Simulator Requirements

The simulator should be self-contained with interactive computer generate imagery. Simulator should be delivered, installed, and fully tested as a **turnkey system**—including all software and hardware required to support the training and development of professional vehicle operators.

The simulator system shall be a complete, functional Operating system that has been factory assembled, wired tested, and is ready to operate upon installation within the user's facility. The Contractor shall be required to demonstrate the use and application of the Truck Driving Simulator System to ensure the delivered system operates as prescribed by the specifications herein.

The simulator should create a virtual driving world that provides an environment where trainees may drive. The database should be similar to the real world and include urban, suburban, rural, industrial areas with buildings and foliage typically found in these regions. Highways must be a part of the imagery allowing all of the driving areas to be integrated into one virtual world.

The simulator should provide training opportunities with respect to situation awareness, judgment and decision-making skills, vehicle maneuvering skills, and skills assessment for driver trainees in the safe operation of a truck. Software should include a variety of truck vehicle dynamics models. Simulated driving surfaces should include pavement, grass, gravel, and dirt/sand with traction and sound variations on each for both dry and wet conditions. Weather conditions should include clear, variable fog, rain, and snow/ice. Light conditions should be selectable by time-of-day period: day, night, or dawn/dusk. Sun glare to be provided when driving to the West at sunset and to the East at sunrise.

Operation of the simulator should be placed under the control of a trained instructor operator from the instructor console who will interact with and/or critique the driver trainee (as appropriate) to meet the training needs. The instructor should maintain control over weather and other real-time variables that affect road surface conditions, visibility, traffic situations, and vehicle performance.

System Components

The simulator should be built using actual and/or representative parts and components. The simulator should include a driver's seat, active steering wheel, foot pedals, transmission selector, and other appropriate operational controls, gauges, indicators, and switches. All sight lines and angles required to safely operate a truck should be accurately represented to the student operator.

The simulator should include a real time computer system which: 1) simulates the functionality and dynamics of the vehicle, 2) controls "out-the-window" visual scenes and vehicle sounds as they relate to driving and student performance, 3) provides appropriate outputs to the trainee's dashboard instruments, 4) senses and responds to inputs via driver controls, 5) interfaces with the instructor operator station, and 6) provides realistic interaction with other driving stations networked in the same scenario.

The simulator must include high quality Computer Generated Imagery (GCI0 subsystems that create a two-dimensional presentation of a three-dimensional geometric database. The driving simulator shall include at least four (4) flat screen displays consisting of a forward view, left side