion resistant.

5.4.8.11 WINDSHIELD WASHERS

The windshield washer system shall deposit washing fluid on the windshield and, when used with the wipers, shall evenly and completely wet the entire wiped area

The windshield washer system shall have a minimum 3-gallon reservoir, located for easy refilling and protected from freezing. Reservoir pumps, lines, and fittings shall be corrosion-resistant, and the reservoir itself shall be translucent for easy determination of fluid level.

5.4.8.12 OPERATOR LIGHTING

The operator's area shall have a light to provide general illumination and it shall illuminate the half of the steering wheel nearest the operator to a level of 10 to 15 foot-candles. This light shall be controlled by the operator. LED Lamps shall be provided whenever possible.

5.4.8.13 OPERATOR'S SEAT

Operator's seat shall be USSC Evolution model G2A or approved equal. The operator's seat must have a minimum weight capacity of 600 with a silicone bottom cushion and multi chamber

adjustable lumbar support. The Operator's "3-point seat belt" shall be orange in color and will restrict the vehicle from shifting into gear until fastened. The seat material shall be solid black leather.

5.4.8.14 MIRRORS

5.4.8.14.1 EXTERIOR MIRRORS

The exterior mirrors shall be a split view flat and convex glass integrated in the same housing. The overall mirror measurement shall be approximately 10" x 13". Mirrors shall be firmly attached to the bus to prevent vibration and loss of adjustment, but not so firmly attached that the bus or its structure is damaged when the mirror is struck in an accident. Both exterior mirrors shall be electric and heated with the controls within easy reach of the operator. The final mirror design and manufacturer are subject to GET approval.

5.4.8.14.2 INTERIOR MIRRORS

Interior mirrors shall be provided for the operator to observe passengers throughout the bus without leaving his seat. The final mirror design and manufacturer are subject to GET approval.

5.4.9 WINDOWS

5.4.9.1 OPERATOR'S SIDE WINDOW

The operator's side window shall be divided vertically, and the rear half shall slide fore and aft in the tracks or channels designed for the life of the coach. This window section shall slide in tracks or channels designed to last the service life of the bus. The operator's side window shall not be bonded in place and shall be easily replaceable. Operator's window construction shall maximize ability for full opening of the window. The operator's side window glazing shall be laminated safety glass conforming to the requirements of ANSI Z26.1-1996 Test Grouping 2, the Recommended Practices defined in SAE J673 and Rated AS-2. The design shall prevent sections from freezing closed in the winter.

5.4.9.2 SIDE WINDOWS

Side windows shall be easily replaceable without disturbing adjacent windows and shall be mounted so that flexing or vibration from engine operation or normal road excitation is not apparent. All aluminum and steel material will be treated to prevent corrosion.

5.4.9.3 SAFETY GLASS GLAZING PANELS

Side windows glazing material shall be Laminated safety glass. The material shall conform to the requirements of ANSI Z26.1 and the Recommended Practices defined in SAE J673 and rated AS-3.

5.4.9.4 ANTII-VANDALISM SACRIFICIAL LINER

Sacrificial window liners are not required.

5.4.10 HEATING VENTILATING AND AIR CONDITIONING

5.4.10.1 CAPACITY AND PERFORMANCE

With the bus running at the design operating profile and carrying a number of passengers equal to 100 percent of the seated load, the HVAC system shall control the average passenger compartment temperature within a range between 60 and 80 °F, while maintaining the relative humidity to a value of 50 percent or less. The system shall maintain these conditions while subjected to any outside ambient temperatures within a range of 10 to 110 °F and at any ambient relative humidity levels between 5 and 50 percent. When the bus is operated in outside ambient temperatures of 10 to 110 °F, the interior temperature of the bus shall be permitted to rise 0.5° for each degree of exterior temperature in excess of 95 °F. When bus is operated in outside ambient temperatures in the range of -10 to 10 °F, the interior temperature of the bus shall not fall below 55 °F while the bus is running on the design operating profile.

The air conditioning portion of the HVAC system shall be capable of reducing the passenger compartment temperature from 110 degrees F to 90 degrees F in less than 20 minutes after engine start-up. Engine temperature shall be within the normal operating range at the time of start-up of the cool-down test and the engine speed shall be limited to fast idle that may be activated by an operator-controlled device. During the cool-down period the refrigerant pressure shall not exceed safe high-side pressures and the condenser discharge air temperature, measured 6 inches from the surface of the coil, shall be less than 45 degrees F above the condenser inlet air temperature. The bus shall be parked in direct sunlight with ambient temperature at 100 degrees F and humidity less than 20 percent. There shall be no passengers on board, and the doors shall be closed.

Manually controlled shutoff valves in the refrigerant lines shall allow isolation of the compressor and receiver for service. To the extent practicable, self-sealing couplings shall be used to break and seal the refrigerant lines during removal of major components, such as the refrigerant compressor condenser. The condenser shall be located to efficiently transfer heat to the atmosphere, and shall not ingest air warmed above the ambient temperature by the bus mechanical equipment, or to discharge air into any other system of the bus. The location of the condenser shall preclude its obstruction by wheel splash, road dirt or debris.

5.4.10.2 CONTROLS AND TEMPERATURE UNIFORMITY

The HVAC system excluding the operator's heater/defroster shall be centrally controlled with an advanced electronic/diagnostic control system with provisions for extracting/reading data. The system shall be compliant with J1939 Communication Protocol for receiving and broadcasting of data. Hot engine coolant water shall be delivered to the HVAC system operator's defroster/heater and other heater cores by means of an auxiliary coolant pump, sized for the required flow, which is brushless and sealless having a minimum maintenance free service life for both the brushless motor and the pump of at least 40,000 hours at full power. The auxiliary coolant pump shall have ¼ turn valves on both the inlet and outlet ports to allow for servicing and Interior temperature distribution shall be uniform to the extent practicable to prevent hot and/or cold spots.

5.4.10.3 AIR FLOW

5.4.10.3.1 Passenger Area

The cooling mode of the interior climate control system shall introduce air into the bus at or near the ceiling height at a minimum rate of 25 cubic ft per minute (cfm) per passenger based on the

standard configuration bus carrying a number of passengers equal to 100 percent of the seated load. Airflow shall be evenly distributed throughout the bus, with air velocity not exceeding 100 ft per minute on any passenger the fans shall not activate until the heating element has warmed sufficiently to ensure at least 70 °F air outlet temperature. The climate control blower motors and fan shall be a brushless motor designed and such that their operation complies with the interior noise level requirements.

5.4.10.3.2 Operator's Area

The bus interior climate control system shall deliver a minimum of 200 cfm of air to the operator's area when operating in the ventilating and cooling modes. Adjustable nozzles shall permit variable distribution or shutdown of the airflow. Airflow in the heating mode shall be reduced proportionally to the reduction of airflow into the passenger area. The windshield defroster unit shall meet the requirements of SAE Recommended Practice J382, "Windshield Defrosting Systems Performance Requirements," and shall have the capability of diverting heated air to the operator's feet and legs. The defroster or interior climate control system shall maintain visibility through the operator's side window.

5.4.11 SIGNAGE AND COMMUNICATION

5.4.11.1 EXTERIOR ROUTE DISPLAYS

The destination and side signs shall be Hanover white LED signs, or approved equal.

5.4.11.2 INTERIOR SIGNAGE

All interior decals shall meet the current design of Golden Empire Transit District.

5.4.11.3 RADIO COMMUNICATION SYSTEM

A Motorola MOTOTRBO Radio XPR 5580e communication system with remote control head, handset and external speaker shall be installed.

5.4.11.4 CAMERA SURVEILLANCE SYSTEM

Provide all wiring, mounting and equipment for an 11-camera Safety Vision 4120 surveillance system including the installation of 9 interior and 2 exterior color cameras, microphone, ups, moxi WIFI radio and GPS antenna wired back to a locking electrical box. Color matching exterior camera covers, tapping plates for exterior cameras, and a video system health light shall be installed. 1 HD camera shall be mounted behind the passenger side windshield for a forward view. The surveillance system shall have data storage capabilities of 2TB. The data storage device shall be solid state and hot swap capable without data loss.

5.4.11.5 PUBLIC ADDRESS SYSTEM

A public address system that complies with the ADA requirements of 49 CFR, Part 38.35 and enables the operator to address passengers inside or the bus. Inside speakers shall broadcast, in a clear tone, announcements that are clearly perceived from all seat positions at approximately the same volume level. A volume control shall be provided. The system shall be muted when not in use. The microphone for the operator shall be vandal resistant, mounted on a chrome heavy-duty, flexible gooseneck, which is secured with tamper-proof fasteners and will allow the operator to

comfortably speak into it. A provision shall be provided to secure the microphone in a stored position when not in use.

5.4.11.6 SPEAKERS

A minimum of 10 interior loudspeakers shall be provided, semi-flush mounted, on alternate sides of the bus passenger compartment, installed with proper phasing.

1.5 ELECTRICAL SYSTEM

5.5.1 GENERAL REQUIREMENTS

The electrical system shall be supplied by duel, air-cooled, engine belt driven alternators.

All wiring between electrical components and terminations, shall have double electrical insulation, shall be waterproof, and shall conform to specification requirements of SAE Recommended Practice J1127 and J1128. Except as interrupted by the master battery disconnect switch, battery and starter wiring shall be continuous cables, grouped, numbered, and/or color-coded with connections secured by bolted terminals; and shall conform to specification requirements of SAE Standard J1127-Type SGT or SGX and SAE Recommended Practice J541. Wiring harnesses shall not contain wires of different voltages unless all wires within the harness are sized to carry the current and insulated for the highest voltage wire in the harness.

Double insulation shall be maintained as close to the terminals as possible. The requirement for double insulation shall be met by wrapping harnesses with plastic electrical tape or by sheathing all wires and harnesses with non-conductive, rigid or flexible conduit. Strain-relief fittings shall be provided at points where wiring enters all electrical components. Grommets of elastomeric material shall be provided at points where wiring penetrates metal structures outside of electrical enclosures. Wiring supports shall be protective and non-conductive at areas of wire contact and shall not be damaged by heat, water, solvents, or chafing.

All wiring harnesses over 5 feet long and containing at least 5 wires shall include 10 percent excess wires for spares that are the same size as the largest wire in the harness excluding the battery cables. Wiring length shall allow end terminals to be replaced twice without pulling, stretching, or replacing the wire. Except for large wires such as battery cables, terminals shall be crimped to the wiring and may be soldered only if the wire is not stiffened above the terminal and no flux residue remains on the terminal. Terminals shall be corrosion-resistant and full ring type or interlocking lugs with insulating ferrules. T splices may be used when there is less than 25,000 circular mills of copper in the cross section and a mechanical clamp is used in addition to solder on the splice; the wire supports no mechanical load in the area of the splice; and the wire is supported to prevent flexing.

All cable connectors shall be locking type, keyed, and watertight, unless enclosed in watertight cabinets. Pins shall be removable, crimp contact type of the correct size and rating for the wire being terminated. Unused pin positions shall be sealed with sealing plugs. Adjacent connectors shall either use different inserts or different insert orientations to prevent incorrect connections. A wiring

schematic shall be provided that accurately describes the location, function, color, wire number, and size of each wire and system used on the coach.

5.5.1.1 JUNCTION BOXES

All relays, controllers, flashers, circuit breakers, and other electrical components shall be grouped according to voltage; and mounted in easily accessible junction boxes. The boxes shall be sealed to prevent moisture from normal sources, including engine compartment cleaning, from reaching the electrical components and shall prevent fire that may occur inside the box from propagating outside the box. The components and circuits in each box shall be identified and their location permanently recorded on a schematic drawing glued to or printed on the inside of the box cover or door. The drawing shall be protected from oil, grease, fuel, and abrasion. The front junction box shall be completely serviceable from the operator's seat, vestibule, or from outside.

5.5.1.2 ELECTRICAL COMPONENTS

All electrical components, including switches, relays, flashers, and circuit breakers, shall be heavy-duty designs. Sockets of plug-in components shall be polarized where required for proper function and the components shall be positively retained. Any manually resettable circuit breakers critical to the operation of the bus shall be mounted in a location convenient to the operator and provide visible indication of open circuits. All electric motors, except cranking motors, shall be heavy-duty brushless type, with a constant duty rating of no less than 20,000 hours. Electronic circuit protection for the cranking motor shall be provided to prevent engaging of the motor for more than 30 seconds at a time.

5.5.2 BATTERIES

A minimum of two 8-D 1200 CCA batteries shall be easily accessible for inspection and serviceable only from outside the bus and shall be securely mounted on a slide tray. Batteries shall be of premium construction and shall be fitted with threaded stud terminals. Positive and negative terminals shall have different size studs, or the battery terminals and cables shall be arranged to prevent incorrect installation.

The battery tray shall be made of stainless steel and accommodate both types of batteries and shall pull out easily and properly support the batteries during service, filling with manual or automatic equipment, inspection and replacement. A positive lock shall retain the battery tray in the normal position. Battery cables shall be flexible and sufficiently long to reach the batteries in extended positions without stretching or pulling on any connection and shall not lie on top of the batteries. The battery terminals and cables shall be color-coded with red for the primary positive, black for negative, and another color for any intermediate voltage cables.

5.5.2.1 BATTERY CABLES

The battery terminal ends and cables shall be color-coded with red for the primary positive, black for negative and another color for any intermediate voltage cables. Positive and negative battery cables shall not cross each other if at all possible, be flexible and sufficiently long to reach the batteries with the tray in the extended position without stretching or pulling on any connection and shall not lie directly on top of the batteries. Except as interrupted by the master battery switch, battery and starter

wiring shall be continuous cables with connections secured by bolted terminals and shall conform to specification requirements of SAE Standard J1127 – Type SGT, SGX or GXL and SAE Recommended Practice J541, 2100 strand 4/0 cable or greater recommended.

5.5.2.2 JUMP START

An Anderson, or approved equal, jump-start connector will be located next to the battery disconnect switch.

5.5.2.3 BATTERY COMPARTMENT

The battery compartment shall prevent accumulation of snow, ice and debris on top of the batteries and shall be vented and self-draining. It shall be accessible only from the outside of the vehicle. All components within the battery compartment, and the compartment itself, shall be protected from damage or corrosion from the electrolyte. The inside surface of the battery compartment's access door shall be electrically insulated, as required, to prevent the battery terminals from shorting on the door if the door is damaged in an accident or if a battery comes loose. The vehicle shall be equipped with a 12VDC and 24VDC quick disconnect switch. The battery compartment door shall conveniently accommodate operation of the 12VDC and 24VDC quick disconnect switch.

The battery quick disconnect access door shall be identified with a decal. The decal size shall not be less than 3.5 × 5 in. (8.89 × 12.7 cm). The battery hold-down bracket shall be constructed of a non-metallic material (plastic or fiberglass). This access door shall not require any special locking devices to gain access to the switch, and it shall be accessible without removing or lifting the panel. The door shall be flush-fitting and incorporate a spring tensioner or equal to retain the door in a closed position when not in use.

The batteries shall be securely mounted on a stainless steel or equivalent tray that can accommodate the size and weight of the batteries. The battery tray shall pull out easily and properly support the batteries while they are being serviced. The tray shall allow each battery cell to be easily serviced and filled. A locking device shall retain the battery tray to the stowed position. If not located in the engine compartment, the same fire-resistant properties must apply to the battery compartment. No sparking devices should be located within the battery box.

5.5.2.4 MASTER BATTERY SWITCH

A master battery switch shall be provided in the battery compartment near the batteries for complete disconnecting from all bus electrical systems. The location of the master battery switch shall be clearly identified on the access panel and be accessible in less than 10 seconds for activation. The master switch shall be capable of carrying and interrupting the total circuit load. Any equipment that requires power without reference to the master battery switch shall be listed in attachments. Opening the master switch with the power plant operating shall not damage any component of the electrical system. The location of the master battery switch shall prevent corrosion from fumes and battery acid when the batteries are washed off.

5.5.2.5 LOW-VOLTAGE GENERATION SYSTEM

The low-voltage generating system shall maintain the charge on fully charged batteries, except when the vehicle is at standard idle with a total low voltage generator load exceeding 70 percent of the low voltage generator nameplate rating.

Voltage monitoring and over-voltage output protection (recommended at 32V) shall be provided. Dedicated power and ground shall be provided as specified by the component or system manufacturer. Cabling to the equipment must be sized to supply the current requirements with no greater than a 5 percent volt drop across the length of the cable.

5.5.2.6 CIRCUIT PROTECTION

All branch circuits, except battery-to-starting motor and battery-to-generator/alternator circuits, shall be protected by current-limiting devices such as circuit breakers, fuses or solid state devices sized to the requirements of the circuit. Electronic circuit protection for the cranking motor shall be provided to prevent engaging of the motor for more than 30 seconds at a time to prevent overheating. The circuit breakers or fuses shall be easily accessible for authorized personnel. Fuses shall be used only where it can be demonstrated that circuit breakers are not practicable. This requirement applies to in-line fuses supplied by either the Contractor or a Supplier. Fuse holders shall be constructed to be rugged and waterproof. All manual reset circuit breakers critical to the operation of the bus shall be mounted in a location convenient to the Agency mechanic with visible indication of open circuits. The Agency shall consider the application of automatic reset circuit breakers on a case-by-case basis. The Contractor shall show all in-line fuses in the final harness drawings. Any manually resettable circuit breakers shall provide a visible indication of open circuits. Any manually resettable circuit breakers shall provide a visible indication of open circuits.

Circuit breakers or fuses shall be sized to a minimum of 15 percent larger than the total circuit load. The current rating for the wire used for each circuit must exceed the size of the circuit protection being used.

5.5.2.7 GROUNDS

The battery shall be grounded to the vehicle chassis/frame at one location only, as close to the batteries as possible. When using a chassis ground system, the chassis shall be grounded to the frame in multiple locations, evenly distributed throughout the vehicle to eliminate ground loops. No more than four ground ring/spade terminal connections shall be made per ground stud. Electronic equipment requiring an isolated ground to the battery (i.e., electronic ground) shall not be grounded through the chassis.

5.5.2.8 LOW VOLTAGE/LOW CURRENT WIRING AND TERMINALS

All power and ground wiring shall conform to specification requirements of SAE Recommended Practice J1127, J1128 and J1292. Double insulation shall be maintained as close to the junction box, electrical compartment or terminals as possible. The requirement for double insulation shall be met by wrapping the harness with plastic electrical tape or by sheathing all wires and harnesses with non-conductive, rigid or flexible conduit.

Wiring shall be grouped, numbered and/or color-coded. Wiring harnesses shall not contain wires of different voltage classes unless all wires within the harness are insulated for the highest voltage present in the harness. Kinking, grounding at multiple points, stretching, and exceeding minimum bend radius shall be prevented.

Strain-relief fittings shall be provided at all points where wiring enters electrical compartments. Grommets or other protective material shall be installed at points where wiring penetrates metal structures outside of electrical enclosures. Wiring supports shall be protective and non-conductive at areas of wire contact and shall not be damaged by heat, water, solvents or chafing. To the extent practicable, wiring shall not be located in environmentally exposed locations under the vehicle. Wiring and electrical equipment necessarily located under the vehicle shall be insulated from water, heat, corrosion and mechanical damage. Where feasible, front to rear electrical harnesses should be installed above the window line of the vehicle.

All wiring harnesses over 5 ft long and containing at least five wires shall include 10 percent (minimum one wire) excess wires for spares. This requirement for spare wires does not apply to data links and communication cables. Wiring harness length shall allow end terminals to be replaced twice without pulling, stretching or replacing the wire. Terminals shall be crimped to the wiring according to the connector manufacturer's recommendations for techniques and tools. All cable connectors shall be locking type, keyed and sealed, unless enclosed in watertight cabinets or vehicle interior. Pins shall be removable, crimp contact type, of the correct size and rating for the wire being terminated. Unused pin positions shall be sealed with sealing plugs. Adjacent connectors shall either use different inserts or different insert orientations to prevent incorrect connections.
Terminals shall be crimped, corrosion-resistant and full ring type or interlocking lugs with insulating ferrules. When using pressure type screw terminal strips, only stranded wire shall be used. Insulation clearance shall ensure that wires have a minimum of "visible clearance" and a maximum of two times the conductor diameter or 1/16 in., whichever is less. When using shielded or coaxial cable, upon stripping of the insulation, the metallic braid shall be free from frayed strands that can penetrate the insulation of the inner wires. Ultra-sonic and T-splices may be used with 7 AWG or smaller wire. When a T-splice is used, it shall meet these additional requirements:

- It shall include a mechanical clamp in addition to solder on the splice.
- The wire shall support no mechanical load in the area of the splice.
- The wire shall be supported to prevent flexing.

All splicing shall be staggered in the harness so that no two splices are positioned in the same location within the harness. Wiring located in the engine compartment shall be routed away from high-heat sources or shielded and/or insulated from temperatures exceeding the wiring and connector operating requirements. The instrument panel and wiring shall be easily accessible for service from the operator's seat or top of the panel. The instrument panel shall be separately removable and replaceable without damaging the instrument panel or gauges. Wiring shall have sufficient length and be routed to permit service without stretching or chafing the wires.

5.5.2.9 ELECTRICAL COMPONENTS

All electrical components, including switches, relays, flashers and circuit breakers, shall be heavy-duty designs with either a successful history of application in heavy-duty vehicles or design specifications for

an equivalent environment. All electric motors shall be heavy-duty brushless type where practical, and have a continuous duty rating of no less than 40,000 hours (except cranking motors, washer pumps and wiper motors). All electric motors shall be easily accessible for servicing.

5.5.2.10 ELECTRICAL COMPARTMENTS

All relays, controllers, flashers, circuit breakers and other electrical components shall be mounted in easily accessible electrical compartments. All compartments exposed to the outside environment shall be corrosion-resistant and sealed. The components and their functions in each electrical compartment shall be identified and their location permanently recorded on a drawing attached to the inside of the access panel or door. The drawing shall be protected from oil, grease, fuel and abrasion.

The front compartment shall be completely serviceable from the operator's seat, vestibule or from the outside. "Rear start and run" controls shall be mounted in an accessible location in the engine compartment and shall be protected from the environment.

5.5.2.11 GENERAL ELECTRICAL REQUIREMENTS

If an electronic component has an internal real-time clock, it shall provide its own battery backup to monitor time when battery power is disconnected, and/or it may be updated by a network component. If an electronic component has an hour meter, it shall record accumulated service time without relying on battery backup.

All electronic component suppliers shall ensure that their equipment is self-protecting in the event of shorts in the cabling, and also in over-voltage (over 32V DC on a 24V DC nominal voltage rating with a maximum of 50V DC) and reverse polarity conditions. If an electronic component is required to interface with other components, it shall not require external pull-up and/or pull-down resistors. Where this is not possible, the use of a pull-up or pull-down resistor shall be limited as much as possible and easily accessible and labeled.

5.5.2.12 WIRING AND TERMINALS

Kinking, grounding at multiple points, stretching and reducing the bend radius below the manufacturer's recommended minimum shall not be permitted.

5.5.2.13 DISCRETE INPUT/OUTPUT TERMINALS

All wiring to I/O devices, either at the harness level or individual wires, shall be labeled, stamped or color-coded in a fashion that allows unique identification at a spacing not exceeding 4 in. Wiring for each I/O device shall be bundled together. If the I/O terminals are the same voltages, then jumpers may be used to connect the common nodes of each I/O terminal.

5.5.2.14 SHIELDING

All wiring that requires shielding shall meet the following minimum requirements. A shield shall be generated by connecting to a ground, which is sourced from a power distribution bus bar or chassis. A shield shall be connected at one location only, typically at one end of the cable. However certain standards or special requirements, such as SAE J1939 or RF applications, have separate shielding techniques that also shall be used as applicable.

NOTE: A shield grounded at both end forms a ground loop, which can cause intermittent control or faults.

When using shielded or coaxial cable, upon stripping of the insulation, the metallic braid shall be free from frayed strands, which can penetrate the insulation of the inner wires. To prevent the introduction of noise, the shield shall not be connected to the common side of a logic circuit.

5.5.2.15 COMMUNICATIONS

The data network cabling shall be selected and installed according to the selected protocol requirements. The physical layer of all network communication systems shall not be used for any purpose other than communication between the system components, unless provided for in the network specifications. Communications networks that use power line carriers (e.g., data modulated on a 24V-power line) shall meet the most stringent applicable wiring and terminal specifications.

5.5.2.16 RADIO FREQUENCY

RF components, such as radios, video devices, cameras, global positioning systems (GPS), etc., shall use coaxial cable to carry the signal. All RF systems require special design consideration for losses along the cable. Connectors shall be minimized, since each connector and crimp have a loss that will attribute to attenuation of the signal. Cabling should allow for the removal of antennas or attached electronics without removing the installed cable between them. If this cannot be done, then a conduit of sufficient size shall be provided for ease of attachment of antenna and cable assembly. The corresponding component vendors shall be consulted for proper application of equipment, including installation of cables.

5.5.2.17 AUDIO

Cabling used for microphone level and line level signals shall be 22 AWG minimum with shielded twisted pair. Cabling used for amplifier level signals shall be 18 AWG minimum. An external speaker for the radio shall be provided in the operator's compartment.

5.5.3 MULTIPLEXING

5.5.3.1 GENERAL

The primary purpose of the multiplexing system is control of components necessary to operate the vehicle. This is accomplished by processing information from input devices and controlling output devices through the use of an internal logic program.

Versatility and future expansion shall be provided for by expandable system architecture. The multiplex system shall be capable of accepting new inputs and outputs through the addition of new modules and/or the utilization of existing spare inputs and outputs. All like components in the multiplex system shall be modular and interchangeable with self-diagnostic capabilities. The modules shall be easily accessible for troubleshooting electrical failures and performing system maintenance. Multiplex input/output modules shall use solid-state devices to provide extended service life and individual circuit protection.

Ten percent of the total number of inputs and outputs, or at least one each for each voltage type utilized (0V, 12V, 24V), at each module location shall be designated as spares.

5.5.3.2 SYSTEM CONFIGURATION

Multiplexing may either be distributed or centralized. A distributed system shall process information on multiple control modules within the network. A centralized system shall process the information on a single control module. Either system shall consist of several modules connected to form a control network.

5.5.3.3 I/O SIGNALS

The input/output for the multiplex system may contain three types of electrical signals: discrete, analog or serial data. Discrete signals shall reflect the on/off status of switches, levers, limit switches, lights, etc. Analog signals shall reflect numerical data as represented by a voltage signal (0-12V, 10-24V, etc.) or current signal (4-20 mA). Both types of analog signals shall represent the status of variable devices such as rheostats, potentiometers, temperature probes, etc. Serial data signals shall reflect ASCII or alphanumeric data used in the communication between other on-board components.

5.5.3.4 DATA COMMUNICATION

5.5.3.4.1 General

All data communication networks shall be either in accordance with a nationally recognized interface standard, such as those published by SAE, IEEE or ISO, or shall be published to the Agency with the following minimum information:

- Protocol requirements for all timing issues (bit, byte, packet, inter-packet timing, idle line timing, etc.) packet sizes, error checking and transport (bulk transfer of data to/from the device).
- Data definition requirements that ensure access to diagnostic information and performance characteristics.
- The capability and procedures for uploading new application or configuration data.
- Access to revision levels of data, application software and firmware.
- The capability and procedures for uploading new firmware or application software.
- Evidence that applicable data shall be broadcast to the network in an efficient manner such that the overall network integrity is not compromised.

Any electronic vehicle components used on a network shall be conformance tested to the corresponding network standard.

5.5.3.4.2 Drivetrain Level

Drivetrain components, consisting of the engine, transmission, retarder, anti-lock braking system and all other related components, shall be integrated and communicate fully with respect to vehicle operation with data using SAE Recommended Communications Protocols such as J1939 with forward and backward compatibilities or other open protocols.

5.5.3.4.3 Diagnostics, Fault Detection and Data Access

Drivetrain performance, maintenance and diagnostic data, and other electronic messages shall be formatted and transmitted on the communications networks. The drivetrain level shall have the ability to record abnormal events in memory and provide diagnostic codes and other information to service personnel. At a minimum, this network level shall provide live/fail status, current hardware serial number, software/data revisions and uninterrupted timing functions.

5.5.3.4.4 Programmability (Software)

The drivetrain level components shall be programmable by the Agency with limitations as specified by the sub-system Supplier.

5.5.3.5 MULTIPLEX LEVEL

5.5.3.5.1 Data Access

At a minimum, information shall be made available via a communication port on the multiplex system. The location of the communication port shall be easily accessible. A hardware gateway and/or wireless communications system are options if requested by the Agency. The communication port(s) shall be located as specified by the Agency.

5.5.3.5.2 Diagnostics and Fault Detection

The multiplex system shall have a proven method of determining its status (system health and input/output status) and detecting either active (online) or inactive (offline) faults through the use of on-board visual/audible indicators. In addition to the indicators, the system shall employ an advanced diagnostic and fault detection system, which shall be accessible via either a personal computer or a handheld unit. Either unit shall have the ability to check logic function. The diagnostic data can be incorporated into the information level network or the central data access system.

5.5.3.5.3 Programmability (Software)

The multiplex system shall have security provisions to protect its software from unwanted changes. This shall be achieved through any or all of the following procedures:

- password protection
- limited distribution of the configuration software
- limited access to the programming tools required to change the software
- hardware protection that prevents undesired changes to the software

Provisions for programming the multiplex system shall be possible through a PC or laptop. The multiplex system shall have proper revision control to ensure that the hardware and software are identical on each vehicle equipped with the system. Revision control shall be provided by all of the following:

- hardware component identification where labels are included on all multiplex hardware to identify components
- hardware series identification where all multiplex hardware displays the current hardware serial number and firmware revision employed by the module
- software revision identification where all copies of the software in service displays the most recent revision number
- a method of determining which version of the software is currently in use in the multiplex system

5.5.3.6 ELECTRONIC NOISE CONTROL

Electrical and electronic sub-systems and components on all buses shall not emit electromagnetic radiation that will interfere with on-board systems, components or equipment, telephone service, radio or TV reception or violate regulations of the Federal Communications Commission.

Electrical and electronic sub-systems on the coaches shall not be affected by external sources of RFI/EMI. This includes, but is not limited to, radio and TV transmission, portable electronic devices including computers in the vicinity of or onboard the buses, ac or dc power lines and RFI/EMI emissions from other vehicles.

5.5.3.7 AVL EQUIPMENT

The Contractor shall supply a fully integrated AVL system with passenger counters. The AVL equipment manufacturer shall be Connexionz or an approved equal with the following equipment:

Connexionz:

PART #	Part Name
CX-0005-01-1	MEDIUS with WIFI Antenna.
BPC-410	GPS Unit (Serial) for MEDIUS
TM8000	TAIT Radio
ETRA8063	LAIRD 806-866MHz 3dBMEG Phantom Elite in White, NMO style
L057AMB26	HANOVER LED INTERIOR Sign, Amber, 8*120, J1708

5.5.3.8 Automatic Passenger Counters

A fully functional automatic passenger counter system manufacturer by UTA or approved equal, must be installed at the front entrance stepwell to provide an accurate count of passenger boarding's and alighting. The system must be integrated into the CAD / AVL system on board the vehicle. The following minimum equipment shall be provided and installed.

UTA:

Part #	Part Name
6P1708	Smart Sensor Module
ELF	Infrared Sensor
_____	IR Sensor Mounts (Part # Dependent upon Make, Model)
_____	Smart Sensor Plate with Electronic Relay Board (Available in 12V or 24V Models)
BRT-3	Reflectors