

ATTACHMENT A

Scope of Work



SCOPE OF WORK

01. OVERVIEW

- A. The mechanical engineering consulting firm is referred to herein as either the “Contractor” or the “Consultant”. If the consulting firm chooses to use the services of Subconsultant(s), they will be referred to either as the “Subconsultant(s)” or “Subcontractor(s)”. Therefore, the words will be used interchangeably.
- B. The Scope of Work (SOW) provided under this Contract shall cover a full range of engineering and operational areas that VRE must address in fleet management on an as needed basis. For informational purposes see **APPENDIX 1- VRE EQUIPMENT** at the end of this SOW.
- C. The Consultant shall perform work through Task Orders initiated by VRE in accordance with the **SPECIAL PROVISIONS – TASK ORDER ASSIGNMENT AND PROCEDURES**.

02. GENERAL REQUIREMENTS

- A. The Consultant shall furnish all labor, including all required professional disciplines, supervision, materials, equipment, supplies, tools, transportation, and incidentals necessary to provide quality assurance, mechanical engineering and administrative consulting services for VRE rolling stock and mechanical operations to include equipment acquisition, maintenance and modification, as well as select shop services.
- B. The Consultant’s work shall be managed by VRE’s Mechanical Operations Department. A VRE Project Manager will be designated by VRE for this Contract to coordinate all required tasks.
- C. The Consultant shall assign a Project Manager responsible for coordination with VRE on all individual Task Orders and/or assignments.
- D. The Consultant must be capable of providing oversight for conversion/upgrade programs as well as performing engineering and project management tasks.
- E. The Consultant shall be responsible for providing design, engineering and oversight assistance on specific projects, as well as system-wide improvements and studies.
- F. The Consultant shall support VRE’s efforts to maintain equipment in a state of good repair, undertake projects that expand capacity, as well as design and oversee fabrication and installation of modifications to VRE equipment.



These functions may be carried out by the Consultant or through the use of a Subconsultant approved by VRE.

- G. The Consultant shall develop and recommend standards to maintain existing rolling stock and equipment in a state of good repair and support projects that expand capacity. As VRE's fleet ages, VRE fleet requirements will increase, and the Consultant shall assist VRE staff in researching products and developing standard equipment specifications for the maintenance and modification of VRE rolling stock.
- H. When required, the Consultant shall submit a written request to VRE to obtain the necessary materials to perform the work. VRE will acquire the materials.
- I. The Consultant shall recommend best practices and industry standards as appropriate.
- J. The Consultant shall perform other tasks, studies, etc. and provide reports as required by VRE in administering rolling stock maintenance and mechanical operations.
- K. Any deliverables provided by the Consultant requiring a Professional Engineer (PE) seal must be signed by an engineer licensed in the Commonwealth of Virginia.

03. ENGINEERING SERVICES

The Consultant shall provide all necessary services required to successfully maintain and expand VRE's fleet and may be required to perform the following engineering services:

- A. Assist VRE with the procurement of new rail cars as well as integrating new cars into the existing car fleet with maximum interchangeability.
- B. Assist VRE with the procurement of used rail cars, to include researching and recommending equipment, developing overhaul specifications for VRE approval, as well as assisting VRE in evaluating and reviewing lease options.
- C. Assist VRE in overseeing contractors responsible for the manufacture of new or overhaul of used rail cars, including program management, engineering support, quality control inspection and test support.
- D. Assist VRE with the procurement of new and/or used locomotives, to include researching and recommending equipment, preparing overhaul specifications for VRE approval, assisting VRE in evaluating contractors and reviewing proposals or lease options.



- E. Monitor locomotive overhaul work, including program management, engineering support, quality control inspection and test support.
- F. Review and oversee fleet safety to include:
 - 1. Utilizing available database(s) of vehicle safety regulations, standards and best practices, and reviewing the entire VRE fleet for compliance. Providing reports to document the results for VRE.
 - 2. Packaging and sending materials requiring testing and overseeing testing.
 - 3. Documenting results and providing a report to VRE to include proposing recommendations to modify VRE equipment or maintenance practices based upon results of the testing.
 - 4. Overseeing implementation of any recommendations.
- G. Oversee the implementation of on-board equipment, provide support for the back-office system, and conduct on-going maintenance and training for Positive Train Control.
- H. To promote Lifecycle Maintenance, analyze equipment reliability and maintenance data to determine the appropriate frequency of maintenance cycles for all VRE rolling stock equipment. Provide the findings to VRE for analysis.
- I. Assist VRE staff in preparation for local, state and federal audits.
- J. Provide audits as necessary to ensure VRE compliance with Federal Transit Administration (FTA) Buy America regulations.

04. PROJECT MANAGEMENT SERVICES

The Consultant shall serve as VRE's representative to monitor the planning and design of VRE rolling stock and mechanical operations, to include equipment maintenance, acquisition, and modification, as well as select shop services. Examples of potential tasks include, but are not limited to, the following:

- A. Participate in all aspects of project management, including coordinating and monitoring of activities being performed by other VRE contractors on-site to ensure compliance with VRE requirements.
- B. Review shop drawings/plans, specifications, design documents and other pertinent documents provided by VRE for potential cost impacts as well as for errors, omission and anomalies. Report any findings to VRE.
- C. Provide procurement support services.



- D. Ensure the conformance of other VRE contractors with technical specifications and stated requirements of their contracts.
- E. Perform risk assessment and mitigation planning.
- F. Provide file documentation and records management, to include regular progress reports.
- G. To control and implement the requirements of projects, VRE will use VRE personnel to monitor and oversee the Consultant. The VRE personnel assigned to these projects will be responsible for dealing with the Consultant in a timely and effective manner with regards to programmatic and systematic issues. VRE staff will have the following roles and responsibilities:
 - 1. Review all written deliverables and, if necessary, respond with comments.
 - 2. Provide access to VRE applications deemed necessary to carry out the terms and conditions of the Contract.

05. TRANSIT ASSET MANAGEMENT PLAN

VRE's Transit Asset Management (TAM) Plan describes the methodology for condition and risk assessments for each asset and provides guidance for how each asset should be life-cycled. The TAM Plan identifies and provides a strategy for implementing the business practices needed to maximize the Transit Asset Management System. The TAM Plan must fully conform to the Federal Transit Administration Transit Asset Management Final Rule. The Consultant shall provide all services necessary to perform the following:

- A. Conduct a complete assessment of VRE's existing Transit Asset Management (TAM) Plan.
- B. Assess current asset management activities.
- C. Review the systems used in support of VRE's TAM Plan and recommend areas to improve VRE business processes for management of its assets and allocation/utilization of its resources.
- D. Bring VRE into alignment with industry best practices and enable FTA/TAM Final Rule performance reporting requirements and industry standards.



- E. Assist in updating VRE's TAM Plan, as required, to ensure compliance with FTA's Transit Asset Management Final Rule. The TAM Plan will serve as the standard for the implementation of the program within each of VRE's transit asset categories (i.e., vehicles, systems and facilities).

06. POTENTIAL PROJECTS AND TASKS

The following projects and tasks are anticipated in the next five (5) years:

- A. Support VRE in the procurement of additional remanufactured or new locomotives and on-going planning for the locomotive fleet.
- B. Assist in developing specifications for new passenger rail cars and support procurement as required by VRE.
- C. Assist in addressing Federal Railroad Administration (FRA) fleet safety requirements, including analysis and testing of rail cars as well as engineering retrofits and upgrades.
- D. Support fleet improvements and retrofits with design, fabrication, and installation capability.
- E. Analyze new technology VRE may consider including in its fleet such as communications or infotainment systems.
- F. Design of rolling stock and systems components as necessary and monitor implementation to ensure compliance with design.
- G. Conduct facility compressed air quality audits.
- H. Periodic facilities and equipment audits, to include recommendations to improve maintenance activities.



APPENDIX 1 – VRE EQUIPMENT

LOCOMOTIVES

Quantity	Locomotive Type	Locomotive Number
20	MP36PH-3C	V50 – V69

PASSENGER COACHES

Quantity	Car Type	Number of Seats	Car Numbers
21	Sumitomo Gallery Cab Cars with a Restroom	123	V710 – V730
49	Sumitomo Gallery Trailers with a Restroom	132	V800 – V848
30	Sumitomo Gallery Trailers without a Restroom	144	V850 – V879

