

Contract Index
Contract BDS02
Central Florida Commuter Rail Transit,
Diesel Electric Passenger Locomotives
Financial project No. 412994-6-53-02

1. Standard Written Agreement, Page 1 through 8
2. Exhibit "A", Scope of Services, Pages A-1 through A-3
3. Exhibit "B", Method of Compensation, Pages B-1 through B-7
4. Exhibit "B-1", Milestone Payment Requirements, Pages B-1.1 through B-1.12
5. Exhibit "C", Price Proposal form, Page C-1 through C-6
6. Exhibit "D", VEHICLE DESIGN CRITERIA, Remanufactured Diesel Electric Passenger Locomotives, Pages D-I through D-140
7. Exhibit "E" Federal Transportation Administration Requirements for Rolling Stock, Pages E-1 through E-16
8. Exhibit "F" Software Code Deposit Agreement, Pages F-1 through F-8
9. Exhibit "G", General Contract Conditions (PUR 1000), Pages G-1 through G-11
10. Exhibit "H", General Instructions to Respondents (PUR 1001) Pages H-1 through H-5
11. Exhibit I, Train Color Scheme Composite, 1 Page
12. Appendix "A" IOS 2010 Scenario Preliminary Train Schedules, Page 1
13. Appendix "B" LPA 2013 Scenario Preliminary Train Schedules, Page 1
14. Appendix "C" Full Build 2010 Scenario Preliminary Train Schedules, Page 1
15. Table 8, Full Build Estimated Station to Station Run Times, Page 1
16. Table 9, Operating Requirements for Commuter Rail Scenarios, Page 1
17. Insurance Certificate, 2 pages
18. Performance Bond, form 375-040-27, 1 Page

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STANDARD WRITTEN AGREEMENT

Agreement No.: BDS02

Financial Project I.D.: 412994-6-53-02

F.E.I.D. No: F232837369-001

Procurement No. ITN-DOT-08-09-5001-LOC

D.M.S. Catalog Class No.: 737-100

BY THIS AGREEMENT, made and entered into this 2nd day of May, 2011, by and between the STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION, hereinafter called the "Department" and MotivePower, Inc. of 4600 Apple Street, Boise ID, 83716 duly authorized to conduct business in the State of Florida, hereinafter called "Vendor," hereby agree as follows:

1. SERVICES AND PERFORMANCE

- A. In connection with Central Florida Commuter Rail Transit Diesel Electric Passenger Locomotives the Department does hereby retain the Vendor to furnish certain services, information, and items as described in Exhibit "A," attached hereto and made a part hereof.
- B. Before making any additions or deletions to the work described in this Agreement, and before undertaking any changes or revisions to such work, the parties shall negotiate any necessary cost changes and shall enter into an Amendment covering such work and compensation. Reference herein to this Agreement shall include any amendment(s).
- C. All tracings, plans, specifications, maps, computer files, and reports prepared or obtained under this Agreement exclusively at the cost of and exclusively for the benefit of the Department, as well as all data collected, together with summaries and charts derived there from exclusively at the cost of and exclusively for the benefit of the Department, shall be the exclusive property of the Department without restriction or limitation on their use and shall be made available, upon request, to the Department at any time during the performance of such services and/or upon completion or termination of this Agreement. Upon delivery to the Department of said document(s), the Department shall become the custodian thereof in accordance with Chapter 119, Florida Statutes. The Vendor shall not copyright any material and products or patent any invention developed under this Agreement. The Department shall have the right to visit the site for inspection of the work and the products of the Vendor at any time exclusively at the cost of and exclusively for the benefit of the Department. As to all other intellectual property prepared, used or otherwise connected in any way with this Agreement, the Department shall have a perpetual, irrevocable, royalty free, non-exclusive license for the use thereof in connection with the commodities and services procured pursuant to this Agreement, which license shall be deemed assigned to any other entity to whom the commodities may hereafter be conveyed. Tracings, plans, specifications, maps, computer files, and reports that contain or are based on intellectual property that is owned by entities other than the Vendor or the Department shall not be deemed to be prepared or obtained under this Agreement exclusively at the cost of and exclusively for the benefit of the Department, and shall be used by the Department only pursuant to the license granted hereunder.
- D. All final plans, documents, reports, studies, and other data prepared by the Vendor shall bear the professional's seal/signature, in accordance with the applicable Florida Statutes, Administrative Rules promulgated by the Department of Business and Professional Regulation, and guidelines published by the Department, in effect at the time of execution of this Agreement. In the event that changes in the statutes or rules create a conflict with the requirements of published guidelines, requirements of the statutes and rules shall take precedence.
- E. The Vendor agrees to provide project schedule progress reports in a format acceptable to the Department and at intervals established by the Department. The Department shall be entitled at all times to be advised, at its request, as to the status of work being done by the Vendor and of the details thereof. Coordination shall be maintained by the Vendor with representatives of the Department, or of other agencies interested in the project on behalf of the Department. Either party to this Agreement may request and be granted a conference.
- F. All services shall be performed by the Vendor to the satisfaction of the Director who shall decide all questions, difficulties, and disputes of any nature whatsoever that may arise under or by reason of this Agreement, the prosecution and fulfillment of the services hereunder and the character, quality, amount of value thereof; and the decision upon all claims, questions, and disputes shall be final and binding upon the parties hereto. Adjustments of compensation and contract time because of any major changes in the work that may become necessary or desirable as the work progresses shall be subject to mutual agreement of the parties, and amendment(s) shall be entered into by the parties in accordance herewith. Reference herein to the Director shall mean the Director of Transportation Operations

2. TERM

A. Initial Term. This Agreement shall begin on date of execution and shall remain in full force and effect through completion of all services required or _____, whichever occurs first. Subsequent to the execution of this Agreement by both parties, the services to be rendered by the Vendor shall commence and be completed in accordance with the option selected below. (Select box and indicate date(s) as appropriate):

☐ Services shall commence _____ and shall be completed by _____ or date of termination, whichever occurs first.

☐ Services shall commence upon written notice from the Department's Contract Manager and shall be completed by _____ or date of termination, whichever occurs first.

☒ Other: See Exhibit "A" and Exhibit "B"

B. RENEWALS (Select appropriate box):

☒ This Agreement may not be renewed.

- ☐ This Agreement may be renewed for a period that may not exceed three (3) years or the term of the original contract, whichever period is longer. Renewals shall be contingent upon satisfactory performance evaluations by the Department and subject to the availability of funds. Any renewal or extension shall be in writing and shall be subject to the same terms and conditions set forth in this Agreement.

C. EXTENSIONS. In the event that circumstances arise which make performance by the Vendor impracticable or impossible within the time allowed or which prevent a new contract from being executed, the Department, in its discretion, may grant an extension of this Agreement. Extension of this Agreement shall be in writing for a period not to exceed six (6) months and shall be subject to the same terms and conditions set forth in this Agreement; provided the Department may, in its discretion, grant a proportional increase in the total dollar amount based on the method and rate established herein. There shall be only one extension of this Agreement unless the failure to meet the criteria set forth in this Agreement for completion of this Agreement is due to events beyond the control of the Vendor.

It shall be the responsibility of the Vendor to ensure at all times that sufficient time remains in the Project Schedule within which to complete services on the project. In the event there have been delays which would affect the project completion date, the Vendor shall submit a written request to the Department which identifies the reason(s) for the delay and the amount of time related to each reason. The Department shall review the request and make a determination as to granting all or part of the requested extension.

3. COMPENSATION AND PAYMENT

- A. Payment shall be made only after receipt and approval of goods and services unless advance payments are authorized by the Chief Financial Officer of the State of Florida under Section 215.422(14), Florida Statutes.
- B. If this Agreement involves units of deliverables, then such units must be received and accepted in writing by the Contract Manager prior to payments.
- C. Bills for fees or other compensation for services or expenses shall be submitted in detail sufficient for a proper preaudit and postaudit thereof.
- D. The bills for any travel expenses, when authorized by terms of this Agreement and by the Department's Project Manager, shall be submitted in accordance with Section 112.061, Florida Statutes, and Chapter 3 -Travel, Department's Disbursement Operations Manual, 350-030-400.
- E. Vendors providing goods and services to the Department should be aware of the following time frames. Upon receipt, the Department has forty five (45) working days to inspect and approve the goods and services, unless otherwise specified herein. The Department has twenty (20) days to deliver a request for payment (voucher) to the Department of Financial Services. The twenty (20) days are measured from the latter of the date the invoice is received or the goods or services are received, inspected and approved.

- F. If a payment is not available within forty (40) days from the date the goods and services are received, inspected and approved, a separate interest penalty as established pursuant to Section 215.422, Florida Statutes, shall be due and payable, in addition to the invoice amount, to the Vendor. Interest penalties of less than one (1) dollar shall not be enforced unless the Vendor requests payment. Invoices which have to be returned to a Vendor because of Vendor preparation errors shall result in a delay in the payment. The invoice payment requirements do not start until a properly completed invoice is provided to the Department
- G. The State of Florida, through the Department of Management Services, has instituted MyFloridaMarketPlace, a statewide eProcurement system. Pursuant to Section 287.057(22), Florida Statutes, all payments shall be assessed a transaction fee of one percent (1%), which the Vendor shall pay to the State. For payments within the State accounting system (FLAIR or its successor), the transaction fee shall, when possible, be automatically deducted from payments to the Vendor. If automatic deduction is not possible, the Vendor shall pay the transaction fee pursuant to Rule 60A-1.031(2), Florida Administrative Code. By submission of these reports and corresponding payments, Vendor certifies their correctness. All such reports and payments shall be subject to audit by the State or its designee. The Vendor shall receive a credit for any transaction fee paid by the Vendor for the purchase of any item(s) if such item(s) are returned to the Vendor through no fault, act, or omission of the Vendor. Notwithstanding the foregoing, a transaction fee is non-refundable when an item is rejected or returned, or declined, due to the Vendor's failure to perform or comply with specifications or requirements of the Agreement. Failure to comply with these requirements shall constitute grounds for declaring the Vendor in default and recovering re-procurement costs from the Vendor in addition to all outstanding fees. VENDORS DELINQUENT IN PAYING TRANSACTION FEES MAY BE EXCLUDED FROM CONDUCTING FUTURE BUSINESS WITH THE STATE.
- H. A vendor ombudsman has been established within the Department of Financial Services. The duties of this individual include acting as an advocate for vendors who may be experiencing problems in obtaining timely payment(s) from a state agency. The Vendor Ombudsman may be contacted at (850) 413-5516
- I. Records of costs incurred under terms of this Agreement shall be maintained and made available upon request to the Department at all times during the period of this Agreement and for three (3) years after final payment for the work pursuant to this Agreement is made. Copies of these documents and records shall be furnished to the Department upon request. Records of costs incurred shall include the Vendor's general accounting records and the project records, together with supporting documents and records of the Vendor and all subcontractors performing work on the project, and all other records of the Vendor and subcontractors considered necessary by the Department for a proper audit of project costs.
- J. The Department, during any fiscal year, shall not expend money, incur any liability, or enter into any contract which, by its terms, involves the expenditure of money in excess of the amounts budgeted as available for expenditure during such fiscal year. Any contract, verbal or written, made in violation of this subsection is null and void, and no money may be paid on such contract. The Department shall require a statement from the comptroller of the Department that funds are available prior to entering into any such contract or other binding commitment of funds. Nothing herein contained shall prevent the making of contracts for periods exceeding one (1) year, but any contract so made shall be executory only for the value of the services to be rendered or agreed to be paid for in succeeding fiscal years. Accordingly, the Department's performance and obligation to pay under this Agreement is contingent upon an annual appropriation by the Legislature.

4. INDEMNITY AND PAYMENT FOR CLAIMS

- A. **INDEMNITY:** To the extent permitted by Florida Law, the Vendor shall indemnify and hold harmless the Department, its officers and employees from liabilities, damages, losses, and costs, including, but not limited to, reasonable Attorney's fees, to the extent caused by negligence, recklessness, or intentional wrongful misconduct of the Vendor and persons employed or utilized by the Vendor in the performance of this Agreement.

It is specifically agreed between the parties executing this Agreement that it is not intended by any of the provisions of any part of the Agreement to create in the public or any member thereof, a third party beneficiary here under, or to authorize anyone not a party to this Agreement to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of this Agreement.

Notwithstanding any term or condition herein to the contrary, in no event shall either party be liable to the other for special, indirect, incidental, punitive or consequential damages, including, but not limited to, lost data or records (unless the contract or purchase order requires the contractor to back-up data or records,) lost profits, lost revenue, lost savings or lost opportunity, even if the other party has been advised that such damages are possible.

PAYMENT FOR CLAIMS: The Vendor guarantees the payment of all just claims for materials, supplies, tools, or labor and other just claims against the Vendor or any subcontractor, in connection with the Agreement. The Department's final acceptance and payment does not release the Vendor's bond until all such claims are paid or released.

Vendor's cumulative liability to the Department under this paragraph 4.A. shall be limited to 100% of the purchase price paid to the Vendor by the Department under this Agreement. The purchase price shall include any optional purchases if the Department elects to exercise the option

B. LIABILITY INSURANCE. (Select and complete as appropriate):

☐ No general liability insurance is required.

☒ Prior to Notice to Proceed the vendor shall submit to the Department the proof that following insurance policies are in place. Failure to provide the necessary Insurance will be considered a material default under this contract. The Vendor shall carry and keep in force during the term of this Agreement, a general liability insurance policy or policies with a company or companies authorized to do business in Florida, affording public liability insurance with a combined bodily injury limits of at least \$500,000.00 per person and \$ 1,000,000.00 each occurrence, and property damage insurance of at least \$500,000.00 each occurrence, for the services to be rendered in accordance with this Agreement.

☐ The Vendor shall have and maintain during the term of this Agreement, a professional liability insurance policy or policies or an irrevocable letter of credit established pursuant to Chapter 675 Section 337.106, Florida Statutes, with a company or companies authorized to do business in the State of Florida, affording liability coverage for the professional services to be rendered in with this Agreement in the amount of \$ _____

C. WORKERS' COMPENSATION. The Vendor shall also carry and keep in force Workers' Compensation insurance as required for the State of Florida under the Workers' Compensation Law.

D. PERFORMANCE AND PAYMENT BOND.

PROVISION FOR BONDS (PERFORMANCE, WARRANTY AND OPTIONS)

The Vendor shall supply to the Department the following bonds for the initial procurement:

(a) Within ten (10) calendar days of Notice to Proceed to this Agreement, a performance bond in the amount of \$4,000,000.00 ("Performance Bond"), provided by a surety authorized to do business in the State of Florida, on the Form included in the Agreement, which shall guarantee the prompt, faithful and efficient performance of the base procurement under this Agreement, including warranty provisions. A Rider for this Performance Bond shall be issued to reduce the amount to \$1,720,680.00 upon final acceptance of the last vehicle of the initial procurement. The Performance Bond shall expire at the end of the two-year warranty or the proper and final completion of all repairs, replacements, or payments under the two-year warranty, whichever is later. Failure to provide a properly executed performance bond within the time provided shall be a material default under this Agreement, time being of the essence in the delivery thereof.

The Vendor shall supply the Department the following bond and rider for each of the additional procurements for Optional Vehicles:

(b) Within ten (10) calendar days of the issuance of a purchase order for an additional order of Optional Vehicles under this Agreement, a Performance Bond in an amount equivalent to twenty-five (25%) of the Compensation of the Optional Vehicle procurement ("Option Performance Bond"), provided by a surety authorized to do business in the State of Florida, on the Form included in the Agreement, which shall guarantee the prompt, faithful and efficient performance of this additional procurement under this Agreement, including warranty provisions.. A Rider for this Option Performance Bond shall be issued to reduce the amount to ten percent (10%) of the Compensation of the Optional Vehicle procurement upon final acceptance of the last vehicle of this additional procurement. The Performance Bond shall expire at the end of the two-year warranty or the proper and final completion of all repairs, replacements, or payments under the two-year warranty, whichever is later. The notice to proceed for the additional order will not be issued until the properly executed performance bond is received by the Department. Failure to provide a properly executed performance bond within the time provided shall be a material default under this Agreement, time being of the essence in the delivery thereof.

E. CERTIFICATION. With respect to any insurance policy required pursuant to this Agreement, all such policies shall be issued by companies licensed to do business in the State of Florida. The Vendor shall provide to the Department

certificates showing the required coverage to be in effect and showing the Department to be an additional certificate holder. Such policies shall provide that the insurance is not cancelable except upon thirty (30) days prior written notice to the Department.

5. COMPLIANCE WITH LAWS

- A. The Vendor shall allow public access to all documents, papers, letters, or other material subject to the provisions of Chapter 119, Florida Statutes, and made or received by the Vendor in conjunction with this Agreement. Failure by the Vendor to grant such public access shall be grounds for immediate unilateral cancellation of this Agreement by the Department.
- B. The Vendor agrees that it shall make no statements, press releases or publicity releases concerning this Agreement or its subject matter or otherwise disclose or permit to be disclosed any of the data or other information obtained or furnished in compliance with this Agreement, or any particulars thereof, during the period of the Agreement, without first notifying the Department's Contract Manager and securing prior written consent.
- C. The Vendor shall comply with all federal, state, and local laws and ordinances applicable to the work or payment for work thereof, and will not discriminate on the grounds of race, color, religion, sex, national origin, age, or disability in the performance of work under this Agreement.
- D. If the Vendor is licensed by the Department of Business and Professional Regulation to perform the services herein contracted, then Section 337.162, Florida Statutes, applies as follows:
 - (1) If the Department has knowledge or reason to believe that any person has violated the provisions of state professional licensing laws or rules, it shall submit a complaint regarding the violations to the Department of Business and Professional Regulation. The complaint shall be confidential.
 - (2) Any person who is employed by the Department and who is licensed by the Department of Business and Professional Regulation and who, through the course of the person's employment, has knowledge to believe that any person has violated the provisions of state professional licensing laws or rules shall submit a complaint regarding the violations to the Department of Business and Professional Regulation. Failure to submit a complaint about the violations may be grounds for disciplinary action pursuant to Chapter 455, Florida Statutes, and the state licensing law applicable to that licensee. The complaint shall be confidential.
 - (3) Any complaints submitted to the Department of Business and Professional Regulation are confidential and exempt from Section 119.07(1), Florida Statutes, pursuant to Chapter 455, Florida Statutes, and applicable state law.
- E. The Vendor covenants and agrees that it and its employees and agents shall be bound by the standards of conduct provided in applicable law and applicable rules of the Board of Business and Professional Regulation as they relate to work performed under this Agreement. The Vendor further covenants and agrees that when a former state employee is employed by the Vendor, the Vendor shall require that strict adherence by the former state employee to Sections 112.313 and 112.3185, Florida Statutes, is a condition of employment for said former state employee. These statutes will by reference be made a part of this Agreement as though set forth in full. The Vendor agrees to incorporate the provisions of this paragraph in any subcontract into which it might enter with reference to the work performed pursuant to this Agreement.
- F. A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid, proposal, or reply on a contract to provide any goods or services to a public entity, may not submit a bid, proposal, or reply on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids, proposals, or replies on leases of real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017, Florida Statutes, for CATEGORY TWO for a period of thirty-six (36) months following the date of being placed on the convicted vendor list.
- G. An entity or affiliate who has been placed on the discriminatory vendor list may not submit a bid, proposal, or reply on a contract to provide any goods or services to a public entity, may not submit a bid, proposal, or reply on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids, proposals, or replies on leases of real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with a public entity, and may not transact business with any public entity.
- H. The Department shall consider the employment by any vendor of unauthorized aliens a violation of Section 274 A (e) of the Immigration and Nationality Act. If the Vendor knowingly employs unauthorized aliens, such violation shall be cause for unilateral cancellation of this agreement.

- I. Pursuant to Section 216.347, Florida Statutes, the vendor may not expend any State funds for the purpose of lobbying the Legislature, the judicial branch, or a state agency.

6. TERMINATION AND DEFAULT

- A. This Agreement may be canceled by the Department in whole or in part at any time the interest of the Department requires such termination. The Department reserves the right to terminate or cancel this Agreement in the event an assignment be made for the benefit of creditors.
- B. If the Department determines that the performance of the Vendor is not satisfactory, the Department shall have the option of (a) immediately terminating the Agreement, or (b) notifying the Vendor of the deficiency with a requirement that the deficiency be corrected within a specified time, otherwise the Agreement will be terminated at the end of such time, or (c) taking whatever action is deemed appropriate by the Department. Notwithstanding the foregoing, the Department will provide the Vendor with an opportunity to cure before terminating for unsatisfactory performance as provided in Rule 60A-1.006(3), F.A.C."
- C. If the Department requires termination of the Agreement for reasons other than unsatisfactory performance of the Vendor, the Department shall notify the Vendor of such termination, with instructions as to the effective date of termination or specify the stage of work at which the Agreement is to be terminated.
- D. If the Agreement is terminated before performance is completed, the Vendor shall be paid only for that work satisfactorily performed for which costs can be substantiated. Such payment, however, may not exceed an amount which is the same percentage of the agreement price as the amount of work satisfactorily completed is a percentage of the total work called for by this Agreement. All work in progress shall become the property of the Department and shall be turned over promptly by the Vendor

7. ASSIGNMENT AND SUBCONTRACTS

- A. The Vendor shall maintain an adequate and competent staff so as to enable the Vendor to timely perform under this Agreement and may associate with it such subcontractors, for the purpose of its services hereunder, without additional cost to the Department, other than those costs within the limits and terms of this Agreement. The Vendor is fully responsible for satisfactory completion of all subcontracted work. The Vendor, however, shall not sublet, assign, or transfer any work under this Agreement to other than subcontractors specified in the proposal, bid, and/or Agreement without the written consent of the Department.

- B. Select the appropriate box:

☒ The following provision is not applicable to this Agreement:

☐ The following provision is hereby incorporated in and made a part of this Agreement:

It is expressly understood and agreed that any articles that are the subject of, or required to carry out this Agreement shall be purchased from a nonprofit agency for the blind or for the severely handicapped that is qualified pursuant to Chapter 413, Florida Statutes, in the same manner and under the same procedures set forth in Section 413.036(1) and (2), Florida Statutes; and for purposes of this Agreement the person, firm, or other business entity (Vendor) carrying out the provisions of this Agreement shall be deemed to be substituted for the state agency (Department) insofar as dealings with such qualified nonprofit agency are concerned.

☐ The following provision is hereby incorporated in and made a part of this Agreement:

It is expressly understood and agreed that any articles which are the subject of, or required to carry out this Agreement shall be purchased from the corporation identified under Chapter 946, Florida Statutes, in the same manner and under the procedures set forth in Sections 946.515(2) and (4), Florida Statutes; and for purposes of this Agreement the person, firm, or other business entity (Vendor) carrying out the provisions of this Agreement shall be deemed to be substituted for this agency (Department) insofar as dealings with such corporation are concerned.

The "corporation identified" is Prison Rehabilitative Industries and Diversified Enterprises, Inc.(PRIDE). Available pricing, products, and delivery schedules may be obtained by contacting:

PRIDE Enterprises
12425 - 28th Street, North
St. Petersburg, FL 33716-1826
(800)643-8459

☐ This Agreement involves the expenditure of federal funds and Section 946.515, Florida Statutes, as noted above, does not apply. However, Appendix I is applicable to all parties and is hereof made a part of this Agreement.

8. MISCELLANEOUS

- A. The Vendor and its employees, agents, representatives, or subcontractors are not employees of the Department and are not entitled to the benefits of State of Florida employees. Except to the extent expressly authorized herein, Vendor and its employees, agents, representatives, or subcontractors are not agents of the Department or the State for any purpose or authority such as to bind or represent the interests thereof, and shall not represent that it is an agent or that it is acting on the behalf of the Department or the State. The Department shall not be bound by any unauthorized acts or conduct of the Vendor or its employees, agents, representatives, or subcontractors. Vendor agrees to include this provision in all its subcontracts under this Agreement.
- B. All words used herein in the singular form shall extend to and include the plural. All words used in the plural form shall extend to and include the singular. All words used in any gender shall extend to and include all genders.
- C. This Agreement embodies the whole agreement of the parties. There are no promises, terms, conditions, or obligations other than those contained herein, and this Agreement shall supersede all previous communications, representations, or agreements, either verbal or written, between the parties hereto. The State of Florida terms and conditions, whether general or specific, shall take precedence over and supersede any inconsistent or conflicting provision in any attached terms and conditions of the Vendor.
- D. It is understood and agreed by the parties hereto that if any part, term or provision of this Agreement is by the courts held to be illegal or in conflict with any law of the State of Florida, the validity of the remaining portions or provisions shall not be affected, and the rights and obligations of the parties shall be construed and enforced as if the Agreement did not contain the particular part, term, or provision held to be invalid.
- E. This Agreement shall be governed by and construed in accordance with the laws of the State of Florida.
- F. In any legal action related to this Agreement, instituted by either party, the Vendor hereby waives any and all privileges and rights it may have under Chapter 47 and Section 337.19, Florida Statutes, relating to venue, as it now exists or may hereafter be amended, and any and all such privileges and rights it may have under any other statute, rule, or case law, including, but not limited to those grounded on convenience. Any such legal action may be brought in the appropriate Court in the county chosen by the Department and in the event that any such legal action is filed by the Vendor, the Vendor hereby consents to the transfer of venue to the county chosen by the Department upon the Department filing a motion requesting the same.
- G. If this Agreement involves the purchase or maintenance of information technology as defined in Section 282.0041, Florida Statutes, the selected provisions of the attached Appendix II are made a part of this Agreement.
- H. If this Agreement is the result of a formal solicitation (Invitation to Bid, Request for Proposal or Invitation to Negotiate), the Department of Management Services Forms PUR1000 and PUR1001, included in the solicitation, are incorporated herein by reference and made a part of this Agreement.

I. E- VERIFY

Vendor/Contractor shall utilize the U.S. Department of Homeland Security's E-Verify system, in accordance with the terms governing use of the system, to confirm the employment eligibility of:

- 1. All persons employed by the Vendor/Contractor during the term of the Contract to perform employment duties within Florida; and
- 2. All persons, including subcontractors, assigned by the Vendor/Contractor to perform work pursuant to the contract with the Department.

J. Time is of the essence as to each and every obligation under this Agreement.

K. The following attachments are incorporated and made a part of this agreement:


Exhibit "A", Scope of Services, Pages A-1 through A-3
Exhibit "B" Method of Compensation, Pages B-1 through B-7
Exhibit "B-1", Payout Schedule Milestone Detail, Pages B-1.1 through B-1.12
Exhibit "C" Price Proposal, Pages C-1 through C-6
Exhibit "D" SunRail Remanufactured Locomotive Contract Design Criteria, Pages D-1 through D-140
Exhibit "E" Federal Transportation Administration (FTA) Terms and Conditions, Pages E-1 through E-16
Exhibit "F" Software Code Deposit Agreement, Pages F-1 through F-8
Exhibit "G", General Contract Conditions (PUR 1000), Pages G-1 through G-11
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Exhibit "I" Train Color Scheme Composite
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Appendix "B" LPA 2013 Scenario Preliminary Train Schedules, Page 1
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Schedule Tables 8 and 9, 1 Page each
Insurance Certificate, 2 Pages
Performance Bond, 1 Page

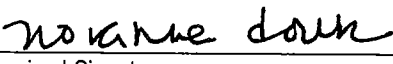
L. Other Provisions:

In case of conflict the contract documents shall have the following order of precedence:

- Exhibit "E" FTA Terms and Conditions
- Exhibit "D" SunRail Remanufactured Locomotive Contract Design Criteria
- Exhibit "A" Scope of Services
- Exhibit "B" Method of Compensation
- Standard Written Agreement
- Invitation to Negotiate No: ITN-DOT-08-09-5001-LOC and Addenda
- Exhibit "F" Software Code Deposit Agreement

IN WITNESS WHEREOF, the parties have executed this Agreement by their duly authorized officers on the day, month and year set forth above.

MOTIVEPOWER, INC.
Name of Vendor
BY: 
Authorized Signature
Mark S. Warner
(Print/Type)
Title: Vice President & General Manager

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION
BY: 
Authorized Signature
Navanne Downs
(Print/Type)
Title: District 5 Secretary

FOR DEPARTMENT USE ONLY

Approved: 
Procurement

LEGAL REVIEW: 

Exhibit "A"
Scope of Services
Contract BDS02
Central Florida Commuter Rail Transit Diesel Electric Passenger Locomotives
Financial Project Number 412994-6-53-02

I. Introduction

This Exhibit "A" describes the performance required of the Vendor under this Agreement.

II. Description of Goods and Services

The goods and services to be provided are described as follows:

a. Locomotives

Vendor shall design, produce, test, deliver and warrant up to 20 Diesel Electric Passenger Locomotives ("Locomotives"). The Locomotives shall be MotivePower, Inc.'s remanufactured GP40WH Tier 0+ Locomotives or comparable new (MP39PH-3C) Environmental Protection Agency (EPA) rated Tier 3 locomotives. Each Locomotive shall be single ended, four-axle units, capable of bi-directional operation as push pull commuter train or longer consist with other Locomotives. All Locomotives shall be able to operate and be fully functional in a consist (Train Set) of up to six (6) cars. One end of the Locomotive shall have a fully-equipped operating cab. Operating controls and performance shall be equal in both directions. The Locomotives shall comply with the Design Criteria contained in Exhibit "D" Remanufactured Diesel Electric Passenger Locomotives.

b. Spare Parts

The Department may purchase spare parts during the term of this Agreement from Table 2 attached to Exhibit "B" at the prices specified therein. There is no minimum or maximum on the number of orders or on the quantity of spare parts that may be purchased. Spare parts shall be purchased through the issuance of a Department standard purchase order. Spare parts pricing as shown in Table 2 of Exhibit "B" Method of Compensation shall be valid for orders placed through December 31, 2012.

c. Training and Manuals

The Department's Operations and Maintenance Contractor will provide the train crews for acceptance testing of the Locomotives. Vendor will provide, as part of the purchase price for the Locomotives, training for these train crews sufficient to allow the crews to safely and completely operate the Locomotives during the testing. The training will be provided at the site of the acceptance testing at a time selected by Vendor. Vendor shall provide reasonable advance notice to the Department of the time for training. Vendor shall deliver manuals that fully describe all operation and maintenance procedures and contain "As-Built" drawings and specifications with each Locomotive in accordance with Exhibit "D".

III. Delivery

Vendor shall not commence work under this Agreement prior to the Department's issuance of a Notice to Proceed. The Department will issue a Notice to Proceed for the initial purchase. Additional purchases shall be authorized by purchase order as set forth herein. It is currently anticipated that the Notice to Proceed for the initial purchase will be issued on or about June 1, 2011. In the event the Department actually issues such Notice to Proceed for the initial purchase subsequent to June 1, 2011, the Vendor's remedy, in addition to the provisions provided in Exhibit B,

Section 2.0, will be an adjustment of the delivery schedule based on the actual date of issuance as provided in the chart in subsection III below. Under no circumstances shall the Department have any liability, nor shall Vendor have any claim, or cause of action whatsoever for any monetary compensation, damages, or other relief of any nature or kind if a Notice to Proceed for the initial purchase is never issued by the Department.

The Locomotives shall be delivered to the Vehicle Storage and Maintenance Facility (the "VSMF"). Spare parts shall be delivered to the location and within the time specified on the purchase order. The first seven (7) Locomotives shall be delivered in accordance with the below Vehicle Delivery Schedule. Locomotives shall not be delivered prior to November 1, 2012, unless the parties agree otherwise. The Department has until five (5) years from the date of the execution of this Agreement to order up to an additional thirteen (13) Locomotives in one or more orders. Orders shall be placed using the Department's standard purchase order form. For each such order of additional Locomotives, Vendor shall have no less than twelve (12) months to deliver the first Locomotive under the additional order. The remaining Locomotives under the additional order shall be delivered as specified in the purchase order, provided that Vendor shall not be required to deliver the remaining vehicles under the additional order more frequently than at two (2) week intervals. Vendor shall coordinate with the Department's Design/Build Firm, who is responsible for building the Vehicle Storage and Maintenance Facility for storage and security of the Locomotives, regarding schedule and method of delivery for the Locomotives. The Department's Chief Operating Officer (COO) will assist in the coordination between the Vendor and the Design/Build Firm. Vendor shall also coordinate with the Department's Operations and Maintenance Contractor and the Chief Operating Officer regarding testing and acceptance of all Locomotives. Testing and acceptance is specified in Exhibit "D".

Vehicle Delivery Schedule – Remanufactured Locomotives		
Locomotives	Delivery Period Begin	Delivery Period End = Vehicle Delivery begin date plus
#1 FAI	Notice to Proceed plus 18 months (547 Days)	20 Days
#1	FAI plus 20 days	40 Days
#2	Vehicle #1 plus 40 days	14 Days
#3	Vehicle #2 plus 14 days	14 days
#4	Vehicle #3 plus 14 days	14 days
#5	Vehicle #4 plus 14 days	14 days
#6	Vehicle #5 plus 14 days	14 days
#7	Vehicle #6 plus 14 days	14 days
• Days are Calendar days		

IV. Risk of Loss

Title to the Locomotives will pass upon delivery of the Locomotive to the Vehicle Storage and Maintenance Facility in accordance with Florida Statute 672.401. Risk of loss for the commodities delivered to the Vehicle Storage and Maintenance Facility under this Agreement shall pass to the Department at the time that title to the commodities transfers to the Department. When the Department rejects a commodity, the Vendor shall remove it within ten days after rejection. After rejection, the risk of loss of the rejected commodity shall revert to the Vendor. The rejected commodity not removed by the Vendor within ten days shall be deemed abandoned by the Vendor, and the Department shall have the

right to dispose of it as its own property. The Vendor shall reimburse the Department for costs and expenses incurred in storing or effecting removal or disposition of the rejected commodity.

V. Liquidated Damages

The Vendor acknowledges that failure to deliver vehicles by the end of the Delivery Period stated in the Vehicle Delivery Schedule, may cause the Department to incur damages that, at present are, and upon the occurrence of the failure to so timely perform may be, difficult to determine. Therefore, in the event the Vendor fails to timely perform in accordance with the vehicle delivery schedule, and the Department does not terminate this Agreement, the Department may exercise the remedy of liquidated damages against the Vendor, in the amount of \$450.00 per day for each calendar day after the applicable delivery period end date that the Vendor fails to provide each vehicle. The Parties agree that if the Department allows the Vendor to continue to perform after the expiration of the time allowed, that the Department's action shall in no way act as a waiver on the part of the Department of the liquidated damages due under this contract. The Vendor shall pay said sum to the Department not as a penalty, but as liquidated damages. The Department has the right to apply, as payment on such liquidated damages, any money the Department owes the Vendor. Vendor's cumulative liability to the Department for liquidated damages under this paragraph shall be limited to 10% of the purchase price paid to the Vendor by the Department under this Agreement. The purchase price shall include any optional purchases if the Department elects to exercise the option. Collection of liquidated damages payable under this paragraph shall be the Department's sole and exclusive remedy for events of delay covered by this paragraph.

VI. Additional Terms and Conditions

The Department of Management Services form PUR 1000, General Contract Conditions, is attached hereto and by this reference made a part hereof; provided, however, that the following paragraphs do not apply: 4, 5, 11, 12, 13, 15, 19, 20, 22, 23, 25, 26, 27, 29, 31, 35, 40, 41, and 42. Deletion of these paragraphs shall not be deemed to be deletion of content contained elsewhere and the substance of these excepted paragraphs may be addressed in other locations in this Agreement. That substance located elsewhere continues to apply regardless of this exception paragraph. Provided further, in paragraph 14 of PUR 1000, the reference to section 287.057(23), Florida Statutes (2002) is replaced by section 287.057(22), Florida Statutes.

The Department of Management Services form PUR 1001, General Instructions to respondents, is attached hereto and by this reference made a part hereof; provided, however, that the following paragraphs do not apply: 3, 4, 5, 12, 13, 14, 19, 20 and 21. Deletion of these paragraphs shall not be deemed to be deletion of content contained elsewhere and the substance of these excepted paragraphs may be addressed in other locations in this Agreement. That substance located elsewhere continues to apply regardless of this exception paragraph.

Exhibit "B"
Method of Compensation
Contract BDS02
Central Florida Commuter Rail Transit Diesel Electric Passenger Locomotives
Financial Project ID No. 412994-6-53-02

1.0 PURPOSE

This exhibit defines the method and limits of compensation to be made to the Vendor for the services defined in Exhibit "A" Scope of Services, and Exhibit "D" SunRail Remanufactured Locomotive Vehicle Design Criteria and the method by which payments will be made.

2.0 COMPENSATION

For satisfactory completion of the Initial Procurement as defined in Exhibit "A" Scope of Services and Exhibit "D" SunRail Remanufactured Locomotive Vehicle Design Criteria and authorized under this Agreement, the Department will pay the Vendor a Total Maximum Amount of \$17,206,805.00, as detailed in Exhibit "C" Price Proposal Forms for Remanufactured Vehicles 1-7. Currently only \$13,107,686.00 of the Total Maximum Amount is available, the remaining \$4,099,119.00 will be made available before the Notice to Proceed is issued. This is a Term Contract for a defined product whereby the Vendor agrees to furnish the commodity within the prescribed period of time. Subsequent to contract execution the Department will issue a Notice to Proceed for the commencement of manufacturing and services relative to the production and delivery of this commodity in accordance with Exhibit "A", Scope of Services. If Notice to Proceed for the Initial Procurement is not issued by July 31, 2011, the Vendor reserves the right to hold the prices as outlined in Exhibit "C" Price Proposal Forms (initial procurement and options) or terminate the agreement. The Vendor must exercise the right to terminate prior to the Department's issuance of a Notice to Proceed.

The Department, based on need and availability of budget, may increase the Maximum Amount by amendment. Execution of this Agreement does not guarantee that the work will be authorized. At the Department's option additional optional commodities, changes or services may be added to the contract through one or more supplemental amendments, contingent upon legislative appropriation and budget approval.

2.1 Summary of Compensation

Vehicles:

Initial Procurement:

The initial procurement is for seven (7) Diesel Electric Passenger locomotives as defined in Exhibit "A" Scope of Services and Exhibit "D" SunRail Remanufactured Locomotive Vehicle Design Criteria.

Fees for each vehicle delivered, tested and fully operational as defined in Exhibit "A" Scope of Services and Exhibit "D" SunRail Remanufactured Locomotive Vehicle Design Criteria shall not exceed \$2,458,115.00 as detailed in Exhibit "C" Price Proposal Forms (Remanufactured Vehicles 1-7) per vehicle inclusive of all inspections, testing, manuals, training, shipping and handling, bonding, insurance, software and drawings delivered FOB to the Vehicle Storage and Maintenance Facility, Rand Yard, Sanford, FL.

Optional Vehicles:

Option I: The Department will issue a Purchase Order for additional vehicles required under this provision. At the Department's option up to thirteen (13) additional vehicles as defined in Exhibit "A" Scope of Services and Exhibit "D" SunRail Remanufactured Locomotive Vehicle Design Criteria may be purchased at a per unit price of \$2,440,228.00 as detailed in Exhibit "C" Price Proposal Forms (Page C-2, Base Vehicles 8-20) per vehicle inclusive of all inspections, testing, shipping and handling, bonding and insurance delivered FOB to the Vehicle Storage and Maintenance Facility, Rand Yard, Sanford, FL so long as the order is placed within Twelve (12) months from the date of this Agreement.

Option II: The Department will issue a Purchase Order for additional vehicles required under this provision. At the Department's option up to an additional Thirteen (13) vehicles as defined in Exhibit "A" Scope of Services and Exhibit "D" SunRail Remanufactured Locomotive Vehicle Design Criteria may be purchased at a per unit price not to exceed \$2,895,019.00 as detailed in Exhibit "C" Page C-3, Price Proposal Form (Vehicles 8-20), per vehicle inclusive of all inspections, testing, shipping, and handling, bonding and insurance delivered FOB to the Vehicle Storage and Maintenance Facility, Rand Yard, Sanford, FL so long as the order is placed within Four (4) years from the expiration date of the Option 1. The price for vehicles purchased under this option will be calculated based on the price of \$2,440,228.00 for the base unit, as detailed in Exhibit "C" Price Proposal Form (Vehicles 8-20), plus an increase based on the following:

Prices shall be adjusted based on the changes between; (a) the final data for the indices described in A, B, and C below for the contractually agreed base month (December 2010) and (b) the final data for such indices in the month with respect to which a price adjustment is calculated. The indices cited are those reported by the U.S. Bureau of Labor Statistics.

(A) 25% of the Price will be adjusted based on the percentage increase (but not adjusted by any decrease) in the Association of American Railroads (AAR) Cost Index, Table C West for labor.

(B) 65% of the Price will be adjusted based on the percentage increase (but not adjusted by any decrease) in the US Producer Price Index, Table 8 "Industrial Commodities Excluding Fuels and Electrical Power" (Series I.D. wpu03t15m05 at www.bls.gov).

(C) 10% of the Price will be adjusted based on the percentage increase (but not adjusted by any decrease) in the US Producer Price Index "Commodities Group Metals and Metal Products" (Series I.D. wpu101 at www.bls.gov).

The labor index mentioned in subparagraph A, the material index mentioned in subparagraph B and the metal commodity index mentioned in subparagraph C shall be the latest published in final indices available at the time of any new option order. If the government discontinues publishing or revises its method of determining and selecting indicators listed above, including, without limitation, a change of the base period or the classification of labor or commodities contained in such indices, the parties shall agree on a substitute indicator or an appropriate method of adjusting the Base Value to provide a comparable index. If the Base Value has at that time already been adjusted, the adjusted value (the "Revised Pricing Value") will be used. In determining any adjustment of the price, the percentage of the increase shall be calculated and rounded off to the nearest tenth of one percent (1/10%).

Insurance for vehicles under Option II shall be quoted at the time of purchase. However the cost of such insurance shall be included in the "Not to Exceed" price for Option II vehicles.

Bonding for any Optional purchases shall be at a level proportionate to the initial procurement.

Option III: The Department will issue a Purchase Order for additional vehicles required under this provision. At the Department's option up to thirteen (13) additional New Environmental Protection Agency (EPA) rated Tier three vehicles (Model MP39PH-3C) may be purchased at a per unit price of \$4,057,636.00 per vehicle inclusive of all inspections, testing, shipping and handling, bonding and insurance delivered FOB to the Vehicle Storage and Maintenance Facility, Rand Yard, Sanford, FL so long as the order is placed within Twelve (12) months from the date of this Agreement and a minimum of seven (7) vehicles are ordered.

Option IV: The Department will issue a Purchase Order for additional vehicles required under this provision. At the Department's option up to an additional Thirteen (13) additional New EPA rated Tier three vehicles (Model MP39PH-3C) may be purchased at a per unit price not to exceed \$4,870,215.00 per vehicle inclusive of all inspections, testing, shipping and handling, bonding and insurance delivered FOB to the Vehicle Storage and Maintenance Facility, Rand Yard, Sanford, FL provided the order is placed on or before June 30, 2013 and contingent on the continued availability of emission compliant engines. The price for vehicles purchased under this option will be calculated based on the unit price of \$3,957,014.00 for the base unit, as shown on page C-5 plus an increase based on the formula shown under Option II provided Option III has been exercised for a minimum of seven (7) vehicles.

First Right of Refusal

Vendor owns 19 MARC core locomotives, of the type ideally suited for Department, 7 of which will be utilized for the Initial Procurement for remanufactured locomotives and 12 can be made available for optional remanufactured locomotives. Vendor will retain these core locomotives for the Department's option orders. If Vendor has an opportunity to sell the cores prior to the expiration of the option validity, the Department will be provided with the first right of refusal to purchase the cores. If the Department opts to not purchase the cores and later decides to purchase option locomotives, additional charges may be applied for the variation of the market price of the cores procured and the mutually agreed differences in configuration to the extent they affect cost, if not the same as the MARC core locomotives. The maximum price for the potential differences in configuration from a MARC core vs. a non-MARC core and the potential variation of the market price of the cores procured is \$438,891.00 per unit. The Department will also have the option to order new locomotives per the option pricing provided for such options above.

Spare Parts and Warranty Spare Parts:

In conjunction with the Initial Procurement, the Department intends to purchase Capital Spare parts. Purchase order(s) shall be issued by the Department for spare parts required by the Department at the rates shown in Table 2, Spare Parts Price List. The Quantity ordered, delivery location and date of delivery of each spare parts order shall be at the sole discretion of the Department. Spare parts pricing as shown in Table 2 of this Exhibit "B" Method of Compensation shall be valid for orders placed through December 31, 2012. The Warranty Spare Parts list will be provided as defined in Exhibit "D" SunRail Remanufactured Locomotive Vehicle Design Criteria.

2.2 Details of Compensation

Locomotives:

The Vendor will receive progress payments for this commodity based on quantities delivered and accepted by the Department in accordance with the Schedule of Payment Values shown in Table 1, the sum of which shall not exceed the maximum contract amount. Final payment shall be made at such time as the Department accepts the commodities as being in complete compliance with all terms and conditions of the contract.

Spare Parts and Warranty Spare Parts:

The Vendor will receive payment for spare parts based on quantities delivered and accepted by the Department. The purchase order will specify the date for delivery of the spare parts to the Vehicle Storage and Maintenance Facility or other location within the corridor as specified by the Department. Payment for spare parts shall be made at the unit rates shown in Table 2, Pages B-4 through B-6. At the discretion of the Department, any spare parts owned by the Vendor and on location for use as warranty spares may be purchased by the Department at the end of the warranty period.

3.0 INVOICING PROCEDURE

The Vendor will be eligible for progress payments under this Agreement at intervals not less than monthly or when individual tasks or milestones defined in the Schedule of Payment Values are completed or reached.

The Vendor shall provide a certificate at the time of each milestone as indicated in the Schedule of Payment Values, certifying the amount of work completed by the Vendor. For payment approval by the Department, all invoices must be in compliance with all requirements of the Agreement.

Payments shall be achieved and become eligible for payment in accordance with the Payment Schedule of Values. The Vendor shall certify the cumulative level of effort completed by the Vendor. The Vendor shall submit with each invoice certification that all requirements of each milestone have been completed and approved by the Department. Milestone requirements are detailed in Exhibit "B-1" pages B-1, 1 through B-1,12. The Department shall verify that all deliverables meet the requirements of Exhibit "D".

Documentation must be on file with the Vendor and forwarded to the Department to support the invoiced costs. The Vendor shall maintain books and records as related to this Agreement in such a manner that supports each invoice.

4.0 PROJECT CLOSEOUT

4.1 Final Audit

If requested, the Vendor will permit the Department to perform or have performed, an audit of the records of the Vendor and any or all sub-vendors to support the compensation paid the Vendor. The audit may be performed as soon as practical after completion and acceptance of the contracted services. In the event funds paid to the Vendor under this Agreement are subsequently properly disallowed by the Department because of accounting errors or charges not in conformity with this Agreement, the Vendor agrees that such disallowed costs are due to the Department on demand. Further, the Department will have the right to deduct from any payment due the Vendor under any other contract any amount due the Department.

5.0 PAYMENT SCHEDULES

The Schedule of Payment Values below as Table 1, pages B-4 through B-5. Milestone payment requirements are detailed on pages B-1.1 through B-1.12

Spare Parts:

Unit rates for spare parts are below in Table 2, pages B-6 through B-7

Central; Florida Commuter Rail Locomotives			
Table 1, Schedule of Payment Values – Remanufactured Locomotives			
	FM No. 412994-6-53-01	Task	Cumulative
1	Procurement and acceptance by FDOT of Core Locomotives	10.00%	10.00%
2	Delivery and acceptance of the approved Master Program Schedule including Engineering and Production Schedules, Project Management Plan, and Quality Assurance Program	10.00%	20.00%
3	Proof of Purchase Orders, Master Test and Inspection Plan, Manufacturing Plan, and Simulation.	10.00%	30.00%
4	Submission and Acceptance of Engineering and Design Drawings, Schematics and Styling Diagram.	10.00%	40.00%
5	Delivery and approval of Draft Maintenance Instructions Manuals, Draft Renewal Parts Catalog, Draft Operating Manuals, Train the Trainer Plan, Approval of Warranty Program, and Warranty Spares List	10.00%	50.00%
6	Submission of proof of successful completion of FAI (First Article Inspection) on all items listed in Specification Section 32.1.1 E.1. Upon mutual agreement, additional items may be FAI'd, but will not be added to Milestone #6.	5.00%	55.00%
7	Submittal of Pre Revenue Service Acceptance Test Plan, Delivery of 1st locomotive, submittal of draft integrated schematic and preparation for warranty spares.	10.00%	65.00%
8	Successful completion of running repair maintenance and operators training and acceptance of final running maintenance manual, renewal parts catalog, maintenance instructions and operating manuals, and integrated schematics.	10.00%	75.00%
9	Delivery and successful completion of commissioning of each Locomotive paid on a per Locomotive Basis.	10.00%	85.00%
	Locomotive 1		
	Locomotive 2		
	Locomotive 3		
	Locomotive 4		
	Locomotive 5		
	Locomotive 6		
	Locomotive 7		
10	Successful completion of Safety Certification Documentation, Fire Safety Analysis, and Hardware Software Safety Program.	5.00%	90.00%
11	Completion of Final Acceptance of each Locomotive paid on a per Locomotive Basis.	5.00%	95.00%
	Locomotive 1		
	Locomotive 2		
	Locomotive 3		
	Locomotive 4		
	Locomotive 5		
	Locomotive 6		
	Locomotive 7		
12	Successful completion of contract including receipt of "As-Built" drawings and "As-Built" specifications as well as completion of all administrative and technical matters with the exception of warranty items outstanding. Compliance with all terms and conditions of the Deposit agreement.	5.00%	100.00%

**Table 2, Spare Parts Price List – Remanufactured Locomotives
Central Florida Commuter Rail Diesel Electric Passenger Locomotives**

PART #	DESCRIPTION	SUPPLIER	PRICE EA
9525597NRE	TURBO, 16-645E3C	NREC	\$32,543.44
40028340NRE	POWER ASSY 16-645E3C BLADE	NREC	\$7,009.36
40028341NRE	POWER ASSY 16-645E3C FORK	NREC	\$7,009.36
1125025	SOAKBACK PUMP & MOTOR ASSY-PARAGON 4 GPM BRUSHLESS	PARAGON PRODUCTS LLC	\$2,736.99
1038167X	PUMP, WATER LEFT (REBUILT INCLUDING CORE COSTS)	MPI	\$1,752.34
1038170X	PUMP, WATER RIGHT (REBUILT INCLUDING CORE COSTS)	MPI	\$2,086.12
1147371	FUEL PUMP ASSY, 8 GPM-PARAGON AC BRUSHLESS	PARAGON PRODUCTS LLC	\$3,506.35
1038454X	LUBE OIL SCAVANGING PUMP (REBUILT INCLUDING CORE COST)	MPI	\$1,752.34
1051797X	PISTON COOLING PUMP (REBUILT INCLUDING CORE COST)	MPI	\$1,752.34
10-519846NRE	INJECTOR 645 E3C / F3B	NREC	\$876.17
1048436	RADIATOR BANK ASSY, 8 ROW X 83"	YOUNG TOUCHSTONE Div 59	\$7,301.41
1034763	HEP RADIATOR	YOUNG TOUCHSTONE Div 59	\$4,133.85
1154880	SEGMENT, CAMSHAFT, 16-645-10.5 RI, FAT DURACAM	HILLCREST CAMSHAFT SERVICE INC	\$2,169.56
1038065	HEP COOLING FAN ASSY, 480V-48", 12 BLADE Q FAN (NEW)	DAYTON-PHOENIX GROUP INC	\$15,559.85
1044818X	COOLING FAN REBUILT (INCLUDES CORE)	L & S	\$16,652.99
1049493X	FAN, 48" DIA 36HP 300VDC-REBUILT (INCLUDES CORE)	L & S	\$10,430.59
	SET OF GRIDS	DYNAMIC CORPORATION	\$10,230.32
1110990X	AIR COMPRESSOR, WLNA9S,REBUILT (INCLUDES CORE)	MPI	\$14,898.29
1156473	BATTERY ASSY, NI-CD, 50 CELL W/CRATES AND CONNECTORS	SAFT AMERICA	\$32,224.68
1157610	HVAC, UNDERFLOOR, 480V, R-410A	MOTIVE EQUIPMENT INC	\$17,398.22
2044060	NOSE SHROUD ASSY	AMTECH CORPORATION	\$5,320.70
1158234	RADIO, 12RII-CH12FFHS	GETS-GLOBAL SIGNALING, LLC	\$4,506.01
1157005	LAYOVER HEATER, 480V, PLC 30KW WATER, 9KW OIL	KIM HOTSTART	\$12,283.06
1121075	CHARGER, KIM HOTSTART BATTERY-50 AMP, AMMETER INCLUDED	KIM HOTSTART	\$5,140.19
1051273	GENERATOR, 18 KW. AC. AUX.-W/O INTERNAL FAN (SUPER AUX)	DAYTON-PHOENIX GROUP INC	\$11,613.79
	GLASS & WINDSHIELD KIT	DYNAMIC METALS	\$15,724.76
1141339	EVENT RECORDER, 54300	BACH-SIMPSON	\$14,344.15
1044227	DRAFT GEAR & YOKE ASSY, NC390-ALIGNMENT CONTROL (NEW)	AMSTEAD RAIL COMPANY INC	\$5,159.52
1038013	ALIGNMENT CONTROL TYPE "F" (NEW)	MCCONWAY & TORLEY	\$2,461.62
1109965	CONTACTOR, SIZE 7, 750	ABB INCORP.	\$5,539.06
1145939	CONTROLLER,DESKTOP, W/O STOP-	SCHALTBAU NORTH	\$13,929.59

Central Florida Commuter Rail Transit
Diesel Electric Passenger Locomotives

	FUNCTION, NON-DB	AMERICA	
1089011	SEAT, ENGINEER & HELPER	USSC	\$2,167.89
1053872	AIR DRYER, 975-101	GRAHAM WHITE	\$6,333.84
1048041	PRIME PM118-5	DAYTON-PHOENIX GROUP INC	\$1,403.54
1128774	ALTERNATOR, 425 KW, 480 VOLT-1800 RPM, FRAME SIZE 571RSL	MARATHON	\$25,594.16
1145255	LUBE OIL COOLER, 10" X 42"-HI FIN SHELL AND TUBE	YOUNG TOUCHSTONE Div 59	\$6,745.67
	Complete Combo (Rebuilt) Including Traction Motor Core	MPI	\$48,749.26
HEP Skid	HEP SKID ASSEMBLY	MPI	\$129,350.50
1119356	AIR MANIFOLD, EVENT RECORDER	BACH-SIMPSON	\$3,663.22
1122729	SSI/CM DISPLAY (SPEED INDICATOR)	BACH-SIMPSON	\$2,161.22
1119355	TMS CREW ALERT HEAD, HORIZ MT-EVENT RECORDER/ALERTER SYSTEM	BACH-SIMPSON	\$1,236.65
1122724	SSI/CM CONTROL MODULE	BACH-SIMPSON	\$2,962.29
1046706	GAUGE, AIR 2 DUPLEX, 4	GRAHAM WHITE	\$1,702.02
1119988	REFRIGERATOR, 1-1/2 CU	MOTIVE EQUIPMENT INC	\$2,653.54
10R 2772	CAT C18 INJECTORS	CATAPILLAR	\$335.98

Central Florida Commutur Rail Locomotives Milestone Payment Requirement List

[illegible]

Pay item Approved BY:
Florida Department of Transportation

Date:

Pay Item Approved By:
MotivePower Inc.

Date:

Milestone Payment Requirement List

[illegible]

Pay item Approved BY:
Florida Department of Transportation

Date:

Pay Item Approved By:
MotivePower Inc.

Date:

Milestone Payment Requirement List

[illegible]

Pay item Approved BY:
Florida Department of Transportation

Date:

Pay Item Approved By:
MotivePower Inc.

Date:

Milestone Payment Requirement List

Exhibit B-1, Page 4

Milestone Payment Requirements List

[illegible]

Pay item Approved BY:
Florida Department of Transportation

Date:

Pay Item Approved By:
MotivePower Inc.

Date:

Milestone Payment Requirement List

16. Battery Charger

Florida Department of Transportation

MotivePower Inc.

Milestone Payment Requirement List

Milestone Payment Requirement List

8. Training materials delivered and accepted

Florida Department of Transportation

MotivePower Inc.

Exhibit B-1
Central Florida Commuter Rail Locomotives
Milestone Payment Requirement List

Milestone #9 - 10%		
Delivery and successful completion of commissioning of each Locomotive paid on a per Locomotive Basis.	Item Approved By:	
	MPI	FDOT
1. Locomotive 1		
2. Locomotive 2		
3. Locomotive 3		
4. Locomotive 4		
5. Locomotive 5		
6. Locomotive 6		
7. Locomotive 7		
***Each locomotive is inspected and tested to verify proper function of Major Subsystems as follows:		
1. Air conditioning HVAC & Controls, Tested and fully functional		
2. Head End Power Unit, tested and fully functional		
3. Propulsion Controls, Tested and fully functional		
4. Lighting, operational, Tested and no operational issues		
5. Seats, Arrangement, Style and Colors as required		
6. Prime Mover inspected and tested		
7. Brake Systems Tested and fully functional		
8. Batteries and voltage regulator/charging accepted		
9. Traction Motor		
10. Event recorders, tested, functional		
11. Traction Alternator		
12. Air Compressor		
13. Radio, tested, functions as required and is compatible with Cars and OCC		
14. PA/Communication System, Tested, functions as required and is compatible with Cab Cars and Coaches		
15. Wheels and Axles		
16. Truck Frame and Bolster		
17. Assembled Trucks, tested and fully functional		
18. Provisions for Positive Train Control, wiring tested for continuity and capacity		
19. Provision for CCTV, wiring tested for continuity and capacity		
20. Dynamic Brake Grids		
21. Cab Console		
22. Electric Cabinet		
23. Maintain support material necessary to eliminate any extended removal of locomotive from revenue service.		
Pay item Approved BY:	Date:	
Florida Department of Transportation		
Pay Item Approved By:	Date:	
MotivePower Inc.		

Milestone payment Requirement List

[illegible]

Pay item Approved BY:
Florida Department of Transportation

Date:

Pay Item Approved By:
MotivePower Inc.

Date:

Milestone Payment Requirement List

[illegible]

Pay item Approved BY:
Florida Department of Transportation

Date:

Pay Item Approved By:
Motive Power Inc.

Date:

Exhibit B-1

Central Florida Commuter Rail Diesel Electric Passenger Locomotives Milestone Payment Requirement List

[illegible]

Pay item Approved BY:
Florida Department of Transportation

Date:

Pay Item Approved By:
MotivePower Inc.

Date:

Exhibit "C"

**STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
PRICE PROPOSAL FORM
VEHICLES 1-7, INITIAL PROCUREMENT**

CONTRACT NO: ITN-DOT-08/09-5001-LOC

PROJECT DESCRIPTION: Central Florida Commuter Rail Transit (CFCRT) Diesel Electric Passenger Locomotives

Firm Name: Motive Power, Inc. Date: February 9, 2011

Locomotive Model Number GP40WH Tier 0 + New (Aerodynamic) Cab Remanufactured

The Vendor is required to submit a revised price proposal on a Per-Locomotive basis and submit to Roger Masten, Purchasing Agent, Florida Department of Transportation, 719 South Woodland Boulevard, DeLand, Florida 32720.

Vehicles 1 through 7	Amount/Unit
Base Locomotive with Provision for Positive Train Control, Aerodynamic nose.	\$2,373,438.00
Cost Reduction if Bond Decreased to \$4,000,000.00	(\$4,166.00)
Cost Reduction Carbody Traction Motor Wiring: Allow for re-qualification of existing traction motor wiring and extending cables to a new electrical cabinet via a bus/jumper connections. By a method accepted by the Department. See T31.10.4	(\$ 7,014.00)
Cost Reduction for Manuals: Allow use of photographs in manuals, in lieu of line drawings. See T23.1.112	(\$9,111.00)
Cost Reductions associated to allow rebuilding of existing AR10/D14 alternator, in lieu of providing a C5 or C6 alternator. See T1.0 and T6.1	(\$39,045.00)
Axle Ratio: Clarification of Gear Ratio, Gear Ratio to be 66:20 or equivalent, for maximum speed of 87 mph. See T1.1.6 and T1.1.11, Cost associated	\$14,213.00
Cost associated to Color Scheme No. 3	\$43,553.00
5-Chime Horn with Conical Filter Kit – (Additional amount) - See T 2.5.2	\$3,981.00
Decibel Meter- See T 2.5.2	\$636.00
No Toilet - Will require an update to T 9.6	(\$3,182.00)
Design Reviews - See T 23.3.1	\$3,727.00
Reliability – MDBF History - See T 35.2	\$1,553.00
Portable Test Unit (PTU's) and Bench Testers - See T 36.6	
- Panasonic Laptop Computer & Accessories x 2	\$1,783.00
- Wabtec Single Car Test Device x 1	\$1,399.00
- Bach-Simpson Bench Tester x 1	\$8,141.00
- CAT Electronic Technician x 1 – <i>Annual subscription not included in price.</i>	\$280.00
Locomotive DVR (Option B - Wi-Tronix Overlay) - See T 37.7	\$16,643.00
Video Surveillance System - Video Cameras - See T 37.1.A	\$30,281.00
Insurance - See Standard Written Agreement, Section 4.B	\$7,234.00
Rider decreasing Performance Bond penalty to 10% of the contract value at Final Acceptance of the last locomotive to cover the 2 yr. warranty period. – <i>Pricing includes Base Locomotive and Optional Items selected.</i>	\$13,771.00
TOTAL PRICE FOR INITIAL PROCUREMENT LOCOMOTIVE AND OPTIONAL ITEMS SELECTED	\$2,458,115.00

Exhibit "C"

**STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
PRICE PROPOSAL FORM**

BASE VEHICLES 8-20, (OPTION I)

If Ordered within one (1) year of Notice to Proceed

CONTRACT NO: ITN-DOT-08/09-5001-LOC

PROJECT DESCRIPTION: Central Florida Commuter Rail Transit (CFCRT) Diesel Electric Passenger Locomotives

Firm Name: Motive Power, Inc. Date: February 9, 2011

Locomotive Model Number GP40WH Tier 0 + New (Aerodynamic) Cab Remanufactured

The Vendor is required to submit a revised price proposal on a Per-Locomotive basis and submit to Roger Masten, Purchasing Agent, Florida Department of Transportation, 719 South Woodland Boulevard, DeLand, Florida 32720.

Central Florida Commuter Rail Diesel Electric Passenger Locomotives	
BASE LOCOMOTIVE	
Vehicles 8 through 20 – PRICING APPLICABLE TO OPTION UNITS IF ORDERED WITHIN ONE YEAR FROM NTP. THIS PRICING WILL BE USED AS A BASIS FOR CALCULATING THE OPTION II PRICING	Amount/Unit
Base Locomotive with Provision for Positive Train Control, Aerodynamic nose.	\$2,373,438.00
Cost Reduction if Bond Decreased to \$4,000,000.00	(\$4,166.00)
Cost Reduction Carbody Traction Motor Wiring: Allow for re-qualification of existing traction motor wiring and extending cables to a new electrical cabinet via a bus/jumper connections. By a method accepted by the Department. See T31.10.4	(\$7,014.00)
Cost Reduction for Manuals: Allow use of photographs in manuals, in lieu of line drawings. See T23.1.1I2	(\$9,111.00)
Cost Reductions associated to allow rebuilding of existing AR10/D14 alternator, in lieu of providing a C5 or C6 alternator. See T1.0 and T6.1	(\$39,045.00)
Axle Ratio: Clarification of Gear Ratio, Gear Ratio to be 66:20 or equivalent, for maximum speed of 87 mph. See T1.1.6 and T1.1.11, Cost associated	\$14,213.00
Cost associated to Color Scheme No. 3	\$43,553.00
5-Chime Horn with Conical Filter Kit – (Additional amount) - See T 2.5.2	\$3,981.00
No Toilet - Will require an update to T 9.6	(\$3,182.00)
Locomotive DVR (Option B - Wi-Tronix Overlay) - See T 37.7	\$16,643.00
Video Surveillance System - Video Cameras - See T 37.1.A	\$30,281.00
Insurance - See Standard Written Agreement, Section 4.B	\$7,234.00
Rider decreasing Performance Bond penalty to 10% of the contract value at Final Acceptance of the last locomotive to cover the 2 yr. warranty period. – Pricing includes Base Locomotive and Optional Items selected.	\$13,403.00
TOTAL PRICE FOR BASE LOCOMOTIVE AND OPTIONAL ITEMS SELECTED	\$2,440,228.00

Exhibit "C"

**STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
PRICE PROPOSAL FORM
VEHICLES 8-20, (OPTION II)
NOT TO EXCEED PRICING VALID FROM ONE YEAR FROM NOTICE TO PROCEED
THROUGH JANUARY 1, 2016**

CONTRACT NO: ITN-DOT-08/09-5001-LOC

PROJECT DESCRIPTION: Central Florida Commuter Rail Transit (CFCRT) Diesel Electric Passenger Locomotives

Firm Name: Motive Power, Inc. Date: February 9, 2011

Locomotive Model Number GP40WH Tier 0 + New (Aerodynamic) Cab Remanufactured

Central Florida Commuter Rail Diesel Electric Passenger Locomotives	
Vehicles 8 through 20 – NOT TO EXCEED PRICING VALID FROM ONE YEAR FROM NOTICE TO PROCEED THROUGH JANUARY 1, 2016	Amount/Unit
Base Locomotive with Provision for Positive Train Control, Aerodynamic nose.	\$2,787,745.00
Cost Reduction Carbody Traction Motor Wiring: Allow for re-qualification of existing traction motor wiring and extending cables to a new electrical cabinet via a bus/jumper connections. By a method accepted by the Department. See T31.10.4	(\$7,014.00)
Cost Reductions associated to allow rebuilding of existing AR10/D14 alternator, in lieu of providing a C5 or C6 alternator. See T1.0 and T6.1	(\$39,045.00)
Axle Ratio: Clarification of Gear Ratio, Gear Ratio to be 66:20 or equivalent, for maximum speed of 87 mph. See T1.1.6 and T1.1.11, Cost associated	\$18,795.00
Cost associated to Color Scheme No. 3	\$57,621.00
5-Chime Horn with Conical Filter Kit – (Additional amount) - See T 2.5.2	\$4,923.00
No Toilet - Will require an update to T 9.6	(\$3,182.00)
Portable Test Unit (PTU's) and Bench Testers - See T 36.6 – <i>Purchased with Base order.</i>	
Locomotive DVR (Option B - Wi-Tronix Overlay) - See T 37.7	\$22,019.00
Video Surveillance System - Video Cameras - See T 37.1.A	\$36,226.00
Insurance - See Standard Written Agreement, Section 4.B	\$7,349.00
25% Performance Bond - <i>Pricing includes Option Locomotive and Optional Items selected.</i>	\$12,473.00
Rider decreasing Performance Bond penalty to 10% of the contract value at Final Acceptance of the last locomotive to cover the 2 yr. warranty period. – Pricing includes Option Locomotive and Optional Items selected.	\$15,904.00
TOTAL MAXIMUM, NOT-TO-EXCEED PRICE FOR OPTION LOCOMOTIVE AND OPTIONAL ITEMS SELECTED	\$2,895,019.00

Exhibit "C"

**STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
PRICE PROPOSAL FORM
VEHICLES 1-7, (Option III)**

CONTRACT NO: ITN-DOT-08/09-5001-LOC

PROJECT DESCRIPTION: Central Florida Commuter Rail Transit (CFCRT) Diesel Electric Passenger Locomotives

Firm Name: Motive Power, Inc. Due Date: February 16, 2011

Locomotive Model Number MP39PH-3C Tier 3 New

The Vendor is required to submit a revised price proposal on a Per-Locomotive basis and submit to Roger Masten, Purchasing Agent, Florida Department of Transportation, 719 South Woodland Boulevard, DeLand, Florida 32720.

Note: Specification references included in the Price Proposal Form are from Exhibit "D" Vehicle Design Criteria – Remanufactured Diesel Electric Passenger Locomotives.

Vehicles 1 through 7 – PRICING APPLICABLE TO OPTION UNITS IF ORDERED WITHIN ONE YEAR FROM NTP. ONE YEAR FROM NTP THROUGH JUNE 30, 2013, PRICING WILL BE USED AS A BASIS FOR CALCULATING AN INCREASE AS OUTLINED IN OPTION II. IN ANY CASE, PRICING IS VALID ONLY FOR AN ORDER OF SEVEN (7) LOCOMOTIVES.	
	Amount
Base Locomotive with Provision for Positive Train Control, Aerodynamic nose.	\$3,946,765.00
Cost Reduction if Bond Decreased to \$4,000,000.00	(\$4,479.00)
Cost Reduction for the deletion of the Battery Rollout tray, (New locomotive Only)	(\$1,070.00)
Cost Reduction for Manuals: Allow use of photographs in manuals, in lieu of line drawings. See T23.1.1I2	(\$9,111.00)
Cost associated to Color Scheme No. 3	\$43,553.00
5-Chime Horn with Conical Filter Kit – (Additional amount) - See T 2.5.2	\$3,981.00
No Toilet - Will require an update to T 9.6	(\$3,182.00)
Design Reviews - See T 23.3.1	\$3,727.00
Reliability – MDBF History - See T 35.2	\$1,553.00
Locomotive DVR (Option B - Wi-Tronix Overlay) - See T 37.7	\$16,643.00
Video Surveillance System - Video Cameras - See T 37.1.A	\$30,281.00
Insurance - See Standard Written Agreement, Section 4.B	\$7,234.00
Rider decreasing Performance Bond penalty to 10% of the contract value at Final Acceptance of the last locomotive to cover the 2 yr. warranty period. – Pricing includes Base Locomotive and Optional Items selected.	\$21,741.00
TOTAL PRICE FOR BASE LOCOMOTIVE AND OPTIONAL ITEMS SELECTED	\$4,057,636.00 / Unit

Exhibit "C"

**STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
PRICE PROPOSAL FORM
VEHICLES 8-13 (Option IV) Base Price**

CONTRACT NO: ITN-DOT-08/09-5001-LOC

PROJECT DESCRIPTION: Central Florida Commuter Rail Transit (CFCRT) Diesel Electric Passenger Locomotives

Firm Name: Motive Power, Inc. Date: February 16, 2011

Locomotive Model Number MP39PH-3C Tier 3 New

The Vendor is required to submit a revised price proposal on a Per-Locomotive basis and submit to Roger Masten, Purchasing Agent, Florida Department of Transportation, 719 South Woodland Boulevard, DeLand, Florida 32720.

Note: Specification references included in the Price Proposal Form are from Exhibit "D" Vehicle Design Criteria – Remanufactured Diesel Electric Passenger Locomotives.

Vehicles 8 through 13 – THIS PRICING WILL BE USED AS A BASIS FOR CALCULATING ANY INCREASE IN THE OPTION PRICING IF OPTION III HAS ALREADY BEEN EXERCISED FOR SEVEN (7) LOCOMOTIVES AND ADDITIONAL LOCOMOTIVES ARE ORDERED BY JUNE 30, 2013.	Amount
Base Locomotive with Provision for Positive Train Control, Aerodynamic nose.	\$3,846,688.00
Cost Reduction if Bond Decreased to \$4,000,000.00	(\$4,479.00)
Cost Reduction for the deletion of the Battery Rollout tray, (New locomotive Only)	(\$1,070.00)
Cost Reduction for Manuals: Allow use of photographs in manuals, in lieu of line drawings. See T23.1.1I2	(\$9,111.00)
Cost associated to Color Scheme No. 3	\$43,553.00
5-Chime Horn with Conical Filter Kit – (Additional amount) - See T 2.5.2	\$3,981.00
No Toilet - Will require an update to T 9.6	(\$3,182.00)
Design Reviews - See T 23.3.1	\$3,727.00
Reliability – MDBF History - See T 35.2	\$1,553.00
Locomotive DVR (Option B - Wi-Tronix Overlay) - See T 37.7	\$16,643.00
Video Surveillance System - Video Cameras - See T 37.1.A	\$30,281.00
Insurance - See Standard Written Agreement, Section 4.B	\$7,234.00
Rider decreasing Performance Bond penalty to 10% of the contract value at Final Acceptance of the last locomotive to cover the 2 yr. warranty period. – Pricing includes Base Locomotive and Optional Items selected.	\$21,196.00
TOTAL PRICE FOR OPTION LOCOMOTIVE AND OPTIONAL ITEMS SELECTED	\$3,957,014.00 / Unit

Exhibit "C"

**STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
PRICE PROPOSAL FORM
VEHICLES 1-7 (Option IV) Not to Exceed Price**

CONTRACT NO: ITN-DOT-08/09-5001-LOC

PROJECT DESCRIPTION: Central Florida Commuter Rail Transit (CFCRT) Diesel Electric Passenger Locomotives

Firm Name: Motive Power, Inc. Due Date: _____

Locomotive Model Number MP39PH-3C Tier 3 New _____

***Note: Specification references included in the Price Proposal Form are from
Exhibit "D" Vehicle Design Criteria – Remanufactured Diesel Electric Passenger Locomotives.***

Vehicles 1 through 7 – NOT-TO-EXCEED PRICING VALID FROM ONE YEAR FROM NTP THROUGH JUNE 30, 2013 AND VALID ONLY FOR AN ORDER OF SEVEN (7) LOCOMOTIVES.	Amount
Base Locomotive with Provision for Positive Train Control, Aerodynamic nose.	\$4,727,222.00
Cost Reduction if Bond Decreased to \$4,000,000.00	(\$4,479.00)
Cost Reduction for the deletion of the Battery Rollout tray, (New locomotive Only)	(\$1,070.00)
Cost Reduction for Manuals: Allow use of photographs in manuals, in lieu of line drawings. See T23.1.1I2	(\$9,111.00)
Cost associated to Color Scheme No. 3	\$57,621.00
5-Chime Horn with Conical Filter Kit – (Additional amount) - See T 2.5.2	\$4,923.00
No Toilet - Will require an update to T 9.6	(\$3,182.00)
Design Reviews - See T 23.3.1	\$4,700.00
Reliability – MDBF History - See T 35.2	\$1,957.00
Locomotive DVR (Option B - Wi-Tronix Overlay) - See T 37.7	\$22,019.00
Video Surveillance System - Video Cameras - See T 37.1.A	\$36,226.00
Insurance - See Standard Written Agreement, Section 4.B	\$7,349.00
Rider decreasing Performance Bond penalty to 10% of the contract value at Final Acceptance of the last locomotive to cover the 2 yr. warranty period. – Pricing includes Option Locomotive and Optional Items selected.	\$26,040.00
TOTAL MAXIMUM, NOT-TO-EXCEED PRICE	\$4,870,215.00/ Unit

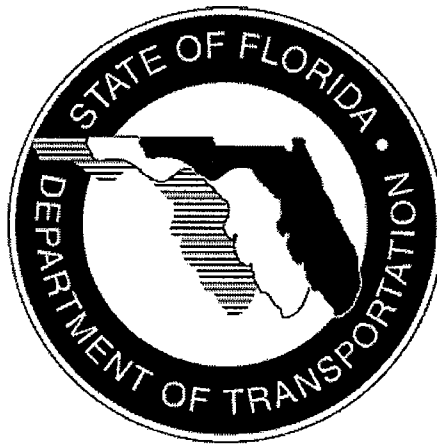
SunRail Remanufactured Diesel Electric Passenger Locomotive Vehicle Design Criteria

Exhibit “D” Vehicle Design Criteria

FLORIDA DEPARTMENT OF TRANSPORTATION

**VEHICLE DESIGN CRITERIA
Remanufactured Diesel Electric Passenger Locomotives**

February 10, 2011



SunRail Remanufactured Diesel Electric Passenger Locomotive Vehicle Design Criteria

1	GENERAL.....	9
1.1	General Information and Performance Data	10
1.1.1	Noise.....	10
1.1.2	Consist Configuration.....	10
1.1.3	Operating Characteristics	10
1.1.4	Vehicle Type	10
1.1.5	Nominal Dimensions	11
1.1.6	Drive.....	11
1.1.7	Weights and supplies.....	11
1.1.8	Clearance	11
1.1.9	Safety Appliances.....	11
1.1.10	Curve Negotiation	11
1.1.11	Locomotive Performance	11
1.1.12	Horsepower Rating.....	12
1.2	Ambient Conditions	12
2	AIR SYSTEM.....	13
2.1	Air Brakes.....	13
2.1.1	System Hardware	13
2.1.2	Brake Piping	13
2.1.3	Conductor's Brake Valve.....	13
2.1.4	Trainline Hoses.....	13
2.1.5	Angle Cocks	14
2.1.6	Labels	14
2.1.7	Operation	14
2.2	Air Compressor	14
2.2.1	Other air compressor features:	14
2.3	Gauges and Fittings.....	15
2.4	Air Drier and Filters	15
2.4.1	Drain Valves.....	15
2.5	Warning Devices	15
2.5.1	Bell	15
2.5.2	Horn.....	15
3	SANDING	16
3.1	Control.....	16
3.2	Mechanical Features.....	17
4	MULTIPLE UNIT CONTROL	17
4.1	Cables	17
4.2	Receptacles.....	17
4.3	Mechanical Features.....	18
4.4	Front End Arrangement.....	18
4.5	Rear End Location.....	18
5	DYNAMIC BRAKES.....	18
5.1	Dynamic Brake Hatch	19
5.1.1	Blended Braking	19
5.1.2	Self Load Test	20

SunRail Remanufactured Diesel Electric Passenger Locomotive Vehicle Design Criteria

6	ELECTRICAL CONTROL	20
6.1	Traction System.....	20
6.2	Batteries.....	20
6.3	Ground Relay Protection.....	20
6.4	Control System.....	21
6.5	Wiring.....	21
7	MAIN DIESEL ENGINE	21
7.1	Filters.....	21
7.1.1	Primary (carbody) Filters.....	21
7.1.2	Engine Air Filters	22
7.1.3	Oil Pan Capacity.....	22
7.2	Other Engine Features.....	22
8	TRUCKS.....	22
8.1	Braking	22
8.2	Wheel/Axle/Gear.....	22
8.2.1	Gear Ratio.....	22
8.2.2	Axles.....	22
8.2.3	Wheels	23
8.2.4	Journal Boxes	23
8.2.5	Traction Motor Modifications	23
8.2.6	Other Truck Modifications	23
9	CAB ARRANGEMENT.....	23
9.1	Cab Type	23
9.1.1	Operator's Console.....	24
9.2	Engineer's Control Console.....	24
9.2.1	Passenger Door Controls and Traction Interlock	24
9.2.2	Controller.....	25
9.2.3	Cab Seats	26
9.2.4	Cab Floor.....	26
9.2.5	Cab Lighting.....	26
9.2.6	Temperature Control	26
9.3	Windows / Doors / Locks.....	26
9.3.1	Windows.....	26
9.3.2	Rear View Mirrors/Wipers.....	27
9.3.3	Doors	27
9.3.4	Locks	27
9.4	Refrigerator	27
9.5	Electronic Equipment.....	27
9.6	Toilets.....	27
9.7	Cab Appurtenances and Nameplates.....	27
9.8	Cab Noise Attenuation	28
10	COMMUNICATION SYSTEMS.....	28
10.1	Voice Radio.....	28
11	CARBODY	29
11.1	Carbody Design.....	29
11.2	No. 1 (front) and No. 2 (rear) End Arrangement.....	29

SunRail Remanufactured Diesel Electric Passenger Locomotive Vehicle Design Criteria

11.2.1	Sidestep	29
12	COUPLER/DRAFT GEAR	31
13	LIGHTS	31
13.1	Headlights.....	31
13.2	Ditch Lights.....	31
13.3	Step Lights.....	32
13.4	Lighted Number Boards & Train Number Board	32
13.5	Carbody Room Lights	32
13.6	Marker Lights	32
13.7	Lifting and Jacking Devices	32
13.7.1	Jacking Pad/Cable Sling	32
13.7.2	Supplemental Lifting Eyes	32
14	LOCOMOTIVE OUTLINE and WEIGHT	32
14.1	Weight	32
14.2	Clearance - Height.....	32
14.3	Other Carbody Features.....	33
14.4	Walkways	33
15	HEAD END POWER	33
15.1	General	33
15.2	Engine for Generator Application (Head End Power (HEP))	33
15.3	HEP Start Station Cabinet	33
15.4	Exhaust System	34
15.5	Fuel System	34
15.6	Instrumentation.....	34
15.6.1	Instrument Panel LH Locomotive mount.....	34
15.7	Locomotive HEP AC Generator (Or Equivalent)	35
15.7.1	General	35
15.7.2	Inverter	35
15.7.3	Voltage Regulator (furnished by Marathon or Equivalent).....	35
15.8	Relay & Contractor Cabinets	36
15.9	General	36
15.10	Circuit protection.....	36
15.11	Remote Shutdown	36
15.12	Emergency Shutdown.....	36
15.12.1	Head End Power Contactor	37
15.13	Cab Remote Panel	37
15.14	Head End Power Control and Contractor Cabinets.....	38
15.14.1	General Description.....	38
15.14.2	Relay Cabinet Details:	38
15.14.3	Contactor cabinet details:	38
15.14.4	Control Cabinet Upper Section Door	38
15.14.5	Meter panel:.....	39
15.14.6	Control Cabinet Lower Section Door:.....	40
15.14.7	Contactor Cabinet:.....	40
16	FUEL TANK	40
16.1	Capacity.....	40

SunRail Remanufactured Diesel Electric Passenger Locomotive Vehicle Design Criteria

16.2	Filler Pipes.....	40
16.3	Gauges.....	41
16.4	Fuel Retention Tank.....	41
17	STYLING AND PAINTING.....	41
17.1	Exterior.....	41
17.1.1	Upper Locomotive colors:.....	41
17.2	Interior.....	42
17.2.1	Inner Trim - Colors:	42
17.2.2	Identification and AEI (RF) Tags.....	42
18	HOT START.....	42
19	WARRANTY	43
20	LIFESPAN.....	46
21	SHIPMENT	46
22	OPERATING SUPPLIES.....	46
23	DESIGN REVIEW, MANUALS & DRAWINGS.....	47
23.1	Design Review.	47
23.1.1	Purpose	47
23.1.2	Deliverable Documentation.....	47
23.1.3	Design Progress Requirements.....	48
23.1.4	Engineering Changes.....	48
23.1.5	Management Plan	49
23.1.6	Design Evaluation	49
23.2	Drawings	49
23.3	MANUALS	55
23.3.1	General:	55
23.3.2	Operating Manual:.....	58
23.3.3	Maintenance Instructions Manuals:.....	59
23.3.4	Renewal Parts Catalog (RPC)/Illustrated Parts Catalog:	59
23.3.5	Electrical Schematic Wiring and Connection Diagram Manuals:.....	60
23.3.6	Delivery Schedule and Quantities:	60
23.3.7	Revisions to Manuals - Hard Copy (paper).....	62
24	SPECIAL INSTRUCTIONS	62
25	TRAINING	62
26	SPECIAL TOOLS AND MAINTENANCE INSTRUCTIONS	65
27	UNIT EXCHANGE PROGRAM, CAPITAL SPARES, WARRANTY SPARES AND CONSUMABLES.....	65
28	JUMPER CABLES.....	66
28.1	Locomotive multiple unit control trainline assignments, TBD = To Be Determined...	67
28.2	Communication Control Trainline Assignments:.....	67
29	POSITIVE TRAIN CONTROL EQUIPMENT	69
30	EVENT RECORDER, ALERTER.....	70
30.1	Event Recorder	70
30.2	Alertness/Vigilance Control System	71
31	MATERIALS AND WORKMANSHIP	72
31.1	General	72
31.1.1	Quality	72

SunRail Remanufactured Diesel Electric Passenger Locomotive Vehicle Design Criteria

31.1.2	Standard.....	73
31.1.3	Marking	73
31.2	Joining and Fastenings	73
31.2.1	General	73
31.2.2	Fastenings.....	74
31.2.3	Torquing	75
31.2.4	Plating.....	75
31.2.5	Cleaning.....	75
31.2.6	Coating	75
31.2.7	Sealant	76
31.3	Stainless Steel.....	76
31.3.1	Type.....	76
31.3.2	Physical Properties	76
31.3.3	Gauge Tolerance.....	76
31.3.4	Buffing and Polishing.....	76
31.3.5	Finish	76
31.4	Low Alloy High Tensile Steel.....	77
31.4.1	General	77
31.5	Steel Castings	77
31.5.1	Quality	77
31.5.2	Heat Treating	77
31.5.3	Castings	78
31.5.4	Magnetic Particle Inspection	78
31.5.5	Radiographic Inspection.....	78
31.5.6	Welding	78
31.6	Elastomers	78
31.6.1	General	78
31.6.2	Metal Parts.....	79
31.6.3	Substitute Materials	79
31.6.4	Truck Parts	79
31.7	Safety Glass.....	79
31.7.1	Windshields	79
31.7.2	Safety Glass	79
31.7.3	Test Methods	79
31.7.4	Markings.....	80
31.8	Piping.....	80
31.8.1	Air Brake Piping and Fittings.....	80
31.8.2	Protection of Piping and Tubing	81
31.8.3	Threaded Connections.....	81
31.9	Wire and Cable.....	81
31.9.1	General	81
31.9.2	Heater Connections	81
31.9.3	Headlight and Resistor Connections	82
31.9.4	Aluminum Wire and Cable.....	82
31.10	Wiring.....	82
31.10.1	Application and Installation of Wire	82

SunRail Remanufactured Diesel Electric Passenger Locomotive Vehicle Design Criteria

31.10.2	Solder.....	83
31.10.3	Tape.....	83
31.10.4	Splices	83
31.10.5	Terminals.....	83
31.10.6	Terminal Manufacturer.....	84
31.10.7	Conduit.....	84
31.11	Welding	86
31.11.1	Responsibility.....	86
31.11.2	Weld Rod.....	87
31.11.3	Heat Treating	87
31.11.4	Welding Procedure	87
31.12	Paint and Painting.....	88
31.12.1	Painting of the Interior and Exterior.....	88
31.13	Cleaning and Preparation Materials	88
31.13.1	Cleaning.....	88
31.13.2	Preparation.....	88
31.14	Asbestos.....	88
31.14.1	Asbestos Abatement.....	88
31.15	Floor Material Covering.....	88
31.15.1	Floor Construction.....	88
32	MASTER TEST AND INSPECTION PLAN	89
32.1	Inspections and Tests.....	89
32.1.1	General	89
32.1.2	Testing General	92
32.2	Type Tests	95
32.3	Production/In-Process Tests	98
32.4	Acceptance Tests.....	104
33	DOCUMENTS AND CERTIFICATIONS	107
33.1	Blue Card.....	107
33.2	EPA	107
33.3	Glazing Certification	107
34	SAFETY PLANS.....	107
34.1	Contractor Safety Plans	107
34.2	System Safety Plans	107
34.3	Safety And Regulatory Requirements.....	108
34.4	Fire Safety Analysis	109
34.5	Hardware And Software Safety Program.....	109
34.6	Transportation Regulations Compliance Report.....	110
34.7	System Safety Program Plan	110
34.8	System Safety Analyses	110
34.9	Safety Test And Verification Plan.....	115
34.10	System Security Analyses	116
34.11	Safety And Security Certification Plan	117
34.12	Required Submittals	120
35	RELIABILITY.....	122
35.1	General:	122

SunRail Remanufactured Diesel Electric Passenger Locomotive Vehicle Design Criteria

35.1.1	Systems, Reliability	122
35.2	Contractor Reliability Plan.....	123
35.3	Locomotive Reliability and Availability:.....	124
36	SOFTWARE.....	124
36.1	General:	124
36.1.1	Hardware and software requirements.....	124
36.1.2	Industry Standards	125
36.1.3	Software and Hardware Safety Plan.....	125
36.2	Supplier Qualifications:.....	125
36.2.1	Software Development Process.....	125
36.3	Design Process:	125
36.3.1	Software Quality Assurance Plan.....	125
36.4	Software Systems Functions and Features:	126
36.4.1	Hardware Platform:	126
36.4.2	Operating Systems, Languages and Compilers:.....	129
36.4.3	General Features:.....	129
36.4.4	Testability:.....	130
36.5	Software Documentation:.....	131
36.5.1	General:	131
36.5.2	Software Not Commercially Available:.....	132
36.5.3	Commercially-Available Software:.....	133
36.5.4	Configuration Control:	133
36.6	Portable Test Unit (PTUs) and Bench Testers:	134
36.7	Deliverables:.....	134
36.7.1	Software embedded or on CD-ROM.....	135
36.7.2	Software Escrow Agreement.....	135
36.7.3	Software and Hardware Safety Plan in compliance “Train electronic hardware and software safety:” Plan per 49CFR238.105	135
36.8	Tests and Inspections:	135
36.8.1	Software testing as performed by Contractor.....	135
36.8.2	Software escrow verification test	135
37	(Locomotive) VIDEO SURVEILLANCE SYSTEM	135
37.1	General	135
37.2	Cameras.....	136
37.3	Digital Video Recorder (DVR)	137
37.4	Software.....	138
37.5	Documentation	139
37.6	Training	140
37.7	Locomotives Dvr (Option A – Wi-Tronix Overlay).....	140

SunRail Remanufactured Locomotive Vehicle Design Criteria

1 GENERAL

This design criteria establishes the minimum performance characteristics required for the Department's Commuter Rail Remanufactured Locomotives. It is the manufacturer's responsibility to ensure that each of the performance criteria is met to the Department's satisfaction including at a minimum: passenger schedule adherence, exhaust emission requirements and noise emission. The Proposer shall provide evidence of passenger schedule adherence demonstrated through documented simulation of the provided the Department alignment.

Any and all equipment that the Proposer intends to provide that is not new shall provide with the proposal a detailed outline of subcomponents within the equipment that will be replaced. For example if a remanufactured prime mover is proposed the Proposer shall include with the proposal all of the replaced new components as well as renewed components that will comprise the overall prime mover engine.

The locomotive contractor will identify those components that are being remanufactured, and new, and show how remanufactures status compliance as defined by EPA, FRA and FTA.

At a minimum the locomotives shall be equipped with (or equivalent to) the following main features or equivalent performing components; A Microprocessor Control System, 26LUL Air Brakes, 16-645, 12-710 or other service proven diesel Engine (appropriately configured for EPA emissions compliance), 3-Cylinder water-cooled Air Compressor, 4-Wheel (Blomberg style) Trucks, D78 Traction Motors, AR10/D14 Traction/Companion Alternator and appropriately sized HEP.

The Department will be utilizing bi-level coaches. The locomotive contractor shall assume a "GO Transit" or gallery style coaches to make up the train consist. The locomotives must interface and perform with these bi-level vehicles. The Contractor should assume a maximum train length of Six (6) cars for design purposes. For Head end power only, assume 80 kw per car for sizing HEP = 300 to 500 kw HEP Unit.)

The Department Passenger locomotive shall comply with all applicable FRA, APTA, AAR and EPA regulations for commuter rail locomotives. All references to any regulation are for the convenience of the Department. It shall be the responsibility of the Contractor to have knowledge and adhere to all applicable regulations pertaining to applicable regulations. If any of the following specifications are in conflict with current regulations it shall be the responsibility of the contractor to notify the Department in writing.

Meets all FRA Requirements:

- 40 CFR 86, 89 & 92 EPA Combustion Engine Standards (40 CFR Parts 9, 85, et al.

SunRail Remanufactured Locomotive Vehicle Design Criteria

Final Rule, June 30, 2008)

- 49 CFR 210 Railroad Noise Emission Compliance Regulations
- 49 CFR 213 FRA Track Standards
- 49 CFR 220 Railroad Communications
- 49 CFR 221 Rear End Marking Device
- 49 CFR 223 Safety Glazing Standards
- 49 CFR 229 Railroad Locomotive Safety
- 49 CFR 238 Passenger Equipment Safety
- 49 CFR 239 Emergency Preparedness Plan US DOT

APTA and Other System Safety:

- Comply with 1999/2004 APTA PRESS Recommendations (or note exceptions in the proposal)
- ISO, MIL Standards as applicable AWS D1.1 and D15.1

All references to any name brand are for illustration purposes only, and shall be understood to be followed by the phrase “or approved equal”.

1.1 General Information and Performance Data

1.1.1 Noise

Maximum SEL **86 dBA** verified following CFR testing standards for noise, measured following 49CFR 201 and 49CFR 210 for moving locomotives. Additionally, stationary noise requirements verified by CFR testing to meet interior cab noise of 49CFR229.121.

1.1.2 Consist Configuration

Maximum:

Push/Pull configuration. 1 locomotive, 5 coaches, 1 cab. The coaches may be bi-level or gallery type coaches

1.1.3 Operating Characteristics

A maximum 79 mph safe operating speed where allowed by civil design.

A maximum trip time of 1:35:30 from Deland to Pionciana with half minute dwell times at seventeen stations shall be demonstrated through the use of simulations and are to be documented in the proposal. The simulations shall show the speed, brake pipe pressure, throttle position, and grade.

1.1.4 Vehicle Type

Association of American Railroads Designation (B-B)
Industry Designation (0440)

SunRail Remanufactured Locomotive Vehicle Design Criteria

1.1.5 Nominal Dimensions

Length between Coupler Pulling Faces	56' 2" - 62' 5"
Distance between Bolster Centers	33' 0" - 43' 3"
Distance -Coupler Pulling Face to Truck Centerline	11' - 6" to 13' 4 1/2"
Width-Over Cab Sheeting	10' 1/8"
Width-Over Cab Hand Rails	10' 7 1/2"
Height-Over Cab and Carbody (40" Wheels)	15' 5"
Truck Wheel Base	9' 0"

1.1.6 Drive

Traction Motors	4 - Model D78 or D77
Gear Ratio	66:20 or similar, to provide a top speed of 87 mph
Wheel Diameter	40"

1.1.7 Weights and supplies

Maximum Loaded Nominal Dry Weight on Rails	300,000 Lb
Fuel Tank Capacity	2,000 Gal. (minimum)
Sand	20 Cu. Ft. (minimum)
Cooling Water	250 Gal. (minimum)
Lubricating Oil	243 Gal.

1.1.8 Clearance

Operating dynamic clearance shall be in compliance with AREMA Plate C and Exhibit D, Preliminary Equipment Diagram found on page D-4.

1.1.9 Safety Appliances

All steps, grab handles, and other safety appliances shall conform to FRA requirements in effect at the time of shipment. Cab safety provisions shall be in full compliance with all APTA, FRA, and AAR requirements, in effect at time of shipment. Design and installation shall comply with APTA SS-M-016-06, Safety Appliances.

1.1.10 Curve Negotiation

Truck limits single unit curve negotiation to a 23.1-degree or 248-foot radius curve. Single unit coupled to an 85-foot car is limited to a 18.2-degree or 315 foot radius curve.

1.1.11 Locomotive Performance

Gear Ratio:	66:20 or similar, to provide a top speed of 87 mph
Maximum Continuous Current	1,050 Amps
Maximum Continuous Tractive Effort	55,600 Lbs.

SunRail Remanufactured Locomotive Vehicle Design Criteria

Starting Tractive Effort

65,000 - 5,000 Lbs.

1.1.12 Horsepower Rating

Engine Speed 954 RPM (approximate)

Tractive Horsepower, minimum 3,000 THP (+/- 2%)

Air Intake Temperature @ 60°F

Barometric Pressure @ 28.86 In. Hg, and

Fuel Density (Specific Gravity) @ 0.845

Diesel Engine shall be tested per RP-E-003-090 APTA Recommended Practice for Load Testing of Diesel Engines.

1.2 Ambient Conditions

The vehicles shall be capable of being operated, stored and maintained at the specified performance levels, without impairment resulting from the natural or induced environmental conditions within the Central Florida area. The following climatic factors shall be used as design guidelines and shall be considered as operational requirements. Actual localized temperatures and conditions within and under the carbody may be more severe than the ambient climatic conditions and the Contractor shall be responsible for evaluating these during its design effort. Additionally, the Contractor shall be responsible for advising the Department if there are any special environmental factors to which its equipment may be sensitive that are not listed below. The Proposer shall identify equipment and/or appurtenances that will be provided to enable the equipment to be operated in the environment listed below. For example, Kim Hotstart, snow guards, etc.

A. Temperature & Solar Load:

1. Minimum ambient air temperature: 20° F; and
2. Maximum ambient air temperature: 110° F.

B. Precipitation:

1. Maximum rainfall rate: 6" per hour
2. Wind: Maximum sustained: 45 mph.
3. Maximum gusting: 70 mph.
4. Maximum sustained for storage: 130 mph

For HVAC system design, use ASHRAE Design Conditions for Orlando, from Fundamentals Handbook 2005.

2 AIR SYSTEM

2.1 Air Brakes

The compressed air system shall be designed to comply with SS-M-011-099 APTA Standard for Compressed Air Quality for Passenger Locomotives and Car Equipment.

2.1.1 System Hardware

The air brake system shall be schedule 26LUL, with a new unitized panel. Remanufactured components may include- self-lapping independent and standard 26F control valves and shall include the following features:

Overspeed control with full service brake application and warning whistle, with a 4 to 6 second time delay, and PC knockdown provided from P2A brake application valve. Suppression and cut out shall be provided.

The A-1 charging cutoff pilot valve, including two No. 8 vent valves, shall control a power knockdown from any brake pipe emergency, including an elimination of excitation during power operation.

The No. 1 pipe connection to the A-1 charging cutoff pilot shall be at the front No. 8 vent valve.

A dual ported cutout cock shall be provided.

The main reservoir supply line to the automatic brake valve to be provided with a 19/64-inch choke.

Three position cutoff valve to be provided on the new 30ACDW automatic brake valve.

Exhaust from the actuating line is to be piped below the cab floor.

2.1.2 Brake Piping

All piping shall be new and comply with AAR requirements for wrought steel pipe and fittings. Smaller diameter pipe (less than 1/2 inch OD) will be copper tubing or flex tubing with SAE fittings.

2.1.3 Conductor's Brake Valve

A conductor's brake valve shall be integrated into the helper's side console at the left side of the cab and shall be painted red and legibly identified.

2.1.4 Trainline Hoses

SunRail Remanufactured Locomotive Vehicle Design Criteria

The following trainline hoses shall be provided:

- 2 each brake pipe, 22 inches long, with crimped ferrule
- 4 each main reservoir, 35.5 inches long, with Aeroquip fittings
- 8 each actuating and release, 36 inches long, with Aeroquip fittings

Design and installation shall interface to cars designed to RP-M-001-97 APTA Recommended Practice for Location and Configuration of Passenger cars Equipped with AAR Long Shank Tight Lock or Similar Long Shank Type Couplers.

2.1.5 Angle Cocks

All brake pipe angle cocks shall be 1-1/4 inch, non-vented, ball type.

2.1.6 Labels

Labels for independent application and release actuation, and M.R. equalizing shall be applied to the locomotive end plates above each pipe manifold.

2.1.7 Operation

The independent brake control pressure shall be 45 psi. The maximum BCP from full independent brake application shall be 72 psi. The brake cylinder relay valve shall be a J1.6-16 with an inshot valve. Two pipe MUs shall be provided. A blended braking and a non-reapplying dynamic brake interlock (DBI) shall be provided.

2.2 Air Compressor

The two-stage WBO or WLNA9 remanufactured/new water-cooled air compressor is to be driven from the main prime mover diesel engine. The air compressor shall provide a displacement of 254 cubic feet at 900 RPM and be equipped with a full flow lubrication filtration system and geared oil pump. The air compressor shall be equipped with Dual Air Maze filter elements (or equivalent) and incorporate a compressor low oil pressure switch.

2.2.1 Other air compressor features:

2.2.1.1 Air compressor synchronization

Air compressor load setting of 130 psi, unload setting of 140 psi, controlled through the microprocessor software.

The main reservoir safety valve shall have a setting of 150 psi. A Graham White type 812-QL-17 latching magnet valve "or equivalent", with a dedicated supply line and "DL" filter, to control the compressor lading and unloading.

SunRail Remanufactured Locomotive Vehicle Design Criteria

A Hansen fitting "or equivalent" for lube oil pressure testing on the air compressor oil pressure relief valve shall be provided.

The air compressor is to be equipped with a lube oil level dipstick.
The air compressor shall be equipped with flexible water and air lines.

2.3 Gauges and Fittings

Two (2) Salem 4-1/2" air gauges with range 0 to 160 lb. having white numerals on black face shall be provided. Color coding left gauge "Red" Main Reservoir, "White" Equalizing Reservoir; right gauge "Red" Brake Cylinder, "White" Brake Pipe - including Salem test fittings.

A Flush mounted Salem 796-000 brake pipe air flow indicator with Salem test fittings, 19/64" orifice plate shall be provided.

Air pressure test fittings shall be provided in the air gauge manifold.

2.4 Air Drier and Filters

A new or rebuilt Graham-White 975-101 series air drier with 975-075 filters "or equivalent", or approved equal, located after the No. 1 and No. 2 main reservoirs. This shall provide filtered air for both auxiliaries and air brakes.

2.4.1 Drain Valves

Provide a Salem Model 580 main reservoir drain valve.

2.5 Warning Devices

2.5.1 Bell

A Salem E-bell (Graham White 373-011) "or equivalent" with an electric operator switch on the control stand. The switch shall operate the bell normally and shall not to be interlocked so that operating the horn turns the bell "ON" and the bell will remain "ON" until it is turned "OFF" by the operator. The Contractor may propose a pneumatic bell for review and approval of the Department.

2.5.2 Horn

A Nathan five-chime horn shall be provided at both ends of the locomotive at a location accepted by the Department, below floor. A Nathan five-chime horn shall be provided at the front end of each cab at a location accepted by the Department, below the floor. The horn shall be capable of producing 98 db \pm 4db. The horn shall be similar to Nathan Model PC-12345.

SunRail Remanufactured Locomotive Vehicle Design Criteria

- A. The #1 Horn is to be mounted near locomotive centerline adjacent to the coupler, chimes facing forward, similar to UTA MP36 Locomotives.
 - 1. The horn will have a sound insulated baffle or shroud to maintain the focus the horn sound down the right of way, similar to the UTA MP 36 Locomotives.
- B. The #2 Horn is to be mounted near locomotive centerline adjacent to the coupler, chimes facing rearward, similar to UTA MP36 Locomotives.
- C. Horns are to be interlocked with the locomotive reverser controller. The horn shall be sounded by one of two buttons. One button will activate the horn sequencer and shall automatically sound for a crossing. The other button shall activate the horn and deactivate the horn as released. The horn control will not be provided with an “emergency horn” function.
- D. The horn shall include a manually adjustable pressure reducing valve. The manual pressure reducing valve shall be capable of setting the horn sound pressure output in 2 db increments (as measured 100 feet in front of the horn). The valve shall include a tamperproof locking mechanism to maintain a constant sound pressure level setting after the original adjustment.
 - 1. The horn shall be set to 96 db + 2db, - 0db before shipment to SunRail. A test record of the horn setting will be included in the locomotive history book.
 - 2. The sound intensity of the horn shall be in full accordance with FRA requirements.
 - 3. Vendor shall furnish a decibel meter, similar to QUEST SoundPro DL-2, and test instructions that will enable the Department to perform horn intensity and calibration testing.
- E. The horn shall include a conical debris deflector for each chime (to serve as wasp excluders), in addition to debris shields.
- F. The horn box, similar to UTA, shall have a debris screen over the entire opening to prevent road debris from damaging the horns or conical debris deflectors.

3 SANDING

3.1 Control

Sanding shall be electrically controlled with the microprocessor adhesion control system. A controlled wheel creep system shall provide manual sanding capability to nineteen (19)

SunRail Remanufactured Locomotive Vehicle Design Criteria

MPH for directional and twenty (20) MPH for lead axle with automatic sanding throughout the entire speed range.

Manual sanding and lead axle sanding switches shall be mounted on the Engineer's control stand.

An Automatic 60 second timed or until zero speed, whichever is longer, sanding call shall be initiated from any emergency.

3.2 Mechanical Features

Outboard sanding nozzles shall be provided.

Sandbox capacity shall be at a minimum of 20 cubic feet per locomotive. Sand box clean outs shall be mounted on the inside, at nose and long hood end sections.

A total of four (4) Salem 277-2 sand traps, including integral rotary shutoff valve, shall be provided. Units are to be shipped with the sand traps initially set to position number one (1).

4 MULTIPLE UNIT CONTROL

Multiple unit control shall be provided. The following features shall be provided:

4.1 Cables

One (1) twenty-seven point jumper cable for MU, and one (1) twenty-seven point jumper cable for Comms, TBD feet long for use at the rear of locomotive is provided.

4.2 Receptacles

Twenty-seven point receptacles shall be provided at each end, located below the walkway/anticlimber. There will be one MU and one Comm Receptacle on each side of the locomotive.

The pin assignments shall be per Tables found in section 28.1, 28.2 and compatible with APTA RP-E-017-99, Recommended Practice for 27-Point Control and Communication Trainlines for Locomotives and Locomotive Hauled Equipment, APTA RP-E-018-99, Recommended Practice for 480 VAC Head End Power Jumper and Receptacle Hardware, APTA RP-E-019-99, Recommended Practice for 27-Point Jumper and Receptacle Hardware for Locomotives and Locomotive Hauled Equipment and coordinated with the bi-level car manufacturer under a separate contract.

Dummy receptacles shall be located at the "F" end, below the walkway/anticlimber.

HEP receptacles shall be located on each end of the locomotive, below the walkway/anticlimber. And describe more fully below.

SunRail Remanufactured Locomotive Vehicle Design Criteria

4.3 Mechanical Features

Breakaway chain links shall be provided on the end handrails at the rear end of the locomotive.

4.4 Front End Arrangement

Four (4) standard 480v trainline male pin outlets are to be located on the front of the locomotive, two (2) on each side adjacent to each other below the platform and just inboard from the sides of the locomotive.

Outlets are to be Pyle National or approved equal with loop safety pins provided integral with the outlets. Outlets are to be color-coded red and labeled "Danger High Voltage".

Two (2) removable Pyle National or approved equal two (2) feet 480 V trainline cables are to be provided, plugged into each pair of outlets.

Each outlet will be cabled back to an accessible terminal location that will facilitate replacement of the outlet/cable assembly.

4.5 Rear End Location

Two (2) standard 480V trainline male pin outlets shall be located on the rear of the locomotive approximately twenty-six (26) inches from TOR and six (6) inch inboard from the rail.

Two (2) permanent 480V trainline cables with female sockets shall be located on the rear of the locomotive. Cables shall be of sufficient length to reach the car outlets under the worst case of curvature without stretching, binding or fouling.

Cables, sockets and outlets are to be Pyle National or approved equal with loop safety pins provided integral. Outlets are to be color-coded red and labeled "Danger High Voltage".

A means of supporting the permanent jumpers will be provided when the jumper is "short looped" on the engine.

Each cable and outlet shall be cabled back to an accessible terminal location that will facilitate replacement of the outlet or cable assembly.

5 DYNAMIC BRAKES

Dynamic blended braking shall be provided.

SunRail Remanufactured Locomotive Vehicle Design Criteria

5.1 Dynamic Brake Hatch

The Contractor shall provide a magnetic transfer switch.

The locomotive shall be equipped with increased capacity for dynamic braking compared to other four-axle units by having four grids equivalent to 0.86-ohms each and one appropriately sized fan. The Contractor may recondition the existing dynamic brake system.

The grids are to be used for blended braking and self-load test. In normal blended braking, the grids shall be arranged such that the circuit provides for a 50% increase in resistance per circuit to provide additional braking effort at high speeds. It is the intent that air blending, will improve the deceleration rate while relying more on the dynamic braking and requiring less air braking.

A solid state operated transfer switch shall be located in the grid hatch and cabled in the grid circuit such that in self-load test the grid hatch will be arranged with three parallel circuits of two grids each to allow continuous self-load test capability. Dynamic brake ground relay and grid blower motor failure protection "or equivalent". The microprocessor control system is to nullify blended braking below 4 mph. Monitoring and control logic provided in blended braking and in self load test to ensure that grid current in each circuit does not exceed rated limits.

5.1.1 Blended Braking

During normal operation, the friction braking system is designated the primary brake, and the dynamic braking system is designated as the secondary brake. These two systems operating together make up the blended brake system. Blended brake operation is initiated by movement of the automatic brake lever, provided the throttle is in "Idle" and the unit is moving at least 5 mph, and a nominal 10-psi of brake cylinder pressure is applied. This 10-psi pressure is retained until brakes are released. This approach keeps the wheel treads clean and prevents snow or ice build-up on brake shoes in inclement weather. For service brake applications, blended brake operates in "dynamic priority". The blending system retains the 10-psi pressure at a minimum and determines what additional friction braking is necessary over the available dynamic braking to achieve the requested total braking force. During emergency braking, blended brake operates in "friction priority", and the dynamic braking will supplement friction braking with a fixed 250-amps of TM field current.

In normal operation, blended braking will be cutout as the unit slows down to 4 mph for a station stop. The MB will transfer the traction motor circuit back into the power mode so the unit will be ready to accelerate the train as soon as the station stop is complete. With this logic, it is not possible to get into blended or dynamic braking at zero speed. Therefore, the microprocessor shall have a maintenance screen setup to permit overriding the zero speed feature so dynamic and blended braking operation can be qualified.

SunRail Remanufactured Locomotive Vehicle Design Criteria

In effect, the locomotive has two dynamic braking curves to operate on. These curves are identified by the grid resistance. The higher speed and a lower speed curve shall provide the best selection of blended braking, the microprocessor shall apply the appropriate logic to select the curve to follow.

Controls shall comply with RP-E-006-99, APTA Recommended Practice for Diesel Electric Passenger Dynamic Brake Control and RP-E-014-99 Diesel Electric Passenger Locomotive Blended Brake Control.

5.1.2 Self Load Test

When the locomotive is set up for self load test, the microprocessor will pickup a transfer switch in the grid hatch which will reconnect the grids from two parallel circuits of three grids in series to three parallel circuits of two grids in series. Once the transfer switch is picked up, the specific switch will be picked up to connect the grid circuits to the main alternator. In this configuration, the equivalent resistance of the grid shall be sized with the capability of handling up to 4,880 horsepower. A self-load test feature will permit continuous full horsepower load testing without a "rated load" feature. RP-E-003-98 APTA Recommended Practice for Load Testing of Diesel Engines shall be used to load test the locomotive. The GP40WH-2 remanufactured locomotive is equipped with four grids and one DB fan. With this configuration and due to space limitations within the remanufactured locomotive, the self-load test will require a "Rated Load" feature and/or a time limit.

6 ELECTRICAL CONTROL

6.1 Traction System

A remanufactured AR10/D14 Traction Alternator with four (4) remanufactured D78 or D77 Traction Motors connected in parallel shall be provided. A magnetic or motorized switch gear shall be provided in the high voltage cabinet.

6.2 Batteries

The cranking/storage battery shall be a nominal 72/64 Vdc nickel cadmium type, service proven in locomotive use.

74-volt Auxiliary Power

Batteries shall comply with RP-E-007-98 APTA Recommended Practice for Storage Batteries and Battery Compartments.

6.3 Ground Relay Protection

The GR system shall be integrated with the microprocessor system.

SunRail Remanufactured Locomotive Vehicle Design Criteria

An automatic reset of ground relay to occur 15 seconds after each ground occurrence. If three (3) grounds occur within 10 minutes of each other in sequence, ground relay will lock out operation.

Provide microprocessor display of ground occurrence. No alarm bell or microprocessor indication until lockout occurs.

6.4 Control System

Provide a microprocessor based controlled creep wheel slip system. The wheel slip/slide system including the PCS and FRA locked wheel protection shall be tested on each unit as part of the final Inspection and Test. The microprocessor shall provide control and diagnostics at a minimum for:

- Diesel Engine Horsepower
- Ground Faults / Ground Relay Reset
- Dynamic Braking
- Other Electrical Control Features

A traction motor cutout feature "or equivalent" through the microprocessor control system.

6.5 Wiring

The remanufactured locomotive shall be rewired with all new wiring. The new wire shall meet NFPA 130 - 2007, or latest revision and RP-E-009-98, APTA Recommended Practice for Wire Used on Passenger Equipment. Installation shall comply with SS-E-001-98, APTA Standard for Insulation Integrity, RP-E-002-98, APTA Recommended Practice for Wiring of Passenger Equipment, RP-E-004-98, Recommended Practice for Gap and Creepage Distance and SS-E-005-98 APTA Standard for Grounding and Bonding.

The Contractor may propose reuse of existing wiring, subject to joint inspection and acceptance by the Department.

7 MAIN DIESEL ENGINE

The main diesel prime mover engine shall be at a minimum a remanufactured 2-stroke cycle 16-645 engine, 12-710 or other service proven equivalent.

7.1 Filters

7.1.1 Primary (carbony) Filters.

Inertial carbony air filters are to be applied to all units.

SunRail Remanufactured Locomotive Vehicle Design Criteria

Basic inertial blower motor protection shall be provided.

7.1.2 Engine Air Filters

The engine air filters are to be pleated paper engine air filters.

7.1.3 Oil Pan Capacity

The oil pan lube oil capacity shall be approximately 243 gallons or as required by the engine manufacturer.

An engine oil dipstick shall be provided.

7.2 Other Engine Features

Automatic Drain Valve shall be provided as approved by the Department.

Mechanically bonded radiators.

Three, single speed, 48" Q-Type cooling fans "or equivalent".

8 TRUCKS

The Department Passenger locomotives shall be equipped with two remanufactured Blomberg type two axle trucks. Each axle is driven by a remanufactured D78 or D77 traction motor. The trucks shall be fully interchangeable.

Any changes to warranty and maintenance costs shall also be provided.

8.1 Braking

Each wheel shall be equipped with single shoe brake rigging actuated by an individual 9-inch by 8-inch brake cylinder. Braking is accomplished by one 14-inch composition brake shoes per wheel. Slack is controlled by pin type slack adjusters.

8.2 Wheel/Axle/Gear

8.2.1 Gear Ratio

A gear ratio 66:20 for normal 79 mph operation with maximum 103 mph design speed shall be provided.

8.2.2 Axles

New axles with 6-7/8" journal diameter "or equivalent" are to be provided.

SunRail Remanufactured Locomotive Vehicle Design Criteria

The axles are to be splined at both ends to accommodate an axle generator.

8.2.3 Wheels

The wheels shall be forty inch (40") wrought steel with the following features:

- Class B
- Heat-treated
- Rim quenched
- Hub stamped
- 3" rim
- Machined wheel index groove
- AAR 1-B; 1:20 Profile
- Designed to meet SS-M-012-99 Rev 1 APTA Standard for Manufacturing of Wrought Steel Wheels for Passenger Cars and Locomotives

8.2.4 Journal Boxes

Journal boxes shall be rebuilt Hyatt journal boxes.

8.2.5 Traction Motor Modifications

Traction motor gear cases shall be oil filled with appropriate axle seals, fill, and drain ports.

8.2.6 Other Truck Modifications

The handbrake shall operate from the rear end of the locomotive and be connected to one brake cylinder, providing an application on one axle. All trucks shall be equipped with necessary handbrake fixtures, facilitating interchangeability.

Low profile, elliptic-type secondary springs "or equivalent" shall be provided.

Yaw dampers "or equivalent" to be provided. Vertical dampers "or equivalent" to be provided.

9 CAB ARRANGEMENT

9.1 Cab Type

The Department passenger locomotive shall be equipped with a new cab designed to incorporate all latest APTA SS-C&S-034 crashworthiness features, as well as practical application of human engineering. Optimized crew visibility and reduced sound levels in the cab shall provide for operator comfort and safety. The cab shall conform to 49CFR238.103 for fire and smoke.

SunRail Remanufactured Locomotive Vehicle Design Criteria

Option II-

Please provide pricing and schedule impacts for modification of your proposal, for an Option to provide a new bullet nose front carbody, similar to the (EMD F59PHI). The requirements of 49CFR238 for carbody structure should be met.

9.1.1 Operator's Console

The Department Passenger locomotive cab shall feature an ergonomically designed control console. A lighted clipboard shall be provided within easy reach and vision of the operator, and approved by the Department.

9.2 Engineer's Control Console

The engineer's console will include load meter, air brake gauges, signal light and alarms to be submitted for review and approval of the Department.

The propulsion and brake systems shall provide trainline signals to the remote loadmeter in the operator's station in the cab car.

9.2.1 Passenger Door Controls and Traction Interlock

The Engineer's Status Panel shall show Passenger Door Status, including passenger enable function.

Traction Interlock

- A. The Contractor shall provide circuits through the trainline that will provide traction interlocking to prevent the locomotive from moving under power, if the car doors are not closed. The circuits shall be provided with sealed toggle switches with indicator light, on the operator's console that will allow the circuits to be bypassed.
- B. A door override trainlined circuit shall be provided by connecting pins TBD of the trainline through a design to be coordinated with the car supplier under a separate contract.
- C. The function is a traction interlock to inhibit taking power if doors are not closed and locked. The override will allow cutout switch to be operated, so that the train can be moved until the end of the shift. The Cab shall be equipped with a traction interlock that must be energized for the locomotive to take power.
- D. The locomotive traction (Gen. Field) will be interlocked with the door circuit so that traction cannot be achieved unless continuity within the

SunRail Remanufactured Locomotive Vehicle Design Criteria

door interlock system is reached (doors are closed or failed door system is bypassed).

- E. Door Hold Closed Function
- F. Cab controls shall include a "Door Hold Closed" function. The function will be controlled by a switch or push button to inhibit the opening of doors by the conductor. The switch or push button shall prevent the door from opening until another action is taken by the engineer. If a latching push button is used, it will be lit to show the state of the contacts (lit when doors are prevented from opening).
- G. The Door Hold Closed function will be trainlined. The cab cars and coaches being purchased under separate contract, do have powered door controls. The locomotives will have the same function as cab cars. The Door Hold Closed circuit on these locomotives shall be same, or similar to Door Hold Closed function on the cab cars. The Contractor shall expect to conduct a joint design review with the door control subsystem supplier, cab car supplier, and the Department. The Contractor will thereafter submit a CDRL to the Department for review and approval.

9.2.2 Controller

The contractor shall provide a brake system with 26LUL valve logic system or Microprocessor brake controller. The Contractor shall provide a microprocessor controlled propulsion system.

A 30ACDW air brake control valve and Schaltbau North American style throttle controller "or equivalent".

The Engineer's controls shall be within reach without standing or sliding forward in the seat. All switches and controls are labeled directly below the switch where appropriate.

A slide-type switches "or equivalent" for the engineer's control console.

A five position rotary type headlight switches "or equivalent" to control front headlights. The rotary switch for front headlights operates as follows:

POS 1 OFF
POS 2 DIM
POS 3 BRT
POS 4 BRT + Ditch Lights

With Indicator Lights

A three position rotary type headlight switches "or equivalent" to control rear headlights.

SunRail Remanufactured Locomotive Vehicle Design Criteria

The rotary switch for rear headlights operates as follows:

POS 1 OFF
POS 2 BRT

The horns shall be lever actuated modulating actuator, interlocked with the reverser controls.

The bell switch shall be located on the desk-top console, adjacent to the horn control.

9.2.3 Cab Seats

Two (2 ea.) USSC 9000 seats “or equivalent”.

9.2.4 Cab Floor

The cab flooring shall be one-inch composite base board, tested compliant with 49CFR238.103. Norament Non-skid tread surface compliant with 49CFR238.103 shall also be furnished.

9.2.5 Cab Lighting

The cab shall have two ceiling lights and a conductor's light.

Basic floor lighting and stairwell lighting shall be provided.

9.2.6 Temperature Control

Cab sidewall strip heaters shall be provided operated by a three position control switch.

The locomotive will be equipped with air conditioning for the operator's cab. A service-proven HVAC air conditioner that utilizes non-ozone depleting refrigerant will be furnished. The HVAC unit shall provide forced air heating in the cab. Under-floor HVAC shall be provided for climate control of the operators cab. It shall be controlled by an adjustable controller. Design Conditions, in Section 1.2. It shall utilize a non-ozone depleting refrigerant.

9.3 Windows / Doors / Locks

9.3.1 Windows

All forward windows shall conform to FRA Type I glass specifications. All side-facing windows shall be FRA Type II glass.

All forward facing glass shall be heated with electric elements.

SunRail Remanufactured Locomotive Vehicle Design Criteria

All side facing glass shall be tinted.

9.3.2 Rear View Mirrors/Wipers

Rear view mirrors/wind deflectors (Prime SC875-28) “or equivalent” on both sides in front of the sliding window.

Rain gutters shall be provided on both sides of cab.

A total of four (4) pneumatic windshield wiper motors with automatic parking feature shall be provided.

9.3.3 Doors

All Cab doors shall have weather seals.

9.3.4 Locks

Door locks shall be provided and keyed to the Department specifications.

9.4 Refrigerator

A refrigerator shall be provided. The refrigerator model shall be approved by the Department.

9.5 Electronic Equipment

An Event Recorder / Vigilance System/horn sequencer and Speed indicator, compliant with 49CFR238.105 and 49CFR229.135 shall be furnished.

The microprocessor display screen shall display brake pipe pressure, brake cylinder pressure, throttle position, pneumatic control switch, generator field, traction motor current and ground speed at a minimum. All values shall be recorded.

A Provision for a Cab Signal System is required. See additional information concerning the Positive Train Control System Provisions found in Section 29. The locomotive manufacturer may be requested at a later date to coordinate with the supplier for services for design, installation and test of the system.

9.6 Toilets

The Department does not desire to have a toilet on the locomotives.

9.7 Cab Appurtenances and Nameplates

A consolidated cab cardholder “or equivalent” (PPC 17672).

SunRail Remanufactured Locomotive Vehicle Design Criteria

Three (3) folding coat hooks shall be provided. Coat hooks shall be located such that they do not interfere with any function within the operating cab.

Sun visors for each windshield shall be provided.

Three 20 lb. fire extinguishers shall be provided. One located in the cab, the second located at the equipment rack in the engine room and the third located in the HEP compartment at the rear of the long hood. A signed and dated inspection tag shall be applied to the fire extinguisher.

All console controls and operating features shall be clearly marked with a permanent tag system. Adhesive backed tags and/or decals shall not be utilized unless specifically approved by the Department.

9.8 Cab Noise Attenuation

Cab noise rating shall comply with 49CFR229.121 as tested at full load, at a stationary load box.

10 COMMUNICATION SYSTEMS

10.1 Voice Radio

- A. The following standard features shall be incorporated in the new train radio:
 - 1. The Contractor shall replace the existing radio. The Contractor shall propose a radio with features that meet or exceed those of the Motorola Spectra radio or GE Model 12R Series II, with external MIC option, 96 channels. The proposed radio shall be submitted for Department review and acceptance.
 - 2. 4" low-profile antenna, Motorola 105F or approved equal.
 - 3. RC8U cable w/2-PL259 connectors or approved equal.
 - 4. Transceiver.
 - 5. Radio and Intercom control heads shall be adjacent to each other at Operator's control console.
 - 6. The radio shall be easily removable from a slide out tray designed for AAR base radios.
 - 7. Circuit breaker for radio system.

SunRail Remanufactured Locomotive Vehicle Design Criteria

- B. One (1) new radio shall be supplied for each cab car with distinctive FDOT Serial numbers, in addition to the manufacturer's serial numbers. Serial numbers shall be coordinated with the Department.

11 CARBODY

11.1 Carbody Design

The carbody shall be a newly designed aerodynamic in appearance style. The Contractor may use the existing GP40WH carbody with a new aerodynamic cab (MP36PH-3C style).

11.2 No. 1 (front) and No. 2 (rear) End Arrangement

11.2.1 Sidestep

Platform mounting ladders or steps shall be located at each rear corner of the locomotive. Side steps shall be located at the cab doors and the carbody personnel doors.

An anti-climber shall be provided at both ends of the locomotive.

Grab irons shall be positioned and installed in full compliance with all applicable FRA requirements.

The cab nose structure shall incorporate collision posts and corner posts satisfying APTA SS-C&S-034 and AAR Standard S-580 (Revised 2001 or latest revision).

The structural configuration of the underframe, cab and carbody shall have a strength of 800,000 lbs., consistent with APTA SS-C&S-034.

Markings:

- A. In addition to the decals specified elsewhere in the Contract Documents, decals shall be provided on the front, rear and sides of the locomotive as provided by the Department.
- B. Numbering and lettering shall be as directed by the Department or its designee.
- C. The Contractor shall clearly and permanently label or tag each air line, hose, and valve; each electrical jumper, breaker, and receptacle; each electrical box, locker, and panel; each equipment box, locker, and compartment; and each item inside each box, locker, panel, and compartment, with a permanent mechanically fastened nameplate, approved by the Department.
- D. Decals for the various system functions shall be applied where applicable.

SunRail Remanufactured Locomotive Vehicle Design Criteria

- E. Permanent metal "Danger - 480 Volt" tags and other warning tags shall conform to FRA regulations. Adhesive-backed tags shall not be utilized, unless specifically approved by the Department.
- F. Embossed or Intaglio metal tags shall be provided to identify all electrical and mechanical components. Plastic, self-adhering tags shall not be utilized.
- G. Exterior and underfloor equipment enclosures shall be labeled using stainless steel plates riveted to the enclosure or other approved mechanical fasteners.
- H. Labels which certify that the locomotive has been fully equipped according to FRA Glazing Requirements, Part 223, shall be riveted in place by the Contractor.
- I. A letter "F", 3" high, shall be affixed to the front lower portion of both sides of the locomotive.
- J. Permanent metal "No Smoking" placards shall be mounted in the cab.
- K. One stainless steel Owner's plate, 2" x 6 1/4" in size, with sand-etched letters painted black on a No. 7 mirror finish background, shall be provided on the inside of the cab. The plate shall bear the legend: on the top line "OWNER" and on the second line "Florida Department of Transportation" or designee.
- L. The Contractor's name may be applied to 1 photo etched, stainless steel plate located inside each locomotive.
- M. Interior "Emergency Exit" and "Caution" signs, and other permanent directional or advisory signs for crew members, shall be as directed by the Department or its designee.

Roof Emergency Access:

Roof access by means of a designated emergency cut-away area shall be provided from the exterior of the locomotive to the cab space occupied by crew members.

- A. The cut-away opening at the designated area shall provide for a clear opening size in any direction of at least 24 inches.
- B. The ceiling space below the area for the cut-away opening shall be free from wire, cabling, conduit, piping, and rigid secondary structure or fixtures. The area shall be designed so that after making the cutout hole it shall be possible to push interior panels or liners out of their retention devices into the interior of the cab.

SunRail Remanufactured Locomotive Vehicle Design Criteria

- C. The line along which the roof skin may be cut should be clearly shown with retro-reflective tape of contrasting color. A sign plate with a retro-reflective border should also state:

“CAUTION - DO NOT USE FLAME CUTTING DEVICES.
CUT ALONG DASHED LINE TO GAIN ACCESS.
CAUTION - WARN CREW BEFORE CUTTING
ROOF CONSTRUCTION”

12 COUPLER/DRAFT GEAR

The coupler shall be compatible with one provided on the passenger cars which is, APTA RP-M-003 (latest revision) compliant, short shank Type H Tightlock or Type F coupler rotary operated, bottom operated with double rotary locklift operating mechanism for passenger cars.

It shall have alignment control.

A Steel carrier wear plate shall be provided.

13 LIGHTS

13.1 Headlights

Twin sealed beam headlight fixtures are to be recessed mounted in the nose section, number one end of locomotive and end sheet over the door on the No. 2 end.

Twin sealed beam headlight fixtures are to be mounted on the number two end of the locomotive above the door.

All headlight fixtures are to be equipped with PAR56, 200 watt, 30 volt lamps. They will have a dedicated power supply, and not have dropping resistors for the high beam. Alternately, 72/64 volt headlight lamps can be provided. All headlight fixtures are to be clearly labeled to indicate the proper voltage lamp to be used.

Dimming resistors can be provided for headlight switches to enable front headlights to operate in the "Dim" mode.

13.2 Ditch Lights

Ditch lights shall be provided at the 'F' end and No. 2 end shall be capable of flashing operation in conjunction with the initiation of the bell or through the enable pushbuttons. The operation of the lights are such that when the auxiliary light switch is in the on position they are continuously on. At the time of flashing they shall flash at

SunRail Remanufactured Locomotive Vehicle Design Criteria

approximately 60 pulses per minute. The flashing time period shall be approximately 30 seconds after the momentary activation has been initiated. The lights can be canceled at any time by pressing the pushbutton. Ditchlight lamps shall be the same as headlight lamps.

Ditch light directional operation will be interlocked with the reverser.

13.3 Step Lights

Step lights shall be installed at all step locations.

13.4 Lighted Number Boards & Train Number Board

Lighted number boards and Train Number boards shall be installed.

13.5 Carbody Room Lights

Engine room lights, a clean air room light, and HEP compartment lights shall be provided.

13.6 Marker Lights

Red marker lights shall be provided at the 'F' end only.

13.7 Lifting and Jacking Devices

13.7.1 Jacking Pad/Cable Sling

Provide four combinations sling/jacking pads welded to the underframe side sill.

13.7.2 Supplemental Lifting Eyes

Provide basic lifting eyes for all hatches.

14 LOCOMOTIVE OUTLINE and WEIGHT

14.1 Weight

Nominal loaded weight including all modifications and supplies shall not exceed 300,000 pounds. The balance and variation between trucks shall not exceed 2% at full weight with all variable supplies. Each locomotive shall be weighed at the factory using an in-track scale, accurate to 50 lbs.

14.2 Clearance - Height

The locomotive clearance envelope shall conform to AREMA Plate C and Equipment

SunRail Remanufactured Locomotive Vehicle Design Criteria

Diagram Preliminary, D-4.

14.3 Other Carbody Features

All interior compartments shall have adequate drainage to prevent standing water after cleaning and washing activities.

14.4 Walkways

All walkways shall be covered with tread plate welded to frame.

15 HEAD END POWER

15.1 General

The new HEP shall supply electrical power for heating, lighting, air conditioning and other auxiliary loads. Traction power is not used for head end power. Head end power is not utilized by the traction power system, except for layover protection. The use of solid state controls shall be utilized to the fullest extent.

Head End Power shall comply with RP-E-015-99 APTA Recommended Practice for Head End Power Source Characteristics, and RP-E-016-99 APTA Recommended Practice for 480Vac Head End Power System.

The HEP will be tested to RP-E-011-98 APTA Recommended Practice for Head end Power Load Testing.

15.2 Engine for Generator Application (Head End Power (HEP))

The HEP package shall be a new Caterpillar/Marathon (or equivalent) electric generation plant.

The HEP shall be capable of producing 300 to 500 KW nominal, 480V, 3 Phase, 60HZ, at 1800 RPM for continuous locomotive duty, consistent with EPA Tier II certification, with a load power factor of 0.9. The HEP system will be capable of operating under full load in ambient conditions from -40 deg F° up to +110 deg F°.

15.3 HEP Start Station Cabinet

The Rebuilt HEP Contactor and Relay Cabinets shall consist of:

- Remote Panel
- Layover Heater
- Electric Start using the locomotive's batteries

The rebuilt Head End Power Diesel Engine shall be equipped with the following:

SunRail Remanufactured Locomotive Vehicle Design Criteria

Air Inlet System (Or Equivalent)

After cooler core, consistent with EPA certification.

Dual air cleaner assembly - Regular duty, panel type with service indicators.

Dual turbocharger assembly, 152 mm (6 in) OD straight connection.

Control System (Or Equivalent)

Governor, Woodward 2301A with Barber-Coleman DYNZ-60012 and Wilmot 1620-72-24-8 DC-DC converter.

The cooling system shall comprise of:

Thermostats and housings, full open temperature 92oC (198oF), or consistent with EPA certification.

Jacketed water pump, gear driven, centrifugal, RH.

Separate radiator core, with sufficient heat rejection capability.

15.4 Exhaust System

A low leak exhaust manifold and heat shields, dry 203 mm (8 in) round flanged outlet shall be provided or an equal system in performance.

A locomotive grade exhaust silencer with spark arrestor that is unit mounted shall be provided.

15.5 Fuel System

The fuel system shall consist of the following:

Spin on Fuel filter, RH

Brushless fuel transfer pump

Flexible fuel lines, 3/8 NPTF male ends.

Fuel priming pump, RH

Fuel Pre-heater (Layover)

The Locomotive Contractor can propose engines the meet EPA Emission Standards on either Low Sulfur Diesel, or Ultra Low Sulfur Diesel.

15.6 Instrumentation

15.6.1 Instrument Panel LH Locomotive mount

The following shall be installed:

Fuel pressure gauge

Lubricating oil pressure gauge

Water temperature gauge

Service meter

Other Engine Features as approved by the Department and suggested by the Contractor

SunRail Remanufactured Locomotive Vehicle Design Criteria

Woodward 2301A Governor - 74 volts, meeting the following limits:

Stability: +/- 1% maximum frequency variation of any constant load.

Regulation: +/-3% maximum frequency variation between steady state and full load steady state.

Transient: 10% maximum frequency dip upon application of full rated load.

Transient: 1.5% maximum frequency overshoot upon removal of full load.

Transient: four (4) second maximum recovery time.

15.7 Locomotive HEP AC Generator (Or Equivalent)

15.7.1 General

The AC generator shall be comprised of the following:

- Insulation, class H, Vacuum pressure impregnated double-dip, double VPI
- Enclosure, open dip proof
- Terminals, 4 wire wye connected
- Bearing design, sealed, anti-friction - No Field lube
- Inboard exciter
- Form wound stator coils
- Volts/Hertz module

A new single voltage output configured generator, rated for Railroad duty, "or equivalent" shall be provided.

15.7.2 Inverter

Alternately, the Contractor may propose an inverter for Head End Power.

15.7.3 Voltage Regulator (furnished by Marathon or Equivalent)

The alternator shall be equipped with an electronic voltage regulator to maintain voltage within the limits specified below:

Stability: +/-1% maximum voltage variation at any constant load.

Regulation: +/-13 maximum voltage variation under steady state operation from no load to full load.

Transient: 10% maximum voltage dip or over-shoot on application of full rated load or removal of full rated load.

Transient: One (4) second maximum voltage recovery time with full load applied.

SunRail Remanufactured Locomotive Vehicle Design Criteria

The voltage regulator shall be equipped with a power isolation transformer.

Generator Protective Devices

Protective devices shall open the main contactor and shut down the engine to prevent injury or damage to personnel and equipment:

The protective devices shall also lock out the main contactor, energize appropriate indicating lights, and sound an audible alarm in the cab.

The lock out shall be manually reset to restart or operate the head end power unit after a protective device has been initiated.

The generator shall be equipped with the following electronic protective devices having indicating lights mounted on the door of the head end power control panel upper section:

- Over/Under Frequency protection.

- Over/Under-Voltage protection.

- Over-Current Protection

15.8 Relay & Contractor Cabinets

15.9 General

The control system voltage shall be 74 VDC.

All relays and contactors used in the control system shall have demonstrated successful operation in North American Passenger locomotive service.

15.10 Circuit protection

All circuits shall be properly protected by heavy duty, locomotive service proven, ambient temperature compensated thermal magnetic breakers.

Fuses shall not be used.

A list of circuits to be protected by breakers shall be transmitted for approval by the Department.

15.11 Remote Shutdown

The control system shall provide for a remote shutdown of the head end power engine independent from the locomotive engine stop and emergency fuel cutoff buttons.

15.12 Emergency Shutdown

SunRail Remanufactured Locomotive Vehicle Design Criteria

Emergency shutdown shall be accomplished by actuating any one of three (3) emergency fuel cut-off switches.

15.12.1 Head End Power Contactor

The head end power shall be supplied to the 480 volt trainline by means of an electrically operated contactor.

The head end power contactor shall be size 7 with overload.

15.13 Cab Remote Panel

The remote panel shall be installed on the rear wall of the cab of the locomotive, or on the overhead console as approved by the Department.

The cab remote panel shall contain the following devices:

QTY	DEVICE	CAP COLOR
(1) 2	Phase light indicating power on phases 1 and 2, and power on phases 2 and 3	White
(2) 1	Circuit breaker/contactor closed light	Red
(3) 1	Generator failure light	Red
(4) 1	Train line complete light	Green
(5) 1	Engine failure light	Red
(6) 1	Ground fault light	Red
(7) 1	Engine stop-oil tight push button	Red
(8) 1	Circuit breaker/contactor open-oil tight push button	Red
(9) 1	Train line setup switch (3 position rotary)	
(10) 1	Layover heat on-off switch	
(11) 1	Inertial filter motor failure light	Red

SunRail Remanufactured Locomotive Vehicle Design Criteria

15.14 Head End Power Control and Contractor Cabinets

15.14.1 General Description

The remanufactured cabinets shall be constructed of 11 gauge steel, with fully welded seams, and full length hinges on all doors.

Locking devices, including keying, shall be overhauled or replaced.

The cabinets shall be properly primed and then painted with two (2) coats suede gray enamel. The remanufactured cabinets will be already existing from the GP40WH-2 core locomotive. New door seals and latch hardware to be provided.

All new name plates shall be provided.

15.14.2 Relay Cabinet Details:

The remanufactured HEP cabinets shall be remanufactured with new seals and hardware to assure watertight construction.

The remanufactured HEP cabinet shall be equipped with watertight door seals with locking latches.

The lower section shall provide for bottom entry for wiring conduits, and rear entry for ventilation duct.

Provisions shall be made within the cabinet for wire routing and cooling air movement between the upper and lower sections.

15.14.3 Contactor cabinet details:

The remanufactured cabinet shall of watertight construction with vertically hinged doors with locking latches.

15.14.4 Control Cabinet Upper Section Door

The remanufactured control cabinet door (upper area) shall include the following devices:

AC voltmeter 3.5 in. (88.9 mm) diameter, 0-600 volt AC, 2% maximum variation (part of meter panel).

AC ammeter 3.5 in. (88.9 mm) diameter, 0-1000 amperes AC, 2% maximum variation (part of meter panel).

Frequency meter 3.5 in. (88.9 mm) diameter, 55-65 hertz, 2% maximum variation (part of meter panel).

SunRail Remanufactured Locomotive Vehicle Design Criteria

DC volt meter 2.5 in. (63.5 mm) diameter, 0-100 volts - ungrounded

Elapsed time meter.

Idle - Run switch - Oil tight

Reset switch - oil tight - red

Stop push button - oil tight – red

Start push button - oil tight - green

Fuel Pump Auxiliary Contact (FPCA) reset button - oil tight - green

Ammeter / voltmeter phase selector switch

Two (2) phase indicating lamps indicating power on phases 1 and 2 and power on phases 2 and 3 - white

Train line complete lamp - green

Low water level lamp - red

Low oil pressure lamp - red

High water temperature lamp – red

Engine overspeed lamp - red

Under-frequency lamp - red

Over-current lamp - red

Over-voltage lamp - red

Low oil temperature light and low oil temperature reset functions.

All indicator lights shall be push-to-test.

All of the above devices shall be new.

15.14.5 Meter panel:

The voltmeter, ammeter, and frequency meters, items above shall be mounted in the upper section door of the head end power control cabinet in clear view.

The meters are to be protected from vibration by shock absorbing mounts.

SunRail Remanufactured Locomotive Vehicle Design Criteria

These meters are to be protected from dirt, oil, and moisture by a section of safety glass attached to the panel with a suitable rubber glazing strip.

These meters shall be mounted in such a manner that they may be easily removed for repair or replacement.

15.14.6 Control Cabinet Lower Section Door:

The lower control cabinet door shall include the following devices:

Battery circuit breaker

Metering potential transformer output circuit breaker

Voltage regulator potential transformer output circuit breaker

All breakers shall be ambient temperature compensated, thermal magnetic type.

15.14.7 Contactor Cabinet:

All 480 VAC circuit breakers shall be mounted behind the cabinet door so they are accessible only with the access door open, and include the following:

All of the following devices shall be new.

Main engine block heater circuit breaker

H.E.P. engine block heater circuit breaker

Metering potential transformer input circuit breaker

Voltage regulator potential transformer input circuit breaker

Cooling fan circuit breaker (s)

Head end power contactor

Head end power disconnect (for short hood receptacles when train connected to long hood)

Ground relay test button - oil tight - yellow

Cooling fan test button - oil tight - green

16 FUEL TANK

16.1 Capacity

A puncture resistant fuel tank with minimum capacity of 2,000 US gallons and a 60-gallon minimum internal retention tank shall be furnished. The fuel tank shall conform to latest APTA and FRA requirements at the time of delivery. The fuel tank design shall comply with APTA CC-C&S-017-07 Diesel Fuel Tank.

16.2 Filler Pipes

Two (2) filler pipes, one on each side of fuel tank shall be furnished. These fillers shall be compatible with the Department's shop configuration.

SunRail Remanufactured Locomotive Vehicle Design Criteria

16.3 Gauges

One eight-inch fill gauge shall be applied to each filler pipe, i.e., two dial gauges shall be provided - one on each side of tank.

An automatic fuel fill adapter (Shutoff Device) shall be provided, compatible with the Department's fueling system.

- A. One tank-mounted fuel level sensing unit and 3 digital level indicating gauges, calibrated in U.S. gallons, shall be provided.
 - 1. Two gauges shall be tank mounted, 1 on each side of the locomotive.
 - 2. The third gauge shall be installed in the locomotive cab.

16.4 Fuel Retention Tank

The retention tank shall be located in such a manner as to be accessible from outside of the locomotive from ground level to facilitate draining.

The tank's overflow piped shall be located near the center of locomotive with a drain outlet flush with bottom of fuel tank.

A 1/4 turn ball valve and pipe plug "or equivalent" in the drain pipe.

A removable tank cover shall be provided.

17 STYLING AND PAINTING

The contractor shall supply the Department (3) electronic CAD prints of a drawings detailing the paint color scheme, lettering, numbering, and symbol location for approval prior to construction. In support of this effort, the Department will supply the contractor with its current painting and styling drawings including "Signage" requirements.

17.1 Exterior

17.1.1 Upper Locomotive colors:

The locomotive carbody is to be painted per the Department provided paint concept. The Department selected Finalist Color Scheme No. 03.

The top portion of the locomotive will be painted black, per the Department requirements.

The lower portion of the locomotive shall be painted black per the Department requirements. Appropriate decals and signage shall be provided by the Department

SunRail Remanufactured Locomotive Vehicle Design Criteria

project manager and installed by the contractor.

The paint scheme will be multi- color, consistent with Department selected Finalist Color Scheme No. 03.

17.2 Interior

17.2.1 Inner Trim - Colors:

Electrical Cabinet	-	Beige or Suede Gray
Headliner	-	Beige or Suede Gray
Sidewalls	-	Beige or Suede Gray
Short Hood	-	Suede Gray
Control Stand	-	Black low gloss finish
Long Hood	-	Suede Gray
Engine	-	Suede Gray

17.2.2 Identification and AEI (RF) Tags

A Scotchlite "F" shall be located on the side sill near the end of each side to identify the cab end as the front.

Road numbers shall be To Be Determined.

Static AEI tags shall be provided.

Add name tags identifying the following lines at the corners of the units:

Actuating
Ind. Appl. Rel.
Brake Pipe
Equal M.R.

- A. Two AEI (RF) tags, pre-coded for the Universal Machine Language Equipment Register (UMLER), shall be installed on each locomotive in compliance with AAR standard S-918, latest issue.
- B. The Reporting Marks for the locomotives are CFRC and locomotive numbers are to be numbered, starting with locomotive number 100.

18 HOT START

- A. Auto Start Function
 - 1. The locomotive shall be equipped with an automatic start feature, when low temperature or cranking battery reaches a level of discharge. (Meets Idle Control requirements of 40CFR1033.115)

SunRail Remanufactured Locomotive Vehicle Design Criteria

2. The Contractor shall submit details of the AutoStart subsystem for review and approval by the Department
- B. Layover protective system with battery charger
 1. The locomotive shall have a remanufactured layover protective system with battery charger. It shall be similar to Kim Hot Start that has 120/130°F water temperature and 100/110°F oil temperature and controlled by a microprocessor

19 WARRANTY

The Contractor guarantees and warrants that each item of material and all workmanship supplied hereunder shall (a) conform to the Technical Specifications and all other requirements of this Contract; (b) fulfill its design functions and be fit for both its ordinary and intended purposes; (c) be free of all patent and latent defects in design, materials and workmanship; and (d) perform satisfactorily for a period of two (2) years from date of Final Acceptance.

- A. The Contractor shall guarantee the following for all locomotives:
 1. For all locomotives:
 - a. Elastomers, the structure of the carbody, underframe, and the truck frames for a period of five (5) years from the date each locomotive is finally accepted by the Department.
 - b. All other pertinent parts, for a period of two (2) years from the date of final Acceptance of each locomotive.
 - c. Spare parts for two (2) years from date of installation. In no case shall the guarantee period exceed three (3) years from date of delivery of spare parts.
 - d. All retrofits for the remainder of the guarantee period or for one (1) year from the date of retrofit completion per locomotive, whichever period is greater.
- B. The Contractor shall submit prior to delivery of the first locomotive, the proposed warranty procedures for Department acceptance.
- C. Contractor shall guarantee that the locomotives shall be in accordance with the Contract Documents when accepted and shall guarantee against defect due to faulty design, poor workmanship, or poor material during the

SunRail Remanufactured Locomotive Vehicle Design Criteria

foregoing respective periods of guarantee. If any part or parts thereof proved defective either in design, materials or workmanship during the respective periods of guarantee, the Department shall promptly notify the Contractor, and the Contractor shall repair or replace, as mutually agreed by both parties, such part or parts without expense to the Department.

- D. It shall be understood that the Contractor shall be responsible for all costs of labor and material for defect identification and location, and for the removal, repair, or replacement of defective parts, and for alterations, repairs, tests, and adjustments in connection therewith, made to obtain specified car performance. **All work performed by Department personnel on behalf of the Contractor in connection with the execution of this contract shall be billable to the Contractor at the established flat labor rate of \$100.00 per hour.** Replaced and/or repaired items shall be guaranteed for the remainder of the guarantee period or for one (1) year, whichever period is the greater.

NOTE: In the event the Department incurs extra costs, including consultant costs, which are directly attributable to the Contractor's performance, or lack thereof, the total extra costs for the related labor, materials, equipment and/or consultant services will be the sole responsibility of the Contractor, including consultant efforts reviewing drawings, conducting inspections and monitoring FMI procedures.

- E. During the respective period of guarantee, all locomotive parts or material caused to be damaged as the result of a defect in design, material, or workmanship in other vehicle parts or material, shall be repaired or replaced at the expense of the Contractor. Failure reports must accompany all repaired parts.
1. The Contractor shall, within ten (10) days from notification of warranty claim deliver repaired and replacement parts; prior Department authorization is required for return period exceeding ten (10) days.
 2. The Contractor shall maintain support material necessary to eliminate any extended removal of locomotive from revenue service.
 3. The Contractor shall have access to the Department's spare parts inventory to perform warranty repairs. The Contractor shall, within 30 days of removing a part from the Department's spare parts inventory, either replace such part(s) or provide the Department with evidence that such part(s) has been ordered and will be replaced with like or better quality as expeditiously and diligently as practicable.

SunRail Remanufactured Locomotive Vehicle Design Criteria

4. The Contractor shall propose a priced list of Warranty Spares for Department acceptance. The Warranty Spares shall be purchased by the Department at the end of the warranty period, up to a maximum of \$50,000.00.
 5. Failure reports must accompany all repaired parts.
- F. In no case shall any correction of defects in design, material, or workmanship take the form of an increase in maintenance requirement beyond that specified in the Contract Documents, described in the original edition of the maintenance instructions, approved in the Baseline design, or submitted by the Contractor at the time of proposal for the Contract.
- G. If, at any time prior to the expiration of the warranty period, the cumulative failure of a component is equal to or greater than twenty-five percent (25%) of the total number of such components with the same failure mode and application (hereafter "Failed Components"), the Failed Components shall be deemed to be a fleet defect to the extent they occur during the warranty period, not to exceed twenty-four (24) months from date of Final Acceptance of the Locomotive. The Contractor shall be responsible for all costs of labor and material, for defect identification and location, and for removal, repair or replacement of defective parts, and for alterations, repairs, tests and adjustments in connection therewith made to obtain vehicle performance identified in the technical specifications. All such replaced or repaired items shall be guaranteed for the remainder of the warranty period or for one (1) year, whichever period is greater.
- H. The Contractor is reminded that it is the Department's intention to have all corrective and warranty work and services accomplished on the Department's property and performed by the Department personnel whenever possible. The Department shall not, at any time, be charged for required corrective and warranty work performed by the Department. Where this work is performed by the Department, the expense shall include the cost of parts, material, including tools and **a flat labor rate of \$100.00 per hour.**
- I. The Contractor shall provide an on-site Warranty Coordinator to handle and coordinate with the Department all warranty issues for the duration of the warranty period. The warranty coordinator shall respond to all issues within one (1) business day of notification.
- J. Any repair or retrofit work required to fulfill these guarantees shall be accomplished with minimum disruption to the Department's operation and its maintenance facility; however, as a condition precedent to the Contractor's liability under this Guarantee and Warranty of End Product,

SunRail Remanufactured Locomotive Vehicle Design Criteria

the Contractor shall have been given notice of the defect(s), reasonable access to the defective part(s), and the defective part(s) shall not have been changed or altered without the Contractor's knowledge, whether by additions, subtractions or otherwise, in any manner whatsoever.

- K. If a locomotive is removed from revenue service for one (1) week or more for warranty/repair/retrofit work, the duration of the time the vehicle is removed from service will extend the warranty period accordingly.
- L. Due to the regular maintenance demands on Department facilities and on the Department's operation personnel, it may be possible to undertake only minimal adjustment, repair, or replacement work on the locomotives. The Contractor shall, in such an event, be responsible for securing facilities and personnel to complete all additional work required during the warranty period.
- M. Notwithstanding the foregoing, all implied warranties of merchantability and 'fitness for a particular purpose' are excluded from any obligation contained in this procurement.

Nothing in the above intends or implies that warranty shall apply to items that do not perform satisfactorily because of abuse or lack of routine maintenance by the Department or its Contractors, or from vandalism or accidents.

Routine maintenance does not include overhauls, and neither the Department nor its Contractors will be required to perform unusual or extraordinary maintenance or overhauls to keep the warranty in effect. Neither shall the Department or its Contractors be required to purchase material from a sole source that is otherwise available from equal or superior sources.

20 LIFESPAN

The vehicle shall have a lifespan of 20 years after final acceptance.

21 SHIPMENT

Consignment and routing shall be in accordance with written instructions furnished by the Department.

22 OPERATING SUPPLIES

All locomotives shall be shipped with, lube oil (HEP and Prime Mover), HEP anti-freeze/coolant, residual fuel and sand, prime mover drained cooling system and disconnected batteries

23 DESIGN REVIEW, MANUALS & DRAWINGS

23.1 Design Review.

23.1.1 Purpose

This Section defines the procedures by which the Department shall obtain assurance that operational requirements have received early consideration so that the specified performance can be both obtained and sustained economically. To this end, this Section requires that suitable management organization(s) and systems exist to ensure that appropriate and comprehensive documentation is developed, maintained and delivered. The documentation shall be fully updated and factual, demonstrating, verifying and certifying that the cars are built to the standards specified.

23.1.2 Deliverable Documentation

The deliverable documentation shall include detail and assembly drawings, parts lists, test plans, test procedures, test reports, circuit diagrams, materials certificates of compliance (as required), safety plans and other requested engineering analyses. Deliverable documentation shall be in the English language. Units of measurements shall be in US units.

No standard, specification, material, process, or component may be specified in the design unless it, or an acceptable equivalent, is available to be obtained by the Department or prior approval has been given by the Department for its use. The deliverable documentation shall be in the form of:

- A. 8 1/2" x 11" US standard letter size bond paper for all correspondence and narrative submittals.
- B. 22" x 34", 11" x 17", or 8 1/2" x 11" size sheet shall be used for drawings. Larger sizes may be utilized upon approval by the Department.
- C. Where agreed to with the Department, ".pdf" or other electronic means of document transfer may be used. (Note: in an effort to expedite documentation transfer in an efficient and ecologically responsible fashion, the Contractor shall approach the department at the beginning of the Project to discuss which deliverable articles may be distributed in electronic format only). The documentation (or electronic version of such documentation) to be delivered shall include, as a minimum, the following:

SunRail Remanufactured Locomotive Vehicle Design Criteria

- Management Plan [CDRL],
- Schedule Report,
- Specified number of copies of “As built” drawings plus a reproducible set (and required electronic copies), [CDRL]
- Specification Review Conferences Minutes,
- Conformed (as-built) Specification [CDRL],
- Progress Photographs,
- Locomotive History Books [CDRL],
- Clearance Outline, Static and Dynamic [CDRL],
- Wire Run Lists [CDRL]
- Integrated Schematics Manual [CDRL],
- Contractor's List of Recommended Spare Parts [CDRL],
- Test Reports (per Test Program Plan) and Certificates of Compliance (as required) [CDRL]
- Operating Instructions Manuals [CDRL],
- Maintenance Procedures Manual [CDRL],
- Training Manuals [CDRL],
- Illustrated Parts Catalog [CDRL],
- Camera Ready Copy (1) of all Manuals and Training Materials [CDRL].
- Other Plans and Submittals

23.1.3 Design Progress Requirements

Design progress meetings shall be held monthly, or as required, with the Department to allow monitoring of progress and any other relative information communication. This does not preclude intermediate communications as is required.

The Contractor shall submit progress reports, per a period agreed to by the Department, recording the activities for the period.

The Contractor shall, in cooperation with the CFCRT Chief Operating Officer (COO), coordinate the interfaces between the Contractor and the provider of the diesel electric passenger locomotives.

23.1.4 Engineering Changes

The Contractor shall submit to the Department, revised documentation for review when introducing any change in the approved configuration. Any change that affects previously approved content or performance will be re-submitted for record once approved. Any change to reflect a process improvement/adjustment or drafting error correction will not need to be re-submitted. The Contractor shall introduce a system which will identify the ongoing design configuration and will document the configuration of each vehicle delivered.

SunRail Remanufactured Locomotive Vehicle Design Criteria

23.1.5 Management Plan

To demonstrate an organized and systematic approach to the design task, the Contractor shall submit a plan which will show how the proposed program will be structured and function. It is not the intention of these Specifications to require creation of unique and special procedures when existing procedures are satisfactory. The management plan is not required to be submitted with the Contractor's Bid.

23.1.6 Design Evaluation

When specific quantitative or qualitative requirements are called for in the other Sections of these Specifications, the Contractor shall show, either by analysis, provision of existing relevant data or by test, that the design will match the requirement. Such analysis and testing may take into account the effects of shelf life, environmental conditions during transport, and handling during assembly and may, where applicable, include all associated subsystems down to the lowest tier. If the Contractor elects to use analytical methods, it shall be the responsibility of the Contractor to provide evidence which will substantiate the data and methods used.

Failure to meet the requirements above shall require testing, per the test program plan, to evaluate the design in question against specific requirements. Notice shall be given so the Department or a representative can be present if so desired, and the test shall be conducted. In any case, a test report will be prepared and a copy made available to the Department.

Failures encountered during testing must be analyzed for cause, and appropriate corrective action taken, including retesting at the discretion of the Department.

23.2 Drawings

At a minimum the following shall be provided in Hard and Electronic Copies:

- Integrated Schematic Package
- Physical Wiring Schematic
- Wiring Running List
- Air Piping Diagram
- Water/Sewage Piping Diagram for toilet
- Clearance Diagram
- Cab Arrangement
- Locomotive General Arrangement and Outline
- Styling and Painting
- General Truck Arrangement
- Air Brake Schematic
- Drawings

SunRail Remanufactured Locomotive Vehicle Design Criteria

A. Submittal Drawings

1. The Contractor shall supply to the Department or the agency's representative, within 60 days of Notice to Proceed, a list of drawings to be utilized in the construction of the locomotives. These shall include outline and arrangement drawings of the whole locomotive and major items of apparatus.

- a. The list must specifically include the following:

- (1) Locomotive general arrangement drawings.
- (2) Static and dynamic clearance outline diagrams.
- (3) Cab layout drawings.
- (4) End connection layout drawings.
- (5) Electrical schematics with wire running lists and device identification list.
- (6) Wiring and conduit connection diagram.
- (7) Electrical apparatus location diagram.
- (8) Relevant electronic printed circuit boards.
- (9) Air brake system schematic diagram.
- (10) Air piping layout drawings.
- (11) All relevant subcontractor, vendor and manufacturer's outline drawings.

- b. This list shall be updated and submitted monthly to the Department or its representative.

- (1) The Contractor, in compliance with his approved Submittal Schedule, shall submit for review drawings required by the Specification or necessary to demonstrate consistency with the Specification requirements. General arrangement, assemblies, calculation reports and technical specifications will be submitted to convey concept, design, dimensions, maintenance, operating and overall assembly aspects and interfaces. The Contractor will provide major component outline drawings for each component to evidence that the functional

SunRail Remanufactured Locomotive Vehicle Design Criteria

requirements are met. These drawings define the scope of the submittals to be provided for review regarding consistency with the Specification requirements. Detailed drawings, catalogs, datasheets and related materials will not be required except to the extent that they are used by the Contractor in lieu of other drawings to demonstrate compliance. The Department or its representative may review the submitted materials for standard products or components for consistency with the specific technical specification.

- (2) In the event of dispute about a specific design or design principles the standard of successful prior use in a locomotive and the standard of reasonableness will be adopted. There is no requirement to redesign standard products. The Department or its representative may review the more general drawing for consistency to the specifications. In the event of a dispute between various aspects of the specification, the specific requirements shall override the general. The Department or its representative will reasonably interpret the specification and will manage the design review process to avoid an extended design approval process. Review and comments of the Contractor's submittals is to be attained before any manufacturing work proceeds.
 - c. Two copies of the letter of transmittal drawings should be addressed to:
 - (1) Project Manager
 - (2) Florida Department of Transportation
 - (3) Address
 - (4) Address
 - (5) Address
 - d. Two copies of the letter of transmittal shall be sent to the Department's representative, if assigned.
2. The Department or its representative will review all submitted drawings developed exclusively for this contract and return one copy of each drawing to the Contractor marked "Approved" or

SunRail Remanufactured Locomotive Vehicle Design Criteria

"Not-Approved" with comments. The Department or its representative shall return each drawing within fifteen working days of the date the drawing was received. The Contractor shall not proceed with procurement or manufacture of material covered by any submitted drawing until it has been reviewed, unless specifically authorized in writing to do so by the Department or its representative except that in the event that a time sensitive drawing is not returned within 15 working days, Contractor may proceed with the work.

3. Revised drawings shall be resubmitted following correction by the Contractor as soon as possible after receipt of the Department's comments. All details on drawings affected by any change shall be highlighted or emboldened on copies of all drawings sent to the Department for approval.
4. Drawings submitted by Subcontractors or Suppliers developed exclusively for this contract shall be thoroughly checked by the Contractor to ensure that they conform to the intent of the Contract Documents (as to form, fit and purpose) and the Specification requirements before submittal to the Department or its representative for approval.
5. All drawing submittals shall include proper reference to the appropriate Specification Section, if appropriate. Where manufacturer's publications in the form of catalogs, pamphlets, or other data sheets are submitted in lieu of prepared shop drawings, such submissions shall specifically indicate the item for which review is requested. Identification of items shall be made in ink.
 - a. Symbols used shall conform to ANSI, AWS and ASTM standards. All terminology used in drawings and correspondence shall be conventional to the North American railroad industry or as commonly used in the Contractor's and/or sub-suppliers' standards.
 - b. All dimensions on drawings shall be expressed in the English system; all wording on drawings shall be in the English language. If drawings, tests or other documents are prepared or conducted initially in metric units of measure, they shall also have on them the corresponding values in US units of measure.
 - c. Drawings submitted shall be full size to the scale specified on the drawings or to the scale appropriate for their purpose. Where relevant, drawings shall include a complete bill of material and parts list on the field of the drawing, or

SunRail Remanufactured Locomotive Vehicle Design Criteria

- on a separate sheet of the same drawing, describing all parts or subassemblies, which form a part of the assembly, sub-assembly, or piece depicted. Commercially available components will not contain a bill of material. Every assembly drawing shall include the weight of the assembly, where appropriate. Final as-built drawings shall be comprised of not more than 4 sizes with 24" x 36" being the largest drawing size permissible. "E" size drawings shall be allowed during design review only.
- d. Whenever reference is made on a drawing to a material or process by the Contractor's own specification number, he shall also give the commercial equivalent. If there is no commercial equivalent, he shall provide the Department with copies of his specification, if available, and to the degree necessary to demonstrate consistency with the Specification.
 - e. Except as otherwise allowed, all high-power semiconductors shall be identified by the manufacturer's part number.
- 6. Revisions to drawings, whether initiated by the Contractor or by a change order, shall be submitted for approval as they are issued. No more than five drawing alterations shall remain unincorporated on any drawing at any time.
 - 7. Drawings on which any changes have been made, even though less than five, shall be revised to incorporate those changes no less frequently than at two-month intervals from the last change. The revision block shall give details of the changes made by that revision, or the numbers of change orders may be used instead of detailed descriptions. In the latter case, the change order shall have been submitted no later than the time of submittal of the revision and referenced to the drawing. The details of all changes shall be highlighted or emboldened on the drawing(s) sent to the Department for review of the change.
 - 8. Approval of a drawing does not relieve the Contractor of the obligation of meeting all the requirements of the Contract. Approval of a drawing which contains a deviation from, or violation of, the Specification does not constitute authority for that deviation or violation unless such deviations have been specifically requested in writing and granted in writing according to all contract requirements separate from the drawing approval.

SunRail Remanufactured Locomotive Vehicle Design Criteria

9. Every Engineering Change, Deviation, Material Review Board (MRB) repair, or other variance affecting form, fit, or function shall be incorporated on the affected drawing whenever it applies to five or more locomotives, and the drawing shall be clearly labeled with the Department (or other as specified) road numbers applying to each configuration. Those applying to fewer than five locomotives may also be incorporated on the affected drawings or the variances may be documented separately. If documented separately, they must also be listed in the Locomotive History book for each locomotive involved and cross-referenced to the affected drawings.
10. If the Contractor's drawing system is such that drawings of details are not included in the assembly, sub-assembly, and arrangement drawings referred to above, he shall maintain all drawings of the locomotives for a period of 30 years. He shall make available, without charge, for a minimum of five years from the date of acceptance of the last locomotive, PDF files of drawings of this section, as well as assembly drawings of different components, and the drawings necessary for carrying out proper locomotive maintenance. The detail and as-built drawings need to make extraordinary repairs arising from accidents will be supplied at the Contractor's standard copy rates. During the remaining 25 years, the Department or its designee shall be provided with any prints required at Contractor's standard copy rates cost.

B. As-Built Drawings:

1. The Contractor shall supply to the Department or its representative for review and approval, within 60 days after delivery of the locomotives and all modifications, the final updated list. The drawings shall consist of one set of clear White Lines.
 - a. The drawings shall have all engineering and manufacturing changes incorporated. Deviations shall also be incorporated or referenced with copies provided in a separate indexed section.
 - b. The Contractor shall deliver the White Lines within 60 days of the Department's approval of the updated drawing list.
 - c. The Contractor shall at the same time deliver computer diskettes containing the following drawings in the latest release of AutoCAD and PDF. All lettering and symbols shall be recognized within AutoCAD.

SunRail Remanufactured Locomotive Vehicle Design Criteria

- (1) Electrical schematics (AutoCAD)
- (2) Wiring and conduit connection diagram (AutoCAD)
- (3) Electrical apparatus location diagram (PDF)
- (4) Air piping schematic (PDF)
- (5) Air piping apparatus and location diagram (PDF)
- (6) Other (PDF)

C. Samples

1. The Contractor shall furnish samples of locomotive exterior and interior paint chips, cab interior finish materials, number boards and similar items for the Department inspection and acceptance. All samples shall be identified with the manufacturer's name, part number, specification and/or drawing reference and intended use. Two sets shall be submitted to the Department and a copy of the transmittal to the Department's representative.

All drawings shall be transmitted to the Department upon reasonable request. All manuals shall be shipped no later than the delivery of the first unit.

23.3 MANUALS

23.3.1 General:

- A. The following manuals are required and shall be delivered in final form as specified herein:
 1. Operating Manual
 2. Maintenance Instructions Manuals
 3. Renewal Parts Catalog (Illustrated Parts Catalog)
 4. Electrical Schematic Package, Wiring and Connection Diagram Manuals (Integrated Schematic Package)
 5. Engine Manuals
 6. HEP Manuals
- B. The goal of the manual design and development shall be completeness and accuracy of coverage in the most concise manner possible. The manuals

SunRail Remanufactured Locomotive Vehicle Design Criteria

shall be developed and validated by the Contractor as being accurate and suitable for the equipment provided under this contract, maintenance facilities, and maintenance and operating personnel.

- C. All manuals shall be written in clear, idiomatic American English and not be a literal translation to English from another language. They shall be complete, thoroughly organized, and authentic with no extraneous material such as advertisements or irrelevant information. The ideal sought is embodied in the Air Transport Association of America's Specification No. 100, "Specification for Manufacturer's Technical Data", which shall be used as a general guide insofar as it pertains although variations in type face and minor format details are permissible.
- D. Manuals shall contain all operating, maintenance and storage procedures required by the Department or its designee to successfully operate and support the equipment provided. Instructions shall be included and safety equipment identified for the safe handling and disposal of hazardous materials.
- E. It shall be the responsibility of the Contractor to ensure that all subcontractor materials used in the manuals meet all requirements of the Contract and Specification. The Contractor shall ensure that all information and details concerning the description, illustration, inspection, servicing, and replacement are included in the manuals for all equipment, including suppliers' recommendations and warranty provisions. The subcontractor materials shall be completely integrated in the Contractor produced materials. They shall be designed, developed and presented in a single style, conforming to the style and format detailed in this Specification. All materials produced under this Specification shall appear to have been produced "by a single hand". Inclusion of or reference to "out-of-format" material and/or material that does not meet the requirements of this Specification will not be permitted.
- F. The locomotive shall be treated as a whole and not as a grouping of disassociated parts. The material in the manuals shall be similarly organized and indexed, with a stand and numbering system provided by the Department or its representative. Indexing of the Operating Manual may be abbreviated as required to achieve compactness.
- G. The format of all data contained in each section of the manuals shall be consistent from section to section. All sections shall be subdivided, to the extent required by the subject matter, into the following topics:
 - 1. General subsystems description and theory of operation
 - 2. Functional block diagrams

SunRail Remanufactured Locomotive Vehicle Design Criteria

3. Schematics
4. Wiring and/or piping diagrams
5. Lubrication and cleaning, including frequency, methods and trade identification of recommended materials; component location and description
6. Inspection and maintenance standards including wear limits, settings and tolerances
7. Basic overhaul periods for rotating apparatus
8. Test and evaluation procedures

Note: The detailed contents of sealed assemblies need not be displayed, but their function shall be explained and the appropriate voltage and current values shown for each external terminal. Procedures appropriate to their replacement, including methods and tests, shall be stated.

- H. WARNINGS, CAUTIONS and NOTES shall be included in the manuals as necessary in order to minimize the risk of personal injury to personnel, or reduce the possibility that improper work methods and practices may result in damage to the equipment or render it unsafe. The definitions of WARNING, CAUTION and NOTE are as follows:

1. WARNING - A warning is used to emphasize an essential operation, procedure, or practice, which if not strictly observed, could result in death or injury to personnel. A warning shall precede the text to which it applies.
2. CAUTION - A caution is used to emphasize an essential operation, procedure, or practice, which if not strictly observed, could result in damage to the equipment. A caution shall precede the text to which it applies.
3. NOTE - A note is used to emphasize an important operation, procedure, or condition. A note may precede or follow the text to which it applies.

- I. Hard Copy (Paper) Manuals - Covers, Reproduction, and Binding

1. All covers shall be approximately 1/16 inch thick, resistant to oil, moisture, and wear, to a high degree commensurate with their

SunRail Remanufactured Locomotive Vehicle Design Criteria

intended use. Binders shall be white locking D-ring with clear acetate cover pockets.

2. All printed material shall be clearly reproducible by dry copying machines. This precludes the use of halftone illustrations. Line drawings are required. The Contractor may use photographs in lieu of line drawings. And with providing the Department with a license to reprint manuals from approved PDF files.
 3. Folding pages (maximum 11 x 17 inches) are permitted where the information conveyed cannot be presented clearly on single (8-1 / 2 x 11 inch) pages. Diagrams and illustrations shall not be loose or in pockets.
 4. Punch holes shall be spaced the standard 4-1/4 inches apart. Metric binding shall not be used.
- J. Meetings: Meetings will be held with the Contractor, the Engineer, and the Department or its designee's materials management or other personnel to formalize the different elements specified in the contract.
- K. The manuals shall also be delivered in an electronic format. The format shall be mutually agreed upon by the Department and the locomotive supplier. Manuals shall be provided as a minimum in a searchable format and Parts Catalog Bill of Materials in an excel format.

23.3.2 Operating Manual:

- A. The Operating Manual shall contain all information needed for the optimum operation of the equipment. It shall include general vehicle familiarization material: location, function and operation of controls, gages, indicators and switches. It shall discuss the subsystems and other features of the locomotive which the operator may not be in a position to control or adjust but of which he should have some knowledge, including emergency procedures, and troubleshooting information.
- B. The manual shall be logically organized with systems and elements considered in descending order of importance. Care shall be taken that all statements are clear, positive and accurate, with no possibility of incorrect implications or inferences.
- C. The manual shall be delivered in hard copy only and shall be pocket size, 4-1 / 4 inches wide, 7 inches high, and not more than 1-1 / 4 inches thick. It shall be bound along the 7-inch left side dimension. The pages therein shall be as large as can be accommodated without damage.

SunRail Remanufactured Locomotive Vehicle Design Criteria

23.3.3 Maintenance Instructions Manuals:

- A. The Maintenance Instructions Manuals shall contain a detailed analysis of each component of the locomotive so that the maintenance personnel can effectively service, inspect, maintain, adjust, troubleshoot, repair, replace, and overhaul it. The manuals shall also include all information needed for basic overhaul, periodic inspection, and servicing, including lubrication of each system, subsystem, and component. Periodic inspection, testing and adjustment of all apparatus shall be organized in a separate section. Another separate section shall contain all operation maintenance, troubleshooting, diagnosis, and repair data on each microprocessor component in the locomotive.
- B. Procedures for adjustment and/or calibration shall include manual settings of items adjustable on the locomotive and GO/NO GO limit tolerances.
- C. Troubleshooting procedures and/or charts shall permit isolating faults up to the point of a replaceable component.
- D. Scheduled maintenance information shall include procedures lubricating, frequency, methods, and recommended materials for cleaning.
- E. Block diagrams, illustrations, and other visual aids shall be used to support text where applicable.
- F. The manuals shall be delivered in hard copy and in Interactive Electronic Manual (IEM) as described in Section 5 below.
- G. The hard copy manuals shall be printed on 8-1/2 x 11 inch pages and the binder covers shall be 10 inches to 10-1/2 inches wide (depending on ring size), 11 inches to 12 inches high, and the overall thickness of each volume shall not exceed 3 inches. The manuals shall be divided into Book 1, Book 2, etc. If the materials cannot be contained within the maximum binder thickness. Adequate cross reference and a Table of Contents shall be provided in each book.

23.3.4 Renewal Parts Catalog (RPC)/Illustrated Parts Catalog:

- A. The RPC shall enumerate and describe every component of the equipment provided under this contract with its related parts and quantities, including the OEM part number, Contractor part number, the Department or designee part number, and any commercial equivalents. Parts common to different components (such as bolts and nuts, electrical and mechanical fasteners, pipe fittings, etc.) shall bear the same Contractor's number, size, type material, quantity per locomotive, and location with a reference to the other components in which they are found.

SunRail Remanufactured Locomotive Vehicle Design Criteria

- B. Cutaway and exploded view illustrations shall be used to identify all parts. Each part or other component shall be identified as being part of the next higher assembly. Each illustration shall have all of its components identified with a figure index number and have an accompanying Detailed Parts List utilizing the same index number designation.
- C. Numerically sorted list, and alphabetic sorted list of the complete BOM.
- D. The Detailed Parts List shall enumerate each part by:
 - 1. Figure index number, description, quantity per locomotive assembly, vendor name, vendor part number, Contractor part number, a blank column for the Department or its designee to add future part numbers, and useable on code (when part is only used on specific model , version, etc. of locomotive).
- E. The RPC shall be delivered in hard copy and as a spreadsheet in Microsoft Excel or other mutually agreeable interactive format.
- F. The hard copy of the RPC shall be printed on 8-1/2 x 11 inch pages and the binder covers shall be 10 inches to 10-1/2 inches wide (depending on ring size), 11 inches to 12 inches high, and the overall thickness of each volume shall not exceed 3 inches. The RPC shall be divided into Book 1, Book 2, etc. if the materials cannot be contained within the maximum binder thickness. Adequate cross reference and a Table of Contents shall be provided in each book.

23.3.5 Electrical Schematic Wiring and Connection Diagram Manuals:

- A. The Contractor shall supply Electrical Schematic Wiring and Connection Diagram manuals. These manuals shall contain schematics, wiring diagrams and connection diagrams to illustrate all wiring and electrical apparatus and schematic piping and connection diagrams, as well as the piping layout and apparatus including all electrical devices, electro-pneumatic apparatus, and all microprocessor circuits and test points.
- B. The manuals shall be fully indexed and cross-referenced to enable locating any device or wire number or terminal point between each drawing schematic and part number.

23.3.6 Delivery Schedule and Quantities:

- A. Within one hundred twenty (120) days after Notice To Proceed, the Contractor shall submit to the Department for approval, draft hard and electronic copies of Maintenance Instructions Manual and Renewal Parts

SunRail Remanufactured Locomotive Vehicle Design Criteria

Catalog for review and critique prior to completion of the program. The modules shall be representative of all system modules relative to format and functionality and shall be approved by the Department or its representative.

- B. Within one hundred twenty (120) days after Notice to Proceed, the Contractor shall submit to the Department for approval, Tables of Contents and sample formats and indexers for the Operating and draft Maintenance Instructions manuals and draft Renewal Parts Catalog. The submission will include hardcopy and software copy. A progress payment will be keyed to the approval of sample formats and indexes of these manuals.
- C. The Contractor shall provide the Department Maintenance Instructions Manual and Renewal Parts Catalog starting no later than 90 days after acceptance of the first locomotive. Modules shall be included every two weeks until the full system is installed, no later than 270 days after acceptance of the first locomotive.
- D. The Contractor shall provide the Department or its designee with two draft hard copies of each of the manuals for approval coincident with acceptance of the first locomotive. The Department or its designee will approve or supply comments on the draft manuals no later than 45 days after their receipt. A minimum of two review cycles for all manuals shall be scheduled by the Contractor before submittal of the final approved drafts.
- E. The Contractor shall provide the Department or its designee, no later than 110 days after acceptance of the final draft, 75 copies of approved, complete Operating Manuals.
- F. The Contractor shall provide the Department or its designee, no later than 110 days after acceptance of the final draft, 25 sets of approved, complete Maintenance Instructions Manuals.
- G. The Contractor shall provide the Department or its designee, no later than 110 days after acceptance of the final draft, 12 (TBD) sets of approved, complete Renewal Parts Manuals.
- H. The Contractor shall supply 25 sets of the Electrical Schematics and 25 sets of Wiring and Connection Diagram manuals, no later than 110 days after acceptance of the final draft.
- I. All hard copy manuals shall be submitted in final approved form (2 copies) and electronic medium utilizing Microsoft Word (version to be approved by the Department or its designee) or searchable PDF no later

SunRail Remanufactured Locomotive Vehicle Design Criteria

than 110 days after review and acceptance of the final draft of the manuals. And renewal parts catalogs as an excel spreadsheet.

23.3.7 Revisions to Manuals - Hard Copy (paper)

- A. Following the issue of each hard (papers copy of the Manuals and Renewal Parts Catalog, the Contractor shall provide revised pages covering any changes (one printed copy and two on electronic medium) , whether required by change of design or procedures or due to errors and omissions. Revisions shall be kept current during the warranty period and shall be supplied to the Department or its designee before or coincidental with the arrival of the altered systems, parts or components. After the warranty period, revisions shall be supplied to the Department or its designee every six (6) months for a period of five (5) years. All revised pages shall be noted as to revision date and applicable manual for easy and correct insertion in the manual(s).

Manuals shall be transmitted in accordance with written instructions furnished by the Department but no later than the delivery of the first unit.

24 SPECIAL INSTRUCTIONS

MU jumper cables and applied dummy receptacles shall be shipped with the locomotive.

Wording for Cab Cards is as Follows:

OPERATOR: TBD

OWNER: FDOT

CODE: TBD

Two Sets of Locomotive build-up history books and type and production test results shall be provided to the Department upon delivery to the Department property and shall include standard production qualification test information and build up material.

25 TRAINING

TRAINING PROGRAM

- A. General
 - 1. The Contractor shall provide an adequate educational program for the Department's personnel to permit satisfactory servicing, operations and maintenance of the vehicle.
 - 2. The program shall include both formal and informal instructions using such training aids as slides, motion pictures, manuals, diagrams, etc. as may be available.

SunRail Remanufactured Locomotive Vehicle Design Criteria

B. Intent

1. The Contractor shall assume that Department personnel have no knowledge of the nature of the vehicles, and shall design the instruction program to provide the level of knowledge necessary to adequately meet the maintenance objectives.
2. Attendance at the program will include supervisory, operating, and maintenance personnel.

C. Program Content

1. The program shall include in-depth instruction covering the following subjects:
 - a. Head-End Power Unit: including engine, generator, cooling, controls, exhaust, etc.
 - b. Speed Control Equipment.
 - c. Air Conditioning.

D. Subject Content

1. Classroom instruction shall include both the anatomy and function of the parts under discussion and the essentials of routine care including servicing schedules, adjustments, inspection and test frequency, troubleshooting, removal, and replacement.
2. Overhaul procedures shall not be included in the program.

E. Facilities

1. The formal classroom instruction will be conducted in a suitable classroom furnished by the Department on its or its Operating Contractor's premises.
2. Informal field instruction may also be conducted on and around the locomotives at any of several maintenance facilities.

F. Department Cooperation

1. The Department will lend its fullest cooperation to the carrying out of the program, however, the times and duration of the instruction period and the number of personnel available to attend classes must necessarily be at the discretion of the Department and / or its Contract Operator.

SunRail Remanufactured Locomotive Vehicle Design Criteria

G. Student Availability

1. The following numbers are furnished as a guide to the magnitude of the effort required:
 - a. Number of supervisory personnel to be instructed
- 20
 - b. Number of operating personnel to be instructed
- 50
 - c. Number of maintenance personnel to be instructed
- 50
2. Each class of students shall be available for a minimum of four (4) hours per day in two (2) sessions for a maximum period of two (2) weeks.
3. The Department will attempt to make six (6) students available at a time for not less than four (4) hours per normal working day in two (2) sessions.
4. Class size to be 6 – 8 students per session.
5. Hands-on content 25 – 50%.

H. Train the Trainer Training

1. The Vendor's Training Program shall also include a Train the Trainer parallel course of training. The training materials to be delivered will include a separate complete package to be used as a Train the Trainer Program. It will include all of the material for the basic training class such as; instructors guides, student guides, reference materials, syllabus for all classes, power point presentations and handouts.
2. The Train the Trainer Class will be approximately one week in duration. It will be split one half week mechanical trainer and one half week operators trainer.
3. The class size for each class is up to six trainers.
4. The Contractor should expect to jointly develop the content of the Train the Trainer Class with the Department and the Contract Operator and Maintainer. The Contractor shall submit a Training Plan, training materials for shop craft/ operations and train the trainer training courses. This will include classroom syllabus,

student guides, training materials, trainer materials, and instructor's notes.

26 SPECIAL TOOLS AND MAINTENANCE INSTRUCTIONS

- A. The Electro-Motive Division of General Motors (EMD) Maintenance Instructions (M.I.s) incorporated into the text throughout the Specification are not overhaul specifications, but are guidelines prepared by EMD for the maintenance of the equipment by the user.
- B. The M.I.s have been referenced to assist the Contractor in understanding the procedures for disassembly, inspection disassembly, inspection, reassembly and the testing of the subject equipment including a listing of special tools, gauges, and fixtures.

27 UNIT EXCHANGE PROGRAM, CAPITAL SPARES, WARRANTY SPARES AND CONSUMABLES

- A. The locomotive contractor shall propose a price list of Recommended Spares with quantities. The Department reserves the right to purchase Recommended Spare Parts either as a total package or on an individual-item basis, and/or to increase or decrease quantities listed, whichever is in the best interest of the Department.

The price paid by the Department for a Spare Part will, in no event, exceed the published parts price where applicable.

The Department reserves the right to purchase additional capital spare parts at the same prices quoted within a thirty-six (36) month period from final Acceptance of the Locomotives.

Note: The prices to be paid for additional increased quantity Spares which the Department may elect to purchase price will be no greater than the Offeror's quoted price of the Base proposal, plus escalation.

- B. The locomotive contractor shall propose a list of those Warranty Spares that he will keep on site, in Orlando, FL at CFCRT Maintenance Yard as protection for any LRUs that fail in service during the Warranty Period. (See also, 19E2) The list shall include such things as fuel injectors, water pumps, fuel pump, turbo cooling pump, windshield wiper motor, relays, contactors, headlight bulbs.
- C. The locomotive contractor shall propose a list of those Consumables that will be necessary for the first year of operation of the locomotives. The Department will purchase items from this list under a process outside of this contract.

SunRail Remanufactured Locomotive Vehicle Design Criteria

- D. OPTIONAL SERVICES UNIT Exchange Program. At the Departments option a Unit Exchange Program will be established with the Vendor for the supply of larger Capital Spares, such as HEP, traction motors, alternator, power assemblies, air compressor, complete brake packages, radiators, cooling fans, oil pumps, turbochargers, wheel/axle assemblies. The scope and fee for this program shall be added to the contract by supplemental agreement.

28 JUMPER CABLES

- A. The following draft tables are offered as examples of how final trainline configuration will be established through joint design reviews with the manufacturer of the bi-level cars.

SunRail Remanufactured Locomotive Vehicle Design Criteria

28.1 Locomotive multiple unit control trainline assignments, TBD = To Be Determined

Pin No.	Symbol	Loco (Receptacle Painted Black)	Cab Car (Receptacle Painted Black)
1	TBD	Spare	Spare
2	SG	Alarm Bell	Alarm Bell
3	DV	Engine Speed, DV	Engine Speed, DV
4	N	Control Negative	Control Negative
5	TBD	Emergency Sand	Loco Assigned (ES)
6	GF	Generator Field	Generator Field
7	CV	Engine Speed, CV	Engine Speed, CV
8	FO	Forward	Forward, B-End crossed to 9
9	RE	Reverse	Reverse, B-End crossed to 8
10	WS	Wheel Slip Indicator	Wheel Slip Indicator
11	TBD	Spare	Spare
12	BV	Engine Speed, BV	Engine Speed, BV
13	PC	Control Positive	Control Positive
14	ZSP	Zero Speed Bypass	Zero Speed Bypass
15	AV	Engine Speed, AV	Engine Speed, AV
16	ER	Engine Run	Engine Run
17	B	Dynamic Brake Set-up	Dynamic Brake Set-up
18	TBD	Remote Loadmeter	Remote Loadmeter
19	TBD	Remote Loadmeter	Remote Loadmeter
20	BW	Dynamic Brake Warning	Dynamic Brake Warning
21	BG	Dynamic Brake Start	Dynamic Brake Start
22	TBD	Compressor Control	Loco Assigned (CC)
23	SA	Manual Sanding	Manual Sanding
24	BC (PRC)	Dynamic Brake Excitation	Dynamic Brake Excitation
25	TBD	MU Headlight	MU Headlight
26	TBD	Remote Reset or Spare, TBD	Remote Reset or Spare, TBD
27	SP	Spare	Spare

Note: Jumper must have same crossovers from pins 8 & 9 for proper operation

28.2 Communication Control Trainline Assignments:

SunRail Remanufactured Locomotive Vehicle Design Criteria

Note: Jumper must have same crossovers from pins 2 to 11; 17 to 27; and 18 to 26 for proper operation. TBD = To be determined.

Pin No.	Symbol	Loco (Receptacle Painted Blue)	Car (Receptacle Painted Blue)
1	TBD	Zero Speed	Zero Speed
2	TBD	Pass. Enable, Left B-End Crossed to 11	Pass. Enable, Left B-End Crossed to 11
3	TBD	Door Interlock	Door Interlock
4	TBD	Battery Negative	Battery Negative
5	TBD	Spare	Passenger Alarm
6	TBD	Buzzer Power	Buzzer Power
7	TBD	Intercom, Black	Intercom, Black
8	SP	Spare	Not Assigned
9	TBD	PA/Intercom Control, Black	PA/Intercom Control, Black
10	TBD	PA/Intercom Control, White	PA/Intercom Control, White
11	TBD	Pass. Enable, Right B-End Crossed to 2	Pass. Enable, Right B-End Crossed to 2
12	TBD	Intercom Shield	Intercom Shield
13	TBD	Intercom, White	Intercom, White
14	TBD	Door Closed Light	Door Closed Light
15	TBD	PA, Black	PA, Black
16	TBD	PA Shield	PA Shield
17	TBD	No Function	Door Open-Left B-End Crossed to 27
18	TBD	Door Closed-Left	Door Closed-Left B-End Crossed to 26
19	TBD	+64V	Loco Assigned, +64V
20	TBD	PA, White	PA, White
21	TBD	Car Buzzer	Car Buzzer
22	TBD	Door Override	Door Override
23	TBD	No Function	Brake Indicator
24	TBD	Layover Control +36V	Layover Control +36V
25	SP	Spare	Not Assigned
26	TBD	Door Close Right	Door Close Right B-End Crossed to 18
27	TBD	No Function	Door Open Right B-End Crossed to 17

29 POSITIVE TRAIN CONTROL EQUIPMENT

- A. Provisions shall be provided in the locomotive cab for the future installation of a Positive Train Control System to be defined by the Department and its railroad operator. It is understood that the Department will select the ETMS – Electronic Train Management System or the CBTM - Communications Based Train Management System by WABCO.

Provisions shall include the following hardware and space allocation:

- Space allocation for a circuit breaker on the DC voltage distribution system;
- Space allocation for the installation of equipment in the equipment rack of the crew locker;
- Space allocation for the wiring positive train control.
- The Vendor shall provide all provisions for installation of a Positive Train Control System. Provision shall include at least two circuit breakers, (one for radio(s)/WiFi/GPS, one for logic rack), all logic boxes, CDU, radio(s), antenna(s), Wi/Fi/GPS, antenna(s), wiring, racks and brackets. The provisions should also include wiring. The cab should include pulling four pair #12 stranded wire from CB Panel to the future location in electric locker. Four pair of #12 stranded wire from future location to cab throttle stand. Two pair #12 stranded wire from the PTC logic box rack to the brake controller. One coax cable from future location in electric locker to a good interior location for future exterior location of an antenna. One CAT 5 or four conductor shielded cable to be run from the future location in electric locker to the cab. Three feet of wire looped at the end of the cables to be terminated with shrink wrap or other semi-permanent insulator.
- Two capped fittings on air lines in cab area to allow for future connection of ETMS to air brake system.
- The Contractor shall submit a document describing the PTC provisions. It will show block diagrams and theory of operations for the ETMS system. It will show locations for installation of ETMS electrical enclosures (logic boxes), CDU and antenna to be installed at a later date. Locations for supplied conduits and circuit breakers will be provided. The electrical schematic and wire running list shall include supplied PTC wiring provisions. This document shall also generally describe how one would install the PTC system. Captioned photos of the provisions to aid in location and description will be provided. (CDRL)

30 EVENT RECORDER, ALERTER

30.1 Event Recorder

The Contractor will supply and install an Event Recorder meeting the requirements for manufacture, test and installation of 49CFR229, Final Rule. The FRA event recorder shall be designed and installed as a crashworthy event recorder system fully compliant with the FRA requirements of CFR 49 Part 229.

- A. The data collected, the equipment installation and playback software shall be accepted by the Department. Two complete sets of office playback equipment shall be provided with the first locomotive.
- B. All recorded signal shall be directed and accepted by the Department. In addition to the signals are required to be recorded by CFR 49 Part 229, at a minimum, the following, but not limited to, shall be recorded:
 - 1. Time
 - 2. Distance
 - 3. Speed
 - 4. PTC Cut-Out
 - 5. PTC Acknowledge
 - 6. Penalty
 - 7. Throttle Position
 - 8. To be determined
 - 9. Reverser Position
 - 10. Brake Pipe Pressure
 - 11. Brake Cylinder Pressure
 - 12. Independent/Holding Brake (if available)
 - 13. To be determined
 - 14. To be determined
 - 15. Horn
 - 16. Bell

SunRail Remanufactured Locomotive Vehicle Design Criteria

17. Wheel Slip
18. PCS
- C. The ERS shall provide a remote download location, in the operating cab, at a location accepted by the Department.
- D. A Speedometer Transfer Relay shall be included which shall provide overspeed protection through the event recorder system in the event of a shutoff or failure of the cab signal system.
 1. The Transfer Relay shall be heavy duty and shall be submitted for acceptance by the Department.

30.2 Alertness/Vigilance Control System

A. General

1. The installation arrangement shall be subject to review and acceptance by the Department.
2. As an alternative, the Contractor may propose an arrangement wherein the Alertness/Vigilance control system is part of the event recorder system, subject to the approval by the Department.

B. Operation

1. The timing cycle of the Alertness/Vigilance Control shall be as follows:
 - a. Total time between acknowledgments shall not exceed forty-five (45) seconds.
 - b. Approximately five (5) seconds after the visual alarm light starts to flash, if not acknowledged, the audio alarm shall sound.
 - c. Approximately ten (10) seconds after the alarm sounds, a penalty brake application shall occur if the alarm is not properly acknowledged.
2. For penalty brake application the following requirements shall be met:
 - a. A penalty brake application shall consist of a full service brake application.

SunRail Remanufactured Locomotive Vehicle Design Criteria

- b. Penalty induced brake pipe reduction will be limited to 20-24 psi.
- c. Once an alerter/vigilance system penalty brake application has been initiated, the locomotive shall come to a complete stop.
- d. The alerter/vigilance system shall reset at speeds below 3 mph

C. Control

- 1. The Alertness/Vigilance Control shall have the following resets:
 - a. Brake Cylinder Pressure above 10 psi shall reset the Alertness Control. The pressure switch shall be easily adjustable from 6 psi to 10 psi.
 - b. Movement of the throttle handle to one or more notches shall also reset the control. (Throttle trainline 15T/AV only)
 - c. A manual, white light pushbutton, acknowledge switch will be mounted on front of the operator's control stand.
- 2. The visual alarm function of the Alertness control shall be provided by a flashing indicator lamp in the push button.
- 3. An Alertness Control seat mounted antenna shall not be installed or utilized.
- 4. The Alerter/Vigilance systems shall be suppressed (made inactive) when Brake Pipe pressure has been reduced by at least 30 psi.

31 MATERIALS AND WORKMANSHIP

31.1 General

31.1.1 Quality

- A. All materials used in the refurbishment and construction of these locomotives shall be generally accepted in the industry and conform to the requirements of this specification.
- B. All workmanship shall conform to the best manufacturing practices in all respects

SunRail Remanufactured Locomotive Vehicle Design Criteria

- C. This section shall be applicable to all new work applied to or installed on the locomotive whether furnished by the Contractor or by any of his suppliers. Replacement of parts in kind from OEM or other authorized suppliers with ISO 9000 certification is deemed to be in compliance with this section.
- D. Accordingly, all of the requirements of this Section shall apply to the internal design and construction of equipment furnished by suppliers.
- E. Materials or equipment substitutions proposed by the Contractor shall be secured by written approval of the Engineer prior to making the substitution. (CDRL).

31.1.2 Standard

- A. Unless otherwise specified, all materials shall conform to AAR, APTA, ANSI, ASME, AISI, FRA, IEEE and/or ASTM Specifications.
- B. Threaded fastenings and other standard machine elements shall conform to ANSI standards.
- C. Metric threads shall not be used without written Engineer approval for each specific application.
- D. Inclusion of a material or method in this Section does not indicate approval for application or use in a specific situation. When a material or method is specified in this Section, this Section shall be applicable. However, specific requirements detailed in appropriate Technical Specifications take precedence over this Section.

31.1.3 Marking

- A. All new materials intended for use on the locomotive shall be marked or stored so as to be readily identified, and shall be adequately protected during handling and storage.
- B. Rejected material shall be clearly marked and stored in an area specifically designed for that purpose. Rejected material shall remain “unavailable for use” until documented the Department disposition is approved.

31.2 Joining and Fastenings

31.2.1 General

- A. Certain combinations of materials shall require particular care in joining to avoid the possibility of dissimilar corrosion materials.

SunRail Remanufactured Locomotive Vehicle Design Criteria

- B. Extreme care shall be exercised in joining materials or components to ensure that the finished product is free from rattles and objectionable noises.

31.2.2 Fastenings

- A. All new fasteners must meet the requirements of 15 CFR Part 280, Fastener Quality.
- B. No protruding screws, mounting bolts or similar items shall be permitted either on the interior or exterior of the locomotive, other than those appointments, which can be built into the structure in no other manner.
- C. All exposed flat, pan, or oval head screws shall be stainless steel, unless otherwise specified, and shall be of the cross-recessed type.
- D. At least 1½ screw threads shall be visible beyond all nuts. When used without elastic stop nuts, bolts shall not project more than 1 ½ threads plus ¼ inch (6 mm) for bolts ¼ inch (6 mm) diameter or less and shall not project more than 8 threads for larger diameter bolts. With elastic stop nuts, bolt threads shall not project more than ¼ inch (6.4mm), regardless of bolt size.
- E. Screws, bolts and nuts shall conform to American National Standards and shall be zinc plated or approved equivalent, unless otherwise specified.
- F. Self-locking nuts shall be used throughout where practical.
- G. Self-tapping screws shall not be used in the areas requiring dismantling for servicing.
- H. When bolts are used to secure apparatus and the bolt head is inaccessible, a mechanical locking device shall be used to prevent the bolt head from turning when the nut is being applied or removed.
- I. When nuts are inaccessible, a mechanical locking device shall be used or the nuts may be carefully welded in place.
- J. Where rows of inaccessible bolt fastenings are required, a tapped stainless steel plate with a minimum thickness of 0.375 inches (10 mm) shall be welded to the supporting structure.
- K. All holes shall be drilled using the minimum practical hole size compatible with fastener employed.

SunRail Remanufactured Locomotive Vehicle Design Criteria

31.2.3 Torquing

- A. All safety related fasteners, including truck and brake equipment bolts and all fasteners exposed to fatigue loads shall be torqued to a minimum preload equal to 75% of their proof load and “torque striped” by paint or other approved method after being torqued. All other fasteners shall be torqued so that they do not loosen in service.
- B. Fastener installation torque for standard bolts with standard or heavy hex nuts may be calculated from Industrial Fasteners Institute Fastener Standards, 5th Edition, 1970 equations using values for “K” of 0.18 for unplated, oiled or waxed threads and 0.15 for plated threads that are also waxed or oiled. Locknuts shall be torqued in accordance with their manufacturer’s recommendations or the Contractor may conduct tests to determine installation torque. For special nuts or bolts requiring “torque striping”, bolt torque-tension tests may be required to verify that the installed preload is equivalent to 75% of the proof loads.

31.2.4 Plating

- A. Zinc plating conforming to the latest revision of ASTM Specification A165, Type NS shall be required on fasteners not exposed to view.

31.2.5 Cleaning

- A. Where metal is welded, riveted, or bolted to metal in the locomotive structure, contact surfaces shall be free of dirt, grease, rust, and scale and shall be coated, except for stainless steel parts, with a suitable metal base primer which will not interfere with later enamel or lacquer paint applications.

31.2.6 Coating

- A. When refurbishment, modification and/or replacement results in exposed surfaces of uncoated metal except for stainless steel, it shall be given one (1) heavy coat of an approved base primer and one (1) coat of an approved sealer.
- B. All hidden wood shall be given a minimum of two (2) coats of aluminum paint (including edges of ply-metal panels) to ensure sealing of surfaces.
- C. Hidden metal and hidden wood is defined as metal and wood that will be subsequently covered by other materials in the completed locomotive.

SunRail Remanufactured Locomotive Vehicle Design Criteria

31.2.7 Sealant

- A. Unless otherwise recommended by the sealant manufacturer, a single general purpose sealing compound shall be used throughout the locomotive body.
- B. The sealant shall have superior metal adhesive properties over which the specified paints can be successfully applied.

31.3 Stainless Steel

31.3.1 Type

- A. This Specification covers AISI Types 201, 202, 301, 302, 304, 430 and Allegheny Ludlum Type 363 stainless steels.
- B. Only low carbon stainless steel shall be used for major structural fabrications and other highly stressed components.
- C. Certifications by the stainless steel supplier and its application by the Contractor (or fabricator) shall be required.

31.3.2 Physical Properties

- A. It shall be the responsibility of the Contractor to ensure that all material for each use shall be of uniform strength and quality in accordance with AISI Standards.

31.3.3 Gauge Tolerance

- A. Standard industrial tolerances or better shall be acceptable in material coils and sheets.

31.3.4 Buffing and Polishing

- A. Buffing and polishing of stainless steel, where required, shall be done in an approved manner and without the use of any composition containing iron or iron oxide.

31.3.5 Finish

- A. Stainless steel in locations to be painted shall be given a #36 grit finish using a belt sander or similar tool.
- B. Stainless steel in locations to be unpainted shall be arranged with a brush finish oriented in a horizontal direction on the exterior of the locomotive,

SunRail Remanufactured Locomotive Vehicle Design Criteria

and in a direction to suit the decorative treatment in the interior of the locomotive, except for certain vertical members such as doorframes.

- C. Unpainted stainless steel frames, boxes, and other assemblies shall be constructed from No. 1 or No. 2 matte finish sheets.

31.4 Low Alloy High Tensile Steel

31.4.1 General

- A. Low-alloy high-tensile (LAHT) steel, where used, shall be a nickel-containing low alloy, corrosion-resistant steel with a high tensile strength.
- B. LAHT steel shall conform to ASTM Specification A-242, and shall have a smooth surface free from pitting.

31.5 Steel Castings

31.5.1 Quality

- A. All new castings, unless otherwise specified, shall meet the requirements of AAR Specification M-201 Grade B.
- B. Steel castings shall be sound throughout within Specification requirements and/or for the purpose intended.
- C. The Manufacturer shall prove his manufacturing procedure by either destructive or non-destructive means.
- D. Following the establishment of a satisfactory test procedure, quality control shall be maintained by testing one or more of each lot at a frequency mutual acceptable to the Engineer, the Contractor, and the foundry. The test frequency shall be influenced by the critical requirements of the part.
- E. If new castings are found to be porous or otherwise unsound, the castings shall be destroyed and replacements shall be provided at no cost to the Department.
- F. Existing castings shall be reconditioned and undergo non-destructive testing, to an appropriate EMD MI (MI-1504).

31.5.2 Heat Treating

- A. All new steel castings used in the truck structure shall be made of heat-treated electric furnace or controlled open-hearth steel.

SunRail Remanufactured Locomotive Vehicle Design Criteria

- B. Where physical strength is gained by heat-treating, a physical test shall be conducted on each treating charge, of each heat of castings.
- C. Where more than one (1) heat is represented in a treating charge, a physical test shall be conducted on each heat represented in each treating charge.

31.5.3 Castings

- A. Steel castings used in locations not referred to herein shall be selected for composition and characteristics best suited to the application, by the Manufacturer or Contractor concerned, but shall be subject to review by the Engineer.

31.5.4 Magnetic Particle Inspection

- A. Magnetic particle inspections of all surfaces of each casting to be conducted in accordance with ASTM E personnel certified to MIL-STD-410. With respect to structural castings, which include coupler, bolster, and truck castings, the maximum permissible magnetic particle indication shall be $\frac{1}{4}$ inch in the direction transverse to the usual direction of loading, and $\frac{3}{4}$ inch in the direction parallel to the usual direction of loading.

31.5.5 Radiographic Inspection

- A. Radiographic inspection shall be conducted in accordance with the requirements of ASTM standard E 94 using reference radiograph to ASTM E 446. A sampling frequency shall be proposed by the Contractor and submitted for Engineer approval. Structural castings shall not exceed severity level 3 of ASTM E 446 in all critical areas of such castings and shall not exceed level 5 in all other areas of the castings.

31.5.6 Welding

- A. Welding required on castings is permitted provided the Contractor performs all weld repairs in accordance with an approved written procedure and uses AWS certified welders or welders qualified to ASTM A 488.
- B. Prior to receiving approval, the supplier shall provide certified results for Weld Procedure Qualifications, Personnel Qualifications and Materials and Equipment Qualifications.

31.6 Elastomers

31.6.1 General

- A. All elastomeric parts specified herein shall be of neoprene so compounded and cured that it will perform satisfactorily in locomotive operation at any temperature between -40°F and 120°F (-40°C and 48.9°C) and shall have

SunRail Remanufactured Locomotive Vehicle Design Criteria

the longest possible commercial life consistent with the characteristics specified.

31.6.2 Metal Parts

- A. Unless otherwise specifically provided or agreed upon between the Contractor and the Engineer, metal parts to which neoprene is cured shall be made of SAE 1020 hot rolled steel and shall be suitable for brass plating after pickling.

31.6.3 Substitute Materials

- A. Alternative materials will be considered provided the Contractor demonstrates to the Engineer that the alternative material shall provide equal or better performance than the specified material.

31.6.4 Truck Parts

- A. Truck bumpers and snubbers shall be made of neoprene conforming to ASTM Specification D-735, Class SC-620 BEI E3 JFL.
- B. Neoprene shall have the highest abrasion resistance possible consistent with all other characteristics herein specified.
- C. Neoprene shall be resistant to oil, grease, acid and other materials encountered in the operating environment.
- D. Natural rubber shall be considered an acceptable substitute for neoprene if certified to resist contaminants.

31.7 Safety Glass

31.7.1 Windshields

- A. The windshields shall conform to FRA 49 CFR Part 223 Type I, and side-facing glazing shall conform to FRA 49 CFR Part 223 Type II requirements.
- B. All forward facing glass shall be heated with electric elements and forced heated air.

31.7.2 Safety Glass

- A. Safety Glass shall be inspected for optical deviation and visibility distortion in accordance with ANSI Z26.1, Section 5.15.

31.7.3 Test Methods

SunRail Remanufactured Locomotive Vehicle Design Criteria

- A. All questions regarding the quality of safety glass shall be determined by the test methods prescribed in ANSI Z26.1, Section 5.

31.7.4 Markings

- A. All safety glass shall be marked with proper identification in accordance with ANSI Z26.1, Section 7, and appropriate FRA Type designation. The window light shall be installed so that identification markings can be read from the inside, lower right hand corner.

31.8 Piping

31.8.1 Air Brake Piping and Fittings

- A. Locomotive air piping 3/4 inch IPS, or larger, shall be AAR approved ASTM A53 Schedule 80.
- B. Joints shall utilize threaded or flanged fittings. Prior Engineer approval shall be required for lap-welded joints. Butt-welding shall not be permitted.
- C. All piping shall be securely attached with clamps and insulators to prevent rattling. Clamp and insulator spacing shall be sufficiently rigidity to avoid vibration. Where possible, clamps in high vibration areas such as around the main engine, should have rubber lined clamps to reduce vibration and chaffing to a pipe inside a potentially loose clamp.
- D. Piping shall be installed to provide sufficient drainage to prevent freezing.
- E. All truck mounted air piping shall be ASTM A53 Schedule 80 and shall be no smaller than 1/2 inches IPS.
- F. Truck piping shall be installed using a minimum of hose connections.
- G. All air hose fittings shall be malleable iron.
- H. Type "K" copper tubing with sweat-type fittings of wrought copper or cast brass may be used for air piping above the floor and for other locomotive body piping not larger than 1/2 inch (12.7 mm) nominal and 5/8 inch (15.9 mm) OD.
- I. As an option, Swagelok type compression fittings may be used in lieu of the sweat fittings for the copper tubing in section h. above.
- J. Air brake piping shall be de-burred after cutting, and thoroughly blown out after installation in conformance to AAR Standard S-400.

SunRail Remanufactured Locomotive Vehicle Design Criteria

- K. Cutout cock handles, except brake pipe cocks, shall be arranged so that they are perpendicular to the flow of air in the open position and parallel to the flow of air in the closed position.
- L. All cutout cocks shall be of the vented type and shall be installed with unions directly adjacent on either side to permit rapid change out of the cocks.
- M. All cutout cocks shall be located for ease of accessibility and operation by a crewman without the use of special tools.
- N. Cutout cocks shall be provided with guards or self-locking handles to prevent accidental operation.
- O. All piping shall be installed with the minimum number of fittings and in a manner allowing for efficient maintenance.

31.8.2 Protection of Piping and Tubing

- A. All piping and tubing shall be arranged and protected to the extent possible to prevent damage caused by derailment, side-wipes, flying debris, and removal and replacement of locomotive components.
- B. In order to provide such protection, where not otherwise afforded by the locomotive structure, stainless steel deflector brackets and plates shall be installed.

31.8.3 Threaded Connections

- A. The use of sealing tape (plumber's tape, Teflon tape, etc.) is specifically forbidden in threaded pipe connections.

31.9 Wire and Cable

31.9.1 General

- A. All conductors shall be soft annealed copper tinned and stranded and shall have properties and characteristics to meet NFPA 130, 2007 and APTA RP-E-009-98 Recommended Practice for Wire Used on Passenger Equipment.

31.9.2 Heater Connections

- A. Only high temperature insulated wire shall be used for interconnection of heater elements and units.

SunRail Remanufactured Locomotive Vehicle Design Criteria

- B. Heater connections shall be of silicone insulated wire conforming to AAR Standard S-503.

31.9.3 Headlight and Resistor Connections

- A. Wire shall be silicone insulated conforming to AAR Standard S-503.

31.9.4 Aluminum Wire and Cable

- A. The use of aluminum wire and/or cable shall be specifically prohibited.

31.10 Wiring

31.10.1 Application and Installation of Wire

- A. All wiring shall be performed by or under the direction of experienced wiremen.
- B. Wiremen shall be provided with appropriate tools for skinning insulation, cutting, tinning, soldering, and attaching mechanical or compression type terminals to the conductors.
- C. Care must be taken in removing insulation from the conductor to avoid nicking of the wire or strands of the conductor cable.
- D. Wire in ducts and conduit shall be free of kinks, insulation abrasions and insulation skinning.
- E. Locomotive wiring methods and materials shall be in accordance with APTA RP-E-002-98 Recommended Practice for Wiring of Passenger Vehicles except where otherwise required by the Specification, or where approved by the Engineer.
- F. The layout of wiring shall be designed in advance of its installation and in cooperation with those furnishing the related equipment.
- G. Insofar as practicable, all wiring shall be fabricated on the bench into convenient units and installed in prefabricated groupings and standardized locations.
- H. All wire and cabling shall have appropriate service loops, drip loops, strain relief and sufficient material for a minimum of three (3) re-terminations.
- I. Spare terminations and conductors should be provided on terminal boards, in connectors, and in wire bundles and multi-conductor cables between

SunRail Remanufactured Locomotive Vehicle Design Criteria

major panels and junction boxes. A minimum of 10%, but not less than one (1), shall be provided.

- J. Grounding connections shall be brazed and bolted to, or welded and bolted to, or silver soldered and bolted to the locomotive frame.
- K. All equipment enclosures and shock-mounted equipment shall be grounded with flexible, strap-type, grounding leads bolted between a car body grounding pad and equipment grounding pads.

31.10.2 Solder

- A. Solder for electrical connections where permitted shall be in accordance with ANSI No. 1, Class B.
- B. Non-corrosive flux shall be applied immediately before soldering.
- C. An automatic temperature controlled solder pot shall be used.

31.10.3 Tape

- A. Polyvinyl chloride or Nomex electrical tapes with Buna "S" type adhesive, 0.010 inches (0.254 mm) in over-all thickness, or approved equal, shall be applied.
- B. The above materials shall be suitable for use with the conductor insulation without discoloring or corroding the copper wire and shall provide minimum 600 volt insulation.

31.10.4 Splices

- A. Splices shall not be permitted, without the approval of the Department.

31.10.5 Terminals

- A. Conductors shall be fastened to terminals and connectors by accepted mechanical methods. Soldering of conductors shall be allowed at selected locations only with prior written approval of the Engineer.
- B. Conductors, which will be subjected to motion relative to the terminal, shall be protected by suitable means to minimize breakage of the conductor at or near the terminal.
- C. Crimp terminals shall be used on all wiring operating at 64 volts or higher.
- D. In general, connections shall be made by means of terminal blocks.

SunRail Remanufactured Locomotive Vehicle Design Criteria

- E. Only ring tongue terminals are acceptable unless specifically approved by the Engineer. The use of spade type and "fast-on" terminals shall be prohibited.
- F. Solder connections shall be permitted on traction motor cables and connections.
- G. Solder connections shall be permitted on printed circuit boards.
- H. Conductors shall be fastened to terminals and connectors by accepted mechanical methods. Soldering of conductors shall be allowed at selected locations only with prior written approval of the Engineer.
- I. Conductors, which will be subjected to motion relative to the terminal, shall be protected by suitable means to minimize breakage of the conductor at or near the terminal.
- J. Crimp terminals shall be used on all wiring operating at 64 volts or higher.
- K. In general, connections shall be made by means of terminal blocks.
- L. Only ring tongue terminals are acceptable unless specifically approved by the Engineer. The use of spade type and "fast-on" terminals shall be prohibited.
- M. Solder connections shall be permitted on traction motor cables and connections.
- N. Solder connections shall be permitted on printed circuit boards.

31.10.6 Terminal Manufacturer

- A. Mechanical or compression type connectors and terminals shall be AMP standard connectors and terminals.

31.10.7 Conduit

- A. Existing conduit requiring replacement or reconfiguration shall be of similar composition as that removed.
- B. All conduit couplings shall be of an ANSI approved type. Conduit installed on the trucks or in under floor areas over the trucks shall be standard weight, galvanized steel with threaded fittings. All conduit ends shall be deburred inside and out to remove sharp edges and all pieces shall be blown out with compressed air and cleaned before installation to

SunRail Remanufactured Locomotive Vehicle Design Criteria

remove filings and other foreign material.

- C. Rigid aluminum conduit shall consist of seamless, rigid aluminum alloy conforming to ANSI C-80.5 and to the requirements of Standard UL-6. All threads shall be covered with an oxidation-inhibiting compound. Aluminum fittings shall be used to assemble aluminum conduit and shall be made to the same grade and alloy as the conduit.
- D. Steel conduit shall be mild steel in standard lengths with threaded ends and hot-dipped zinc-coated exterior and interior surfaces. It shall be free of burrs and projections, circular in cross-section, of uniform wall thickness and shall conform to the requirements of ANSI Standard 80.1. The threads per inch and length of threading shall conform to ANSI Standard B-2.1 on Pipe Threads.
- E. Steel fittings shall be used to assemble steel conduit. Elbows, nipples, and couplings shall be made of the same grade of steel as that employed in the conduit. All fittings shall be treated, coated, and threaded according to the requirements for zinc-coated, rigid steel conduit and shall conform to Underwriters Laboratory Standard UL-6.
- F. Flexible conduit, if used, shall be an ANSI approved type, and shall be of the highest grade and quality. It shall be watertight, interlocking steel strip-protected, with an approved rust resistive coating.
- G. Conduit shall be sized such that the sum of the cross-sectional areas of the conductors and their insulation does not exceed 40% of the cross-sectional area of the conduit for 3 or more conductors. For 2 conductors, a limit of 31% shall be used, while for a single conductor a limit of 53% will be permitted. For conduits having a length not exceeding 24 inches without bends of more than 15 degrees between enclosures, a maximum fill of 60% shall be permitted.
- H. A run of conduit between junction boxes and/or pulling outlets shall not contain more than the equivalent of four quarter bends (360 degrees total) including the outlet fittings. Bend radii at the inner surface of the bend shall be no less than 8 times the nominal inside diameter of the conduit.
- I. All conduit bends and offsets used shall be made by the use of special forms or tools and shall have the largest radius possible so that wires can be drawn (in and out) without the use of tackle or power.
- J. Conduits shall be securely clamped with all runs electrically grounded to make a continuous ground. Suitable insulation shall be provided to prevent electrolysis where aluminum may come in contact with other metals.

SunRail Remanufactured Locomotive Vehicle Design Criteria

- K. All conduits shall be arranged to prevent moisture traps and shall drain toward control boxes, except that all open-ended conduits shall be installed in a manner to ensure gravity drainage of moisture out of the end. The conduit arrangement and installation shall be subject to Engineer review and approval.
- L. The conduit fittings and junction boxes for locomotive wiring shall be as manufactured by the Contractor or by a supplier of a comprehensive line of parts. The Contractor shall submit the proposed product line for Engineer approval. All conduit fittings and junction boxes shall be provided with gaskets.
- M. All exterior junction boxes shall be fabricated of steel with a minimum wall thickness of 14 gauge. All exterior junction boxes shall be waterproof and shall be connected in such a way that drainage from equipment groups shall not pass through the conduit into the junction boxes. Interiors of all junction boxes shall be primed and then protected with a white, insulating epoxy powder coating.
- N. The open ends of conduits shall be provided with strain relief type fittings with extended rubber bushings, bell-mouth fittings or insulated throat box connections. All conduit entries into removable equipment boxes shall be made through watertight access panels secured by captive screw fasteners.
- O. All junction box covers shall be secured with compressive spring-type latches or captive screws. All fasteners used in junction boxes shall be stainless steel. All covers shall be designed to accept or mate with a bulb-type clamp-on seal.

31.11 Welding

31.11.1 Responsibility

- A. The Contractor shall be responsible for the quality of the welding done by its organization and their subcontractors. All welders employed in the making of welds on structures or products built under this Specification shall be tested to determine their ability to operate the welding equipment used during production and to determine their ability to produce satisfactory welds of the types required herein.
- B. The Contractor shall submit test procedures for Engineer review and approval. (CDRL).
- C. Welders shall have minimum qualifications as identified by ASME Code "Welding and Brazing Procedures and Performance Qualifications" or equivalent AWS procedures.

SunRail Remanufactured Locomotive Vehicle Design Criteria

31.11.2 Weld Rod

- A. Welding rod, wire, or filler metal shall be chosen with respect to make, type, and size by the Contractor for the specific application.
- B. Should the suitability of welding rods, wire electrodes, or filler metal be questioned, the provisions of Chapter 95 of the AWS Welding Handbook shall govern.

31.11.3 Heat Treating

- A. Parts rotating at high speeds or parts subject to shock and/or vibration such as end under frames shall be stress relieved after welding.

31.11.4 Welding Procedure

- A. All welded connections shall be described on the construction drawings for the locomotives prepared by the Contractor and submitted for Engineer review and approval.
- B. Standard weld symbols shall be used to define type, pattern, and size for each weld.
- C. Stainless steel parts shall be joined by resistance welding or by arc welding.
- D. Resistance welding procedures shall employ accurate control of current, time, electrode, size and shape, and tip force to produce uniform welds of specified strength, which will not be subject to surface corrosion.
- E. The strength of all resistance welds shall exceed the American Welding Society Standards by a minimum of 20%.
- F. The Contractor shall treat surface marks resulting from welding to eliminate, to the extent possible, visible defects and discoloration in the finish surface.
- G. In areas where space is restricted, resistance welding of components may be replaced with Huck bolted connections. Each location shall be subject to prior Engineer review and approval.
- H. The Contractor shall submit the design of individual connections for acceptance.
- I. Torch cutting holes in any part of locomotive assembly or components is

SunRail Remanufactured Locomotive Vehicle Design Criteria

specifically prohibited.

31.12 Paint and Painting

31.12.1 Painting of the Interior and Exterior.

- A. Painting of the Interior and Exterior of the locomotive is included in this Specification.
- B. The exterior carbody of the locomotive shall be cleaned prior to final acceptance using EPA approved chemicals.

31.13 Cleaning and Preparation Materials

31.13.1 Cleaning

- A. All debris from mechanical cleaning of locomotive components such as sandblast grit, and all debris resulting from building operations, such as scrap, shavings, and insulation, shall promptly be removed from the locomotive or component.
- B. All compounds and liquids used in cleaning and preparation operations shall be promptly removed, and flushed if required from the locomotive or the component.
- C. Every effort shall be made to remove all debris from the locomotive at regular intervals to prevent it from becoming lodged in inaccessible areas of the locomotive assembly.

31.13.2 Preparation

- A. Procedure for cleaning and preparation will be submitted for review and approval.

31.14 Asbestos

31.14.1 Asbestos Abatement

- A. The use of asbestos or asbestos-based products in any portion of the reconstruction of these locomotives is specifically prohibited.

31.15 Floor Material Covering

31.15.1 Floor Construction

- A. Floor construction and materials shall be as approved by the Engineer.

SunRail Remanufactured Locomotive Vehicle Design Criteria

- B. Trim materials, treads, steps, risers, and metal plates shall be used as approved by the Engineer.
- C. The Engineer shall approve floor covering material composition, installation methodology, coloration, and surface configuration.

32 MASTER TEST AND INSPECTION PLAN

32.1 Inspections and Tests

32.1.1 General

- A. Responsibility
 - 1. Inspection of components to be used by the Contractor shall be the responsibility of the Contractor and Subcontractor.
 - 2. Component inspections shall be performed at the plant of the Subcontractor, giving him every opportunity to correct, under factory conditions, any inadequacies found.
 - 3. Inspection of components shall be performed again at the Contractor's plant to identify any damage in transit, etc.
 - 4. The Department may also make inspection of selected items, with or in addition to the Contractor's representative, at either the Contractor's or Subcontractor's plant.
 - 5. The degree of Department participation shall in no way lessen or delete the Subcontractor's and Contractor's responsibility to make proper inspections themselves, with respect to meeting all the specification requirements.
- B. Access
 - 1. Authorized representatives of the Department shall have access, at all reasonable times and as prearranged with the Contractor, to the plants of the Contractor or Subcontractor for the purposes of inspecting materials and workmanship, and verifying their conformity to this Specification, during the progress of construction and assembly of the locomotives.
- C. Department's Inspections
 - 1. In its continuing effort to procure locomotives of the highest quality and in conformance with the specification, the Department

SunRail Remanufactured Locomotive Vehicle Design Criteria

will, at their discretion, assign inspection personnel to witness all test procedures and to monitor the production work on a daily basis.

2. Authorized personnel may include the Engineer, the Consulting Engineer, and In-Plant Inspectors.

D. Master Test and Inspection Plan

1. The Contractor shall prepare a Master Test and Inspection Plan identifying each inspection or test required by the Contract, Quality plan and good quality practices, and the point in time or manufacturing sequence at which it will be performed. To be submitted within 60 days of NTP.
 - a. Each inspection or test shall be performed in compliance with a written inspection procedure prepared by the Contractor and accepted by the Authority.
 - b. The inspection or test procedure shall include pass/fail and criteria defined by industry codes and standards and this Specification.
2. The Master Test and Inspection Plan shall be used by the Authority to identify inspection, witness, and hold points to be observed by the Authority and the Contractor.
3. The Contractor shall ensure that all processing, fabricating, and other production operations shall be subjected to In Process Inspections. (IPI)
4. The Contractor shall prepare a Test Plan identifying each test required by the Contract and the point in time or manufacturing sequence at which it will be performed. The Test Plan must include the requirements for 49CFR238.111, for a Pre-Revenue Acceptance Plan.
 - a. Each test shall be performed in compliance with a written test procedure prepared by the Contractor and accepted by the Authority.
 - b. The test procedure shall include acceptance criteria defined by industry codes and standards and this Specification.

SunRail Remanufactured Locomotive Vehicle Design Criteria

5. The Contractor's Inspection Plan shall provide surveillance to ensure proper handling, storing, preserving, marking, and packaging of items during the production process.
6. The Contractor shall identify and eliminate system conditions, which adversely affect product quality through program effectiveness reviews and documented procedures that require evidence of the corrective actions taken to preclude the recurrence of identified deficiencies.
7. The Contractor's Inspection Plan shall also provide inspection prior to shipment of items deliverable under this Contract.
 - a. This inspection of items shall include verification that records documenting adherence to the Inspection Plan in production of the item are complete.
 - (1) These records shall include results of examinations, inspections, tests, process controls, and all other quality assurance/ control requirements of the Contract.
 - (2) These records shall be maintained in an orderly, easily accessible arrangement, and shall be available to the Authority at all times during performance of the Contract.

E. First Article Inspection

1. Material and/or apparatus which may be inspected at the source of manufacture by the Department's representatives includes but is not limited to the following items:
 - a. Couplers and Draft Gear
 - b. Main Alternator
 - c. Prime Mover and Auxiliary Equipment
 - d. Throttle Controller
 - e. Traction Motors
 - f. Electrical Controls
 - g. Journal Bearings

SunRail Remanufactured Locomotive Vehicle Design Criteria

- h. Air Brake Equipment
 - i. HEP unit
 - j. Cabinets
 - k. HVAC unit
 - l. Gear Boxes
 - m. Truck Weldments and/or Castings
 - n. Wheels, Axles and Mounting
 - o. Microprocessors
 - p. Battery Charger
- 2. The Contractor shall obtain Engineer's acceptance of the first article sample, and of the method of its application, prior to manufacture of subsequent articles.
 - 3. The Department shall be given a minimum of 30 days notice for any first article inspection.
 - 4. If an inspection is not performed on the scheduled dates or the Contractor is not prepared for inspection after notification given, then the Department can and may recover from the Contractor any such costs involved in sending Department personnel to the inspection sites.
 - 5. As permitted by the Department, reporting from previously accepted FAI's of service-proven systems may be submitted for acceptance in lieu of performing a first article inspection on that system.

32.1.2 Testing General

- A. Along with the regular inspection of in process production work, the Contractor shall perform testing of components, equipment, subsystems and completed locomotives.

SunRail Remanufactured Locomotive Vehicle Design Criteria

1. Type tests and production/in-process tests shall be performed at plants of the Contractor or of the Subcontractors unless otherwise specified.
2. All tests and test facilities will be approved by the Department.
 - a. Where the Contractor already has standard tests/procedures that meet the intent of any of the following sections, these may be submitted as alternate test bids for approval by the Department.
3. Acceptance tests shall be performed after delivery on the tracks of the Department.
 - a. These tests shall be conducted by and at the expense of the Contractor.
 - b. All systems, sub-systems, equipment and components, shall be tested and put in proper operating condition by the Contractor before being presented for testing and acceptance by the Engineer.
 - c. Should the locomotive be disassembled in any way for shipment, it shall be given an operational test after reassembly at the delivery point on a track obtained by and at the expense of the Contractor.
 - d. After receipt of the locomotive at the designated delivery point and before passing into regular operation, each locomotive will be carefully inspected jointly with the Department and any part, device or apparatus requiring adjustment, repair or replacement will be called to the attention of the Contractor, in writing, who shall make adjustment, repair or replacement at his own expense.
 - (1) It is anticipated that all road tests of the locomotives will be completed within one (1) month of receipt of each locomotive at the Maintenance Facility provided that no failures are encountered and no modifications are outstanding.
 - (2) Road tests on individual locomotives will be conducted while in one or more train consists of new and/or existing cars when in revenue and non-revenue service.

SunRail Remanufactured Locomotive Vehicle Design Criteria

- (3) Train and crew charges, including diesel fuel for non-revenue testing will be the responsibility of the Department.
- (4) The Contractor will be responsible for the costs of; instrumentation, test engineer, data collection, data reduction, report preparation for review and approval of the Department
- (5) The Department reserves the right to make, at its own expense, additional operating tests of locomotives within the parameters set out in this Specification.
- (6) The Contractor shall assign a competent representative to witness such operating tests.
- (7) Any defects disclosed by such tests, in apparatus, material or workmanship shall be corrected at the Contractor's expense.
- (8) All expense and costs incurred in the removal of locomotives from the designated delivery point for correction of defects shall be borne by the Contractor.

B. Test Plans, Procedures and Data

1. All test data shall be subject to Department review and acceptance, and shall become the property of the Department upon satisfactory completion of tests.
2. If a locomotive or any related equipment or subsystems fail to satisfy the test requirements, or demonstrate noncompliance with bid performance, necessary corrective adjustment shall be made, and this locomotive shall be retested as directed by the Department.
3. The Contractor shall, within 120 days following award of the contract, submit to the Department for review and acceptance a detailed test plan which shall satisfy the requirements of this section.

C. Reports

1. Written or computer generated reports of all tests performed on the locomotives and their components shall be submitted to the Engineer for review and acceptance.

SunRail Remanufactured Locomotive Vehicle Design Criteria

2. Tests required by the Specification which are performed on all locomotives or all components shall be included in the Locomotive History Books.
3. Reports on all type tests of the one (1) to three (3) locomotive variety, such as cab sound level tests, shall be submitted prior to final acceptance of the first locomotive and be included in the history books of the locomotives involved.

32.2 Type Tests

A. General

1. Type tests shall be performed by the Contractor and witnessed by the Department's representatives.
2. The Contractor shall make every reasonable effort to notify the Department's representative of dates and times of type tests.
3. Type tests shall be performed in accordance with procedures prepared by the contractor as required and accepted by the Department.

B. Type tests shall include, but not be limited to:

1. Cab Sound Level - three locomotives per contract
2. Heating and Air Conditioning Test - one locomotive
3. Road Brake Test - one locomotive
4. Handbrake Test - one locomotive
5. Wheel Slip Test - one locomotive per contract
6. Fuel Fill Test - one locomotive per contract
7. Locomotive Weights - one locomotive per contract
8. Exhaust Emission Test - three locomotives per contract
9. EMI Compatibility - one locomotive per contract
10. Performance Tests - one locomotive per contract
11. Provision for Positive Train Control (FAI Inspection of first locomotive)

SunRail Remanufactured Locomotive Vehicle Design Criteria

C. Truck, Coupler and Cable Clearance

1. Truck clearances, lengths and location of brake air hoses and electrical jumpers, and coupler and drawbar clearances and operation shall be checked by moving a locomotive coupled to a bi-level coach over a curve and crossover duplicating or exceeding the most restricting track work specified.
2. Tests may be completed on suitable track on the Department property.

D. Noise Emission

1. The Contractor shall conduct noise emission testing to demonstrate compliance with this technical specification, and FRA Requirements, utilizing instruments and procedures meeting the requirements of 49CFR201.21, 49CFR201.22, 49CFR201.23 and 49CFR201.24.

E. Cab Sound Level

1. Cab interior sound level shall be measured for each of three locomotives in accordance with the procedures specified in Appendix H of 49CFR229.

F. Heating and Air Conditioning Test

1. An instrumented performance test shall be conducted in the cab of one locomotive to measure the capability of the equipment to maintain design cab temperature at the extremes of ambient temperature specified, to measure temperatures at several points in the cab to verify acceptable distribution of warm and cool air from the system and to measure warm-up and cool-down times from soaked cold and hot cab temperatures.

G. Road Brake Tests

1. The Contractor shall perform a road brake test with a trainset consisting of a locomotive and four cars.
2. The Contractor shall provide instrumentation (to include, as a minimum, wheel temperature, brake cylinder pressures, time, distance, speed and acceleration), and test personnel to adequately evaluate the brake equipment, demonstrate stop distances and times, and verify braking characterization.
3. The Contractor shall concurrently conduct wheel slip/slide tests.

SunRail Remanufactured Locomotive Vehicle Design Criteria

4. Reports of all tests shall be submitted to the Department for approval prior to final locomotive acceptance.
 5. Road brake test shall be performed in conjunction with the locomotive acceptance testing specified.
 6. A single locomotive shall also be tested to determine stop distance and wheel temperatures up to maximum authorized speed at 10 mph increments.
- H. Handbrake Test
1. On one locomotive, a test to prove compliance with the Specification and 49CFR232.105(b) shall be performed using first new and then fully worn brake shoes.
- I. Wheel Slip Test
1. In order to provide a test of the operation of the wheel slide protection system under actual operating conditions, facilities shall be provided for a test of this system during the road brake tests.
 2. Instrumentation shall be maintained on this train at all times ready to record the following quantities simultaneously:
 - a. Individual axle speeds
 - b. Brake Cylinder Pressure
 - c. Time Intervals
 - d. Traction Motor Current
 3. Recording shall be made by means of multiple-channel recording oscillographs.
 - a. Personnel assigned to observe the test shall be prepared to run this instrumentation at any time that adverse adhesion conditions may occur.
 - b. This test shall be continued until recordings have been obtained showing three stops and starts during which slides and slips were successfully corrected.
 - c. In the event that sufficiently adverse rail conditions to obtain such recordings do not occur during the test, the Contractor shall induce slips and slides with artificial rail

SunRail Remanufactured Locomotive Vehicle Design Criteria

wetting equipment to demonstrate the performance of this system.

- d. The slip/slide test can be run in conjunction with the acceptance road tests of Section T19.05.C.

J. Fuel Fill Test

1. One locomotive shall be fueled using a 250 g.p.m. pump to assure fueling capabilities.

K. Locomotive Weights

1. One locomotive shall be weighed with full supplies, as well as weighed light with no supplies.
 - a. Supplies shall include fuel, water and sand.
2. Each truck of one locomotive shall be weighed individually to check for weight distribution.
 - a. Trucks shall be fully assembled with wheels, axles and traction motors mounted.

L. Exhaust Emission Test

1. Prime movers in three locomotives shall be tested through the road locomotive duty cycle in accordance with the requirements of 40CFR92.

M. Performance Tests

1. As part of the acceptance tests, the Contractor shall demonstrate the locomotive meets the performance specified by operation of a train of two (2) bi-level coaches in both directions with the service schedule.

32.3 Production/In-Process Tests

A. General

1. Production tests shall be performed in the Contractor's plant during the production process to ensure the quality of parts and the correctness of their manufacture and installation.
2. Production tests shall be performed by the Contractor and witnessed by the Department's representatives.

SunRail Remanufactured Locomotive Vehicle Design Criteria

- a. The Contractor shall make every reasonable effort to notify the Department's representative in advance of dates and times of in-process inspections and tests.
 3. Production tests shall be performed in accordance with procedures prepared by the Contractor as required and accepted by the Department.
 4. Production tests will be supplemented by in-process inspections.
- B. In-Process tests shall be performed on all locomotives and shall include, but not be limited to:
1. Diesel Engine Prime Mover
 2. Traction Alternator
 3. Companion Alternator
 4. Traction Motors
 5. Auxiliary Generator
 6. Prime Mover Load Test
 7. Head-End Power Unit Load Test
 8. Carbody Watertightness
 9. Static Air Brake Test
 10. Handbrake Tests
 11. Locomotive Wiring
 12. Train Lines
 13. Communication System
 14. Heating and Air Conditioning Functional Tests
 15. Locomotive Weight
 16. Head Lights
 17. Auxiliary (Ditch) Lights and Marker Lights
 18. Air Brake System Static Test

SunRail Remanufactured Locomotive Vehicle Design Criteria

19. Layover System Test
 20. Sanding
 21. Low Voltage/Battery System
 22. Event Recorder
 23. MU – Locomotive/Cab Car
 24. MU – Locomotive/Locomotive
 25. Provision for Positive Train Control (Routine Inspection)
- C. Diesel Engine Prime Mover
1. Each prime mover shall be given a break-in and full load test on a dynamometer in accordance with the Contractor's standard procedure as approved by the Department.
- D. Traction Alternator
1. Each traction alternator shall be tested by the manufacturer in accordance with a procedure approved by the Department
- E. Companion Alternator
1. Each companion alternator shall be tested by the manufacturer in accordance with a procedure approved by the Department.
- F. Traction Motors
1. Each traction motor shall be tested by the manufacturer in accordance with a procedure approved by the Department.
- G. Auxiliary Generator
1. Each auxiliary generator shall be tested by the manufacturer in accordance with a procedure approved by the Department.
- H. Prime Mover Load Test
1. Each prime mover, after break-in load testing and complete installation in the locomotive, shall be load tested with its main alternator. The test shall cover the full operating range of the engine and main alternator control systems and include a minimum run of four hours at full load.

SunRail Remanufactured Locomotive Vehicle Design Criteria

I. Head-End Power System Load Test

1. The head end power system shall be given a thorough functional and load test to demonstrate that:
 - a. Power is delivered within the parameters defined.
 - b. All controls, switches and indicators operate correctly.
 - c. Protective devices, including ground fault detection, perform as designed.
 - d. Trainline circuits and controls function properly.
 - e. Layover interlock circuits and controls function correctly.
 - f. The system is capable of delivering 110% of rated capacity for a minimum of 15 minutes.

J. Carbody Watertightness

1. Each locomotive shall be subjected by the Contractor to a complete test for watertightness, as described below:
2. All areas of the sides, ends, and roof, including doors and windows, of the locomotives shall be given a complete test for watertightness. Water intrusion consistent with the “narrow hood type carbody” construction of the GP40WH-2 locomotive is permitted.
 - a. The test shall be made before installation of sound deadening material, thermal insulation, and interior finish.
 - b. Water shall be sprayed from nozzles which are spaced no more than three feet from and aimed directly at the surface being tested.
 - c. Not less than 0.625 gallons per minute shall be delivered to each square foot of surface being tested.
 - d. The nozzle velocity of the water shall be not less than 150 ft. per second.
3. It is not required that the watertightness test be deferred until the carbody is completely assembled.
 - a. Individual tests may be used to demonstrate the watertightness of large components such as sides, roof,

SunRail Remanufactured Locomotive Vehicle Design Criteria

ends, with testing of the assembled carbody restricted to connections between tested components and areas not previously tested.

- b. All spray applications shall run for a period long enough to enable inspection to be made and to insure leak proof structure.
- c. It is the intent of this test to establish the total watertightness integrity of the cab.
- d. Locomotives shall have leaks corrected and retested until a satisfactory water test is obtained with no leakage detected on each completed locomotive.

K. Static Air Brake Test

- 1. Air brakes shall be tested and adjusted for performance complying with FRA 49 CFR 232.10.
- 2. Also, tests recommended by AAR and the brake Contractor shall be performed when not in conflict with FRA. regulations.

L. Handbrake Test

- 1. A functional test of the hand or parking brake on each locomotive shall be performed using new shoes.

M. Locomotive Wiring

- 1. The following electrical tests shall be performed by the Contractor on each locomotive in accordance with his current standard procedures:
 - a. Test all wiring circuits to insure continuity and polarity after assembly and installation of all equipment.
 - b. Make a direct current ground insulation megger test of the locomotive on each separate nominal voltage circuit.
 - (1) If this test shows freedom from ground connections, the high potential test specified below shall be applied.
 - c. A high potential ground insulation test shall be made on all power circuits and apparatus on each locomotive.

SunRail Remanufactured Locomotive Vehicle Design Criteria

- (1) All wires, cables and/or apparatus which do not meet the requirements of the tests, shall be removed and replaced by the Contractor.
- (2) After replacement of any such defective parts, materials or equipment, the locomotive shall be subjected to re-testing.

d. Following high-potential testing all circuits shall be tested to verify proper functioning.

N. Train Lines

1. MU control, communications and HEP trainlines shall be tested end to end to verify correct connection and function.

O. Communication System

1. Radio and PA systems shall be tested functionally and also to verify compliance with EMI susceptibility and emissions requirements.

P. Heating and Air Conditioning Functional Test

1. In all locomotives, the heating system shall be functionally tested.
2. The operation of the thermostatic control system shall be demonstrated by test and shall be in accordance with specified settings.
3. Controls shall be checked and adjusted for temperature distribution and proper volume of heat and conditioned air.

Q. Locomotive Weight

1. The Contractor shall weigh all locomotives at shipment and furnish a weight ticket to the Department with the locomotive history book together with a reconciliation sheet with calculations to account for any missing variable supplies.
2. Each truck of each locomotive shall be weighed individually to check for weight distribution.
3. The weight shall be stamped on a weight plate which shall be installed in a location in the cab acceptable to the Engineer.

R. Head Lights

SunRail Remanufactured Locomotive Vehicle Design Criteria

1. The front and rear headlights on each locomotive shall be tested to demonstrate they meet the requirements of 49 CFR 229.125.a.

S. Auxiliary (Ditch) Lights

1. The ditch lights on each locomotive shall be tested, aimed and adjusted to meet the requirements of 49 CFR 229.125.

T. Air Brake System Static Test

1. A complete functional test of the airbrake system shall be performed to verify its conformance to design specifications, including all I/O functions related to other locomotive systems such as ATC, wheel slip/slide, event recorder, etc.

U. Layover System Test

1. A functional test of the layover system shall be performed on each locomotive to verify proper operation of the heating and battery charging equipment from wayside power (and from the HEP, if it is a separate diesel/alternator) and correct operation of the controls, indicators and system interlocks.

V. Sanding

1. All manual and automatic sanding functions shall be functionally tested.

32.4 Acceptance Tests

A. General

1. Final static testing after all manufacturing work is completed shall be done to ensure that the locomotive and all its interrelated systems are operating correctly and efficiently, and that the locomotive is ready for revenue service.
2. Acceptance tests shall be performed on all locomotives.

B. Road Tests

1. The Contractor shall provide the Department with a plan to test a locomotive within the guidelines outlined.
 - a. This test shall be conducted by and at the expense of the Contractor.

SunRail Remanufactured Locomotive Vehicle Design Criteria

2. The first completed locomotive with two Department commuter, or approved equal, cars shall be track tested.
 - a. This test shall demonstrate the satisfactory operation of all control systems, auxiliary systems, propulsion systems, braking system, positive train control and alarm circuits, and shall be conducted at a site acceptable to the Engineer.
 - b. The test shall also demonstrate the performance characteristics of the locomotive.
 - c. The test shall demonstrate the operational performance of the locomotive regarding acceleration, maximum running speed and braking.
 - d. The test may be terminated, at the Department's discretion, when at least 2500 miles have been completed without experiencing any malfunction in a component or system.
3. The data recorded during the tests shall include, but is not limited to, the following:
 - a. Acceleration
 - b. Deceleration
 - c. Traction motor current
 - d. Traction motor voltage
 - e. Brake pipe pressure
 - f. Locomotive brake cylinder pressure
 - g. Dynamic brake current
 - h. Speed
 - i. Distance intervals
 - j. Time intervals
 - k. Wheel slip and slide performance.
4. The Contractor shall provide, at his expense, the test personnel and instrumentation necessary to demonstrate reliability via a 500 mile

SunRail Remanufactured Locomotive Vehicle Design Criteria

non-revenue test, and thereafter a 2,500 mile revenue test for the remaining locomotives.

- a. The test shall demonstrate the operational performance of the locomotive regarding acceleration, maximum running speed and braking:
 - b. The non-revenue tests shall include both static and dynamic tests.
 - c. The non-revenue static tests shall include HEP, Trainline Function, brakes, PA, lighting, Maximum g-forces transmitted to carbody in lateral, vertical and longitudinal planes
 - d. The non-revenue dynamic tests shall include stopping distance tests and simulated station stops.
 - e. The revenue tests will begin after successfully demonstrating function of the non-revenue tests.
 - f. The revenue tests can be actual revenue tests, or simulated revenue service.
- (1) The pass fail criteria for both non-revenue and revenue tests will be Pass/Fail Criteria is defined as a malfunction of a component that causes, or would have caused an in service delay. Failure to meet the pass fail criteria will require re-test.

C. Receiving Inspection

1. Within 72 hours of delivery of the completed locomotive(s) at Rand Yard, the Contractor's and Department's representatives shall visually inspect the locomotive(s) for damage, loss, vandalism, or other discrepancies incurred during shipment.
2. A Delivery Punchlist listing all such damage, loss, vandalism, or other discrepancies shall be prepared and signed by the Contractor's representative(s) the Department's representative(s), and the Carrier's representative(s). Any discrepancies noted in the Delivery Punchlist shall be adjusted, repaired, or replaced by the Contractor. The Contractor shall submit a detailed corrective action plan, which will be followed by the Contractor and Subsuppliers, to the Department for acceptance. Any defects in apparatus, material, or workmanship disclosed by inspections or tests, shall be corrected at the Contractor's expense prior to Final Acceptance.

33 DOCUMENTS AND CERTIFICATIONS

33.1 Blue Card

- A. The Contractor shall furnish to the Department for each locomotive four copies of FRA. Form F-6180-49, "Monthly Locomotive Unit Inspection and Repair Report," completely filled out and notarized, for submission to the FRA, for display in the locomotive and for the files of the applicable Railroad and the Department.

33.2 EPA

- A. EPA Certification that the locomotives are in compliance with Tier 2 exhaust emission requirements of 40CFR92.

33.3 Glazing Certification

- A. Glazing Certification of compliance of cab windshield and side windows with the requirements of 49CFR223.

34 SAFETY PLANS

34.1 Contractor Safety Plans

- A. APTA "Manual for the Development of System Safety Program Plans for Commuter Railroads" (2006), and also referenced 49 CFR as contained in Appendices.

34.2 System Safety Plans

- A. Transportation Regulations Compliance Report
- B. System Safety Program Plan - The Department will create the Plan and be responsible for its content. The Vendor will supply any existing documentation consistent with that provided to Northstar in support of the Department's Plan creation. Anything beyond existing documentation will be a change order at an additional cost to the Department.
- C. System Safety Analyses
 - 1. Fire Safety Analysis
 - 2. Hardware and Software Failure Modes and Effects Analysis
- D. Safety Test and Verification Plan - The Department will create the Plan and be responsible for its content. The Vendor will supply any existing

SunRail Remanufactured Locomotive Vehicle Design Criteria

documentation consistent with that provided to Northstar in support of the Department's Plan creation. Anything beyond existing documentation will be a change order at an additional cost to the Department.

- E. System Security Analyses - The Department will perform the analysis and be responsible for its content. The Vendor will supply any existing documentation consistent with that provided to Northstar in support of the Department's analysis. Anything beyond existing documentation will be a change order at an additional cost to the Department.
- F. Safety and Security Certification Plan
- G. Master Test and Inspection Plan
- H. Pre Revenue Service Acceptance Test Plan
- I. Manufacturing Plan
- J. Management Plan
- K. Schedule
- L. Quality Assurance Plan
- M. Simulation to Validate Trip Times

34.3 Safety And Regulatory Requirements

A. GENERAL

1. SunRail locomotives shall be designed and constructed to be safe to passengers, persons near the vehicle, and employees, under normal, abnormal (failure recovery) and emergency operating conditions and in the event of equipment failure.
2. The Vendor shall insure that all systems' safety aspects are considered for each individual locomotive system and for systems as integrated to complete the locomotive design.
3. Conflicts between performance and safety requirements will be addressed on a case-by-case basis.
4. The guidelines for resolution of conflicts will be as follows:
 - a. Applications which, in accordance with the requirements of this Section, are determined to have a significant impact on

SunRail Remanufactured Locomotive Vehicle Design Criteria

passenger safety will conform to applicable safety requirements. Requirements for other material characteristics or properties will conform to that of materials typically used for the application that are available at the time of award of contract. Typical examples of this application are materials used in the interior of the locomotive cab.

- b. Applications which do not meet the criteria described in the previous paragraph will require conformance to all operational, performance, service, and maintenance requirements.

B. INDUSTRY CODES AND STANDARDS

1. All equipment shall comply with applicable codes and standards cited in this Vehicle Criteria. Where conflicts exist between standards, the more restrictive, as determined by the Department, shall apply.

C. GOVERNMENTAL RULES AND REGULATIONS

1. All equipment shall comply with applicable local, state, and federal safety rules and regulations, as called out throughout this Locomotive Specification.
2. Deviations from, and substitutions of, specified standards shall be made only if previously approved by the Department. Vendor shall submit a detailed comparison of the alternative criteria, the rationale for the alternative, and whether the proposed code or standard meets or exceeds the existing standard.

34.4 Fire Safety Analysis

- A. The Vendor shall perform a Fire Safety Analysis for Procuring New Passenger Equipment in accordance with 49 CFR 238.103(c) for the Department review and approval. A complete draft of the analysis, along with a matrix of the smoke, flame and toxicity data according to Sections 11.1.7 and 11.1.8, for all materials used in the locomotive cab shall be submitted and approved during the design phase of the Contract.
- B. The analysis shall be updated during the design and construction process as additional information becomes available. A final and complete analysis shall be submitted before shipment of the first locomotive.

34.5 Hardware And Software Safety Program

SunRail Remanufactured Locomotive Vehicle Design Criteria

- A. The Vendor shall develop a Hardware and Software Safety Program in compliance with 49 CFR 238.105 for the Department review and approval. A complete draft of the program shall be submitted and approved during the design phase of the Contract. The program shall be updated during the design and construction process as additional information becomes available. A final and complete program shall be submitted before shipment of the first locomotive.

34.6 Transportation Regulations Compliance Report

- A. The Vendor shall submit a report detailing how the locomotive complies with all applicable sections of the Code of Federal Regulations. This includes, but is not limited to: 40 CFR 86, 89 and 92; 49 CFR 38, 210, 213, 220, 221, 223, 229, 231, 238 and 239.

34.7 System Safety Program Plan

- A. The Department will create the Plan and be responsible for its content. The Vendor will supply any existing documentation consistent with that provided to Northstar in support of the Department's Plan creation. Anything beyond existing documentation will be change order at an additional cost to the Department.

34.8 System Safety Analyses

- A. General:
 - 1. In addition to analyses specified elsewhere in the Locomotive Technical Specifications, the Vendor shall perform the following system safety analyses to identify safety hazards, assess their risk as a function of hazard severity and probability of occurrence, and apply Department -approved risk acceptance criteria for hazard mitigation and resolution.
- B. Hazard Severity Definitions:
 - 1. Hazard severity categories are defined to provide a qualitative measure of the worst credible mishap resulting from personnel error, environmental conditions, design inadequacies, procedural deficiencies, system, subsystem or component failure, malfunction, or fault condition, as follows:
 - a. Hazard Category I - Catastrophic: may cause death, system loss or severe environmental damage.

SunRail Remanufactured Locomotive Vehicle Design Criteria

- b. Hazard Category II - Critical: may cause severe injury, severe occupational illness, or major system or environmental damage.
 - c. Hazard Category III - Marginal: may cause minor injury, minor occupational illness, or minor system or environmental damage.
 - d. Hazard Category IV - Negligible: will result in less than minor injury, minor occupational illness, or less than minor system or environmental damage.
- C. Hazard Probability Definitions: Hazard probability shall be described qualitatively in potential occurrences per units of time (per hour, per year, etc). A hazard probability may be derived from the analysis of commuter rail transit system operating experience, evaluation of similar systems in identical or manifestly similar conditions, and from historical safety data of the systems at other transit systems. The probability rankings are defined as follows:
 - 1. Probability Rank A - Frequent: Likely to occur frequently to an individual item. Continuously experienced in the entire contracted system.
 - 2. Probability Rank B - Probable: Will occur several times in the life of an item. Will occur frequently in the entire contracted system.
 - 3. Probability Rank C - Occasional: Likely to occur sometime in the life of an item. Will occur several times in the entire contracted system.
 - 4. Probability Rank D - Remote: Unlikely but possible to occur in the life of an item. Unlikely but can be reasonably expected to occur in the entire contracted system.
 - 5. Probability Rank E - Improbable: So unlikely is can be assumed occurrence may not be experienced in the life of an item. Unlikely but possible to occur in the entire contracted system.
- D. Perform safety analyses to identify potentially hazardous conditions. Perform and document quantitative analyses as required to ensure that adequate safety consideration has been given. Apply system safety analyses to:
 - 1. Evaluate alternatives.

SunRail Remanufactured Locomotive Vehicle Design Criteria

2. Evaluate and verify safety requirements of the systems, subsystems and assemblies for the systems under the scope of this contract.
 3. Evaluate the operation/emergency procedures and training requirements.
 4. Provide visibility of relative safety and risk within system components.
- E. Perform analyses of locomotive systems, subsystems and functions to identify potential system safety hazards in system elements, subsystems and assemblies, hardware and software and interfaces, to the extent covered under Vendor's scope, in these contract documents for the CFCRT Project.
1. System elements and subsystems to be analyzed shall include the locomotive, locomotive subsystems and interfacing Project system elements and the operating environment.
 2. Perform analyses of interfaces between each system and operating and maintenance personnel.
 3. Perform analyses of interfaces between each system and other systems that directly interface with it.
 4. Perform analyses of potential human errors and fault conditions arising from operations and maintenance manuals.
- F. In performing the required analyses, the depth of detail shall be dictated by hardware and software components, functions and modules called for in the final design, identified critical items, and unresolved potential failures of unacceptable and undesirable risk index. The following analyses shall be utilized:
1. Preliminary Hazard Analysis (PHA) - The Department will perform the analysis and be responsible for its content. The Vendor will supply any existing documentation consistent with that provided to Northstar in support of the Department's analysis. Anything beyond existing documentation will be a change order at an additional cost to the Department.
 2. Failure Modes, Effects and Criticality Analysis (FMECA) - The Department will perform the analysis and be responsible for its content. The Vendor will supply any existing documentation consistent with that provided to Northstar in support of the Department's analysis. Anything beyond existing documentation will be a change order at an additional cost to the Department.

SunRail Remanufactured Locomotive Vehicle Design Criteria

3. Software Failure Modes and Effects Analysis (SFMEA).
 4. Quantitative analyses such as fault tree or logic network.
 5. Operating Hazard Analysis - The Department will perform the analysis and be responsible for its content. The Vendor will supply any existing documentation consistent with that provided to Northstar in support of the Department's analysis. Anything beyond existing documentation will be a change order at an additional cost to the Department.
 6. Collision and Derailment Hazard Analysis (CDRL), showing the contribution of items in Vendor's scope to collisions and derailments of the locomotive and CFRC Commuter train consists on the Corridor. Conduct analysis in general accordance with the Federal Railroad Administration (FRA) "Collision Hazard Analysis Guide: Commuter and Intercity Passenger Rail Service", Final (2007), in a format approved by the Department - The Department will perform the analysis and be responsible for its content. The Vendor will supply any existing documentation consistent with that provided to Northstar in support of the Department's analysis. Anything beyond existing documentation will be a change order at an additional cost to the Department.
- G. These analyses shall be documented in general accordance with the FTA, FRA, APTA and MIL-STDs guideline documents, and industry accepted practices. The Vendor's analysis format shall be approved by the Department.
- H. Maintain a compilation of safety-critical items identified during the system safety analyses, in a safety critical items list (SCIL), which shall be maintained and updated by the Vendor throughout the duration of the contract. Safety critical items shall consist of hazards with Unacceptable and Undesirable risk. The format of the SCIL shall be approved by the Department. Document for approval any rationale in lieu of corrective action. Conduct a special review of unresolved critical items on the SCIL with the Department - The Department will perform the analysis and be responsible for its content. The Vendor will supply any existing documentation consistent with that provided to Northstar in support of the Department's analysis. Anything beyond existing documentation will be a change order at an additional cost to the Department.
- I. Existing analyses and data which are properly documented and verifiable and which present the material in a neat, concise and logical manner may be submitted for equipment and applications that are identical or manifestly similar.

SunRail Remanufactured Locomotive Vehicle Design Criteria

- J. For each identified hazard, establish hazard severity category (I through IV), hazard probability ranking (A through E), and a combined hazard risk index reflecting the severity and probability ranking.
- K. Apply risk assessment criteria to identified hazards based on the identified severity and probability of occurrence, to determine acceptance of the risk or the need for corrective action to further reduce the risk. The risk acceptance criteria shall conform to the Federal Transit Administration's (FTA's) Hazard Analysis Guidelines for Transit Projects and the following table:

TABLE A- HAZARD RISK ASSESSMENT MATRIX AND ACCEPTANCE CRITERIA

Frequency of Occurrence	Severity			
	I	II	III	IV
	Catastrophic	Critical	Marginal	Negligible
(A) Frequent	IA	IIA	IIIA	IVA
(B) Probable	IB	IIB	IIIB	IVB
(C) Occasional	IC	IIC	IIIC	IVC
(D) Remote	ID	IID	IIID	IVD
(E) Improbable	IE	IIE	IIIE	IVE

Legend: Hazard Risk Index

IA, IB, IC, IIA, IIB, IIIA
ID, IIC, IID, IIIB, IIIC
IE, IIE, IIID, IIIE, IVA, IVB
IVC, IVD, IVE

Acceptance Criteria

Unacceptable
Undesirable (decision required)
Acceptable with review
Acceptable without review

- L. Analyze hazards which are identified as having an unacceptable or undesirable risk, using logic network analyses (such as fault tree) to determine effectiveness of corrective action. Unacceptable and undesirable risk shall be reduced to an acceptable level before design acceptance. Undesirable risk shall be mitigated on a priority basis using cost-benefit considerations and shall be approved by the Department.
- M. Hazards identified as "acceptable with review" may be accepted by the Department in an "as-is" condition with no further corrective action. Alternatively, the Department may require the Vendor to develop operating and maintenance procedures for periodic tests and inspections of the subject item to ensure an acceptable level of safety is maintained over the life of the system.
- N. Hazards with combination of severity and probability IVC, IVD, IVE will be acceptable to the Department.

SunRail Remanufactured Locomotive Vehicle Design Criteria

34.9 Safety Test And Verification Plan

- A. The Department will create the Plan and be responsible for its content. The Vendor will supply any existing documentation consistent with that provided to Northstar in support of the Department's Plan. Anything beyond existing documentation will be a change order at an additional cost to the Department.
- B. Verify that design safety requirements shall be met. A combination of analytical and test methods shall be considered. Integrate safety tests into the appropriate test plans developed in accordance with other sections of the documents for Locomotive system elements, subsystems and assemblies, hardware and software and interfaces contained in these contract documents for the CFCRT Project.
- C. A. Where complete safety testing in an operational environment is not feasible or could cause system damage, demonstrate and verify safety characteristics in design and procedures by laboratory tests, functional mock-ups, or failure simulation. Use induced or simulated failures to demonstrate an acceptable degree of safety for the failure modes identified as critical (unacceptable and undesirable risk) by the Vendor's safety analyses. Acceptable safety shall be as defined by the Risk Assessment Matrix and Acceptance Criteria.
- D. Verify, by analytical means, failure modes identified during analyses that were resolved by rationale or operating/emergency procedures.
- E. Include specific safety test and verification as part of other tests for Locomotive systems, subsystems, assemblies and interfaces, to the extent covered under Vendor's scope in these contract documents for the CFCRT Project.
- F. The detailed test plans for all tests will be reviewed to insure that:
 - 1. Safety is adequately demonstrated.
 - 2. Testing will be Carried out in a safe manner.
 - 3. Any additional hazard introduced by testing procedures, instrumentation, and test hardware is properly identified and minimized.
- G. Compile all safety test and verification data on simulation and safety testing into a specific section of the overall testing report specified in other sections of testing requirements and reporting in these documents. Include the results of failure documentation. Maintain documentation throughout

SunRail Remanufactured Locomotive Vehicle Design Criteria

the program as evidence of proper safety in system design, installation, and operation.

- H. Implement the provisions of the safety test and verification plan throughout other testing specified in these documents. Perform the tests in accordance other sections of these documents in an environment which simulates operation.

34.10 System Security Analyses

- A. The Department will create the Plan and be responsible for its content. The Vendor will supply any existing documentation consistent with that provided to Northstar in support of the Department's Plan. Anything beyond existing documentation will be change order at an additional cost to the Department.
 - 1. General: The Vendor shall perform a security Threat and Vulnerability Analysis (TVA) for the Locomotive system element and subsystems within the Vendor's scope of work, and their interfaces within the CFRC system. The TVA will be conducted early in the final design phase to identify security threats and vulnerabilities (weaknesses) in the Locomotive System elements and subsystems, assess their risk as a function of severity and probability of occurrence, and apply Department-approved risk acceptance criteria for security risk mitigation and resolution. The TVA shall be conducted in general accordance with the Federal Transit Administration (FTA) "Public Transportation System Security and Emergency Preparedness Planning Guide" (2003), Figure 15, except as modified herein. The TVA will be updated by the Vendor during the Construction/ Testing phase of the Locomotive.
 - 2. Categorization of severity, probability and risk acceptance of security threats and vulnerabilities: The severity of a security hazard and the magnitude of the impact should a threat successfully exploit the vulnerability are rated in terms of their effects on people or property, similarly to safety hazard severity. The ease of a given threat to exploit a given vulnerability provides the probability of occurrence. The combination of severity and probability ratings results in a risk rating (risk index) for a security hazard. Severity Categories I through IV used to categorize safety hazard severity (consequences) in safety analyses, shall be used for Severity categorization in TVA. The Probability ratings A through E used for safety hazard probabilities will be qualitatively used to rank the likelihood of a security hazard. Table A- Hazard Risk Assessment Matrix and Acceptance Criteria shall be used in TVA

SunRail Remanufactured Locomotive Vehicle Design Criteria

to provide a Department- approved measure for acceptance of risk and security risk resolution.

3. The Vendor shall maintain a compilation of security critical items identified during the TVA, titled a “security critical items list” (SCIL). The SCIL shall be maintained and updated by the Vendor throughout the duration of the contract. Security critical items shall consist of hazards with Unacceptable and Undesirable risk. The format of the SCIL shall be approved by the Department. Document for approval any rationale in lieu of corrective action. Conduct a special review of unresolved critical items on the SCIL with the Department.

34.11 Safety And Security Certification Plan

- A. The Vendor shall develop and implement a Safety and Security Certification Plan in accordance with the Federal Transit Administration (FTA) Handbook for Transit Safety and Security Certification (2002). The Safety and Security Certification process shall include, among others, the development and verification of implementation of safety and security related requirements compiled in safety certification requirement checklists for certifiable items of the Car vehicle as specified in this project at the following project phases, as follows:
 1. Criteria Conformance Checklists, for the Vendor’s final design phase of the project. This checklist shall verify that the Vendor has incorporated into its final design all applicable locomotive safety and security related design criteria and code requirements, standards and regulatory requirements mandated at the Federal, State and local level, including but not limited to Federal Railroad Administration (FRA) regulations and standards, national standards such as the National Fire Protection Association (NFPA), ASTM, APTA/ PRESS standards, EPA regulations, Underwriters Laboratory (UL) listing requirements, as referenced in this Contract Design Criteria.
 2. Specifications Conformance Checklists, for the Vendor’s project phases of construction, manufacture, installation, testing, commissioning, leading to use of the equipment in revenue service. The specifications conformance checklist shall document and verify that all safety and security related requirements in the contract documents have been met by the Vendor. The following program requirements shall also be included in the Specification Conformance Checklist:

SunRail Remanufactured Locomotive Vehicle Design Criteria

- a. Safety Analysis and resolution of Safety Critical Items List (SCIL).
 - b. Threat and Vulnerability Analysis (TVA) and resolution of Security Critical Items List (SCIL) - The Department will perform the analysis and be responsible for its content. The Vendor will supply any existing documentation consistent with that provided to Northstar in support of the Department's analysis. Anything beyond existing documentation will be a change order at an additional cost to the Department.
 - c. Traceability Matrices showing how design criteria and Vehicle Criteria requirements were met by the Vendor and sub-vendors through design, analysis, construction, manufacture, installation and testing.
 - d. Testing requirements addressing factory, acceptance, field, static, commissioning, dynamic, systemwide, integration and pre-revenue testing.
 - e. Training
 - f. Procedure Development.
- B. The Vendor shall develop and submit to the Department a Certifiable Items List (CIL) consisting of the safety certification requirements compiled at the Certifiable Element, sub-element and items. The CIL shall be based on locomotive system elements and sub elements encompassing safety (and security) related systems, subsystems, assemblies and interfaces, to the extent covered under Vendor's scope in the Locomotive contract documents.
- C. Early during the Vendor's final design phase of the Locomotive, and in accordance with the Vendor's Safety and Security Certification Plan, the Vendor shall submit to the Department the initial Safety Certification requirement checklists of Criteria Conformance Checklist, encompassing and addressing the Certifiable Items List (CIL). The CIL shall consist of safety and security related system elements and subsystems on each locomotive under the scope of this contract. This checklist, in the Department- approved format, shall be used by the Vendor to certify the Vendor has incorporated into its final design all applicable locomotive safety and security related design criteria and code requirements, standards and regulatory requirements mandated at the Federal, State and local level, including but not limited to Federal Railroad Administration (FRA) regulations and standards, national standards such as the National Fire Protection Association (NFPA), ASTM, APTA/ PRESS standards, EPA

SunRail Remanufactured Locomotive Vehicle Design Criteria

regulations, Underwriters Laboratory (UL) listing requirements, as referenced in this Contract Design Criteria.

- D. Early during the Vendor's Construction phase of the locomotive, and in accordance with the Vendor's Safety and Security Certification Plan, the Vendor shall submit to the Department the initial Safety and Security Certification requirement checklists of Specification Conformance Checklist, encompassing and addressing the Certifiable Items List (CIL).
- E. Prior to revenue service and/or prior to any incremental commissioning of new locomotives for revenue service, and in accordance with the Vendor's Safety Certification Program Plan, the Vendor shall submit to the Department the completed, signed and verified Safety Certification Checklists, consisting of Criteria Conformance Checklists and Specifications Conformance Checklists for the Certifiable Items List (CIL) for each locomotive. Included among the signed checklists and certifiable items shall be verification of successful completion of:
 - 1. Safety Analysis and resolution of Safety Critical Items List (SCIL).
 - 2. Threat and Vulnerability Analysis (TVA) and resolution of Security Critical Items List (SCIL) - The Department will perform the analysis and be responsible for its content. The Vendor will supply any existing documentation consistent with that provided to Northstar in support of the Department's analysis. Anything beyond existing documentation will be a change order at an additional cost to the Department.
 - 3. Traceability Matrices showing how design criteria and Vehicle Criteria requirements were met by the Vendor and sub-vendors through design, analysis, construction, manufacture, installation and testing.
 - 4. Testing requirements addressing factory, acceptance, field, static, commissioning, dynamic, systemwide, integration and pre-revenue tests.
 - 5. Training.
 - 6. Procedure Development.
- F. The safety certification checklists signed by the Vendor shall be supported by documented evidence of Vendor's traceability matrices showing contractor has implemented the design criteria, contract documents and Locomotive Criteria requirements and complied with all safety and security related requirements in design, analysis, testing and verification, for each safety and security related Certifiable Item on the checklists. The

SunRail Remanufactured Locomotive Vehicle Design Criteria

Vendor shall also produce signed Certificates of Compliance (COC) as required by the Safety Certification Plan. The Safety Certification shall ensure all Car vehicle systems, subsystems and assemblies, hardware and software, covered under this Contract for each vehicle have been designed, fabricated, installed and tested in accordance with all applicable codes, criteria, contract documents and are safe for revenue service.

- G. The Criteria Conformance Checklists, and Specifications Conformance Checklists and all Certificates of Compliance prepared by the Vendor shall be signed and dated by the Vendor's Representative to certify the requirements have been successfully met and compliance verified.
- H. The Vendor may be requested by the Department to submit, from time to time, completed, verified and signed safety (and security) certification checklists of Certifiable Items Lists (CILs) and "Certificates of Compliance" prepared by the Department for the Vendor's signature, in support of the Safety and Security Certification Program.

34.12 Required Submittals

- A. Reliability Demonstration Program
- B. Maintenance Plan
- C. Fire Safety Analysis for Procuring New Passenger Equipment
- D. Hardware and Software Safety Program
- E. Transportation Regulations Compliance Report
- F. System Safety Program Plan - The Department will create the Plan and be responsible for its content. The Vendor will supply any existing documentation consistent with that provided to Northstar in support of the Department's Plan creation. Anything beyond existing documentation will be a change order at an additional cost to the Department.
- G. Preliminary Hazard Analysis - The Department will perform the analysis and be responsible for its content. The Vendor will supply any existing documentation consistent with that provided to Northstar in support of the Department's analysis. Anything beyond existing documentation will be a change order at an additional cost to the Department.
- H. Failure Modes, Effects and Criticality Analysis - The Department will perform the analysis and be responsible for its content. The Vendor will supply any existing documentation consistent with that provided to Northstar in support of the Department's analysis. Anything beyond

SunRail Remanufactured Locomotive Vehicle Design Criteria

existing documentation will be a change order at an additional cost to the Department.

- I. Software Failure Modes and Effects Analysis
- J. Quantitative analyses such as fault tree or logic network
- K. Operating Hazard Analysis - The Department will perform the analysis and be responsible for its content. The Vendor will supply any existing documentation consistent with that provided to Northstar in support of the Department's analysis. Anything beyond existing documentation will be a change order at an additional cost to the Department.
- L. Collision and Derailment Hazard Analysis - The Department will perform the analysis and be responsible for its content. The Vendor will supply any existing documentation consistent with that provided to Northstar in support of the Department's analysis. Anything beyond existing documentation will be a change order at an additional cost to the Department.
- M. Safety Critical Items List - The Department will create the list and be responsible for its content. The Vendor will supply any existing documentation consistent with that provided to Northstar in support of the Department's list. Anything beyond existing documentation will be a change order at an additional cost to the Department.
- N. Safety Test Plan - The Department will create the Plan and be responsible for its content. The Vendor will supply any existing documentation consistent with that provided to Northstar in support of the Department's Plan creation. Anything beyond existing documentation will be a change order at an additional cost to the Department.
- O. Overall testing report of system safety test results. Include test data, test log summaries, and corrective action recommendations. This report shall be submitted prior to the first locomotive acceptance - The Department will create the report and be responsible for its content. The Vendor will supply any existing documentation consistent with that provided to Northstar in support of the Department's report. Anything beyond existing documentation will be a change order at an additional cost to the Department.
- P. Security Threat and Vulnerability Analysis - The Department will perform the analysis and be responsible for its content. The Vendor will supply any existing documentation consistent with that provided to Northstar in support of the Department's analysis. Anything beyond existing documentation will be a change order at an additional cost to the

SunRail Remanufactured Locomotive Vehicle Design Criteria

Department.

- Q. Security Critical Items List - The Department will create the list and be responsible for its content. The Vendor will supply any existing documentation consistent with that provided to Northstar in support of the Department's list. Anything beyond existing documentation will be a change order at an additional cost to the Department.
- R. Safety and Security Certification Plan encompassing each locomotive covered under the scope of this contract.
- S. Completed and signed safety and security certification checklists and applicable Certificates of Compliance for all certifiable items list (CIL), verifying completion of design, construction and testing of safety- and security-related Locomotive system elements and subsystems, assemblies, software and hardware and all documentation for locomotives, in accordance with the scope of this contract.

35 RELIABILITY

35.1 General:

35.1.1 Systems, Reliability

- A. Locomotive systems, subsystems, assemblies, subassemblies, components and parts (products) shall be selected to ensure optimum reliability, through application of the following criteria:
- B. Use of products that are "service proven" in railway applications and suitable for use in commuter rail applications.
- C. Use of the simplest possible product to perform the desired functions as determined by Contractor's standard design process.
- D. Consideration of appropriate service and safety factors during design and manufacturing as determined by Contractor's standard design process.
- E. Products shall utilize vandal-resistant design features and materials, to the extent defined in the specification, or where possible.
- F. Products shall be designed and installed in a manner which facilitates replacement, service and repair.
- G. Products shall be designed and installed in a manner which will not require routine maintenance at intervals of less than 92 days. The Contractor shall identify in the draft O&M Manuals submissions and

SunRail Remanufactured Locomotive Vehicle Design Criteria

submit a separate list of any components requiring regular scheduled maintenance more frequently than 92 days.

- H. Products shall be standard products wherever possible, when available, and where feasible. the Department or its designee will reasonably accept the use of other than standard products when required by the specification, design or requirements.
- I. Products shall be fully interchangeable among all locomotives in the production lot, without requiring mechanical or electrical modifications except for modifications, engineering changes, deviations, etc. documented in the Car **History book**.

35.2 Contractor Reliability Plan

Contractor must recognize that reliability of the remanufactured locomotives is of great value and ongoing benefit to CFCRT. Thorough consideration for reliability through all phases of Contractor's design, manufacturing, service and support activities will be exercised. To assure that remanufactured locomotives will reliably provide the intended service within the operational environment of Central Florida, Contractor will submit a Reliability Plan to Central Florida for review describing fundamental reliability processes including: Failure Reporting and Corrective Action System (FRACAS) program, Failure Review Board (FRB), Corrective/Preventative Action Reporting (C/PAR) System and Field/Factory Modification Instructions (FMIs).

The Reliability Plan shall include Mean Distance Between Failures (MDBF) for the locomotive, the prime mover and the head power system. It will include MDBF history or analysis for:

- Locomotive complete
- Prime Mover – Diesel Engine complete and the following LRUs; Turbo Charger, Power Assemblies Starter Motors, governor, radiators, cooling fans, dynamic brake grid cooling fans, water pump, fuel pump and turbo lube pump
- Head End Power – Diesel Engine complete and the following LRUs; Turbo Charger, Starter Motors, alternator, power contactors, fuel pump, radiator and water pumps.
- Rotating equipment, alternator, companion alternator, air compressor, traction motors.
- Other; brake system, traction control system, power contactors, event recorder and alerter.

The Plan will draw conclusions as to the expected reliability of this remanufactured

SunRail Remanufactured Locomotive Vehicle Design Criteria

locomotive. This information is being provided by Vendor as historical data to help in the proper maintenance of the equipment and to achieve the highest reliability possible, but is not intended as a guarantee of performance reliability.

Required Submittals

The contractor shall submit the Reliability Plan for Department Review and Approval.”

35.3 Locomotive Reliability and Availability:

- A. The Contractor shall provide an analysis MDBF, assuming 50,000 miles of revenue operation per year, based on use averaging 250 miles per day.
- B. Documentation or reliability analysis when available, will be provided to the Department or its representative, to support the demonstration of reliability.
- C. Years of service, type of service, configuration and list of railroads, for products submitted as "service proven".

36 SOFTWARE

36.1 General:

- A. All computer hardware and software to be provided under this Contract, whether resident within a microprocessor-controlled intelligent subsystem, provided as part of test or interface equipment, provided for the purpose of post-download data analysis and processing, or incorporated within training technology, is subject to general process of Contractor's software development or the requirements provided in this Section. The Contractor may submit compliance documents, for review and approval, previously accepted by other agencies as equivalent compliance with these requirements.

36.1.1 Hardware and software requirements

- A. Hardware and software requirements depend on the degree to which the hardware and/or software is custom designed for or applied to this project.
- B. "Commercially available" hardware or software shall be readily available in the US through retail and wholesale sources.
- C. "Non-commercially available" hardware or software shall be developed or modified according to Contractor's software development process or the requirements in this Section.

SunRail Remanufactured Locomotive Vehicle Design Criteria

36.1.2 Industry Standards

- A. All references to industry standards shall be taken to refer to the latest editions at the time of NTP.

36.1.3 Software and Hardware Safety Plan

- A. The Contractor will develop a Software and Hardware Safety Plan in compliance "Train electronic hardware and software safety:" Plan per 49CFR238.105 and submit to the Department for review and approval.

36.2 Supplier Qualifications:

36.2.1 Software Development Process

- A. The Contractor, as systems and software integrator, and suppliers who are providing processor-based products shall have a mature software development process.
- B. The suppliers' software development process, including proprietary or internal procedures, shall be available for inspection by the Department or its designee during any regularly scheduled site visit, such as QA audits, Design Reviews, FAI's or routine hardware inspections. The Contractor may submit compliance documents, for review and approval, previously accepted by other agencies as equivalent compliance with these requirements.

36.3 Design Process:

36.3.1 Software Quality Assurance Plan

- A. The Contractor shall utilize a Software Quality Assurance Plan in accordance with Contractor's standards and Quality Assurance plan. . The plan shall describe a mechanism for orderly software development. The design process and documentation shall be fully integrated with the corresponding hardware process. The Contractor may submit compliance documents, for review and approval, previously accepted by other agencies as equivalent compliance with these requirements.
- B. Software shall be reviewed as an integral part of each design review for any system which utilizes software. The correlation between design reviews and software submittals shall be as shown in the table below.
- C. Software QA shall be part of all applicable QA audits or inspections. Software revision control shall be treated the same way as drawing revision control.

SunRail Remanufactured Locomotive Vehicle Design Criteria

- D. Software validation (testing) shall be part of the total project testing process. Test procedures, testing and test reports shall be subject to the review, witnessing and documentation process required in Section 601. Software testing shall be a prerequisite to higher level testing, such as system level and vehicle level tests.
- E. In addition to the requirements of this section, any software, firmware, processing device or computer providing a safety critical function shall comply with the requirements of Section 205 A.2.
 - 1. Review Type Software Related Documentation
 - 2. Concept Review:
 - 3. Software QA Plan
 - 4. Software Configuration Management Plan (SCMP)
 - 5. Preliminary System Functional Description
 - 6. Preliminary Software Requirements Specification (SRS)
 - 7. Identification of languages, compilers, CASE tools and operating systems to be used Preliminary Design
 - 8. System Functional Description Review:
 - 9. Software Requirements Specification (SRS)
 - 10. Preliminary Software Design Description (SDD)
 - 11. Preliminary Production Test Plan
 - 12. Critical Design Review:
 - 13. Updated System Functional Description
 - 14. Updated Software Requirements Specification (SRS)
 - 15. Software Design Description (SDD)
 - 16. Final Production Test Plan Test Procedures & Testing:
 - 17. Software Verification & Validation Plan (SVVP)

36.4 Software Systems Functions and Features:

- A. The Contractor may submit compliance documents, for review and approval, previously accepted by other agencies as equivalent compliance with these requirements.

36.4.1 Hardware Platform:

- A. Carborne and custom computer hardware shall be designed and constructed in accordance with the general electronic design principles of Section 504.
- B. Any computers, whether portable or not, and any generally available microprocessor hardware shall be readily available through retail and / or wholesale outlets in the U.S. for 15 years or as generally available. Locomotive specific microprocessor shall be available from the Contractor.

SunRail Remanufactured Locomotive Vehicle Design Criteria

- C. If they are not available for 15 years, they shall be supported with replacement parts or be capable of being replaced with Form/Fit/Function compatible direct replacements. The hardware, software, data repository and firmware delivered or developed under the this Contract shall be able to process data (including, but not limited to, calculating, comparing, and sequencing) from, into, and between centuries, including leap year calculations. This includes, but is not limited to, the year 2000. The date data processing shall not experience abnormal ending and/or invalid or incorrect results from the hardware, software, data repository or firmware in operation of the business of the Department or its designee. Each hardware, software, data repository or firmware's date data interface shall support a four-digit year format.
- D. The microprocessor-based systems shall be based on an established family of microprocessors in wide use in the control system industry and the rail industry. They shall be supported by a full range of software development languages and diagnostic programs similar to that available for the Intel 80XXX and Motorola 68XXX family of devices.
- E. If on the locomotive, the computer shall be powered by dedicated transformer-isolated power supplies driven from the Low Voltage Supply or Contractor's circuit configuration based on the system requirements.
- F. All processor system requiring that input and output signals be isolated shall be through isolation buffers. High voltage inputs and outputs shall be isolated internal or external to the microcomputer card rack. Low voltage (battery and logic voltage level) inputs and outputs shall be isolated internal or via buffer cards in or external to the microcomputer card rack. The isolation buffers shall accomplish the following:
 - 1. Protect and isolate the system from damage due to over-voltage, under-voltage, transients, shorts, and open circuits.
 - 2. Perform necessary voltage translations.
 - 3. Remove noise and undesired signals.
 - 4. Pre-processing shall limit, discriminate and format those signals that would otherwise require excessive processor time.
 - 5. Isolation buffers shall consist of optical isolators, transformer isolators, and other circuits appropriate to the application.
 - 6. Program code and fixed data shall be stored in the most appropriate form of PROM.
 - 7. Any EPROM windows shall be covered with labels that are opaque at the UV erasing wavelengths.

SunRail Remanufactured Locomotive Vehicle Design Criteria

8. Flash PROM circuitry shall be configured so that reprogramming can be disabled via a semi-permanent hardware mechanism. Use of an extender board for programming is an example of an acceptable solution.
9. To minimize the number of individual batteries that will need to be maintained, the use of battery backup shall be limited to the extent practical, and shall be subject to the Department approval. Where permitted, backup or standby batteries shall meet the following requirements:
 - a. Rechargeable batteries are not preferred, and shall be used only with approval. They shall be sized to retain data for at least six months without charging, and shall be located such that leakage cannot damage any system components.
 - b. Battery life shall be no less than five years, regardless of type.
 - c. Systems using standby or backup batteries shall annunciate, where possible the need for battery replacement such that the battery continues to perform its function until it can be replaced at the next periodic maintenance. "Low battery" condition shall be provided where possible, to the System and Vehicle Level Diagnostic Systems (See Section 417 A.2 and 3).
 - d. Batteries shall not be connected by soldering.
 - e. Necessary RAM control data shall not depend on battery back-up, but shall be stored in non-volatile memory and "shadowed" to RAM for use.
10. The hardware shall be designed to allow program expansion without hardware modification. Expandability and capacity requirements are as follows:
 - a. The memory needs of the installed software shall not utilize more than 50% of the installed memory capacity at Critical Design Review, or shall be based on standard applications or be service proven. This requirement applies individually to each type of memory installed, whether it be EPROM, EEPROM, Flash PROM, RAM, or other type.
 - b. Peak processing time demands shall not be greater than 50% of the available processor capacity, except as indicated below. The Contractor may petition for relief from the 50% requirement, based on product maturity and

SunRail Remanufactured Locomotive Vehicle Design Criteria

the absence of potential for expansion or modification. Only existing, service proven designs may use more than 75% of the peak processor capacity.

- c. Simple singular functions performed by dedicated embedded processors may utilize up to 75% of the available processor capacity and do not have to provide spare I/O capability.
- d. The hardware shall include spare input and output channels of each type used within the system, except for major output drivers where the quantity is fixed by the overall system design (e.g., traction motor semi-conductors and sign character drivers). In addition, the architecture and assembly construction shall allow for the installation of additional I/O hardware.

36.4.2 Operating Systems, Languages and Compilers:

- A. The Contractor may submit compliance documents, for review and approval, previously accepted by other agencies as equivalent compliance with these requirements.
- B. Software may be written in a high or low level language; however, high-level languages such as C/C++, Pascal, etc., are preferred. The language, and its implementation for the selected microprocessor system, shall be commercially available in English.
- C. All languages and operating systems must have an acceptable customer base (widespread use), and be approved by the Department or its representative. All operating systems, including those of PIUs and other test equipment, shall be able to communicate in a common language.
- D. Compilers shall be commercially available. Proprietary compilers shall not be used.
- E. Use of specific Contractor's tools for software generation will be evaluated; these tools and associated licenses fees must be provided to the Department.

36.4.3 General Features:

- A. The Contractor may submit compliance documents, for review and approval, previously accepted by other agencies as equivalent compliance with these requirements.
- B. Software shall perform the following basic functions:

SunRail Remanufactured Locomotive Vehicle Design Criteria

- C. Implement the desired control scheme such that the specified performance is achieved.
- D. Monitor all inputs for unsafe, erroneous, or unknown conditions or combinations of conditions.
- E. Sample all input conditions at rates sufficient to detect and remedy all unsafe or damaging conditions in the shortest possible time. Sampling rates and program execution times shall be such that the control system is not the limiting factor in response to unsafe or damaging conditions. All software shall be designed to insure that the timing requirements for safety-related tasks are always met.
- F. Limit all output commands to safe levels regardless of any combination of input conditions.
- G. Perform self-diagnostic routines and respond promptly, safely, and predictably to detected faults. The self diagnostics shall include tests for program corruption and integrity in read/write memories such as EEPROM and flash PROM.
- H. Respond safely and predictably when powering up or recovering from power interruptions. All power interruptions likely to have corrupted temporary storage shall be detected and cause the system to re-initialize all affected routines and temporary data. Detection of power interruptions may be by hardware.
- I. Permit thorough interrogation of all input, output, and internal conditions by internal, system level, vehicle level and external diagnostic equipment, per Section 417.
- J. Software version numbers shall be included within the firmware code and shall be accessible to the System and Vehicle Level Diagnostic Systems or through PIU interfaces on the microprocessors systems.
- K. Multi-chip programs must self-test during initialization to assure that the correct complement of chips is installed.
- L. Processor system parameters shall be temporarily adjustable during commissioning via PTU. Changes in the software will be later implemented by software changes. During design review, appropriate parameters shall be suggested by suppliers for approval by the Department or its representative.

36.4.4 Testability:

SunRail Remanufactured Locomotive Vehicle Design Criteria

- A. All features and functions of software systems shall be testable on a systems level in the field, using portable test equipment and procedures provided under this contract. Specific approval by the Department or its representative is required for any feature which is not testable on a systems level.
- B. For features which are only testable off the car with special equipment, all such equipment shall be supplied by the Contractor as test equipment (per Section 417.A.6), and become the property of the Department or its designee. This equipment shall provide the logic, sequencing, and emulation necessary to verify that the software functions as intended. In lieu of separate equipment, appropriate test functions may be provided within the PIU.
- C. Type tests of all processor systems shall verify the proper operation of all software features, including diagnostics. Such testing shall be performed any time the software is changed prior to putting it into service.

36.5 Software Documentation:

- A. The Contractor may submit compliance documents, for review and approval, previously accepted by other agencies as equivalent compliance with these requirements.

36.5.1 General:

- A. The Contractor shall define a single software documentation methodology for the project and require all subcontractors to comply with it. The methodology shall be submitted for the Department or its representative's information. If Computer Aided Software Engineering (CASE) tools are used which automatically generate documentation, they shall be consistent with the Contractor's documentation methodology. The Contractor shall provide descriptions to enable the Department's design reviewers to understand the documentation methodology.
- B. Software documentation training for specialized CASE tools shall be included within the formal Training Program (see Section Training below in).
- C. Documentation for non-commercially available software shall be divided into two categories, as follows:
 - 1. Category A: Application-specific software, developed or adapted specifically for this Contract, and
 - 2. Category B: Application-independent software, that is, fixed system software that is used in multiple applications (e.g.,

SunRail Remanufactured Locomotive Vehicle Design Criteria

operating systems), or software that is encapsulated in a replaceable component (e.g., intelligent power modules).

3. Documentation for software in Category A shall meet all requirements of this Specification. Documentation for software in Category B may be exempt from certain Specification requirements, as approved by the Department.
4. Classification of software as Category A or B shall be subject to the Department review. In any case, Category B software must be of an existing, service-proven design. Newly developed software or new SCI (Software Configuration Item) of the kernel software that is intended for use on other applications as well shall be considered as Category A regardless of the Supplier's intended use of the software in the future.
5. The placing of software design documentation details, such as proprietary source code or compilers, in an escrow account, in lieu of submittal to the Department or its designee, shall be permitted, provided that sufficient software information is provided (submitted and/or shown to an approved reviewer) to enable the Department or its designee to determine completeness of submittal.
6. The Contractor shall conduct a software escrow verification test for all escrowed software. These tests, at a minimum, shall verify that all software and developmental tools have been escrowed to compile, link, or otherwise generate the firmware, object code, P-Code, executable code, or whatever is required to run on the vehicle system or portable test equipment or other software-based system supplied by the Contractor or its subcontractors.
7. The escrowed software design, documentation details, source code, etc., shall be made available to the Department or its designee for its own use for any of the below listed reasons:
 - a. If the Contractor or its subsupplier is no longer in business, or no longer supports the product and has not transferred the rights to the design to another entity.
 - b. If, based on an independent third party assessment, the Contractor or its subsupplier no longer supports the product at a reasonable cost.

36.5.2 Software Not Commercially Available:

- A. The Contractor shall provide its Software Quality Assurance Plan.

SunRail Remanufactured Locomotive Vehicle Design Criteria

- B. After original submittal, changes to the software shall be formally submitted for approval by the Department or its designee, prior to implementation. The software documentation shall be revised concurrently with software changes.

36.5.3 Commercially-Available Software:

- A. Some software supplied under this procurement may be commercially available to a wide variety of users. Examples include operating systems supplied by chip manufacturers and data base software for wayside fault analysis. The Contractor shall submit a list of employed software which is commercially available to the general public and provide any configuration programs needed to make equipment function as specified for this contract.
- B. The Department or its designee shall determine which software will be classified as commercially available.
- C. For commercially available software, software documentation requirements are limited to the following:
 - 1. The original data storage/transfer media (CD-ROM), functional and usage details.
 - 2. All provider manuals.
 - 3. All licenses required for the Department or its designee's use.
- D. The Contractor shall incorporate training on how the software is to be used in the specific situation for which it was provided, as part of the Training Program described in Section 25 - Training.

36.5.4 Configuration Control:

- A. The Contractor shall develop a configuration control plan for tracking software changes, including configuration files, on locomotives on the Department or designee property until acceptance of the entire fleet and completion of the warranty period. This plan shall be submitted for approval by the Department or its representative, and may be incorporated in the Contractor's SCMP. It shall be consistent with the Contractor's approach to configuration control of hardware and require similar approvals and tests.
- B. All software and configuration files shall be identified by a name and a unique version number and date. The name shall identify the equipment into which the software is installed. Every change to software shall be reflected in an update to the version number and date.

36.6 Portable Test Unit (PTUs) and Bench Testers:

- A. For custom software that is resident in test computers, the Department or its designee shall be given a license for use of the software for the approved purposes of this Contract. Licenses shall not be linked to specific hardware serial numbers. In addition, portable interface equipment software documentation, compliant with Section 506 A.5., shall be furnished. The Contractor may submit compliance documents, for review and approval, previously accepted by other agencies as equivalent compliance with these requirements.
- B. All software for PIUs shall be Microsoft Windows-based utilizing, if feasible the latest version available at the time of initial use in service.
- C. Bench Testers
- D. Bench Test Devices shall be provided for Brakes (Single Car Tester) and Event Recorder (Bach Simpson Bench Tester)
- E. The Vendor shall provide licensed software for each of the subsystems on a CD format for the Department to load on additional PTUs, if a PTU must be replaced.
- F. PTUs (Portable Test Units). Two portable test units (PTUs) shall be supplied to the Department [CDRL]. PTUs shall be notebook computers configured to interface with the on-board systems listed below and loaded with all necessary software to provide the functionality required by this Section (Panasonic Laptop Computer & Accessories). Three identical units shall be supplied, including all necessary interface cables.
- G. The software to be loaded in each PTU is as follows;
 - 1. Download Software for Cameras and Audio Recordings on DVR.
 - 2. Download and Analysis software for the Event Recorder System,
 - 3. Download and Analysis for Electrical System Control Troubleshooting – Propulsion (QUADS).
 - 4. Download and Analysis software for the HEP System (CAT Electronic Technician x 1. Annual subscription not included).
 - 5. The Vendor shall provide licensed software for each of the subsystems on a CD format for the Department to load on additional PTUs, if a PTU must be replaced.

36.7 Deliverables:

SunRail Remanufactured Locomotive Vehicle Design Criteria

36.7.1 Software embedded or on CD-ROM.

36.7.2 Software Escrow Agreement

- A. A Software and Source code agreement will be executed between the Department, and the Vendor for all relevant software and source code.

36.7.3 Software and Hardware Safety Plan in compliance "Train electronic hardware and software safety:" Plan per 49CFR238.105

- A. The Contractor may submit compliance documents, previously accepted by other agencies to meet these requirements, for the review and approval by the Department.

36.8 Tests and Inspections:

36.8.1 Software testing as performed by Contractor.

36.8.2 Software escrow verification test

- A. The Contractor may submit compliance documents, previously accepted by other agencies to meet these requirements, for the review and approval by the Department.

37 (Locomotive) VIDEO SURVEILLANCE SYSTEM

37.1 General

- A. A digital video surveillance system shall be installed in each cab. . Details of the entire system including Engineering, drawings, software function, performance, all the components and the installation shall be reviewed and approved by the Department.
 - 1. The system shall consist of a Digital Video Recorder (DVR), two color cameras, a removable media hard disk, camera weather proof enclosures, all necessary connection and power cables, an enclosure for the DVR, and exterior microphone to record horn, bell and other sounds in front of the cab, and any necessary heating and cooling elements required for the system to operate in the - 20°F to 120°F temperature range.
 - 2. An exterior microphone shall be located under the cab floor. It shall be installed in a weatherproof enclosure and be able to record exterior sounds such as bell, horn and other sounds in front of the cab.

SunRail Remanufactured Locomotive Vehicle Design Criteria

3. An interior microphone shall be supplied in the cab area to record communications from the cab. The interior microphone can be integrated to one of the cab cameras
- B. Any additional equipment such as computer interface cables, and software required for interfacing with the video surveillance system shall be furnished.
- C. The system shall be powered from the car's low voltage 64VDC system through a circuit breaker located in the electric locker. The system on all cars shall be activated (start and stop recording) by a means approved by the Department.

37.2 Cameras

- A. There shall be two forward facing color cameras to provide the forward view from the operator's position. And one camera to observe the operator. The cameras shall use the NTSC color system.
- B. The selected cameras shall provide capture quality that permits the signal aspect colors to be seen and discerned for all weather conditions. The cameras shall be NTCIP compliant and Mpeg 4. Video samples showing camera performance will be submitted for approval by the Department.
- C. The performance characteristics of the cameras including their resolution, adjustments, color saturation (dawn and dusk), temperature tolerance, and size shall be presented for approval by the Department.
- D. The cameras shall be positioned on either the interior or exterior of the coach so as to show station platforms, signals and track close to the front end of the train, without blind spots. A camera locations and coverage plan shall be submitted to the Authority for approval.
- E. Each camera shall be pre-configured for its particular location. The settings for the cameras shall be determined by installation in the first cab.
- F. There shall be covers over the cameras to protect them from vandalism including spray paint and hammer impacts.
- G. The cameras shall be powered by the DVR unit and they shall be plug connected to permit quick changing of units. The connections shall be secured to prevent loosening by vibration.
- H. The camera mounting, adjustment and wiring shall be inaccessible when the camera is installed. All fastenings used in the camera installation, which are accessible from the interior of the cab, shall be tamperproof type reviewed by the Department.

37.3 Digital Video Recorder (DVR)

- A. The digital video recorder shall be a separate unit and it shall be key-locked, inside a key-locked steel enclosure. All of the DVR locks shall use the same key. The DVR shall be shock-mounted and shall be located inside the electrical locker. The recorder shall be shock mounted to be able to withstand and continue recording when subjected to at least 5g shocks on any axis.
- B. The DVR shall able to power eight cameras, and shall be equipped with a minimum of eight camera video connections. The DVR shall have four additional camera-independent inputs for audio inputs. The DVR shall connections to permit external monitor connection for real time video playback.
- C. The DVR shall have a network connection means to an external computer. The network connection shall allow the DVR to directly communicate with a Windows-based computer, through supplied software, for either face-to-face or through a network for remote communications. The computer connection cable shall be stored in the DVR enclosure.
- D. The DVR shall be capable of recording up to eight camera inputs at 15 frames per second, with each input at 720 x 480 resolution. The DVR shall be capable of running for 24 hours a day/7 days a week without stopping.
- E. The recording shall be done on a removable media hard disk drive that will be used for video storage only. The media hard disk shall have sufficient capacity to store a minimum of one week of continuous recording from two cameras on a car, recorded at a resolution of 720 x 480, at a minimum frame rate of 15 frames per second per camera, before overwriting occurs. The DVR shall be capable of holding larger hard disks to permit future upgrades of the system capacity.
- F. The hard disk drive shall be held inside a ruggedized enclosure designed to protect the hard disk drive from the shock and vibration of a rail car without damage or loss of image. The enclosure shall be directly inserted into the DVR. The hard disk drive shall never be removed from their enclosures and each assembly shall be fully interchangeable with all other hard disk drive/enclosure assemblies.
- G. The hard disk drive shall be able to be read at a remote location, without a DVR, via provided software and a converter cable that converts the hard disk signal to a standard input signal. The required converter cables will be supplied.
- H. The recording shall be date and time stamped along with the camera number and car number. Date and time stamp shall be coordinated with

SunRail Remanufactured Locomotive Vehicle Design Criteria

GPS data supplied as part of the DVR system, and coordinated with the Event Recorder.

- I. The recorder must operate in the -20°F to 120°F temperature range. If the recorder is temperature sensitive, the Vendor shall install heaters and blowers to ensure that the unit will operate as soon as the car is turned on with no more than one (1) minute delay. If heaters are used they shall be equipped with a thermostat to turn off the heater when the minimum DVR operating temperature has been reached.
 - 1. The DVR shall record external audio of the two forward facing cameras cab mounted cameras. An exterior microphone shall be located under the cab floor. It shall be installed in a weatherproof enclosure and be able to record exterior sounds such as bell, horn and other sounds in front of the cab.
 - 2. An interior microphone shall be supplied in the cab area to record communications from the cab. The interior microphone can be integrated to one of the cab camera.
- J. Compatible with the existing SunGuide software Multicast.
- K. IP to an access point (OOC or RTMC) one of the two forward facing cameras and on in cab camera facing the Driver. The Contractor shall provide all necessary equipment to transmit to on central control facility.

37.4 Software

- A. The Video Surveillance System shall come with two types of software for external computer interface. One type of software shall be used for administration of the DVR and the other for reviewing or downloading video from the hard disk drives. At a minimum, the two types of software shall allow the following features to be available. The Vendor shall submit a detailed description of each type of software, showing complete capabilities, for review and approval by the Department.
 - 1. Administrative Software
 - a. The administrative software shall allow a user to administer settings, view recorded video, or watch live video with a computer connected to the DVR. The software shall allow for a username and password set-up of each DVR. The software shall allow for upgrading of the DVR firmware.
 - b. The software shall allow for image adjustment options, such as brightness and contrast, when watching either live or recorded video.

SunRail Remanufactured Locomotive Vehicle Design Criteria

- c. The software shall permit the user to play, pause, fast-forward, rewind, view frame-by-frame in forward/backward directions, and stop the video.
- d. The software shall be flexible so as to permit updating as patches or newer versions become available.
- e. The Authority shall be free to install the software on as many computers as it sees necessary.

2. Review/Download Software

- a. The review/download software shall be provided with a hard disk drive to USB adapter (computer connection) to view and download video from the hard disk drive at a remote location. The software shall allow either full or partial downloads of the hard disk drive.
- b. The software shall permit the user to play, pause, fast-forward, rewind, view frame-by-frame in forward/backward directions, and stop the video. The software shall also allow adjustment of image quality.
- c. The software shall be flexible so as to permit updating as patches or newer versions become available.
- d. The Authority shall be free to install the software on as many computers as it sees necessary.

37.5 Documentation

- A. Prior to acceptance of the first vehicle, the Vendor shall provide copies of the following:
 - 1. Operating Manual: The operating manual shall include all information pertaining to the operation of the system. Including complete step-by-step instructions on how to perform various operations such as swapping hard disk drives, downloading video from the DVR and through the computer connection, and any other actions that would be necessary for operation of the system.
 - 2. Maintenance and Replacement Parts Manual: The manual shall show all parts down to the lowest replacement level and shall the location and describe the method of replacement of each of those parts on the equipment. The parts manual shall include the component name, function, symbol, rating/tolerances, OEM, commercial equivalents and quantities per higher level of assembly.

SunRail Remanufactured Locomotive Vehicle Design Criteria

3. Provide one PTE with software, special tools and cables to operate and maintain and also download hard drive data.
4. A field of vision plan shall be submitted for exterior for cab cars / locomotives. And a separate field of vision plan for cab car / coach interior cameras shall be submitted for review and approval of the Department.

37.6 Training

- A. Prior to acceptance of the first vehicle the Vendor shall provide training in the operation and maintenance of the system equipment.

37.7 Locomotives Dvr (Option A – Wi-Tronix Overlay)

- A. The Vendor will provide WiTronix downloader or other Department approved wired or wireless system to provide the DVR system with data from GPS and event recorder.
- B. The data recorded will be end user adjustable for either graphing and tabular data display of forward facing cameras and the event recorder. With digital audio also recorded.
- C. The time stamp will be shared by Event Recorder and DVR systems and provided by a GPS signal.
- D. If this option is exercised, the WiTronix or other Department approved system shall be provided fully integrated with the DVR and Event Recorder Systems.

Florida Department of Transportation
District 5

EXHIBIT E

**REQUIRED CONTRACT PROVISIONS FOR
FEDERAL TRANSIT ADMINISTRATION
FEDERAL-AID ROLLING STOCK CONTRACTS**

For

Central Florida Commuter Rail Transit (CFCRT)
Diesel Electric Passenger Locomotives

Financial Projects Number(s): 412994-6-53-02
Federal Aid Project Number(s): TBD
Contract Number: TBD

January 12, 2011

REQUIRED CONTRACT PROVISIONS FOR
FEDERAL TRANSIT ADMINISTRATION FEDERAL-AID
ROLLING STOCK CONTRACTS

I.	FLY AMERICA REQUIREMENTS.....	3
II.	CARGO PREFERENCE REQUIREMENTS	3
III.	ENERGY CONSERVATION	3
IV.	CLEAN WATER.....	3
V.	LOBBYING.....	4
VI.	ACCESS TO RECORDS.....	5
VII.	FEDERAL CHANGES.....	7
VIII.	CLEAN AIR	7
IX.	AIR POLLUTION AND FUEL ECONOMY	7
X.	RECYCLED PRODUCTS.....	7
XI.	CONTRACT WORK HOURS AND SAFETY STANDARDS	8
XII.	NO OBLIGATION BY THE FEDERAL GOVERNMENT.....	8
XIII.	PROGRAM FRAUD AND FALSE OR FRAUDULENT STATEMENTS OR RELATED ACTS.	9
XIV.	GOVERNMENT-WIDE DEBARMENT AND SUSPENSION (NONPROCUREMENT)	9
XV.	PRIVACY ACT	10
XVI.	CIVIL RIGHTS REQUIREMENTS.....	10
XVII.	TRANSIT EMPLOYEE PROTECTIVE AGREEMENTS	11
XVIII.	BUY AMERICA.....	13
XIX.	PRE-AWARD AND POST DELIVERY AUDITS REQUIREMENTS.....	14
XX.	SENSITIVE SECURITY INFORMATION.....	16
XXI.	INCORPORATION OF FEDERAL TRANSIT ADMINISTRATION (FTA) TERMS.....	16

FLY AMERICA REQUIREMENTS

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

CARGO PREFERENCE REQUIREMENTS

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

ENERGY CONSERVATION

The Vendor 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.

CLEAN WATER

(1) The Vendor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq. The Vendor agrees to report each violation to the Purchaser and understands and agrees that the Purchaser will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional Office.

Exhibit E – Central Florida Commuter Rail Transit Attachment – Required Contract Provisions for Federal Transit Administration Federal-Aid Rolling Stock – 1-12-11

(2) The Vendor also agrees to include these requirements in each subcontract exceeding \$100,000 financed in whole or in part with Federal assistance provided by FTA.

LOBBYING

Byrd Anti-Lobbying Amendment, 31 U.S.C. 1352, as amended by the Lobbying Disclosure Act of 1995, P.L. 104-65 [to be codified at 2 U.S.C. § 1601, et seq.] -

Vendors who apply or bid for an award of \$100,000 or more shall file the certification required by 49 CFR part 20, "New Restrictions on Lobbying." Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any 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. Each tier shall also disclose the name of any registrant under the Lobbying Disclosure Act of 1995 who has made lobbying contacts on its behalf with non-Federal funds with respect to that Federal contract, grant or award covered by 31 U.S.C. 1352. Such disclosures are forwarded from tier to tier up to the recipient.

APPENDIX A, 49 CFR PART 20--CERTIFICATION REGARDING LOBBYING

Certification for Contracts, Grants, Loans, and Cooperative Agreements

(To be submitted with each bid or offer exceeding \$100,000)

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

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for making lobbying contacts to an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form--LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions [as amended by "Government wide Guidance for New Restrictions on Lobbying," 61 Fed. Reg. 1413 (1/19/96). Note: Language in paragraph (2) herein has been modified in accordance with Section 10 of the Lobbying Disclosure Act of 1995 (P.L. 104-65, to be codified at 2 U.S.C. 1601, et seq.)]

Exhibit E – Central Florida Commuter Rail Transit Attachment – Required Contract Provisions for Federal Transit Administration Federal-Aid Rolling Stock – 1-12-11

(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.

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

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

Mark S. Warner Signature of Vendor's Authorized Official

Vice President & General Manager Name and Title of Vendor's Authorized Official

2/28/11 Date

ACCESS TO RECORDS

The following access to records requirements apply to this Contract:

1. Where the Purchaser is not a State but a local government and is the FTA Recipient or a subgrantee of the FTA Recipient in accordance with 49 C.F.R. 18.36(i), the Vendor agrees to provide the Purchaser, the FTA Administrator, the Comptroller General of the United States or any of their authorized representatives access to any books, documents, papers and records of the Vendor which are directly pertinent to this contract for the purposes of making audits, examinations, excerpts and transcriptions. Vendor also agrees, pursuant to 49 C.F.R. 633.17 to provide the FTA Administrator or his authorized representatives including any Project Management Oversight Contractor access to Vendor's records and construction sites pertaining to a major capital project, defined at 49 U.S.C. 5302(a)1, which is receiving federal financial assistance through the programs described at 49 U.S.C. 5307, 5309 or 5311.

Exhibit E – Central Florida Commuter Rail Transit Attachment – Required Contract Provisions for Federal Transit Administration Federal-Aid Rolling Stock – 1-12-11

2. Where the Purchaser is a State and is the FTA Recipient or a subgrantee of the FTA Recipient in accordance with 49 C.F.R. 633.15, Vendor agrees to provide the Purchaser, the FTA Administrator or his authorized representatives, including any PMO Contractor, access to the Vendor's records and construction sites pertaining to a major capital project, defined at 49 U.S.C. 5302(a)1, which is receiving federal financial assistance through the programs described at 49 U.S.C. 5307, 5309 or 5311. By definition, a major capital project excludes contracts of less than the simplified acquisition threshold currently set at \$100,000.
3. Where the Vendor enters into a negotiated contract for other than a small purchase or under the simplified acquisition threshold and is an institution of higher education, a hospital or other non-profit organization and is the FTA Recipient or a subgrantee of the FTA Recipient in accordance with 49 C.F.R. 19.48, Vendor agrees to provide the Purchaser, FTA Administrator, the Comptroller General of the United States or any of their duly authorized representatives with access to any books, documents, papers and record of the Vendor which are directly pertinent to this contract for the purposes of making audits, examinations, excerpts and transcriptions.
4. Where any Purchaser which is the FTA Recipient or a subgrantee of the FTA Recipient in accordance with 49 U.S.C. 5325(a) enters into a contract for a capital project or improvement (defined at 49 U.S.C. 5302(a)1) through other than competitive bidding, the Vendor shall make available records related to the contract to the Purchaser, the Secretary of Transportation and the Comptroller General or any authorized officer or employee of any of them for the purposes of conducting an audit and inspection.
5. The Vendor shall provide to the U.S. Secretary of Transportation and the Comptroller General of the United States, or their duly authorized representatives, access to all third party records as required by 49 U.S.C. section 5325 (g). The Vendor shall further provide sufficient access to third party procurement records as needed for compliance with Federal laws and regulations or to assure Project management as determined by FTA.
6. The Vendor agrees to permit any of the foregoing parties to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.
7. The Vendor agrees to maintain all books, records, accounts and reports required under this contract for a period of not less than three years after the date of termination or expiration of this contract, except in the event of litigation or settlement of claims arising from the performance of this contract, in which case Vendor agrees to maintain same until the Purchaser, the FTA Administrator, the Comptroller General, or any of their duly authorized representatives, have disposed of all such litigation, appeals, claims or exceptions related thereto. Reference 49 CFR 18.39(i)(11).
8. Vendor shall also include in its subcontracts the requirement that the subcontractors shall provide to the U.S. Secretary of Transportation and the Comptroller General of the United States or their duly authorized representatives access to all third party contract

Exhibit E – Central Florida Commuter Rail Transit Attachment – Required Contract Provisions for Federal Transit Administration Federal-Aid Rolling Stock – 1-12-11

records as required by 49 U.S.C. section 5325 (g), and shall further provide sufficient access to third party procurement records as needed for compliance with Federal laws and regulations or to assure Project management as determined by FTA.

FEDERAL CHANGES

Vendor shall at all times comply with all applicable Federal laws, regulations, and directives, including without limitation those listed directly or by reference in the Master Agreement between the Florida Department of Transportation and FTA, as they may be amended or promulgated from time to time during the term of this contract, except to the extent that FTA determines otherwise in writing, which Master Agreement is hereby incorporated herein by this reference. All standards or limits in the Grant Agreement or Cooperative Agreement for the Project, and in the Master Agreement, are minimum requirements, unless modified by FTA.

Vendor's failure to so comply shall constitute a material breach of this contract.

CLEAN AIR

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

(2) The Vendor also agrees to include these requirements in each subcontract exceeding \$100,000 financed in whole or in part with Federal assistance provided by FTA.

AIR POLLUTION AND FUEL ECONOMY

Vendor must comply with any applicable Federal air pollution control and fuel economy regulations, such as EPA regulations, "Control of Air Pollution from Mobile Sources, 40 CRF Part 85; EPA regulations, "Control of Air Pollution from New and In-Use Motor Vehicles and New and In-Use Motor Vehicle Engines, "40 CFR Part 86; and EPA regulations, "Fuel Economy of Motor Vehicles," 40 CFR Part 600.

RECYCLED PRODUCTS

Recovered Materials - The Vendor 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.

CONTRACT WORK HOURS AND SAFETY STANDARDS

(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 therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory) for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in 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 Department 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 Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) of this section.

(4) **Subcontracts** - The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs (1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1) through (4) of this section.

No Obligation by the Federal Government.

(1) The Vendor acknowledges and agrees 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 Vendor, or any other party (whether or not a party to that contract) pertaining to any matter resulting from the underlying contract.

(2) The Vendor agrees to include the above clause in each subcontract financed in whole

Exhibit E – Central Florida Commuter Rail Transit Attachment – Required Contract Provisions for Federal Transit Administration Federal-Aid Rolling Stock – 1-12-11

or in part with Federal assistance provided by FTA. It is further agreed that the clause shall not be modified, except to identify the subcontractor who will be subject to its provisions.

Program Fraud and False or Fraudulent Statements or Related Acts.

(1) The Vendor acknowledges that the provisions of the Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. § 3801 et seq. and U.S. DOT regulations, "Program Fraud Civil Remedies," 49 C.F.R. Part 31, apply to its actions pertaining to this Project. Upon execution of the underlying contract, the Vendor 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 Vendor further acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification, the Federal Government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986 on the Vendor to the extent the Federal Government deems appropriate.

(2) The Vendor also acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification to the Federal Government under a contract connected with a project that is financed in whole or in part with Federal assistance originally awarded by FTA under the authority of 49 U.S.C. § 5307, the Government reserves the right to impose the penalties of 18 U.S.C. § 1001 and 49 U.S.C. § 5307(n)(1) on the Vendor, to the extent the Federal Government deems appropriate.

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

**GOVERNMENT-WIDE DEBARMENT AND SUSPENSION
(NONPROCUREMENT)**

The Vendor is required to comply with 2 CFR 1200 and 2 CFR 180, Subpart 3, and must include the requirement to comply with 2 CFR 180, Subpart 3, as supplemented by 2 CFR 1200, in any lower tier covered transaction it enters into. By signing and submitting its bid or proposal, the bidder or proposer certifies as follows:

The certification in this clause is a material representation of fact relied upon by the Department. If it is later determined that the bidder or proposer knowingly rendered an erroneous certification, in addition to remedies available to the Department, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment. The bidder or proposer agrees to

Exhibit E – Central Florida Commuter Rail Transit Attachment – Required Contract
Provisions for Federal Transit Administration Federal-Aid Rolling Stock – 1-12-11

comply with the requirements of 2 CFR 1200 and 2 CFR 180, Subpart C, while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

PRIVACY ACT

Contracts Involving Federal Privacy Act Requirements - The following requirements apply to the Vendor and its employees that administer any system of records on behalf of the Federal Government under any contract:

(1) The Vendor agrees to comply with, and assures the compliance of its employees with, the information restrictions and other applicable requirements of the Privacy Act of 1974,

5 U.S.C. § 552a. Among other things, the Vendor agrees to obtain the express consent of the Federal Government before the Contractor or its employees operate a system of records on behalf of the Federal Government. The Vendor understands that the requirements of the Privacy Act, including the civil and criminal penalties for violation of that Act, apply to those individuals involved, and that failure to comply with the terms of the Privacy Act may result in termination of the underlying contract.

(2) The Vendor also agrees to include these requirements in each subcontract to administer any system of records on behalf of the Federal Government financed in whole or in part with Federal assistance provided by FTA.

CIVIL RIGHTS REQUIREMENTS

Civil Rights - The following requirements apply to the underlying contract:

(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 Vendor 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 Vendor agrees to comply with applicable Federal implementing regulations and other implementing requirements FTA may issue.

(2) **Equal Employment Opportunity** - The following equal employment opportunity requirements apply to the underlying contract:

(a) **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

Exhibit E – Central Florida Commuter Rail Transit Attachment – Required Contract Provisions for Federal Transit Administration Federal-Aid Rolling Stock – 1-12-11

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 Vendor 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 Vendor agrees to comply with any implementing requirements FTA may issue.

(b) 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 Vendor agrees to comply with any implementing requirements FTA may issue.

(c) 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.

(3) Access for Individuals with Disabilities. Vendor agrees to comply with all applicable provisions of 49 U.S.C. section 5301 (d), all applicable provisions of section 504 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. section 794, and all applicable provisions of the Americans with Disabilities Act of 1990 (ADA), as amended, 42 U.S.C. sections 12010 et. seq, and all applicable provisions of the Architectural Barriers Act of 1968, as amended, 42 U.S.C. section 4151 et seq.. Vendor also agrees to comply with applicable implementing Federal regulations, and any later amendments thereto, and agrees to follow applicable Federal implementing directives, except to the extent FTA approves otherwise in writing. Among those regulations implementing Section 505 and the ADA are DOT regulations, "Nondiscrimination on the Basis of Handicap in Programs and Activities Receiving or Benefiting from Federal Financial Assistance, 49 CFR Part 27, and "Transportation Services for individuals with Disabilities (ADA)," 49 CFR Part 37, and Joint ATBCB/DOT regulations, "Americans with Disabilities (ADA) Accessibility Specifications for Transportation Vehicles," 36 CFR Part 1192 and 49 CFR Part 38.

(4) The Vendor 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.

TRANSIT EMPLOYEE PROTECTIVE AGREEMENTS

Transit Employee Protective Provisions. (1) The Vendor agrees to the comply with applicable transit employee protective requirements as follows:

Exhibit E – Central Florida Commuter Rail Transit Attachment – Required Contract Provisions for Federal Transit Administration Federal-Aid Rolling Stock – 1-12-11

(a) General Transit Employee Protective Requirements - To the extent that FTA determines that transit operations are involved, the Vendor agrees to carry out the transit operations work on the underlying contract in compliance with terms and conditions determined by the U.S. Secretary of Labor to be fair and equitable to protect the interests of employees employed under this contract and to meet the employee protective requirements of 49 U.S.C. A 5333(b), and U.S. DOL guidelines at 29 C.F.R. Part 215, and any amendments thereto. These terms and conditions are identified in the letter of certification from the U.S. DOL to FTA applicable to the FTA Recipient's project from which Federal assistance is provided to support work on the underlying contract. The Vendor agrees to carry out that work in compliance with the conditions stated in that U.S. DOL letter. The requirements of this subsection (1), however, do not apply to any contract financed with Federal assistance provided by FTA either for projects for elderly individuals and individuals with disabilities authorized by 49 U.S.C. § 5310(a)(2), or for projects for nonurbanized areas authorized by 49 U.S.C. § 5311. Alternate provisions for those projects are set forth in subsections (b) and (c) of this clause.

(b) Transit Employee Protective Requirements for Projects Authorized by 49 U.S.C. § 5310(a)(2) for Elderly Individuals and Individuals with Disabilities - If the contract involves transit operations financed in whole or in part with Federal assistance authorized by 49 U.S.C. § 5310(a)(2), and if the U.S. Secretary of Transportation has determined or determines in the future that the employee protective requirements of 49 U.S.C. § 5333(b) are necessary or appropriate for the state and the public body subrecipient for which work is performed on the underlying contract, the Vendor agrees to carry out the Project in compliance with the terms and conditions determined by the U.S. Secretary of Labor to meet the requirements of 49 U.S.C. § 5333(b), U.S. DOL guidelines at 29 C.F.R. Part 215, and any amendments thereto. These terms and conditions are identified in the U.S. DOL's letter of certification to FTA, the date of which is set forth Grant Agreement or Cooperative Agreement with the state. The Vendor agrees to perform transit operations in connection with the underlying contract in compliance with the conditions stated in that U.S. DOL letter.

(c) Transit Employee Protective Requirements for Projects Authorized by 49 U.S.C. § 5311 in Nonurbanized Areas - If the contract involves transit operations financed in whole or in part with Federal assistance authorized by 49 U.S.C. § 5311, the Vendor agrees to comply with the terms and conditions of the Special Warranty for the Nonurbanized Area Program agreed to by the U.S. Secretaries of Transportation and Labor, dated May 31, 1979, and the procedures implemented by U.S. DOL or any revision thereto.

(2) The Vendor also agrees to include the any applicable requirements in each subcontract involving transit operations financed in whole or in part with Federal assistance provided by FTA.

Exhibit E – Central Florida Commuter Rail Transit Attachment – Required Contract
Provisions for Federal Transit Administration Federal-Aid Rolling Stock – 1-12-11

Buy America Requirements

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

A bidder or offeror must submit to the FTA recipient the appropriate Buy America certification (below).

If steel, iron, or manufactured products (as defined in 43 CFR 661.3 and 661.5) are being procured, the appropriate certificate as set forth below shall be completed and submitted by each bidder or offeror in accordance with the requirement contained in 43 CFR 661.13(b).

Certificate of Compliance with Buy America Requirements

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

Date _____

Signature _____

Company _____

Name _____

Title _____

Certificate of Non-Compliance with Buy American Requirements

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

Date _____

Signature _____

Company _____

Name _____

Title _____

If buses or other rolling stock (including train control, communication, and traction power

Exhibit E – Central Florida Commuter Rail Transit Attachment – Required Contract Provisions for Federal Transit Administration Federal-Aid Rolling Stock – 1-12-11

equipment) are being procured, the appropriate certificate as set forth below shall be completed and submitted by each bidder in accordance with the requirement contained in 49 CFR 661.13 (b).

Certificate of Compliance with Buy America Rolling Stock Requirements.

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

Date 2/28/11
Signature Mark S. Warner
Company Motive Power, Inc.
Name Mark S. Warner
Title Vice President & General Manager

Certificate of Non-Compliance with 49 U.S.C. 5323(j)(2)(C) Buy American Rolling Stock Requirements

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

Date _____
Signature _____
Company _____
Name _____
Title _____

PRE-AWARD AND POST-DELIVERY AUDIT REQUIREMENTSs

The Vendor agrees to comply with 49 U.S.C. § 5323(m) and FTA's implementing regulations, "Pre-Award and Post-Delivery Audits of Rolling Stock Purchases," 49 CFR Part 663, that do not conflict with 49 U.S.C. Section 5323 (m). The Vendor agrees to provide the Department with the pre-award certifications, post-delivery certifications, and the certifications regarding Federal motor vehicle safety standards, as set forth in 49 CFR Part 663.

(1) Buy America Requirements: The Vendor shall complete and submit a declaration certifying either compliance or noncompliance with Buy America. If the Bidder/Offeror certifies compliance with Buy America, it shall submit documentation which lists 1) component and subcomponent parts of the rolling stock to be purchased identified by manufacturer of the parts,

Exhibit E – Central Florida Commuter Rail Transit Attachment – Required Contract
Provisions for Federal Transit Administration Federal-Aid Rolling Stock – 1-12-11

their country of origin and costs; and 2) the location of the final assembly point for the rolling stock, including a description of the activities that will take place at the final assembly point and the cost of final assembly.

(2) Solicitation Specification Requirements: The Vendor shall submit evidence that it will be capable of meeting the bid specifications.

(3) Federal Motor Vehicle Safety Standards (FMVSS): the Vendor 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 vehicles will not be subject to FMVSS regulations.

Buy America Certificate Of Compliance With FTA Requirements For Buses, Other Rolling Stock, Or Associated Equipment

(To be submitted with a bid or offer exceeding the small purchase threshold for Federal assistance programs, currently set at \$100,000.)

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: 2/28/11
Signature: [Signature]
Company Name: Motive Power, Inc.
Title: Vice President & General Manager

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: _____

SENSITIVE SECURITY INFORMATION

Vendor must protect, and take measures to ensure that its subcontractors protect, “sensitive security information” made available during the administration of the contract or subcontract to ensure compliance with 49 U.S.C. Section 40119 (b) and implementing DOT regulations, “Protection of Sensitive Security Information,” 49 CFR Part 15, and with 49 U.S.C. Section 114 (r) and implementing Department of Homeland Security regulations, “Protection of Sensitive Security Information,” 49 CFR 1520.

INCORPORATION OF FEDERAL TRANSIT ADMINISTRATION (FTA) TERMS

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

EXHIBIT "F"

SOFTWARE CODE DEPOSIT AGREEMENT

This Software Code Deposit Agreement (this "Agreement") made this ____ day of _____, 2011 between the State of Florida, Department of Transportation, with a principal office at 719 South Woodland Boulevard, DeLand FL 32720 (the "Department"), and MotivePower, Inc., a Delaware corporation, with its principal office at 4600 Apple Street, Boise, ID 83716 ("Contractor").

RECITALS

WHEREAS, Contractor and Department have entered enter into a Standard Written Agreement ("Sales Contract") whereby Contractor will sell to Department locomotives and other property described therein and such Sales Contract also requires Contractor to deposit with the Department certain source code and certain other portions of proprietary technology of Contractor; and

WHEREAS, the availability of the source code and certain other portions of proprietary technology of Contractor is critical to Department in the conduct of its business and, therefore, Department needs access to the proprietary technology under certain limited circumstances; and

WHEREAS, Contractor desires to have availability of the source code and certain other portions of Contractor's proprietary technology limited to occurring only under certain circumstances; and

WHEREAS, Contractor and Department desire to establish an arrangement to provide for the retention, administration and controlled access of the source code and certain other portions of proprietary technology materials of Contractor by Department.

NOW, THEREFORE, in consideration of the premises, promises, representations, understandings and the mutual covenants contained herein, the Department and the Contractor hereby agree as follows:

ARTICLE 1 -- DEPOSITS

- 1.1. Obligation to Make Deposit. Contractor shall deliver to Department the source code and certain portions of proprietary technology and other materials required to be deposited with Department by the Sales Contract (the "Deposit Materials")

APPENDIX A IOS 2010 SCENARIO PRELIMINARY TRAIN SCHEDULES

SOUTHBOUND DIRECTION

Train No.	To From	DeBary	Sanford SR 46	Lake Mary	Longwood SR 434	Altamonte Springs	Maitland	Winter Park	Florida Hospital	Orlando LCS	Church Street	ORMC/ Amtrak	Sand Lake	Layover
2	From Yard	5:30	5:36	5:43	5:49	5:53	5:58	6:03	6:09	6:14	6:17	6:19	6:26	0:18
3	From Yard	6:00	6:06	6:13	6:19	6:23	6:28	6:33	6:39	6:44	6:47	6:49	6:56	0:18
4	From Yard	6:30	6:36	6:43	6:49	6:53	6:58	7:03	7:09	7:14	7:17	7:19	7:26	0:18
5	From Yard	7:00	7:06	7:13	7:19	7:23	7:28	7:33	7:39	7:44	7:47	7:49	7:56	0:18
1	From Yard	7:30	7:36	7:43	7:49	7:53	7:58	8:03	8:09	8:14	8:17	8:19	8:26	0:18
2	From Yard	8:00	8:06	8:13	8:19	8:23	8:28	8:33	8:39	8:44	8:47	8:49	8:56	To Yard
1	From Yard	10:00	10:06	10:13	10:19	10:23	10:28	10:33	10:39	10:44	10:47	10:49	10:56	0:18
1	From Yard	12:30	12:36	12:43	12:49	12:53	12:58	13:03	13:09	13:14	13:17	13:19	13:26	0:18
1	From Yard	15:00	15:06	15:13	15:19	15:23	15:28	15:33	15:39	15:44	15:47	15:49	15:56	0:18
2	From Yard	16:30	16:36	16:43	16:49	16:53	16:58	17:03	17:09	17:14	17:17	17:19	17:26	0:18
3	From Yard	16:00	16:06	16:13	16:19	16:23	16:28	16:33	16:39	16:44	16:47	16:49	16:56	0:18
4	From Yard	16:30	16:36	16:43	16:49	16:53	16:58	17:03	17:09	17:14	17:17	17:19	17:26	0:18
5	From Yard	17:00	17:06	17:13	17:19	17:23	17:28	17:33	17:39	17:44	17:47	17:49	17:56	0:18
1	From Yard	17:30	17:36	17:43	17:49	17:53	17:58	18:03	18:09	18:14	18:17	18:19	18:26	0:18
2	From Yard	18:00	18:06	18:13	18:19	18:23	18:28	18:33	18:39	18:44	18:47	18:49	18:56	0:18
1	From Yard	20:00	20:06	20:13	20:19	20:23	20:28	20:33	20:39	20:44	20:47	20:49	20:56	0:18

NORTHBOUND DIRECTION

Train No.	To From	Sand Lake	ORMC/ Amtrak	Church Street	Orlando LCS	Florida Hospital	Winter Park	Maitland	Altamonte Springs	Longwood SR 434	Lake Mary	Sanford SR 46	DeBary	Layover
1	From Yard	6:15	6:22	6:24	6:26	6:32	6:37	6:43	6:48	6:52	6:58	7:05	7:11	0:18
2	From Yard	6:45	6:52	6:54	6:56	7:02	7:07	7:13	7:18	7:22	7:28	7:35	7:41	0:18
3	From Yard	7:15	7:22	7:24	7:26	7:32	7:37	7:43	7:48	7:52	7:58	8:05	8:11	To Yard
4	From Yard	7:45	7:52	7:54	7:56	8:02	8:07	8:13	8:18	8:22	8:28	8:35	8:41	To Yard
5	From Yard	8:15	8:22	8:24	8:26	8:32	8:37	8:43	8:48	8:52	8:58	9:05	9:11	To Yard
1	From Yard	8:45	8:52	8:54	8:56	9:02	9:07	9:13	9:18	9:22	9:28	9:35	9:41	0:18
1	From Yard	11:15	11:22	11:24	11:26	11:32	11:37	11:43	11:48	11:52	11:58	12:05	12:11	0:18
1	From Yard	13:45	13:52	13:54	13:56	14:02	14:07	14:13	14:18	14:22	14:28	14:35	14:41	0:18
1	From Yard	16:15	16:22	16:24	16:26	16:32	16:37	16:43	16:48	16:52	16:58	17:05	17:11	0:18
2	From Yard	16:45	16:52	16:54	16:56	17:02	17:07	17:13	17:18	17:22	17:28	17:35	17:41	0:18
3	From Yard	17:15	17:22	17:24	17:26	17:32	17:37	17:43	17:48	17:52	17:58	18:05	18:11	To Yard
4	From Yard	17:45	17:52	17:54	17:56	18:02	18:07	18:13	18:18	18:22	18:28	18:35	18:41	To Yard
5	From Yard	18:15	18:22	18:24	18:26	18:32	18:37	18:43	18:48	18:52	18:58	19:05	19:11	To Yard
1	From Yard	18:45	18:52	18:54	18:56	19:02	19:07	19:13	19:18	19:22	19:28	19:35	19:41	To Yard
2	From Yard	19:15	19:22	19:24	19:26	19:32	19:37	19:43	19:48	19:52	19:58	20:05	20:11	To Yard
1	From Yard	21:15	21:22	21:24	21:26	21:32	21:37	21:43	21:48	21:52	21:58	22:05	22:11	To Yard

December 2008

APPENDIX B LPA 2013 SCENARIO PRELIMINARY TRAIN SCHEDULES

SOUTHBOUND DIRECTION

Train No.	To From	DeBary	Sanford	Lake Mary	Longwood SR 434	Altamonte Springs	Maitland	Winter Park	Florida Hospital	Orlando LCS	Church Street	ORMC/ Amtrak	Sand Lake SR 408	Meadow Woods	Osceola Pkwy.	Kissimmee Amtrak	Poinciana Blvd.	Layover
4	From Yard	5:30	5:36	5:43	5:49	5:53	5:58	6:03	6:09	6:14	6:17	6:19	6:27	6:33	6:37	6:43	6:49	0:25
5	From Yard	6:00	6:06	6:13	6:19	6:23	6:28	6:33	6:39	6:44	6:47	6:49	6:57	7:03	7:07	7:13	7:19	0:25
6	From Yard	6:30	6:36	6:43	6:49	6:53	6:58	7:03	7:09	7:14	7:17	7:19	7:27	7:33	7:37	7:43	7:49	0:25
7	From Yard	7:00	7:06	7:13	7:19	7:23	7:28	7:33	7:39	7:44	7:47	7:49	7:57	8:03	8:07	8:13	8:19	To Yard
1	—	7:30	7:36	7:43	7:49	7:53	7:58	8:03	8:09	8:14	8:17	8:19	8:27	8:33	8:37	8:43	8:49	To Yard
2	—	8:00	8:06	8:13	8:19	8:23	8:28	8:33	8:39	8:44	8:47	8:49	8:57	9:03	9:07	9:13	9:19	0:40
6	—	10:00	10:06	10:13	10:19	10:23	10:28	10:33	10:39	10:44	10:47	10:49	10:57	11:03	11:07	11:13	11:19	0:40
2	—	12:00	12:06	12:13	12:19	12:23	12:28	12:33	12:39	12:44	12:47	12:49	12:57	13:03	13:07	13:13	13:19	0:40
6	—	14:00	14:06	14:13	14:19	14:23	14:28	14:33	14:39	14:44	14:47	14:49	14:57	15:03	15:07	15:13	15:19	0:25
2	—	16:00	16:06	16:13	16:19	16:23	16:28	16:33	16:39	16:44	16:47	16:49	16:57	17:03	17:07	17:13	17:19	0:25
4	From Yard	18:30	18:36	18:43	18:49	18:53	18:58	19:03	19:09	19:14	19:17	19:19	19:27	19:33	19:37	19:43	19:49	0:25
5	From Yard	17:00	17:06	17:13	17:19	17:23	17:28	17:33	17:39	17:44	17:47	17:49	17:57	18:03	18:07	18:13	18:19	0:25
7	From Yard	17:30	17:36	17:43	17:49	17:53	17:58	18:03	18:09	18:14	18:17	18:19	18:27	18:33	18:37	18:43	18:49	To Yard
6	From Yard	17:30	17:36	17:43	17:49	17:53	17:58	18:03	18:09	18:14	18:17	18:19	18:27	18:33	18:37	18:43	18:49	To Yard
1	—	18:00	18:06	18:13	18:19	18:23	18:28	18:33	18:39	18:44	18:47	18:49	18:57	19:03	19:07	19:13	19:19	0:40
5	—	20:30	20:36	20:43	20:49	20:53	20:58	21:03	21:09	21:14	21:17	21:19	21:27	21:33	21:37	21:43	21:49	To Yard

NORTHBOUND DIRECTION

Train No.	To From	Poinciana Blvd.	Kissimmee Amtrak	Osceola Pkwy.	Meadow Woods	Sand Lake SR 408	ORMC/ Amtrak	Church Street	Orlando LCS	Florida Hospital	Winter Park	Maitland	Altamonte Springs	Longwood SR 434	Lake Mary	Sanford Amtrak	DeBary	Layover
1	From Yard	5:45	5:51	5:56	6:01	6:07	6:14	6:17	6:19	6:24	6:30	6:36	6:41	6:45	6:51	6:58	7:04	0:25
2	From Yard	6:15	6:21	6:26	6:31	6:37	6:44	6:47	6:49	6:54	7:00	7:06	7:11	7:15	7:21	7:28	7:34	0:25
3	From Yard	6:45	6:51	6:56	7:01	7:07	7:14	7:17	7:19	7:24	7:30	7:36	7:41	7:45	7:51	7:58	8:04	To Yard
4	—	7:15	7:21	7:26	7:31	7:37	7:44	7:47	7:49	7:54	8:00	8:06	8:11	8:15	8:21	8:28	8:34	To Yard
5	—	7:45	7:51	7:56	8:01	8:07	8:14	8:17	8:19	8:24	8:30	8:36	8:41	8:45	8:51	8:58	9:04	To Yard
6	—	8:15	8:21	8:26	8:31	8:37	8:44	8:47	8:49	8:54	9:00	9:06	9:11	9:15	9:21	9:28	9:34	0:25
2	—	10:00	10:06	10:11	10:16	10:22	10:29	10:32	10:34	10:39	10:45	10:51	10:56	11:00	11:06	11:13	11:19	0:40
6	—	12:00	12:06	12:11	12:16	12:22	12:29	12:32	12:34	12:39	12:45	12:51	12:56	13:00	13:06	13:13	13:19	0:40
2	—	14:00	14:06	14:11	14:16	14:22	14:29	14:32	14:34	14:39	14:45	14:51	14:56	15:00	15:06	15:13	15:19	0:40
6	—	15:45	15:51	15:56	16:01	16:07	16:14	16:17	16:19	16:24	16:30	16:36	16:41	16:45	16:51	16:58	17:04	0:25
1	From Yard	16:15	16:21	16:26	16:31	16:37	16:44	16:47	16:49	16:54	17:00	17:06	17:11	17:15	17:21	17:28	17:34	0:25
3	From Yard	16:45	16:51	16:56	17:01	17:07	17:14	17:17	17:19	17:24	17:30	17:36	17:41	17:45	17:51	17:58	18:04	To Yard
2	—	17:45	17:51	17:56	18:01	18:07	18:14	18:17	18:19	18:24	18:30	18:36	18:41	18:45	18:51	18:58	19:04	To Yard
4	—	18:15	18:21	18:26	18:31	18:37	18:44	18:47	18:49	18:54	19:00	19:06	19:11	19:15	19:21	19:28	19:34	To Yard
5	—	18:45	18:51	18:56	19:01	19:07	19:14	19:17	19:19	19:24	19:30	19:36	19:41	19:45	19:51	19:58	20:04	0:25
1	—	20:00	20:06	20:11	20:16	20:22	20:29	20:32	20:34	20:39	20:45	20:51	20:56	21:00	21:06	21:13	21:19	To Yard

December 2008

at the time and times stated in the Sales Contract. The Deposit Materials shall include: 1) HVAC source code, 2) event recorder source code, 3) station announcement system source code, 4) brake controls, 5) propulsion controls, 6) diagnostics, and 7) electronic printed circuit boards, artwork, board layouts, bill of materials and schematics (availability of deposit materials listed for Item No. 7 is dependent upon supplier cooperation).

- 1.2. Identification of Tangible Media. Prior to the delivery of the Deposit Materials to Department, Contractor shall conspicuously label for identification each document, magnetic tape, disk, or other tangible media upon which the Deposit Materials are written or stored. Additionally, Contractor shall complete Appendix "A" to this Agreement by listing each such tangible media by the item label description, the type of media and the quantity. Appendix "A" shall be signed by Contractor and delivered to Department with the Deposit Materials. A copy of Appendix "A" is attached hereto and incorporated herein.
- 1.3. Deposit Inspection. When Department receives the Deposit Materials and the Appendix "A", it will conduct a deposit inspection by visually matching the labeling of the tangible media containing the Deposit Materials to the item descriptions and quantity listed on the Appendix "A". In addition, Department may elect to cause a verification of the Deposit Materials in accordance with Section 1.6 below at Contractor's expense. Contractor shall have the right to be present at the verification.
- 1.4. Acceptance of Deposit. At completion of the deposit inspection, if Department determines that the labeling of the tangible media matches the item descriptions and quantity on Appendix "A", Department will date and sign Appendix "A" and mail a copy thereof to Contractor. If Department determines that the labeling does not match the item descriptions or quantity on Appendix "A", Department will (a) note the discrepancies in writing on Appendix "A"; (b) date and sign Appendix "A" with the exceptions noted; and (c) mail a copy of Appendix "A" to Contractor. Department's acceptance of the deposit occurs upon the signing of Appendix "A" by Department but shall not limit Department in any way from later asserting a failure by Contractor to make a deposit of any material required by the Sales Contract.
- 1.5. Contractor's Representations. Contractor represents as follows:
 - (a.) Contractor lawfully possesses and will possess full right, title and interest to all of the Deposit Materials deposited with Department;
 - (b.) With respect to all of the Deposit Materials, Contractor has the right and authority to grant to Department the rights as provided in this Agreement;
 - (c.) The Deposit Materials are not and will not be subject to any lien or other encumbrance;

- (d.) The Deposit Materials consist of the proprietary technology and other materials identified in the Sales Contract; and
 - (e.) The Deposit Materials are readable and useable in their current form or, if any portion of the Deposit Materials is encrypted, the decryption tools and decryption keys have also been deposited.
- 1.6. Verification. In a Verification, Department may evaluate the deposit to verify the deposit of: (a) Deposit Materials required and fully complying with the Sales Contract; and (b)(i) the hardware and software configurations reasonably necessary to maintain the Deposit Materials; (ii) the hardware and software configurations reasonably needed to compile the Deposit Materials; and (iii) the compilation instructions.
- 1.7. Deposit Updates. Contractor shall update the Deposit Materials within ten business (10) days of each release of a new version, patch, upgrade or alteration of the product which is subject to the Sales Contract. Such updates will be added to the existing deposit. All deposit updates shall be listed on a new Appendix "A" and the new Appendix "A" shall be signed by Contractor. The processing of all deposit updates shall be in accordance with Sections 1.2 through 1.6 above. All references in this Agreement to the Deposit Materials shall include the initial Deposit Materials and any such new versions, patches, updates or alterations.
- 1.8. Removal of Deposit Materials. The Deposit Materials may be removed and/or exchanged only as provided in this Agreement.

ARTICLE 2 -- CONFIDENTIALITY AND RECORD KEEPING

- 2.1. Confidentiality. Department shall maintain the Deposit Materials in a secure, locked facility which is accessible only to authorized representatives of Department. Department shall have the obligation to use the same standard the Department uses to protect its own confidential information, but in no event, less than a reasonable standard of care, to protect the confidentiality of the Deposit Materials. Except as provided in this Agreement, Department shall not disclose, transfer, make available, or use or access the Deposit Materials. If Department receives a request for a public record pursuant to Chapter 119, Florida Statutes, or a subpoena or any other order from a court or other judicial tribunal pertaining to the disclosure or release of the Deposit Materials, Department will immediately notify Contractor unless prohibited by law. Department will not be required to fail to comply with Chapter 119, Florida Statutes, or disobey any order from a court or other judicial tribunal.
- 2.2. Confidential Information. However, Department will be under no obligation to maintain the confidentiality of Deposit Material, to the extent that the Deposit Material includes information that: (a) at the time of disclosure or thereafter

becomes a part of the public domain through no act or omission by Department or their officers or employees; or (b) was at the time of disclosure already in Department's lawful possession without any obligations of confidentiality as evidenced by written records kept by Department in the ordinary course of business or by proof of actual use by Department; or (c) is subsequent to disclosure lawfully disclosed to Department by a third party who did not acquire the information under an obligation of confidentiality from or through Contractor.

ARTICLE 3 -- GRANT OF RIGHTS TO DEPARTMENT

- 3.1. Title to Media. Contractor hereby transfers to Department the title to the media upon which the proprietary technology and materials are written or stored. However, this transfer does not include the ownership of the proprietary technology and materials contained on the media such as any copyright, trade secret, patent or other intellectual property rights.
- 3.2. Right to Make Copies and Derivative Works. Department shall have the right to make copies of and derivative works from the Deposit Materials as reasonably necessary to perform this Agreement. Department shall copy all copyright, nondisclosure, and other proprietary notices and titles contained on the Deposit Materials onto any copies or derivative works made by Department. With all Deposit Materials submitted to Department, Contractor shall provide any and all instructions as may be necessary to duplicate or incorporate the Deposit Materials, including but not limited to the hardware and/or software needed.

ARTICLE 4 -- RELEASE OF DEPOSIT

- 4.1. Release Conditions. As used in this Agreement, "Release Conditions" shall mean the existence of any one or more of the following circumstances, uncorrected for more than ten (10) days:
 - (a.) If the Contractor or its sub-supplier is no longer in business, or no longer supports the product and has not transferred the rights to the design to another entity that does support the product;
- 4.2. Filing for Release. If Department believes in good faith that a Release Condition has occurred, Department may provide to Contractor written notice of the occurrence of the Release Condition. Contractor shall have twenty (20) business days from its receipt of such notice to notify the Department of its agreement to the release or file an action for a Declaratory Judgment to have a court determine whether a Release Condition has occurred.
- 4.3. Release of Deposit. Upon the Contractor's agreement, the entry of a Declaratory Judgment ruling that a Release Condition has occurred, or the failure of Contractor to timely agree or file an action for a Declaratory Judgment as

described in 4.2, Department is authorized to terminate the Deposit and take possession of the Deposit Materials.

Right to Use Following Release. Upon release of the Deposit Materials in accordance with this Article 4, Department shall have the right to use the Deposit Materials for the sole purpose of continuing the benefits afforded to Department by the Sales Contract. Department shall be obligated to maintain the confidentiality of the released Deposit Materials subject to Section 2.1 and 2.2 of this Agreement and the right to make the Deposit Materials available to the Department's contractors the sole and exclusive purpose of continuing the benefits provided under the Sales Contract.

ARTICLE 5 -- TERM AND TERMINATION

- 5.1. Term of Agreement. This Agreement shall be effective during the period that the equipment for which Deposit Materials have been provided, remains in use.
- 5.2. Transfer of Escrow. Department reserves the right to terminate this Agreement, for any reason, by providing Contractor with 60-days' written notice of its intent to terminate this Agreement. Within the 60-day period, the Department shall identify and forward the Deposit Materials to any nationally recognized software escrow company, such escrow company services to be paid for by Department. Contractor and Department agree that promptly following such notice they shall negotiate a three party Technology Escrow Agreement in the standard form then published by such Company but containing the substantive provisions contained in Sections 1.5, 1.6, 1.7, 2.1, 2.2, 4.1, 4.4 and 5.4 and this 5.2.
- 5.3. Disposition of Deposit Materials Upon Termination. Subject to the foregoing termination provisions upon expiration of this Agreement, Department shall destroy, return, or otherwise deliver the Deposit Materials in accordance with instructions of Contractor. If there are no instructions, Department may, at its sole discretion, destroy the Deposit Materials or return them to Contractor. Department shall have no obligation to destroy or return the Deposit Materials if the Deposit Materials have been released to the Department in accordance with Article 4.
- 5.4. Survival of Terms Following Termination. Upon termination of this Agreement, the following provisions of this Agreement shall survive:
 - (a.) Contractor's Representations (Section 1.5);
 - (b.) The obligations of confidentiality with respect to the Deposit Materials including the provisions of Section 2.1 and 2.2;
 - (c.) The rights granted in the sections entitled Right to Make Copies and Derivative Works(Section 3.2) and Right to Use Following Release

(Section 4.4), if a release of the Deposit Materials has occurred prior to termination;

- (d.) The provisions of Article 6; and
- (e.) Any provisions in this Agreement which specifically state they survive the termination of this Agreement.

ARTICLE 6 -- GENERAL PROVISIONS

- 6.1. Dispute Resolution. Any dispute relating to or arising from this Agreement shall be resolved by the dispute resolution process established in the Sales Contract.
- 6.2. Entire Agreement. This Agreement, which includes exhibits described and incorporated herein, embodies the entire understanding among the parties with respect to its subject matter and supersedes all previous communications, representations or understandings, either oral or written. Department's only obligations to Contractor are as set forth in this Agreement. No amendment or modification of this Agreement shall be valid or binding unless signed by the parties hereto.
- 6.3. Notices. All notices, invoices, payments, deposits and other documents and communications shall be given to the parties at the addresses specified in the Sales Contract. It shall be the responsibility of the parties to notify each other as provided in this Section in the event of a change of address. The parties shall have the right to rely on the last known address of the other parties. Unless otherwise provided in this Agreement, all documents and communications may be delivered by First Class mail.
- 6.4. Severability. In the event any provision of this Agreement is found to be invalid, voidable or unenforceable, the parties agree that unless it materially affects the entire intent and purpose of this Agreement, such invalidity, voidability or unenforceability shall affect neither the validity of this Agreement nor the remaining provisions herein, and the provision in question shall be deemed to be replaced with a valid and enforceable provision most closely reflecting the intent and purpose of the original provision.
- 6.5. Successors and Assignment. This Agreement shall be binding upon and shall inure to the benefit of the successors and assigns of the parties. The Department may assign this Agreement with prior written consent of the Contractor; provided, however, that no consent is required in order for the Department to assign this Agreement to the Central Florida Commuter Rail Commission or such other governmental entity established to take over SunRail after expiration of the Department's period of operation.

6.6. Controlling Law. This Agreement is to be governed and construed in accordance with the laws of Florida, without regard to its conflict of law provisions. The parties consent to the jurisdiction of the appropriate state court.

6.7. Time is of the essence in the performance under this Agreement.

IN WITNESS WHEREOF, the Parties have executed this Agreement the day and year first above written.

By: _____

By: _____

Name: _____

Name: Mark S. Warner

Title: _____

Title: Vice President & General Manager

Date: _____

Date: 2/28/11

Legal Review

District Chief Counsel

APPENDIX A

DESCRIPTION OF DEPOSIT MATERIALS

Contractor Company Name: _____.

Contract Number: _____

Product Name: _____ Version: _____

DEPOSIT MATERIAL DESCRIPTION:

Quantity Media Type & Size Label Description of Each Separate Item

_____ Disk 3.5" or _____
_____ DAT tape _____ mm
_____ CD-ROM
_____ Data cartridge tape _____
_____ TK 70 or _____ tape
_____ Magnetic tape _____
_____ Documentation
_____ Other _____

PRODUCT DESCRIPTION:

Environment: _____

DEPOSIT MATERIAL INFORMATION:

Is the media or are any of the files encrypted? Yes / No If yes, please include any passwords and the decryption tools.

Encryption tool name _____ Version: _____

Hardware _____ required:

Software required: _____

Other required information: _____

I certify for Contractor that the above described Deposit Materials have been transmitted to Department:

Signature: _____

Print Name: _____

Date: _____

Exhibit "G"
State of Florida
PUR 1000
General Contract Conditions
Central Florida Commuter Rail Transit Diesel Electric Passenger Locomotives
Financial Project Number 412994-6-53-02

Contents

1. Definitions.
2. Purchase Orders.
3. Product Version.
- ~~4. Price Changes Applicable only to Term Contracts.~~
- ~~5. Additional Quantities.~~
6. Packaging.
7. Inspection at Contractor's Site.
8. Safety Standards.
9. Americans with Disabilities Act.
10. Literature.
- ~~11. Transportation and Delivery.~~
- ~~12. Installation.~~
- ~~13. Risk of Loss.~~
14. Transaction Fee.
- ~~15. Invoicing and Payment.~~
16. Taxes.
17. Governmental Restrictions.
18. Lobbying and Integrity.
- ~~19. Indemnification.~~
- ~~20. Limitation of Liability.~~
21. Suspension of Work.
- ~~22. Termination for Convenience.~~
- ~~23. Termination for Cause.~~
24. Force Majeure, Notice of Delay, and No Damages for Delay.
- ~~25. Changes.~~
- ~~26. Renewal.~~
- ~~27. Purchase Order Duration.~~
28. Advertising.
- ~~29. Assignment.~~
30. Antitrust Assignment
- ~~31. Dispute Resolution.~~
32. Employees, Subcontractors, and Agents.
33. Security and Confidentiality.
34. Contractor Employees, Subcontractors, and Other Agents.
- ~~35. Insurance Requirements.~~
36. Warranty of Authority.
37. Warranty of Ability to Perform.
38. Notices.
39. Leases and Installment Purchases.
- ~~40. Prison Rehabilitative Industries and Diversified Enterprises, Inc. (PRIDE).~~
- ~~41. Products Available from the Blind or Other Handicapped.~~
- ~~42. Modification of Terms.~~
43. Cooperative Purchasing.

Sections deleted PUR 1000, 4, 5, 11, 12, 13, 15, 19, 20, 22, 23, 25, 26, 27, 29, 31, 35, 40, 41, 42.

- 44. Waiver.
- 45. Annual Appropriations.
- 46. Execution in Counterparts.
- 47. Severability.

1. Definitions. The definitions contained in s. 60A-1.001, F.A.C. shall apply to this agreement. The following additional terms are also defined:

(a) "Contract" means the legally enforceable agreement that results from a successful solicitation. The parties to the Contract will be the Customer and Contractor.

(b) "Customer" means the State agency or other entity identified in a contract as the party to receive commodities or contractual services pursuant to a contract or that orders commodities or contractual services via purchase order or other contractual instrument from the Contractor under the Contract. The "Customer" may also be the "Buyer" as defined in the PUR 1001 if it meets the definition of both terms.

(c) "Product" means any deliverable under the Contract, which may include commodities, services, technology or software.

(d) "Purchase order" means the form or format a Customer uses to make a purchase under the Contract (e.g., a formal written purchase order, electronic purchase order, procurement card, contract or other authorized means).

2. Purchase Orders. In contracts where commodities or services are ordered by the Customer via purchase order, Contractor shall not deliver or furnish products until a Customer transmits a purchase order. All purchase orders shall bear the Contract or solicitation number, shall be placed by the Customer directly with the Contractor, and shall be deemed to incorporate by reference the Contract and solicitation terms and conditions. Any discrepancy between the Contract terms and the terms stated on the Contractor's order form, confirmation, or acknowledgement shall be resolved in favor of terms most favorable to the Customer. A purchase order for services within the ambit of section 287.058(1) of the Florida Statutes shall be deemed to incorporate by reference the requirements of subparagraphs (a) through (f) thereof. Customers shall designate a contract manager and a contract administrator as required by subsections 287.057(15) and (16) of the Florida Statutes.

3. Product Version. Purchase orders shall be deemed to reference a manufacturer's most recently release model or version of the product at the time of the order, unless the Customer specifically requests in writing an earlier model or version and the contractor is willing to provide such model or version.

4. Price Changes Applicable only to Term Contracts. ~~If this is a term contract for commodities or services, the following provisions apply:~~

~~(a) **Quantity Discounts.** Contractors are urged to offer additional discounts for one time delivery of large single orders. Customers should seek to negotiate additional price concessions on quantity purchases of any products offered under the Contract. State Customers shall document their files accordingly.~~

~~(b) **Best Pricing Offer.** During the Contract term, if the Customer becomes aware of better pricing offered by the Contractor for substantially the same or a smaller quantity of a product outside the Contract, but upon the same or similar terms of the Contract, then at the discretion of the Customer the price under the Contract shall be immediately reduced to the lower price.~~

~~(c) **Sales Promotions.** In addition to decreasing prices for the balance of the Contract term due to a change in market conditions, a Contractor may conduct sales promotions involving price reductions for a~~

Sections deleted PUR 1000, 4, 5, 11, 12, 13, 15, 19, 20, 22, 23, 25, 26, 27, 29, 31, 35, 40, 41, 42.

~~specified lesser period. A Contractor shall submit to the Contract Specialist documentation identifying the proposed (1) starting and ending dates of the promotion, (2) products involved, and (3) promotional prices compared to then authorized prices. Promotional prices shall be available to all Customers. Upon approval, the Contractor shall provide conspicuous notice of the promotion.~~

~~(d) Trade In. Customers may trade in equipment when making purchases from the Contract. A trade in shall be negotiated between the Customer and the Contractor. Customers are obligated to actively seek current fair market value when trading equipment, and to keep accurate records of the process. For State agencies, it may be necessary to provide documentation to the Department of Financial Services and to the agency property custodian pursuant to Chapter 273, F.S.~~

~~(e) Equitable Adjustment. The Customer may, in its sole discretion, make an equitable adjustment in the Contract terms or pricing if pricing or availability of supply is affected by extreme and unforeseen volatility in the marketplace, that is, by circumstances that satisfy all the following criteria: (1) the volatility is due to causes wholly beyond the Contractor's control, (2) the volatility affects the marketplace or industry, not just the particular Contract source of supply, (3) the effect on pricing or availability of supply is substantial, and (4) the volatility so affects the Contractor that continued performance of the Contract would result in a substantial loss.~~

~~5. Additional Quantities. For a period not exceeding ninety (90) days from the date of solicitation award, the Customer reserves the right to acquire additional quantities up to the amount shown on the solicitation but not to exceed the threshold for Category Two at the prices submitted in the response to the solicitation.~~

6. Packaging. Tangible product shall be securely and properly packed for shipment, storage, and stocking in appropriate, clearly labeled, shipping containers and according to accepted commercial practice, without extra charge for packing materials, cases, or other types of containers. All containers and packaging shall become and remain Customer's property.

7. Inspection at Contractor's Site. The Customer reserves the right to inspect, at any reasonable time with prior notice, the equipment or product or plant or other facilities of a Contractor to assess conformity with Contract requirements and to determine whether they are adequate and suitable for proper and effective Contract performance.

8. Safety Standards. All manufactured items and fabricated assemblies subject to operation under pressure, operation by connection to an electric source, or operation involving connection to a manufactured, natural, or LP gas source shall be constructed and approved in a manner acceptable to the appropriate State inspector. Acceptability customarily requires, at a minimum, identification marking of the appropriate safety standard organization, where such approvals of listings have been established for the type of device offered and furnished, for example: the American Society of Mechanical Engineers for pressure vessels; the Underwriters Laboratories and/or National Electrical Manufacturers' Association for electrically operated assemblies; and the American Gas Association for gas-operated assemblies. In addition, all items furnished shall meet all applicable requirements of the Occupational Safety and Health Act and state and federal requirements relating to clean air and water pollution.

9. Americans with Disabilities Act. Contractors should identify any products that may be used or adapted for use by visually, hearing, or other physically impaired individuals.

10. Literature. Upon request, the Contractor shall furnish literature reasonably related to the product offered, for example, user manuals, price schedules, catalogs, descriptive brochures, etc.

~~**11. Transportation and Delivery.** Prices shall include all charges for packing, handling, freight, distribution, and inside delivery. Transportation of goods shall be FOB Destination to any point within thirty (30) days after the Customer places an Order. A Contractor, within five (5) days after receiving a~~

~~purchase order, shall notify the Customer of any potential delivery delays. Evidence of inability or intentional delays shall be cause for Contract cancellation and Contractor suspension.~~

~~**12. Installation.** Where installation is required, Contractor shall be responsible for placing and installing the product in the required locations at no additional charge, unless otherwise designated on the Contract or purchase order. Contractor's authorized product and price list shall clearly and separately identify any additional installation charges. All materials used in the installation shall be of good quality and shall be free of defects that would diminish the appearance of the product or render it structurally or operationally unsound. Installation includes the furnishing of any equipment, rigging, and materials required to install or replace the product in the proper location. Contractor shall protect the site from damage and shall repair damages or injury caused during installation by Contractor or its employees or agents. If any alteration, dismantling, excavation, etc., is required to achieve installation, the Contractor shall promptly restore the structure or site to its original condition. Contractor shall perform installation work so as to cause the least inconvenience and interference with Customers and with proper consideration of others on site. Upon completion of the installation, the location and surrounding area of work shall be left clean and in a neat and unobstructed condition, with everything in satisfactory repair and order.~~

~~**13. Risk of Loss.** Matters of inspection and acceptance are addressed in s. 215.422, F.S. Until Delivery, risk of loss or damage shall remain with the Contractor. The Contractor shall be responsible for filing, processing, and collecting all damage claims. To assist the Contractor with damage claims, the Customer shall: record any evidence of visible damage on all copies of the delivering carrier's Bill of Lading; report damages to the carrier and the Contractor; and provide the Contractor with a copy of the carrier's Bill of Lading and damage inspection report. When a Customer rejects a product, Contractor shall remove it from the premises within ten days after notification or rejection. Upon rejection notification, the risk of loss of rejected or non-conforming product shall remain with the Contractor. Rejected product not removed by the Contractor within ten days shall be deemed abandoned by the Contractor, and the Customer shall have the right to dispose of it as its own property. Contractor shall reimburse the Customer for costs and expenses incurred in storing or effecting removal or disposition of rejected product.~~

14. Transaction Fee. The State of Florida has instituted MyFloridaMarketPlace, a statewide eProcurement System ("System"). Pursuant to section 287.057(23), Florida Statutes (2002), all payments shall be assessed a Transaction Fee of one percent (1.0%), which the Contractor shall pay to the State, unless exempt pursuant to 60A-1.032, F.A.C.

For payments within the State accounting system (FLAIR or its successor), the Transaction Fee shall, when possible, be automatically deducted from payments to the Contractor. If automatic deduction is not possible, the Contractor shall pay the Transaction Fee pursuant to Rule 60A-1.031(2), F.A.C. By submission of these reports and corresponding payments, Contractor certifies their correctness. All such reports and payments shall be subject to audit by the State or its designee.

Contractor shall receive a credit for any Transaction Fee paid by the Contractor for the purchase of any item(s) if such item(s) are returned to the Contractor through no fault, act, or omission of the Contractor. Notwithstanding the foregoing, a Transaction Fee is non-refundable when an item is rejected or returned, or declined, due to the Contractor's failure to perform or comply with specifications or requirements of the agreement.

Failure to comply with these requirements shall constitute grounds for declaring the Contractor in default and recovering procurement costs from the Contractor in addition to all outstanding fees.
CONTRACTORS DELINQUENT IN PAYING TRANSACTION FEES MAY BE SUBJECT TO BEING REMOVED FROM THE DEPARTMENT OF MANAGEMENT SERVICES' VENDOR LIST AS PROVIDED IN RULE 60A-1.006, F.A.C.

15. Invoicing and Payment. ~~Invoices shall contain the Contract number, purchase order number if applicable, and the appropriate Vendor identification number. The State may require any other information from the Contractor that the State deems necessary to verify any purchase order placed under the Contract.~~

~~At the State's option, Contractors may be required to invoice electronically pursuant to guidelines of the Department of Management Services. Current guidelines require that Contractor supply electronic invoices in lieu of paper-based invoices for those transactions processed through the system. Electronic invoices shall be submitted to the Customer through the Ariba Supplier Network (ASN) in one of the following mechanisms—EDI 810, eXML, or web-based invoice entry within the ASN.~~

~~Payment shall be made in accordance with sections 215.422 and 287.0585 of the Florida Statutes, which govern time limits for payment of invoices. Invoices that must be returned to a Contractor due to preparation errors will result in a delay in payment. Contractors may call (850) 413-5516 Monday through Friday to inquire about the status of payments by State Agencies. The Customer is responsible for all payments under the Contract. A Customer's failure to pay, or delay in payment, shall not constitute a breach of the Contract and shall not relieve the Contractor of its obligations to the Department or to other Customers.~~

16. Taxes. The State does not pay Federal excise or sales taxes on direct purchases of tangible personal property. The State will not pay for any personal property taxes levied on the Contractor or for any taxes levied on employees' wages. Any exceptions to this paragraph shall be explicitly noted by the Customer in the special contract conditions section of the solicitation or in the Contract or purchase order.

17. Governmental Restrictions. If the Contractor believes that any governmental restrictions have been imposed that require alteration of the material, quality, workmanship or performance of the products offered under the

Contract, the Contractor shall immediately notify the Customer in writing, indicating the specific restriction. The customer reserves the right and the complete discretion to accept any such alteration or to cancel the Contract at no further expense to the Customer.

18. Lobbying and Integrity. Customers shall ensure compliance with Section 11.062, FS and Section 216.347, F.S. The Contractor shall not, in connection with this or any other agreement with the State, directly or indirectly (1) offer, confer, or agree to confer any pecuniary benefit on anyone as consideration for any State officer or employee's decision, opinion, recommendation, vote, other exercise of discretion, or violation of a known legal duty, or (2) offer, give, or agree to give to anyone any gratuity for the benefit of, or at the direction or request of, any State officer or employee. For purposes of clause (2), "gratuity" means any payment of more than nominal monetary value in the form of cash, travel, entertainment, gifts, meals, lodging, loans, subscriptions, advances, deposits of money, services, employment, or contracts of any kind. Upon request of the Customer's Inspector General, or other authorized State official, the Contractor shall provide any type of information the Inspector General deems relevant to the Contractor's integrity or responsibility. Such information may include, but shall not be limited to, the Contractor's business or financial records, documents, or files of any type or form that refer to or relate to the Contract. The Contractor shall retain such records for the longer of (1) three years after the expiration of the Contract or (2) the period required by the General Records Schedules maintained by the Florida Department of State (available at: <http://dliis.dos.state.fl.us/barm/genschedules/gensched.htm>). The Contractor agrees to reimburse the State for the reasonable costs of investigation incurred by the Inspector General or other authorized State official for investigations of the Contractor's compliance with the terms of this or any other agreement between the Contractor and the State which results in the suspension or debarment of the Contractor. Such costs shall include, but shall not be limited to: salaries of investigators, including overtime; travel and lodging expenses; and expert witness and documentary fees. The Contractor shall not be responsible for any costs of investigations that do not result in the Contractor's suspension or debarment.

19. Indemnification. ~~The Contractor shall be fully liable for the actions of its agents, employees, partners, or subcontractors and shall fully indemnify, defend, and hold harmless the State and Customers, and their officers, agents, and employees, from suits, actions, damages, and costs of every name and description, including attorneys' fees, arising from or relating to personal injury and damage to real or personal tangible property alleged to be caused in whole or in part by Contractor, its agents, employees, partners, or subcontractors, provided, however, that the Contractor shall not indemnify for that portion of any loss or damages proximately caused by the negligent act or omission of the State or a Customer.~~

~~Further, the Contractor shall fully indemnify, defend, and hold harmless the State and Customers from any suits, actions, damages, and costs of every name and description, including attorneys' fees, arising from or relating to violation or infringement of a trademark, copyright, patent, trade secret or intellectual property right, provided, however, that the foregoing obligation shall not apply to a Customer's misuse or modification of Contractor's products or a Customer's operation or use of Contractor's products in a manner not contemplated by the Contract or the purchase order. If any product is the subject of an infringement suit, or in the Contractor's opinion is likely to become the subject of such a suit, the Contractor may at its sole expense procure for the Customer the right to continue using the product or to modify it to become non-infringing. If the Contractor is not reasonably able to modify or otherwise secure the Customer the right to continue using the product, the Contractor shall remove the product and refund the Customer the amounts paid in excess of a reasonable rental for past use. The customer shall not be liable for any royalties.~~

~~The Contractor's obligations under the preceding two paragraphs with respect to any legal action are contingent upon the State or Customer giving the Contractor (1) written notice of any action or threatened action, (2) the opportunity to take over and settle or defend any such action at Contractor's sole expense, and (3) assistance in defending the action at Contractor's sole expense. The Contractor shall not be liable for any cost, expense, or compromise incurred or made by the State or Customer in any legal action without the Contractor's prior written consent, which shall not be unreasonably withheld.~~

20. Limitation of Liability. ~~For all claims against the Contractor under any contract or purchase order, and regardless of the basis on which the claim is made, the Contractor's liability under a contract or purchase order for direct damages shall be limited to the greater of \$100,000, the dollar amount of the contract or purchase order, or two times the charges rendered by the Contractor under the purchase order.~~

~~This limitation shall not apply to claims arising under the Indemnity paragraph contain in this agreement. Unless otherwise specifically enumerated in the Contract or in the purchase order, no party shall be liable to another for special, indirect, punitive, or consequential damages, including lost data or records (unless the contract or purchase order requires the Contractor to back-up data or records), even if the party has been advised that such damages are possible. No party shall be liable for lost profits, lost revenue, or lost institutional operating savings. The State and Customer may, in addition to other remedies available to them at law or equity and upon notice to the Contractor, retain such monies from amounts due Contractor as may be necessary to satisfy any claim for damages, penalties, costs and the like asserted by or against them. The State may set off any liability or other obligation of the Contractor or its affiliates to the State against any payments due the Contractor under any contract with the State.~~

21. Suspension of Work. The Customer may in its sole discretion suspend any or all activities under the Contract or purchase order, at any time, when in the best interests of the State to do so. The Customer shall provide the Contractor written notice outlining the particulars of suspension. Examples of the reason for suspension include, but are not limited to, budgetary constraints, declaration of emergency, or other such circumstances. After receiving a suspension notice, the Contractor shall comply with the notice and shall not accept any purchase orders. Within ninety days, or any longer period agreed to by the Contractor, the Customer shall either (1) issue a notice authorizing resumption of work, at which time activity shall resume, or (2) terminate the Contract or purchase order. Suspension of work shall not entitle the Contractor to any additional compensation.

~~22. Termination for Convenience.~~ The Customer, by written notice to the Contractor, may terminate the Contract in whole or in part when the Customer determines in its sole discretion that it is in the State's interest to do so. The Contractor shall not furnish any product after it receives the notice of termination, except as necessary to complete the continued portion of the Contract, if any. The Contractor shall not be entitled to recover any cancellation charges or lost profits.

~~23. Termination for Cause.~~ The Customer may terminate the Contract if the Contractor fails to (1) deliver the product within the time specified in the Contract or any extension, (2) maintain adequate progress, thus endangering performance of the Contract, (3) honor any term of the Contract, or (4) abide by any statutory, regulatory, or licensing requirement. Rule 60A-1.006(3), F.A.C., governs the procedure and consequences of default. The Contractor shall continue work on any work not terminated. Except for defaults of subcontractors at any tier, the Contractor shall not be liable for any excess costs if the failure to perform the Contract arises from events completely 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 at any tier, and if the cause of the default is completely beyond the control of both the Contractor and the subcontractor, and without the fault or negligence of either, the Contractor shall not be liable for any excess costs for failure to perform, unless the subcontracted products were obtainable from other sources in sufficient time for the Contractor to meet the required delivery schedule. If, after termination, it is determined that the Contractor was not in default, or that the default was excusable, the rights and obligations of the parties shall be the same as if the termination had been issued for the convenience of the Customer. The rights and remedies of the Customer in this clause are in addition to any other rights and remedies provided by law or under the Contract.

24. Force Majeure, Notice of Delay, and No Damages for Delay. The Contractor shall not be responsible for delay resulting from its failure to perform if neither the fault nor the negligence of the Contractor or its employees or agents contributed to the delay and the delay is due directly to acts of God, wars, acts of public enemies, strikes, fires, floods, or other similar cause wholly beyond the Contractor's control, or for any of the foregoing that affect subcontractors or suppliers if no alternate source of supply is available to the Contractor. In case of any delay the Contractor believes is excusable, the Contractor shall notify the Customer in writing of the delay or potential delay and describe the cause of the delay either (1) within ten (10) days after the cause that creates or will create the delay first arose, if the Contractor could reasonably foresee that a delay could occur as a result, or (2) if delay is not reasonably foreseeable, within five (5) days after the date the Contractor first had reason to believe that a delay could result. **THE FOREGOING SHALL CONSTITUTE THE CONTRACTOR'S SOLE REMEDY OR EXCUSE WITH RESPECT TO DELAY.**

Providing notice in strict accordance with this paragraph is a condition precedent to such remedy. No claim for damages, other than for an extension of time, shall be asserted against the Customer.

The Contractor shall not be entitled to an increase in the Contract price or payment of any kind from the Customer for direct, indirect, consequential, impact or other costs, expenses or damages, including but not limited to costs of acceleration or inefficiency, arising because of delay, disruption, interference, or hindrance from any cause whatsoever. If performance is suspended or delayed, in whole or in part, due to any of the causes described in this paragraph, after the causes have ceased to exist the Contractor shall perform at no increased cost, unless the Customer determines, in its sole discretion, that the delay will significantly impair the value of the Contract to the State or to Customers, in which case the Customer may (1) accept allocated performance or deliveries from the Contractor, provided that the Contractor grants preferential treatment to Customers with respect to products subjected to allocation, or (2) purchase from other sources (without recourse to and by the Contractor for the related costs and expenses) to replace all or part of the products that are the subject of the delay, which purchases may be deducted from the Contract quantity, or (3) terminate the Contract in whole or in part.

~~25. **Changes.** The Customer may unilaterally require, by written order, changes altering, adding to, or deducting from the Contract specifications, provided that such changes are within the general scope of the Contract. The Customer may make an equitable adjustment in the Contract price or delivery date if the change affects the cost or time of performance. Such equitable adjustments require the written consent of the Contractor, which shall not be unreasonably withheld. If unusual quantity requirements arise, the Customer may solicit separate bids to satisfy them.~~

~~26. **Renewal.** Upon mutual agreement, the Customer and the Contractor may renew the Contract, in whole or in part, for a period that may not exceed 3 years or the term of the contract, whichever period is longer. Any renewal shall specify the renewal price, as set forth in the solicitation response. The renewal must be in writing and signed by both parties, and is contingent upon satisfactory performance evaluations and subject to availability of funds.~~

~~27. **Purchase Order Duration.** Purchase orders issued pursuant to a state term or agency contract must be received by the Contractor no later than close of business on the last day of the contract's term to be considered timely. The Contractor is obliged to fill those orders in accordance with the contract's terms and conditions. Purchase orders received by the contractor after close of business on the last day of the state term or agency contract's term shall be considered void.~~

~~Purchase orders for a one-time delivery of commodities or performance of contractual services shall be valid through the performance by the Contractor, and all terms and conditions of the state term or agency contract shall apply to the single delivery/performance, and shall survive the termination of the Contract.~~

~~Contractors are required to accept purchase orders specifying delivery schedules exceeding the contracted schedule even when such extended delivery will occur after expiration of the state term or agency contract. For example, if a state term contract calls for delivery 30 days after receipt of order (ARO), and an order specifies delivery will occur both in excess of 30 days ARO and after expiration of the state term contract, the Contractor will accept the order. However, if the Contractor expressly and in writing notifies the ordering office within ten (10) calendar days of receipt of the purchase order that Contractor will not accept the extended delivery terms beyond the expiration of the state term contract, then the purchase order will either be amended in writing by the ordering entity within ten (10) calendar days of receipt of the contractor's notice to reflect the state term contract delivery schedule, or it shall be considered withdrawn.~~

~~The duration of purchase orders for recurring deliveries of commodities or performance of services shall not exceed the expiration of the state term or agency contract by more than twelve months. However, if an extended pricing plan offered in the state term or agency contract is selected by the ordering entity, the contract terms on pricing plans and renewals shall govern the maximum duration of purchase orders reflecting such pricing plans and renewals.~~

~~Timely purchase orders shall be valid through their specified term and performance by the Contractor, and all terms and conditions of the state term or agency contract shall apply to the recurring delivery/performance as provided herein, and shall survive the termination of the Contract.~~

~~Ordering offices shall not renew a purchase order issued pursuant to a state term or agency contract if the underlying contract expires prior to the effective date of the renewal.~~

~~28. **Advertising.** Subject to Chapter 119, Florida Statutes, the Contractor shall not publicly disseminate any information concerning the Contract without prior written approval from the Customer, including, but not limited to mentioning the Contract in a press release or other promotional material, identifying the Customer or the State as a reference, or otherwise linking the Contractor's name and either a description of the Contract or the name of the State or the Customer in any material published, either in print or electronically, to any entity that is not a party to Contract, except potential or actual authorized distributors, dealers, resellers, or service representative.~~

~~29. **Assignment.** The Contractor shall not sell, assign or transfer any of its rights, duties or obligations under the Contract, or under any purchase order issued pursuant to the Contract, without the prior written~~

~~consent of the Customer. In the event of any assignment, the Contractor remains secondarily liable for performance of the contract, unless the Customer expressly waives such secondary liability. The Customer may assign the Contract with prior written notice to Contractor of its intent to do so.~~

30. Antitrust Assignment. The Contractor and the State of Florida recognize that in actual economic practice, overcharges resulting from antitrust violations are in fact usually borne by the State of Florida. Therefore, the contractor hereby assigns to the State of Florida any and all claims for such overcharges as to goods, materials or services purchased in connection with the Contract.

~~**31. Dispute Resolution.** Any dispute concerning performance of the Contract shall be decided by the Customer's designated contract manager, who shall reduce the decision to writing and serve a copy on the Contractor. The decision shall be final and conclusive unless within twenty one (21) days from the date of receipt, the Contractor files with the Customer a petition for administrative hearing. The Customer's decision on the petition shall be final, subject to the Contractor's right to review pursuant to Chapter 120 of the Florida Statutes. Exhaustion of administrative remedies is an absolute condition precedent to the Contractor's ability to pursue any other form of dispute resolution; provided, however, that the parties may employ the alternative dispute resolution procedures outlined in Chapter 120.~~

~~Without limiting the foregoing, the exclusive venue of any legal or equitable action that arises out of or relates to the Contract shall be the appropriate state court in Leon County, Florida; in any such action, Florida law shall apply and the parties waive any right to jury trial.~~

32. Employees, Subcontractors, and Agents. All Contractor employees, subcontractors, or agents performing work under the Contract shall be properly trained technicians who meet or exceed any specified training qualifications. Upon request, Contractor shall furnish a copy of technical certification or other proof of qualification. All employees, subcontractors, or agents performing work under the Contract must comply with all security and administrative requirements of the Customer and shall comply with all controlling laws and regulations relevant to the services they are providing under the Contract. The State may conduct, and the Contractor shall cooperate in, a security background check or otherwise assess any employee, subcontractor, or agent furnished by the Contractor. The State may refuse access to, or require replacement of, any personnel for cause, including, but not limited to, technical or training qualifications, quality of work, change in security status, or non-compliance with a Customer's security or other requirements. Such approval shall not relieve the Contractor of its obligation to perform all work in compliance with the Contract. The State may reject and bar from any facility for cause any of the Contractor's employees, subcontractors, or agents.

33. Security and Confidentiality. The Contractor shall comply fully with all security procedures of the United States, State of Florida and Customer in performance of the Contract. The Contractor shall not divulge to third parties any confidential information obtained by the Contractor or its agents, distributors, resellers, subcontractors, officers or employees in the course of performing Contract work, including, but not limited to, security procedures, business operations information, or commercial proprietary information in the possession of the State or Customer. The Contractor shall not be required to keep confidential information or material that is publicly available through no fault of the Contractor, material that the Contractor developed independently without relying on the State's or Customer's confidential information, or material that is otherwise obtainable under State law as a public record. To insure confidentiality, the Contractor shall take appropriate steps as to its personnel, agents, and subcontractors. The warranties of this paragraph shall survive the Contract.

34. Contractor Employees, Subcontractors, and Other Agents. The Customer and the State shall take all actions necessary to ensure that Contractor's employees, subcontractors and other agents are not employees of the State of Florida. Such actions include, but are not limited to, ensuring that Contractor's employees, subcontractors, and other agents receive benefits and necessary insurance (health, workers' compensations, and unemployment) from an employer other than the State of Florida.

35. Insurance Requirements. ~~During the Contract term, the Contractor at its sole expense shall provide commercial insurance of such a type and with such terms and limits as may be reasonably associated with the Contract. Providing and maintaining adequate insurance coverage is a material obligation of the Contractor. Upon request, the Contractor shall provide certificate of insurance. The limits of coverage under each policy maintained by the Contractor shall not be interpreted as limiting the Contractor's liability and obligations under the Contract. All insurance policies shall be through insurers authorized or eligible to write policies in Florida.~~

36. Warranty of Authority. Each person signing the Contract warrants that he or she is duly authorized to do so and to bind the respective party to the Contract.

37. Warranty of Ability to Perform. The Contractor warrants that, to the best of its knowledge, there is no pending or threatened action, proceeding, or investigation, or any other legal or financial condition, that would in any way prohibit, restrain, or diminish the Contractor's ability to satisfy its Contract obligations. The Contractor warrants that neither it nor any affiliate is currently on the convicted Vendor list maintained pursuant to section 287.133 of the Florida Statutes, or on any similar list maintained by any other state or the federal government. The Contractor shall immediately notify the Customer in writing if its ability to perform is compromised in any manner during the term of the Contract.

38. Notices. All notices required under the Contract shall be delivered by certified mail, return receipt requested, by reputable air courier service, or by personal delivery to the agency designee identified in the original solicitation, or as otherwise identified by the Customer. Notices to the Contractor shall be delivered to the person who signs the Contract. Either designated recipient may notify the other, in writing, if someone else is designated to receive notice.

39. Leases and Installment Purchases. Prior approval of the Chief Financial Officer (as defined in Section 17.001, F.S.) is required for State agencies to enter into or to extend any lease or installment-purchase agreement in excess of the Category Two amount established by section 287.017 of the Florida Statutes.

40. Prison Rehabilitative Industries and Diversified Enterprises, Inc. (PRIDE). ~~Section 946.515(2), F.S. requires the following statement to be included in the solicitation: "It is expressly understood and agreed that any articles which are the subject of, or required to carry out, the Contract shall be purchased from the corporation identified under Chapter 946 of the Florida Statutes (PRIDE) in the same manner and under the same procedures set forth in section 946.515(2) and (4) of the Florida Statutes; and for purposes of the Contract the person, firm, or other business entity carrying out the provisions of the Contract shall be deemed to be substituted for the agency insofar as dealings with such corporation are concerned." Additional information about PRIDE and the products it offers is available at <http://www.pridefl.com>.~~

41. Products Available from the Blind or Other Handicapped. ~~Section 413.036(3), F.S. requires the following statement to be included in the solicitation: "It is expressly understood and agreed that any articles that are the subject of, or required to carry out, this contract shall be purchased from a nonprofit agency for the Blind or for the Severely Handicapped that is qualified pursuant to Chapter 413, Florida Statutes, in the same manner and under the same procedures set forth in section 413.036(1) and (2), Florida Statutes; and for purposes of this contract the person, firm, or other business entity carrying out the provisions of this contract shall be deemed to be substituted for the State agency insofar as dealings with such qualified nonprofit agency are concerned." Additional information about the designated nonprofit agency and the products it offers is available at <http://www.respectofflorida.org>.~~

42. Modification of Terms. ~~The Contract contains all the terms and conditions agreed upon by the parties, which terms and conditions shall govern all transactions between the Customer and the~~

~~Contractor. The Contract may only be modified or amended upon mutual written agreement of the Customer and the Contractor. No oral agreements or representations shall be valid or binding upon the Customer or the Contractor. No alteration or modification of the Contract terms, including substitution of product, shall be valid or binding against the Customer. The Contractor may not unilaterally modify the terms of the Contract by affixing additional terms to product upon delivery (e.g., attachment or inclusion of standard preprinted forms, product literature, "shrink wrap" terms accompanying or affixed to a product, whether written or electronic) or by incorporating such terms onto the Contractor's order or fiscal forms or other documents forwarded by the Contractor for payment. The Customer's acceptance of product or processing of documentation on forms furnished by the Contractor for approval or payment shall not constitute acceptance of the proposed modification to terms and conditions.~~

43. Cooperative Purchasing. Pursuant to their own governing laws, and subject to the agreement of the Contractor, other entities may be permitted to make purchases at the terms and conditions contained herein. Non-Customer purchases are independent of the agreement between Customer and Contractor, and Customer shall not be a party to any transaction between the Contractor and any other purchaser. State agencies wishing to make purchases from this agreement are required to follow the provisions of s. 287.042(16)(a), F.S. This statute requires the Department of Management Services to determine that the requestor's use of the contract is cost-effective and in the best interest of the State.

44. Waiver. The delay or failure by the Customer to exercise or enforce any of its rights under this Contract shall not constitute or be deemed a waiver of the Customer's right thereafter to enforce those rights, nor shall any single or partial exercise of any such right preclude any other or further exercise thereof or the exercise of any other right.

45. Annual Appropriations. The State's performance and obligation to pay under this contract are contingent upon an annual appropriation by the Legislature.

46. Execution in Counterparts. The Contract may be executed in counterparts, each of which shall be an original and all of which shall constitute but one and the same instrument.

47. Severability. If a court deems any provision of the Contract void or unenforceable, that provision shall be enforced only to the extent that it is not in violation of law or is not otherwise unenforceable and all other provisions shall remain in full force and effect.

Exhibit "H"
State of Florida
PUR 1001
General Instructions to Respondents
Central Florida Commuter Rail Transit Diesel Electric Passenger Locomotives
Financial Project Number 412994-6-53-02

Contents

1. Definitions.
2. General Instructions.
- ~~3. Electronic Submission of Responses.~~
- ~~4. Terms and Conditions.~~
- ~~5. Questions.~~
6. Conflict of Interest.
7. Convicted Vendors.
8. Discriminatory Vendors.
9. Respondent's Representation and Authorization.
10. Manufacturer's Name and Approved Equivalents.
11. Performance Qualifications.
- ~~12. Public Opening.~~
- ~~13. Electronic Posting of Notice of Intended Award.~~
- ~~14. Firm Response.~~
15. Clarifications/Revisions.
16. Minor Irregularities/Right to Reject.
17. Contract Formation.
18. Contract Overlap.
- ~~19. Public Records.~~
- ~~20. Protests.~~
- ~~21. Limitation on Vendor Contact with Agency During Solicitation Period~~

1. Definitions. The definitions found in s. 60A-1.001, F.A.C. shall apply to this agreement. The following additional terms are also defined:

- (a) "Buyer" means the entity that has released the solicitation. The "Buyer" may also be the "Customer" as defined in the PUR 1000 if that entity meets the definition of both terms.
- (b) "Procurement Officer" means the Buyer's contracting personnel, as identified in the Introductory Materials.
- (c) "Respondent" means the entity that submits materials to the Buyer in accordance with these Instructions.
- (d) "Response" means the material submitted by the respondent in answering the solicitation.
- (e) "Timeline" means the list of critical dates and actions included in the Introductory Materials.

2. General Instructions. Potential respondents to the solicitation are encouraged to carefully review all the materials contained herein and prepare responses accordingly.

~~**3. Electronic Submission of Responses.** Respondents are required to submit responses electronically. For this purpose, all references herein to signatures, signing requirements, or other required acknowledgments hereby include electronic signature by means of clicking the "Submit Response" button (or other similar symbol or process) attached to or logically associated with the response created by the respondent within MyFloridaMarketPlace. The respondent agrees that the action of electronically submitting its response constitutes:~~

- ~~• an electronic signature on the response, generally;~~

Sections deleted PUR 1001 3, 4, 5, 12, 13, 14, 19, 20, 21.

- ~~an electronic signature on any form or section specifically calling for a signature, and~~
- ~~an affirmative agreement to any statement contained in the solicitation that requires a definite confirmation or acknowledgement.~~

4. Terms and Conditions. ~~All responses are subject to the terms of the following sections of this solicitation, which, in case of conflict, shall have the order of precedence listed:~~

- ~~Special Conditions and Instructions;~~
- ~~Instructions to Respondents (PUR 1001);~~
- ~~General Conditions (PUR 1000), and Introductory Materials.~~

~~The Buyer objects to and shall not consider any additional terms or conditions submitted by a respondent, including any appearing in documents attached as part of a respondent's response. In submitting its response, a respondent agrees that any additional terms or conditions, whether submitted intentionally or inadvertently, shall have no force or effect. Failure to comply with terms and conditions, including those specifying information that must be submitted with a response, shall be grounds for rejecting a response.~~

5. Questions. ~~Respondents shall address all questions regarding this solicitation to the Procurement Officer. Questions must be submitted via the Q&A Board within MyFloridaMarketPlace and must be RECEIVED NO LATER THAN the time and date reflected on the Timeline. Questions shall be answered in accordance with the Timeline. All questions submitted shall be published and answered in a manner that all respondents will be able to view. Respondents shall not contact any other employee of the Buyer or the State for information with respect to this solicitation. Each respondent is responsible for monitoring the MyFloridaMarketPlace site for new or changing information. The Buyer shall not be bound by any verbal information or by any written information that is not contained within the solicitation documents or formally noticed and issued by the Buyer's contracting personnel. Questions to the Procurement Officer or to any Buyer personnel shall not constitute formal protest of the specifications or of the solicitation, a process addressed in paragraph 19 of these Instructions.~~

6. Conflict of Interest. This solicitation is subject to chapter 112 of the Florida Statutes. Respondents shall disclose with their response the name of any officer, director, employee or other agent who is also an employee of the State. Respondents shall also disclose the name of any State employee who owns, directly or indirectly, an interest of five percent (5%) or more in the respondent or its affiliates.

7. Convicted Vendors. A person or affiliate placed on the convicted Vendor list following a conviction for a public entity crime is prohibited from doing any of the following for a period of 36 months from the date of being placed on the convicted Vendor list:

- submitting a bid on a contract to provide any goods or services to a public entity;
- submitting a bid on a contract with a public entity for the construction or repair of a public building or public work;
- submitting bids on leases of real property to a public entity;
- being awarded or performing work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity; and
- transacting business with any public entity in excess of the Category Two threshold amount (\$25,000) provided in section 287.017 of the Florida Statutes.

8. Discriminatory Vendors. An entity or affiliate placed on the discriminatory vendor list pursuant to section 287.134 of the Florida Statutes may not:

- submit a bid on a contract to provide any goods or services to a public entity;
- submit a bid on a contract with a public entity for the construction or repair of a public building or public work;
- submit bids on leases of real property to a public entity;
- be awarded or perform work as a contractor, supplier, sub-contractor, or consultant under a contract with any public entity; or

Sections deleted PUR 1001 3, 4, 5, 12, 13, 14, 19, 20, 21.

- transact business with any public entity.

9. Respondent's Representation and Authorization. In submitting a response, each respondent understands, represents, and acknowledges the following (if the respondent cannot so certify to any of following, the respondent shall submit with its response a written explanation of why it cannot do so).

- The respondent is not currently under suspension or debarment by the State or any other governmental authority.
- To the best of the knowledge of the person signing the response, the respondent, its affiliates, subsidiaries, directors, officers, and employees are not currently under investigation by any governmental authority and have not in the last ten (10) years been convicted or found liable for any act prohibited by law in any jurisdiction, involving conspiracy or collusion with respect to bidding on any public contract.
- Respondent currently has no delinquent obligations to the State, including a claim by the State for liquidated damages under any other contract.
- The submission is made in good faith and not pursuant to any agreement or discussion with, or inducement from, any firm or person to submit a complementary or other noncompetitive response.
- The prices and amounts have been arrived at independently and without consultation, communication, or agreement with any other respondent or potential respondent; neither the prices nor amounts, actual or approximate, have been disclosed to any respondent or potential respondent, and they will not be disclosed before the solicitation opening.
- The respondent has fully informed the Buyer in writing of all convictions of the firm, its affiliates (as defined in section 287.133(1)(a) of the Florida Statutes), and all directors, officers, and employees of the firm and its affiliates for violation of state or federal antitrust laws with respect to a public contract for violation of any state or federal law involving fraud, bribery, collusion, conspiracy or material misrepresentation with respect to a public contract. This includes disclosure of the names of current employees who were convicted of contract crimes while in the employ of another company.
- Neither the respondent nor any person associated with it in the capacity of owner, partner, director, officer, principal, investigator, project director, manager, auditor, or position involving the administration of federal funds:
 - Has within the preceding three years been convicted of or had a civil judgment rendered against them or is presently indicted for or otherwise criminally or civilly charged for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a federal, state, or local government transaction or public contract; violation of federal or state antitrust statutes; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property; or
 - Has within a three-year period preceding this certification had one or more federal, state, or local government contracts terminated for cause or default.
- The product offered by the respondent will conform to the specifications without exception.
- The respondent has read and understands the Contract terms and conditions, and the submission is made in conformance with those terms and conditions.
- If an award is made to the respondent, the respondent agrees that it intends to be legally bound to the Contract that is formed with the State.
- The respondent has made a diligent inquiry of its employees and agents responsible for preparing, approving, or submitting the response, and has been advised by each of them that he or she has not participated in any communication, consultation, discussion, agreement, collusion, act or other conduct inconsistent with any of the statements and representations made in the response.

Sections deleted PUR 1001 3, 4, 5, 12, 13, 14, 19, 20, 21.

- The respondent shall indemnify, defend, and hold harmless the Buyer and its employees against any cost, damage, or expense which may be incurred or be caused by any error in the respondent's preparation of its bid.
- All information provided by, and representations made by, the respondent are material and important and will be relied upon by the Buyer in awarding the Contract. Any misstatement shall be treated as fraudulent concealment from the Buyer of the true facts relating to submission of the bid. A misrepresentation shall be punishable under law, including, but not limited to, Chapter 817 of the Florida Statutes.

10. Manufacturer's Name and Approved Equivalents. Unless otherwise specified, any manufacturers' names, trade names, brand names, information or catalog numbers listed in a specification are descriptive, not restrictive. With the Buyer's prior approval, the Contractor may provide any product that meets or exceeds the applicable specifications. The Contractor shall demonstrate comparability, including appropriate catalog materials, literature, specifications, test data, etc. The Buyer shall determine in its sole discretion whether a product is acceptable as an equivalent.

11. Performance Qualifications. The Buyer reserves the right to investigate or inspect at any time whether the product, qualifications, or facilities offered by Respondent meet the Contract requirements. Respondent shall at all times during the Contract term remain responsive and responsible. In determining Respondent's responsibility as a Vendor, the agency shall consider all information or evidence which is gathered or comes to the attention of the agency which demonstrates the Respondent's capability to fully satisfy the requirements of the solicitation and the contract.

Respondent must be prepared, if requested by the Buyer, to present evidence of experience, ability, and financial standing, as well as a statement as to plant, machinery, and capacity of the respondent for the production, distribution, and servicing of the product bid. If the Buyer determines that the conditions of the solicitation documents are not complied with, or that the product proposed to be furnished does not meet the specified requirements, or that the qualifications, financial standing, or facilities are not satisfactory, or that performance is untimely, the Buyer may reject the response or terminate the Contract. Respondent may be disqualified from receiving awards if respondent, or anyone in respondent's employment, has previously failed to perform satisfactorily in connection with public bidding or contracts. This paragraph shall not mean or imply that it is obligatory upon the Buyer to make an investigation either before or after award of the Contract, but should the Buyer elect to do so, respondent is not relieved from fulfilling all Contract requirements.

~~**12. Public Opening.** Responses shall be opened on the date and at the location indicated on the Timeline. Respondents may, but are not required to, attend. The Buyer may choose not to announce prices or release other materials pursuant to s. 119.071(1)(b), Florida Statutes. Any person requiring a special accommodation because of a disability should contact the Procurement Officer at least five (5) workdays prior to the solicitation opening. If you are hearing or speech impaired, please contact the Buyer by using the Florida Relay Service at (800) 955-8771 (TDD).~~

~~**13. Electronic Posting of Notice of Intended Award.** Based on the evaluation, on the date indicated on the Timeline the Buyer shall electronically post a notice of intended award at http://fen.state.fl.us/owa/vbs/owa/vbs/www/main_menu. If the notice of award is delayed, in lieu of posting the notice of intended award the Buyer shall post a notice of the delay and a revised date for posting the notice of intended award. Any person who is adversely affected by the decision shall file with the Buyer a notice of protest within 72 hours after the electronic posting. The Buyer shall not provide tabulations or notices of award by telephone.~~

~~**14. Firm Response.** The Buyer may make an award within sixty (60) days after the date of the opening, during which period responses shall remain firm and shall not be withdrawn. If award is not made within sixty (60) days, the response shall remain firm until either the Buyer awards the Contract or the Buyer~~

~~receives from the respondent written notice that the response is withdrawn. Any response that expresses a shorter duration may, in the Buyer's sole discretion, be accepted or rejected.~~

15. Clarifications/Revisions. Before award, the Buyer reserves the right to seek clarifications or request any information deemed necessary for proper evaluation of replies from all respondents deemed eligible for Contract award. Failure to provide requested information may result in rejection of the response.

16. Minor Irregularities/Right to Reject. The Buyer reserves the right to accept or reject any and all bids, or separable portions thereof, and to waive any minor irregularity, technicality, or omission if the Buyer determines that doing so will serve the State's best interests. The Buyer may reject any response not submitted in the manner specified by the solicitation documents.

17. Contract Formation. The Buyer shall issue a notice of award, if any, to successful respondent(s), however, no contract shall be formed between respondent and the Buyer until the Buyer signs the Contract. The Buyer shall not be liable for any costs incurred by a respondent in preparing or producing its response or for any work performed before the Contract is effective.

18. Contract Overlap. Respondents shall identify any products covered by this solicitation that they are currently authorized to furnish under any state term contract. By entering into the Contract, a Contractor authorizes the Buyer to eliminate duplication between agreements in the manner the Buyer deems to be in its best interest.

~~**19. Public Records.** Article 1, section 24, Florida Constitution, guarantees every person access to all public records, and Section 119.011, Florida Statutes, provides a broad definition of public record. As such, all responses to a competitive solicitation are public records unless exempt by law. Any respondent claiming that its response contains information that is exempt from the public records law shall clearly segregate and mark that information and provide the specific statutory citation for such exemption.~~

~~**20. Protests.** Any protest concerning this solicitation shall be made in accordance with sections 120.57(3) and 287.042(2) of the Florida Statutes and chapter 28-110 of the Florida Administrative Code. Questions to the Procurement Officer shall not constitute formal notice of a protest. It is the Buyer's intent to ensure that specifications are written to obtain the best value for the State and that specifications are written to ensure competitiveness, fairness, necessity and reasonableness in the solicitation process.~~

~~Section 120.57(3)(b), F.S. and Section 28-110.003, Fla. Admin. Code require that a notice of protest of the solicitation documents shall be made within seventy-two hours after the posting of the solicitation.~~

~~Section 120.57(3)(a), F.S. requires the following statement to be included in the solicitation: "Failure to file a protest within the time prescribed in section 120.57(3), Florida Statutes, shall constitute a waiver of proceedings under Chapter 120, Florida Statutes."~~

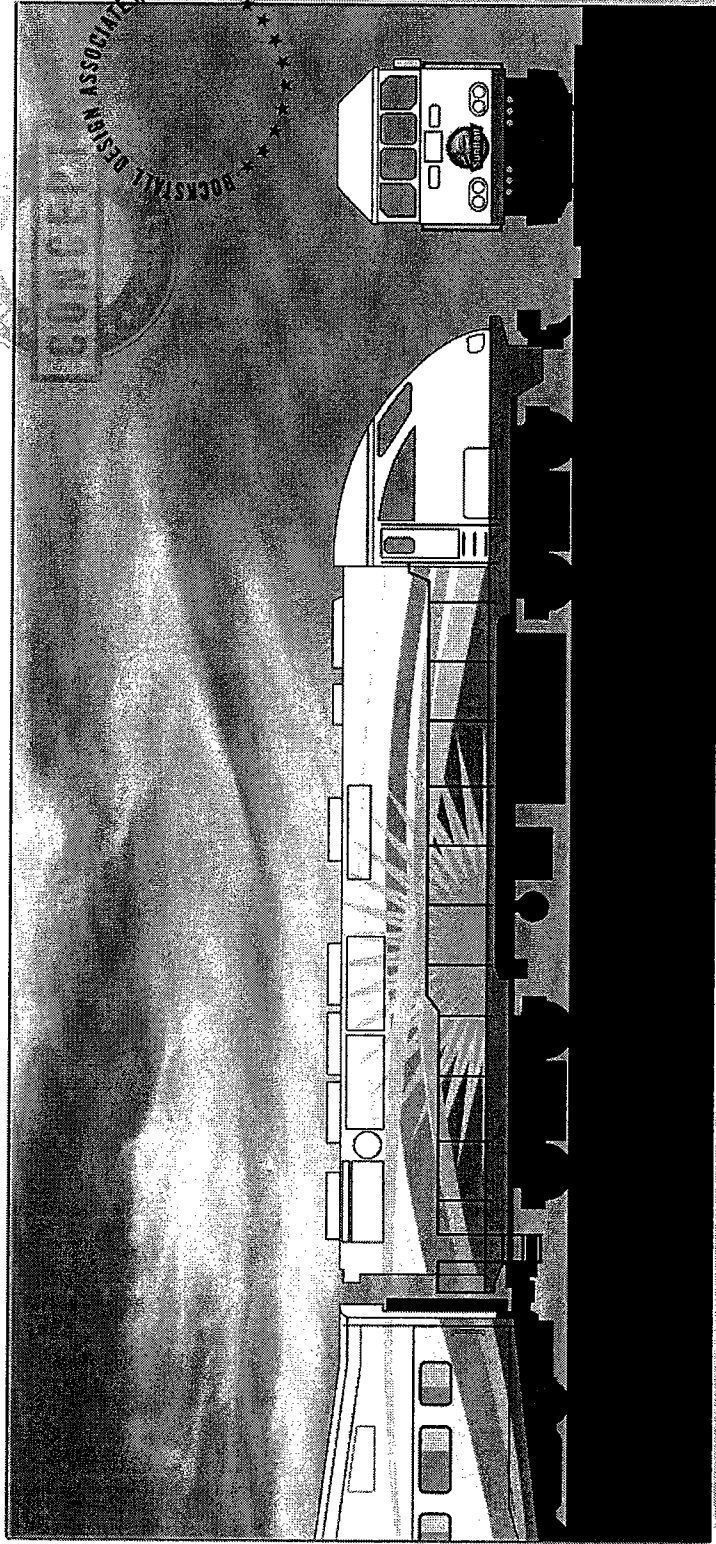
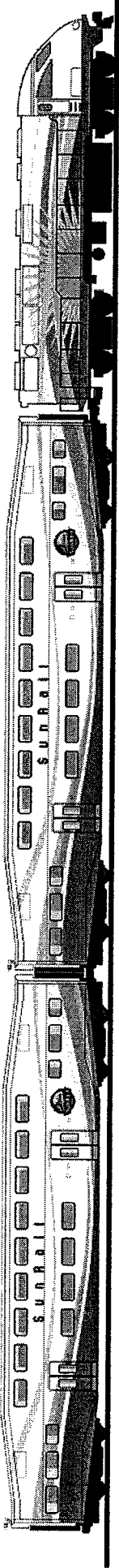
~~Section 28-110.005, Fla. Admin. Code requires the following statement to be included in the solicitation: "Failure to file a protest within the time prescribed in Section 120.57(3), Florida Statutes, or failure to post the bond or other security required by law within the time allowed for filing a bond shall constitute a waiver of proceedings under Chapter 120, Florida Statutes."~~

~~**21. Limitation on Vendor Contact with Agency During Solicitation Period.** Respondents to this solicitation or persons acting on their behalf may not contact, between the release of the solicitation and the end of the 72-hour period following the agency posting the notice of intended award, excluding Saturdays, Sundays, and state holidays, any employee or officer of the executive or legislative branch concerning any aspect of this solicitation, except in writing to the procurement officer or as provided in the solicitation documents. Violation of this provision may be grounds for rejecting a response.~~

Sections deleted PUR 1001 3, 4, 5, 12, 13, 14, 19, 20, 21.

Sections deleted PUR 1001 3, 4, 5, 12, 13, 14, 19, 20, 21.

Exhibit "I"
Central Florida Commuter Rail Transit Vehicle Color Scheme Composite



Finalist

Train Decoration

Florida Department of Transportation

03

APPENDIX C FULL BUILD 2016 SCENARIO PRELIMINARY TRAIN SCHEDULES

SOUTHBOUND DIRECTION

Train No.	To From	DeLand Amtrak	Sanford Amtrak	Lake Mary	Longwood SR 434	Altamonte Springs	Maitland	Winter Park	Florida Hospital	Orlando LCS	Church Street	ORMC/ Amtrak	Sand Lake SR 408	Meadow Woods	Osceola Pkwy.	Kissimmee Amtrak	Poinciana Blvd.	Layover
5	From Yard	5:30	5:49	5:56	6:02	6:06	6:11	6:17	6:22	6:28	6:30	6:33	6:40	6:46	6:51	6:56	7:02	0:27
6	From Yard	6:00	6:19	6:26	6:32	6:36	6:41	6:47	6:52	6:58	7:00	7:03	7:10	7:16	7:21	7:26	7:32	0:27
7	From Yard	6:30	6:49	6:56	7:02	7:06	7:11	7:17	7:22	7:28	7:30	7:33	7:40	7:46	7:51	7:56	8:02	To Yard
8	From Yard	7:00	7:19	7:26	7:32	7:36	7:41	7:47	7:52	7:58	8:00	8:03	8:10	8:16	8:21	8:26	8:32	To Yard
1	From Yard	7:30	7:49	7:56	8:02	8:06	8:11	8:17	8:22	8:28	8:30	8:33	8:40	8:46	8:51	8:56	9:02	To Yard
2	From Yard	8:00	8:19	8:26	8:32	8:36	8:41	8:47	8:52	8:58	9:00	9:03	9:10	9:16	9:21	9:26	9:32	0:27
6	From Yard	10:00	10:19	10:26	10:32	10:36	10:41	10:47	10:52	10:58	11:00	11:03	11:10	11:16	11:21	11:26	11:32	0:27
2	From Yard	12:00	12:19	12:26	12:32	12:36	12:41	12:47	12:52	12:58	13:00	13:03	13:10	13:16	13:21	13:26	13:32	0:27
6	From Yard	14:00	14:19	14:26	14:32	14:36	14:41	14:47	14:52	14:58	15:00	15:03	15:10	15:16	15:21	15:26	15:32	0:27
2	From Yard	16:00	16:19	16:26	16:32	16:36	16:41	16:47	16:52	16:58	17:00	17:03	17:10	17:16	17:21	17:26	17:32	0:27
3	From Yard	18:30	18:49	18:56	19:02	19:06	19:11	19:17	19:22	19:28	19:30	19:33	19:40	19:46	19:51	19:56	20:02	0:27
4	From Yard	17:00	17:19	17:26	17:32	17:36	17:41	17:47	17:52	17:58	18:00	18:03	18:10	18:16	18:21	18:26	18:32	To Yard
5	From Yard	17:30	17:49	17:56	18:02	18:06	18:11	18:17	18:22	18:28	18:30	18:33	18:40	18:46	18:51	18:56	19:02	To Yard
6	From Yard	18:00	18:19	18:26	18:32	18:36	18:41	18:47	18:52	18:58	19:00	19:03	19:10	19:16	19:21	19:26	19:32	To Yard
1	From Yard	18:30	18:49	18:56	19:02	19:06	19:11	19:17	19:22	19:28	19:30	19:33	19:40	19:46	19:51	19:56	20:02	0:27
2	From Yard	20:00	20:19	20:26	20:32	20:36	20:41	20:47	20:52	20:58	21:00	21:03	21:10	21:16	21:21	21:26	21:32	To Yard

NORTHBOUND DIRECTION

To From	Poinciana Blvd.	Kissimmee Amtrak	Osceola Pkwy.	Meadow Woods	Sand Lake SR 408	ORMC/ Amtrak	Church Street	Orlando LCS	Florida Hospital	Winter Park	Maitland	Altamonte Springs	Longwood SR 434	Lake Mary	Sanford Amtrak	DeBary	DeLand Amtrak	Layover
From Yard	5:30	5:36	5:41	5:46	5:52	5:59	6:02	6:04	6:09	6:15	6:21	6:26	6:30	6:36	6:43	6:49	7:02	0:27
From Yard	6:00	6:06	6:11	6:16	6:22	6:29	6:32	6:34	6:39	6:45	6:51	6:56	7:00	7:06	7:13	7:19	7:32	0:27
From Yard	6:30	6:36	6:41	6:46	6:52	6:59	7:02	7:04	7:09	7:15	7:21	7:26	7:30	7:36	7:43	7:49	8:02	To Yard
From Yard	7:00	7:06	7:11	7:16	7:22	7:29	7:32	7:34	7:39	7:45	7:51	7:56	8:00	8:06	8:13	8:19	8:32	To Yard
From Yard	7:30	7:36	7:41	7:46	7:52	7:59	8:02	8:04	8:09	8:15	8:21	8:26	8:30	8:36	8:43	8:49	9:02	To Yard
From Yard	8:00	8:06	8:11	8:16	8:22	8:29	8:32	8:34	8:39	8:45	8:51	8:56	9:00	9:06	9:13	9:19	9:32	0:27
From Yard	10:00	10:06	10:11	10:16	10:22	10:29	10:32	10:34	10:39	10:45	10:51	10:56	11:00	11:06	11:13	11:19	11:32	0:27
From Yard	12:00	12:06	12:11	12:16	12:22	12:29	12:32	12:34	12:39	12:45	12:51	12:56	13:00	13:06	13:13	13:19	13:32	0:27
From Yard	14:00	14:06	14:11	14:16	14:22	14:29	14:32	14:34	14:39	14:45	14:51	14:56	15:00	15:06	15:13	15:19	15:32	0:27
From Yard	16:00	16:06	16:11	16:16	16:22	16:29	16:32	16:34	16:39	16:45	16:51	16:56	17:00	17:06	17:13	17:19	17:32	0:27
From Yard	18:30	18:36	18:41	18:46	18:52	18:59	19:02	19:04	19:09	19:15	19:21	19:26	19:30	19:36	19:43	19:49	20:02	To Yard
From Yard	17:00	17:06	17:11	17:16	17:22	17:29	17:32	17:34	17:39	17:45	17:51	17:56	18:00	18:06	18:13	18:19	18:32	To Yard
From Yard	17:30	17:36	17:41	17:46	17:52	17:59	18:02	18:04	18:09	18:15	18:21	18:26	18:30	18:36	18:43	18:49	19:02	To Yard
From Yard	18:00	18:06	18:11	18:16	18:22	18:29	18:32	18:34	18:39	18:45	18:51	18:56	19:00	19:06	19:13	19:19	19:32	0:27
From Yard	18:30	18:36	18:41	18:46	18:52	18:59	19:02	19:04	19:09	19:15	19:21	19:26	19:30	19:36	19:43	19:49	20:02	To Yard
From Yard	20:30	20:36	20:41	20:46	20:52	20:59	21:02	21:04	21:09	21:15	21:21	21:26	21:30	21:36	21:43	21:49	22:02	To Yard

Table 8 – “Full” Build Estimated Station-to-Station Run Times

Station	Speed (mph)		Distance (miles)			Run Time (hr:min:sec)	Dwell Time (hr:min:sec)	Total Time (hr:min:sec)
	Authorized	Actual	Mile Post	Increment	Total			
DeLand Amtrak			750.00		0.00		00:00:00	00:00:00
Speed Restriction	79	65		1.10		00:01:41		
			751.10		1.10		00:00:00	00:01:41
Speed Restriction	50	50		0.40		00:00:30		
			751.50		1.50		00:00:00	00:02:11
Speed Restriction	79	65		8.30		00:08:13		
			759.80		9.80		00:00:00	00:10:25
Speed Restriction	60	60		2.01		00:02:23		
			761.81		11.81		00:00:30	00:13:18
DeBary				1.29		00:01:52		
Speed Restriction	60	60			13.10		00:00:00	00:15:10
	45	45		2.70		00:03:58		
Sanford			765.80		15.80		00:00:30	00:19:38
Speed Restriction	60	50		0.50		00:01:01		
			766.30		16.30		00:00:00	00:20:39
Speed Restriction	30	30		0.50		00:01:03		
			766.80		16.80		00:00:00	00:21:42
	50	50		3.26		00:04:30		
Lake Mary			773.20		20.06		00:00:30	00:26:42
	79	65		4.48		00:05:14		
Longwood			777.68		24.54		00:00:30	00:32:26
	60	60		2.77		00:03:41		
Altamonte Springs			780.45		27.31		00:00:30	00:36:36
Speed Restriction	50	50		1.55		00:02:20		
			782.00		28.86		00:00:00	00:38:56
	40	40		1.25		00:02:08		
Maitland			783.25		30.11		00:00:30	00:41:34
	30	30		2.34		00:05:11		
Winter Park / Amtrak			785.59		32.45		00:00:30	00:47:15
	30	30		2.31		00:05:07		
Florida Hospital			787.90		34.76		00:00:30	00:52:52
	30	30		1.90		00:04:15		
LYNX Central Station			789.80		36.66		00:01:00	00:58:07
	30	30		0.70		00:01:44		
Church St.			790.50		37.36		00:00:30	01:00:21
	30	30		0.90		00:02:09		
Orlando Amtrak			791.40		38.28		00:00:30	01:03:00
Speed Restriction	40	40		2.20		00:03:42		
			793.60		40.46		00:00:00	01:06:41
Speed Restriction	79	65		1.00		00:01:17		
			794.60		41.46		00:00:00	01:07:58
Speed Restriction	60	65		1.90		00:02:07		
			796.50		43.36		00:00:30	01:10:35
SR 408 / Sand Lake Road				4.55		00:05:18		
Meadow Woods			801.05		47.91		00:00:30	01:16:23
Speed Restriction	79	65		2.75		00:03:16		
			803.80		50.66		00:00:00	01:19:40
	65	65		0.70		00:00:58		
Osceola Parkway			804.50		51.36		00:00:30	01:21:07
Speed Restriction	65	65		2.50		00:03:04		
			807.00		53.86		00:00:00	01:24:11
	45	45		1.04		00:01:39		
Kissimmee Amtrak			808.04		54.90		00:00:30	01:26:20
Speed Restriction	45	45		0.76		00:01:20		
			808.80		55.66		00:00:00	01:27:40
Speed Restriction	79	65		4.80		00:05:11		
			813.60		60.46		00:00:00	01:32:50
Polkiana Boulevard								
TOTAL					60.46	01:24:50	00:08:00	01:32:50
						Avg. Speed =	39.1 mph	

NOTES:

1. Distances based on CFCRT station locations.
2. Run times based on acceleration & deceleration rates for MP-36PH-3C locomotive + 2 coach cars (per Sysra Consulting, Sept. 19, 2008).
3. Run times include 5.0% allowance for passenger comfort, dispatching delays, ADA compliance (per Sysra Consulting, Sept. 19, 2008).
4. Maximum 65 mph speed assumed; reduced speeds up to Authorized Speed (CSX Track Chart).

Table 9 – Operating Requirements for Commuter Rail Scenarios

PARAMETER	IOS	LPA	FULL BUILD
One-Way Run Time (min:sec)	56:48	79:33	92:50
Layover Time	18:12	25:27	27:10
Round-Trip Cycle Time (Peak)	150:00	210:00	240:00
Frequency (peak/mid/eve)	30/120/120	30/120/120	30/120/120
Peak Trainsets	5	7	8
Peal Locomotives	5	7	8
Peak Passenger Cars	10	14	16
Standby Passenger Cars	4	4	4
Fleet Passenger Cars	14	18	20
Annual Revenue Train-Hours	10,400	14,600	16,600
Annual Revenue Car-Miles	525,000	810,000	1,006,000
Route Miles	31.6	48.6	60.8
Stations	12	16	17
Daily Revenue Train Trips	32	32	32

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
PERFORMANCE BOND

375-040-27
PROCUREMENT
OGC - 10/04

KNOW ALL MEN BY THESE PRESENTS: That we, MotivePower Inc.

(name)

(hereinafter called Vendor) of 4600 Apple Street, Boise Idaho, 83716-0000
(address)

and
(name) _____
(hereinafter called Surety) of
(address)

duly authorized to do business in the State of Florida, are held and firmly bound unto the State of Florida in the full and just
sum of Four Million Dollars Dollars (\$ 4,000,000.00),

lawful money of the United States of America, to be paid to the Florida Department of Transportation (hereinafter called the
Department), to which payment will and truly to be made we bind ourselves, our heirs, executors, administrators, successors and
assigns, jointly and severally and firmly by these presents;

WHEREAS, the above Vendor has subscribed to an agreement with the Department to bear the date of _____,
for contractual services agreement in connection with Central Florida Commuter Rail Diesel Electric Passenger Locomotives

_____ in Volusia, Seminole, Orange and Osceola _____ County(ies),
particularly known as Contract No: _____

(hereinafter called the Agreement), upon certain terms and conditions in said Agreement more particularly mentioned; and

NOW, THEREFORE, The condition of this obligation is such that if the above Vendor in all respects will comply with the terms
and conditions of said Agreement, and its obligations thereunder, including the Scope of Services, Specifications, General Conditions,
Special Conditions, Bid Blank therein referred to and made a part thereof, and such alterations as may be made in said conditions and
specifications, as therein provided for; and, further, if such Vendor will promptly make payment to all persons supplying labor, material,
equipment and supplies, used directly or indirectly by the said Vendor or any subcontractor(s) in the prosecution of the work provided
for in said Agreement, and promptly will pay all State Workers' Compensation and Unemployment Compensation taxes incurred in the
performance of the said Agreement and will pay to the Department any amount in money or property, the Department may lose or be
overcharged or otherwise defrauded of, by reason of any wrongful or criminal act of the Vendor, its agents, or employees, then this
obligation is to be void; otherwise, to be and remain in full force and virtue in law.

WITNESS the signature of the Vendor and the signature of the Surety by _____

its

(Agent or Attorney-in-Fact, or otherwise)
with seals of said Vendor and Surety hereunto affixed this _____ day of _____,

Surety MotivePower, Inc. Vendor

BY: _____
Signature

BY: _____
Authorized Signature(s)

TITLE: _____
Attorney-in-Fact/Agent
(Surety Seal)

TITLE: _____

ATTEST: _____
Secretary/Notary

Name/Telephone #: _____

BY: _____
Signature

Address: _____

NOTE: Attach Power of attorney showing authority of Surety's Agent or Attorney-in-Fact. This bond is not for public works contracts required by
Section 255.05, Florida Statutes.



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
02/25/2011

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Marsh USA Inc. Attn: Maureen Schuette Six PPG Place, Suite 400 Pittsburgh, PA 15222 (412) 552-5177 09774 -CAS-11-12	CONTACT NAME: PHONE (A/C, No. Ext): FAX (A/C, No): E-MAIL ADDRESS: PRODUCER CUSTOMER ID #:
INSURED MotivePower, Inc. A Company of Westinghouse Air Brake Technologies Corporation 1001 Air Brake Avenue Wilmerding, PA 15148	INSURER(S) AFFORDING COVERAGE INSURER A: Travelers Property Casualty Co. Of America INSURER B: INSURER C: INSURER D: INSURER E: INSURER F:
	NAIC # 25674

COVERAGES **CERTIFICATE NUMBER:** CLE-003165672-03 **REVISION NUMBER:** 2

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL SUBR INSR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	GENERAL LIABILITY		TC2J GLSA 466K5317 TIL-10	01/19/2011	07/01/2012	EACH OCCURRENCE	\$ 1,000,000
	<input type="checkbox"/> COMMERCIAL GENERAL LIABILITY					DAMAGE TO RENTED PREMISES (Ea occurrence)	\$ 100,000
	<input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR					MED EXP (Any one person)	\$ 5,000
						PERSONAL & ADV INJURY	\$ 1,000,000
						GENERAL AGGREGATE	\$ 1,000,000
						PRODUCTS - COMP/OP AGG	\$ 1,000,000
							\$
		GEN'L AGGREGATE LIMIT APPLIES PER: <input checked="" type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC					
	AUTOMOBILE LIABILITY					COMBINED SINGLE LIMIT (Ea accident)	\$
	<input type="checkbox"/> ANY AUTO					BODILY INJURY (Per person)	\$
	<input type="checkbox"/> ALL OWNED AUTOS					BODILY INJURY (Per accident)	\$
	<input type="checkbox"/> SCHEDULED AUTOS					PROPERTY DAMAGE (Per accident)	\$
	<input type="checkbox"/> HIRED AUTOS						\$
	<input type="checkbox"/> NON-OWNED AUTOS						\$
	UMBRELLA LIAB	<input type="checkbox"/> OCCUR				EACH OCCURRENCE	\$
	EXCESS LIAB	<input type="checkbox"/> CLAIMS-MADE				AGGREGATE	\$
	<input type="checkbox"/> DEDUCTIBLE						\$
	<input type="checkbox"/> RETENTION \$						\$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	TC2J UB 466K5286-10 (AOS)	07/01/2010	07/01/2011	WC STATUTORY LIMITS	OTH-ER
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)	N/A				E.L. EACH ACCIDENT	\$ 2,000,000
	If yes, describe under DESCRIPTION OF OPERATIONS below					E.L. DISEASE - EA EMPLOYEE	\$ 2,000,000
						E.L. DISEASE - POLICY LIMIT	\$ 2,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

Central Florida Commuter Rail Transit, Diesel Electric Passenger Locomotives

Financial Project No. 412994-6-53-02

State of Florida, Department of Transportation is named as an Additional Insured with respect to the above policy.

CERTIFICATE HOLDER

CANCELLATION

State of Florida
FDOT District 5 Procurement Office
Department of Transportation
719 S. Woodland Boulevard
DeLand, FL 32720

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE
of Marsh USA Inc.

Paul Hoyt

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DATE (MM/DD/YYYY)
02/25/2011

THIS EVIDENCE OF PROPERTY INSURANCE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE ADDITIONAL INTEREST NAMED BELOW. THIS EVIDENCE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS EVIDENCE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE ADDITIONAL INTEREST.

AGENCY Marsh USA Inc Six PPG Place Suite 400 Pittsburgh, PA 15222 Attn: pittsburgh.certrequest@marsh.com 09774 -PROP-10/11		PHONE (A/C, No. Ext):		COMPANY Allianz Global Risks Us Insurance Company	
FAX (A/C, No):		E-MAIL ADDRESS:			
CODE:		SUB CODE:			
AGENCY CUSTOMER ID #:					
INSURED MotivePower, Inc. A Company of Westinghouse Air Brake Technologies Corporation 1001 Air Brake Avenue Wilmerding, PA 15148				LOAN NUMBER	
				POLICY NUMBER CLP3011521	
EFFECTIVE DATE 06/01/2010		EXPIRATION DATE 06/01/2011		<input type="checkbox"/> CONTINUED UNTIL TERMINATED IF CHECKED	
THIS REPLACES PRIOR EVIDENCE DATED:					

PROPERTY INFORMATION

LOCATION/DESCRIPTION

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS EVIDENCE OF PROPERTY INSURANCE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

COVERAGE INFORMATION

COVERAGE / PERILS / FORMS	AMOUNT OF INSURANCE	DEDUCTIBLE
<p>"All Risk" Property including Boiler & Machinery</p> <p>Except Xorail's Owned Equipment</p>	<p>Amount Not To Exceed:</p> <p>500,000</p>	<p>250,000</p>

REMARKS (Including Special Conditions)

Central Florida Commuter Rail Transit, Diesel Electric Passenger Locomotives
Financial Project No. 412994-6-53-02
State of Florida, Department of Transportation is named as an Additional Insured with respect to the above policy.

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

ADDITIONAL INTEREST

CLE-003161869-03

NAME AND ADDRESS	MORTGAGEE	X	ADDITIONAL INSURED
	LOSS PAYEE		
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