SAFETY REQUIREMENTS FOR HEAVY VEHICLES

SGESCO-MAX SAFETY SOLUTIONS FOR HEAVY VEHICLES

PURPOSE

This Information Pack has been developed to assist organisation in strengthening safety outcomes within their waste Heavy Vehicle Fleets.

To proactively support a procurement process, this document has been written to highlight the importance of defining clear heavy vehicle safety specification requirements and provides example tender clauses to assist in developing effective procurement documentation.

1. ORGANISATIONAL ACCOUNTABILITY – CHAIN OF RESPONSIBILITY

The Chain of Responsibility (CoR) law ensures that everyone involved in the operation of heavy vehicles—from the organisation that employs the driver to the site receiving the goods - shares accountability for safety (National Heavy Vehicle Regulator, NHVR). Under this law, organisations and their contractors have a primary duty of care to ensure, so far as is reasonably practicable, the safety of their transport activities.

The NHVR assesses what is 'reasonably practicable' based on:

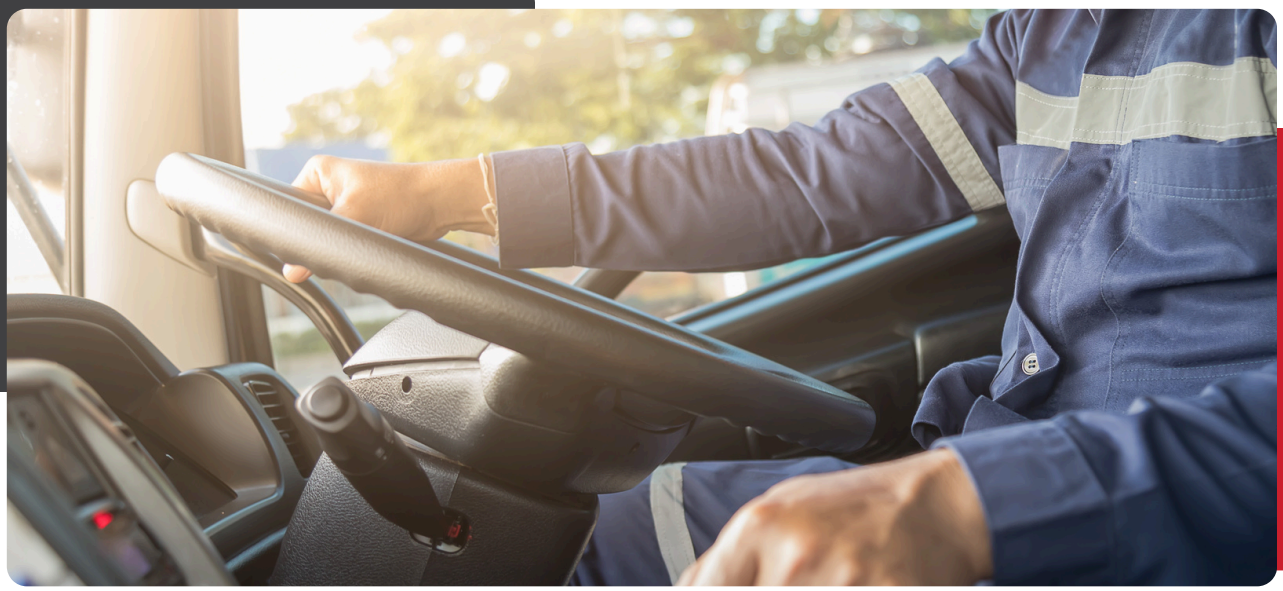
- the likelihood of an incident occurring
- ·the severity of potential harm
- knowledge of the risks and available control measures
- the availability and suitability of controls
- the proportion of cost to the level of risk

To comply with CoR obligations, organisations and contractors must:

- identify risks to public safety arising from transport activities
- determine and implement reasonably practicable control measures
- regularly monitor and review these controls for effectiveness

SGESCO-MAX helps organisations meet their Chain of Responsibility obligations by providing proven control measures that mitigate safety risks associated with heavy vehicle operations. These measures support compliance, public safety, and operational efficiency.

The following table summarises key safety risks in Heavy Vehicle operation and the corresponding MAX-SAFE technologies that help mitigate these hazards.



Public Safety Risk	Example Tender requirements
Injury or death caused by an uncontrolled movement of a vehicle	**Anti-Rollaway Brake System**
Injury or death caused by reversing vehicle	**Reversing Assistance**
Injury or death caused to public by heavy vehicle operation	**Detection of Vulnerable Road Users**
Injury or death caused by left-turning vehicle	**VRU Protection for Left turning vehicles**
Injury or death caused by right-turning vehicle	**VRU Protection for Right turning vehicles**
Injury or death caused by vehicle move-off	**Blind Spot Monitoring**
Injury or death caused by operation of Waste Vehicle Side Arm	**VRU Protection for Side Arm**
Injury or death caused by operation of Waste Vehicle Rear Loader	**VRU Protection for Rear Loader**
Injury or death caused by operation of Waste Vehicle Front Loader	**VRU Protection for Front Loader**

2. EXAMPLE REQUIREMENTS

The following requirements are suggested inclusions for an organisations procurement process to ensure that vehicle and operational safety standards are clearly defined and consistently applied. Sections have been prepared for each of the areas highlighted within the CoR risk table above. The idea is to use the content provided as the basis for your tender vehicle safety technology requirement.

2.1 VEHICLE SAFETY TECHNOLOGY REQUIREMENTS

Tenderers shall ensure that all vehicles used in Heavy Vehicle operations are equipped with advanced vehicle safety systems designed to minimise the risk of injury, property damage, and environmental harm. These systems should include, but not be limited to:

2.1.1 ANTI-ROLLAWAY BRAKE SYSTEM:

All heavy vehicles operating under this contract shall be fitted with an automatic braking system, which engages when the driver exits from the Vehicle.

The system must:

- Provide both audible and visual alerts to the driver prior to activation.
- Be compliant with NHVR G6 and hold relevant Australian approvals.
- Be compatible with both pneumatic and mechanical park brake systems.
- Include self-checking diagnostics to ensure system integrity and operational readiness each time the vehicle's ignition is cycled.
- Provide preventative maintenance schedule to maintain the system over the life of the contract.
- Provide appropriate training to assist operators using the system.
- Have the ability to connect with an IVMS to provide events report when in a warning or activation state.

2.1.2 REVERSING ASSISTANCE:

All heavy vehicles operating under this contract shall be fitted with reversing assistance that engages the park brake when an obstacle (not just VRU) is detected in the working zone behind the Vehicle.

The system must:

- Have predictive collision detection to monitor approaching objects outside of the detection zone.
- Provide dynamic zoning which increases the detection zone as the speed increases while reversing.
- Provide a distance to the closest obstacle.
- Provide both audible and visual alerts to the driver prior to activation.
- Provide appropriate training to assist operators using the system.
- Provide the ability to override the braking function for short periods.
- Provide an option for an AI camera overlay to detect VRU's when in override mode.
- Allow zone configuration to meet the organisations safety requirements.

2.1.3 DETECTION OF VULNERABLE ROAD USERS:

All heavy vehicles operating under this contract shall be fitted with a Vulnerable Road User (VRU) detection system that continuously monitors the area around the vehicle using radar and/or Smart cameras.

The system must:

- Detect pedestrians, cyclists, scooters, motorcyclists around all sides of the vehicle (360° coverage where possible).
- Provide audible and visual alerts to the driver when a VRU is detected in a potential collision zone.
- Be capable of operating reliably in all weather and lighting conditions.
- Demonstrate a minimum 99.9% (or greater) detection accuracy as validated through field testing or manufacturer certification.

2.1.4 VRU PROTECTION FOR LEFT AND RIGHT TURNING VEHICLES

The system must:

- Detect pedestrians, cyclists, scooters, motorcyclists in situations where the vehicle is turning Left or Right.
- Understand when the vehicle is turning left/right even the indicator is NOT used.
- Understand when the vehicle is stationary and not falsely alert.
- Provide audible and visual alerts to the driver when a VRU is detected.
- Provide external audible and visual alerts only when VRU is detected.
- Demonstrate a minimum 99.9% (or greater) detection accuracy as validated through field testing or manufacturer certification.

2.1.5 BLIND SPOT MONITORING:

All heavy vehicles operating under this contract shall be fitted with a Blind Spot Monitoring system with vehicle mounted cameras that always allow the driver a clear view of the Vehicle for 360° visibility around the Vehicle.

The system must:

- Provide a camera that enables the driver to see the area behind the vehicle to reduce the likelihood of an incident while reversing;
- Provide video recording equipment to record Vehicle reversing actions;
- Provide a 360 birds-eye view of the Vehicle and its surroundings;
- The ability to zoom in on a particular camera.

2.1.6 VRU PROTECTION AROUND SIDE ARM/LOADER OPERATION:

All Side Arm/Loader heavy vehicles operating under this contract shall be fitted with a Vulnerable Road User (VRU) detection system that continuously monitors the area around the Side Arm/Loader while in operation.

The system must:

- Halt/retract the arm when a VRU is detected.
- Provide audible and visual warnings to the VRU.
- Provide audible and visual warnings to the Operator.
- Allow zone configuration to meet the safety requirements.
- Must have the ability to connect with the IVMS to provide events when in a warning state.
- Demonstrate a minimum 99.9% (or greater) detection accuracy as validated through field testing or manufacturer certification.

2.1.7 VRU PROTECTION AROUND REAR LOADER OPERATION:

All Rear Loader heavy vehicles operating under this contract shall be fitted with a Vulnerable Road User (VRU) detection system that continuously monitors the area around the rear of the vehicle while in operation.

The system must:

- Detect and alert when a VRU is detected.
- Provide audible and visual warnings to the VRU.
- Provide audible and visual warnings to the Operator.
- Allow zone configuration to meet the safety requirements.
- Demonstrate a minimum 99.9% (or greater) detection accuracy as validated through field testing or manufacturer certification.

2.1.8 VRU PROTECTION AROUND FRONT LOADER OPERATION:

All Front Loader heavy vehicles operating under this contract shall be fitted with a Vulnerable Road User (VRU) detection system that continuously monitors the area around the front of the vehicle while in operation.

The system must:

- Halt the Front Loader mechanism when a VRU is detected.
- Provide audible and visual warnings to the Operator.
- Allow zone configuration to meet the safety requirements.
- Must have the ability to connect with the IVMS to provide events when in a warning state.
- Demonstrate a minimum 99.9% (or greater) detection accuracy as validated through field testing or manufacturer certification.

2.2 COMPLIANCE AND CERTIFICATION REQUIREMENTS

To ensure effective implementation, all specified vehicle safety systems must also meet the following compliance and certification requirements.

- All installed systems shall comply with relevant Australian Standards, ADRs, and WHS Regulations.
- CLOCS-A (Construction Logistics and Community Safety – Australia) standards.
- UN Regulations No.158 and No.159, relating to reversing and moving-off safety for heavy vehicles.
- Tenderers must provide evidence of system certification and government approval, where applicable.
- The supplier shall demonstrate that all systems are installed and commissioned by qualified technicians in accordance with manufacturer specifications.
- Documentation of testing, calibration, and validation must be supplied prior to vehicle acceptance.

2.3 TRAINING AND SUPPORT REQUIREMENTS

- Tenderers shall provide comprehensive operator and maintenance training for staff and contractors.
- User manuals, safety guides, and operational documentation shall be provided with each vehicle.
- Ongoing technical support and post-installation service shall be available within Australia, including access to parts, maintenance, and software updates.

2.4 ENVIRONMENTAL AND LOCAL INDUSTRY CONSIDERATIONS

- Preference shall be given to products that are manufactured or assembled in Australia, supporting local industry and ensuring timely access to parts and service.
- Systems should be designed for durability and minimal environmental impact, including recyclability of components where feasible