SCOPE OF WORK

1. PROJECT BACKGROUND AND OVERVIEW

   A. Virginia Railway Express (VRE) seeks to overhaul four (4) emergency generators.

   B. The emergency generators are located at the following addresses:

      1. VRE Headquarters – 1500 King Street, Suite 202, Alexandria, VA 22314
      2. Woodbridge VRE Station – 1040 Express Way, Woodbridge, VA 22191
      3. VRE Fredericksburg Office – 400 Prince Edward Street, Fredericksburg, VA 22401
      4. Manassas VRE Station – 9102 Prince William Street, Manassas, VA 20110

   C. The manufacturer, model number, and serial number for each generator are as follows:

      1. VRE Headquarters - Olympian 126 kW Diesel, Model No. D125P1, Serial No. 01Y0000LNAT01538
      2. Woodbridge - Kohler 20 kW Diesel, Model No. 20 ROZJ-71, Serial No. 28564
      3. Fredericksburg - Olympian 60 kW Diesel, Model No. D60P1, Serial No. D5080A1001
      4. Manassas - Onan 85 kW Natural Gas, Model No. 85.0GGHG, Serial No. D080176567

   D. Access to each location shall be provided by VRE.

2. GENERAL REQUIREMENTS

   A. The Contractor shall provide all labor, supervision, equipment, material, supplies, and transportation necessary to repair and overhaul the emergency generators to the satisfaction of VRE in accordance with the Scope of Work specified herein.
B. The Contractor shall inspect and overhaul the cooling system, lubrication system, fuel system, starting system, exhaust system, air intake system, installation, and control panel.

C. The Contractor shall remove the generators from VRE’s facilities and transport them to the Contractor’s facility, where all overhaul work shall be performed. Upon completion of the work, the Contractor shall return the generators to their respective VRE facilities and restore them to normal service. The Contractor shall be responsible for any damages incurred in transporting the generators to and from VRE’s facilities.

1. Only one (1) generator at a time shall be removed and overhauled by the Contractor. Once a generator is returned to service at its respective VRE facility, the next generator shall be removed for overhaul.

2. VRE has no preference as to the sequence, by location, in which the generators are overhauled. However, the Contractor shall provide a schedule prior to Notice-To-Proceed (NTP) indicating the proposed sequence and associated start and finish dates. Additionally, all repairs required by this Contract shall be completed for the four (4) generators and the generators returned to each VRE facility within one hundred eighty (180) consecutive calendar days from the date set forth in the written NTP.

D. For the period during which the generators are removed from their respective facilities, the Contractor shall provide and install temporary generators of comparable specifications and capacity in order to ensure uninterrupted service to the facilities.

E. All work shall be performed by the Contractor at a facility authorized to repair generators of the specified manufacturer or under the direct onsite supervision of a factory-trained technician certified by the generator manufacturer.

F. The Contractor shall submit documentation with its Bid as evidence that the Contractor or its Subcontractors are certified to repair and overhaul Olympian, Kholer and Onan generators.

G. All work shall be in accordance with the manufacturers’ service, maintenance, and overhaul technical manuals, including all current and applicable amendments and service bulletins. The Contractor shall provide a copy of the applicable manuals, amendments, and service bulletins as requested by VRE.
H. All work shall be performed in accordance with the manufacturers’ engine specifications, clearances, tolerances, and procedures.

I. All parts and materials utilized to repair and overhaul the generators shall be new, Original Equipment Manufacturer (OEM), non-surplus parts and materials.

J. After completing inspections and tests and before reassembling components, the Contractor shall submit to VRE a report of all inspection findings and test results for each generator. The report shall also contain recommendations for additional repairs, parts renewals, inspections, or tests needed to ensure continued reliable operation of each generator.

K. Upon completion of all work, the Contractor shall clean all worksites (VRE facilities) and return them to their preexisting condition.

L. The Contractor’s work shall not adversely affect commuter, employee or vehicular access to VRE rail stations, parking garages or office buildings at any time.

3. **SPECIFIC REQUIREMENTS**

For each generator, the Contractor shall perform the following:

A. Cooling System

1. Replace radiator coolant or heat exchanger.

2. Test corrosion inhibitor concentration, record.

3. Replace jacket water heater.

4. Replace jacket water heater hoses and thermostat.

5. Replace radiator cap and gasket.

6. Replace water pump and cooling system gaskets.

7. Replace belt.

8. Inspect pulleys for excessive wear and lubricate hub bearings as needed.

9. Replace flexible water connections.

10. Replace hose clamps.
B. Lubrication System

1. Check for excessive crankcase blow-by with unit running.
2. Take oil sample and perform analysis before changing oil.
3. Change unit oil and filters.
4. Replace front and rear crankshaft seals and lubrication system gaskets.
5. Replace oil hose and connections.
6. Properly dispose of waste oil and filters.

C. Fuel System – Diesel

1. Replace flexible fuel lines.
2. Check day tank/base tank level.
3. Replace day tank pump.
4. Replace inlet filter for day tank.
5. Replace fuel-priming pump.
6. Drain water from water separator(s).
7. Check fuel system for leaks.
8. Replace electronic governor connections and actuator.
9. Lubricate governor linkage.
10. Replace steel fuel lines.
11. Replace primary and secondary fuel filters.

D. Fuel System – Gas

1. Check for the presence of gas leaks.
2. Replace spark plug ignition wires and coils.
3. Replace governor and actuator linkage.
4. Check and adjust gas pressure regulator as needed.

5. Check carburetor linkage and adjust as needed.

E. Starting System

1. Record battery cells’ electrolyte specific gravity (accessible batteries only).

2. Top off electrolyte level in accessible lead-acid batteries with distilled water.

3. Replace battery charger/alternator.

4. Check for proper cranking termination upon starting.

5. Clean and apply corrosion inhibitor to the terminals of lead acid batteries as needed.

6. Tighten battery cable connections as needed.

7. Inspect and tighten starter motor(s) connections as needed.

F. Exhaust System

1. Replace flexible exhaust coupling.

2. Inspect exterior of exhaust manifolds for oil/fuel slobbering (signs of wet stacking).

3. Inspect exhaust rain protection and exhaust outlet screening.

4. Drain water in exhaust moisture traps.

G. Air Intake System

1. Replace air filters.

2. Check all air intake piping for damage and loose connections.

3. Replace air cleaner seal.

4. Inspect turbocharger for excessive endplay clearance (if accessible) and seal leakage.

5. Lubricate fan drive if accessible.
H. Installation

1. Walk around inspection of complete installation.
2. Replace generator set vibration isolators.
3. Check for abnormal noise or vibration.
4. Re-check for oil and coolant leaks with unit running.
5. Check for proper operation of remote fan motors, thermostats, circulating pumps, and solenoid valves.
6. Check inlet and discharge louvers for proper operation with unit running and stopped.

I. Control Panel

1. Replace illumination and safety lamps.
2. Check electronic control panels for fault codes, notify VRE of any codes that need to be addressed.
3. Check proper operation of instruments with unit running.
4. Replace governor control.
5. Replace voltage regulator.
6. Inspect for excessive dirt accumulation and clean as needed.
7. Test emergency stop.
8. Reset all controls to automatic.
9. Set circuit breaker to correct position.
10. Check that fuel valves are in the correct position.
11. Check that the battery charger is on.
12. Check that the day tank controls are on.
13. Check that the louver controls are on.
14. Check that the jacket water heater is on.
J. Load Test

1. Perform a load test and document the results.

2. Take an oil sample and perform an analysis after performing a load test.

K. Prep and Painting

1. The exterior of the generator located at the Manassas Station shall be prepped and painted. VRE will determine and approve the paint color to be used by the Contractor.

4. DELIVERABLES

The Contractor is responsible for preparing and submitting to VRE, for review and approval, the following deliverables:

A. Proposed sequence and associated start and finish dates for each generator.

B. Pre-assembled Components Report for each generator to include:

1. All inspection findings.

2. Test results.

3. Recommendations for additional repairs, parts renewals, inspections/tests needed to ensure continued reliable operation of the generator.

C. Load test results for each generator.

D. Oil sample analysis for each generator.