Sasco Africa

Accurately Weighing Africa

sanas Verification Laboratory

LTF0070

WEIGHBRIDGE AUTOMATION

DELIVERING SIGNIFICANT BENEFITS

Sasco Process Automation

WA-24-08

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SASCO WEIGHBRIDGE AUTOMATION SOLUTIONS deliver significant opportunities to enhance efficiency, accuracy, and security and the benefits include:

- **Reduced Health and Safety Risks**

Weighbridge automation plays a crucial role in reducing health and safety risks by minimising human interaction, improving traffic management, enhancing environmental conditions, providing real-time monitoring, and reducing fatigue-related errors.

- **Increased Accuracy and Reduced Human Error and Auditability**

Automated systems minimise the risk of human error in weight measurement, data recording, and reporting. This ensures more precise and consistent measurements, leading to better inventory management and reduced discrepancies.

- **Enhanced Efficiency and Productivity**

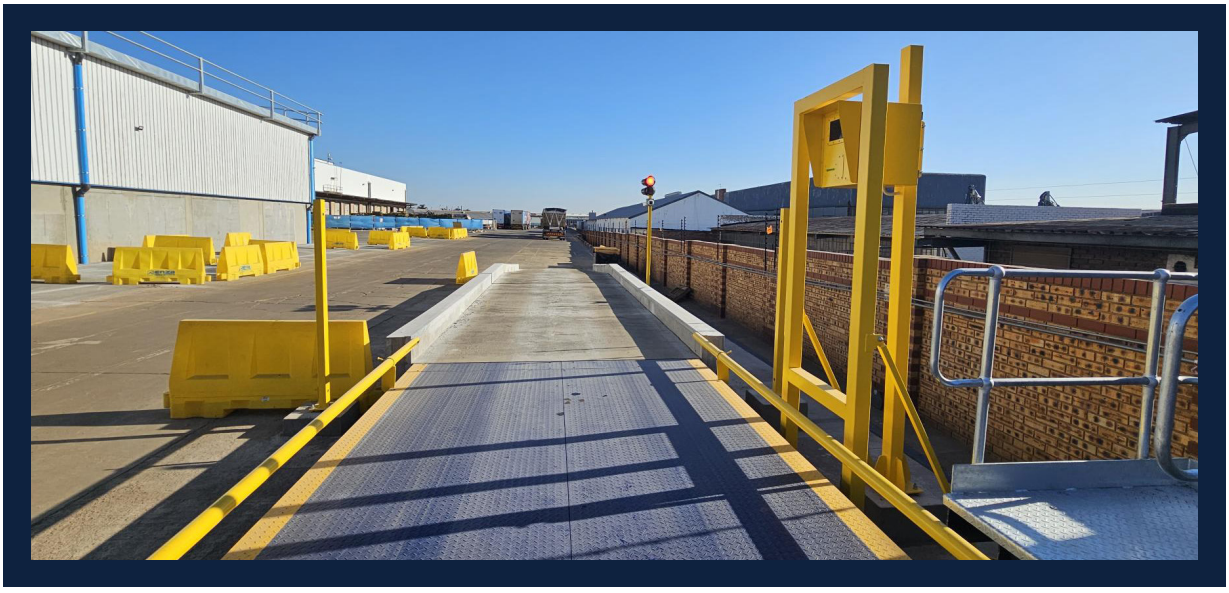
Automation streamlines the weighing process, reducing the time required for each transaction. This leads to faster processing times, higher throughput, and improved overall productivity.

- **Enhanced Security and Fraud Prevention**

Automated systems can incorporate features like surveillance cameras, RFID tags, and automated vehicle identification, which help in monitoring and preventing fraudulent activities. This adds an extra layer of security to the weighing process.

- **Seamless Real Time Monitoring and Reporting**

Automated weighbridge systems can seamlessly integrate with enterprise resource planning (ERP) and other management systems. This facilitates real-time data collection, storage, and analysis, enabling more informed decision-making and enhanced reporting capabilities.



Four Standard Solutions for Enhanced Functionality and Benefits

Sasco's strategy for weighbridge automation involves developing standard solutions that provide four distinct levels of automation functionality, each offering corresponding levels of benefits.

- **Level One (WA-01):**

This solution delivers for either single direction (SD) or bi-directional (BD) operations, some reduced health and safety risks, enhancement in efficiency and improved accuracy, data integrity and auditability.

- **Level Two (WA-02):**

This solution delivers for SD and BD operations, greater reductions in health and safety risks, greater enhancement in efficiency and improved accuracy, data integrity and auditability and with limited real time reporting.

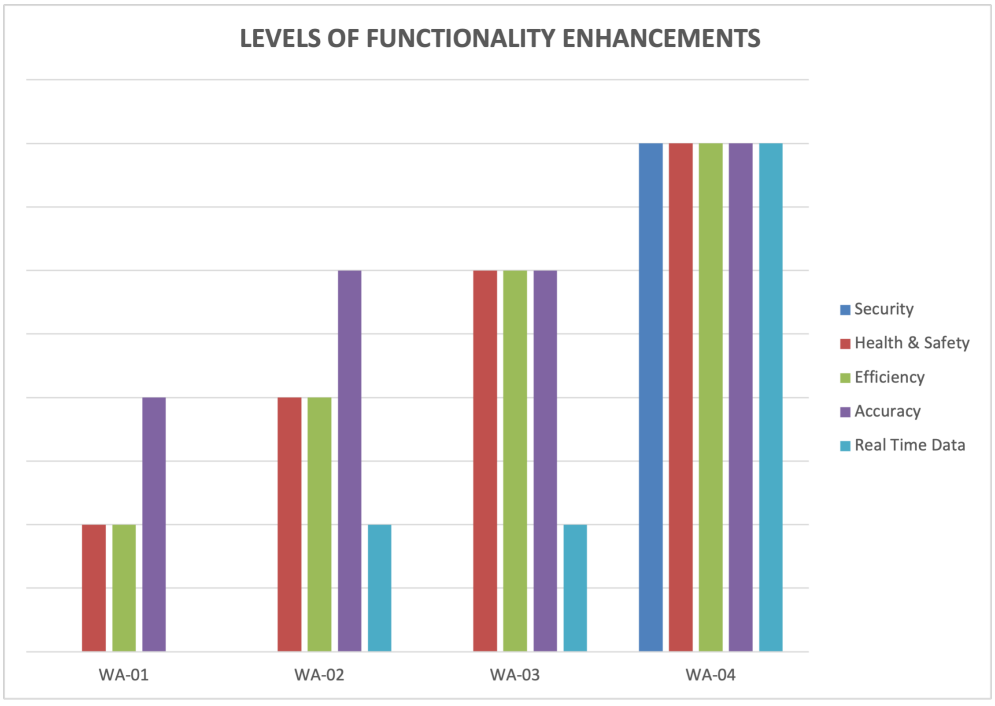
- **Level Three (WA-03):**

This solution delivers for SD and BD operations, significant reductions in health and safety risks, significant enhancement in efficiency greatly increased accuracy, data integrity and auditability and limited real time reporting.

- **Level Four (WA-04):**

This solution delivers for SD and BD operations, maximum reductions in health and safety risks, maximum enhancement in efficiency, high accuracy, data integrity and auditability and full real time reporting, and a high level of enhanced security and fraud prevention. This solution also has the flexibility to include added functionality including driver validation and additional truck guidance systems.

These levels of comparative functionality are illustrated below:



Component Listings

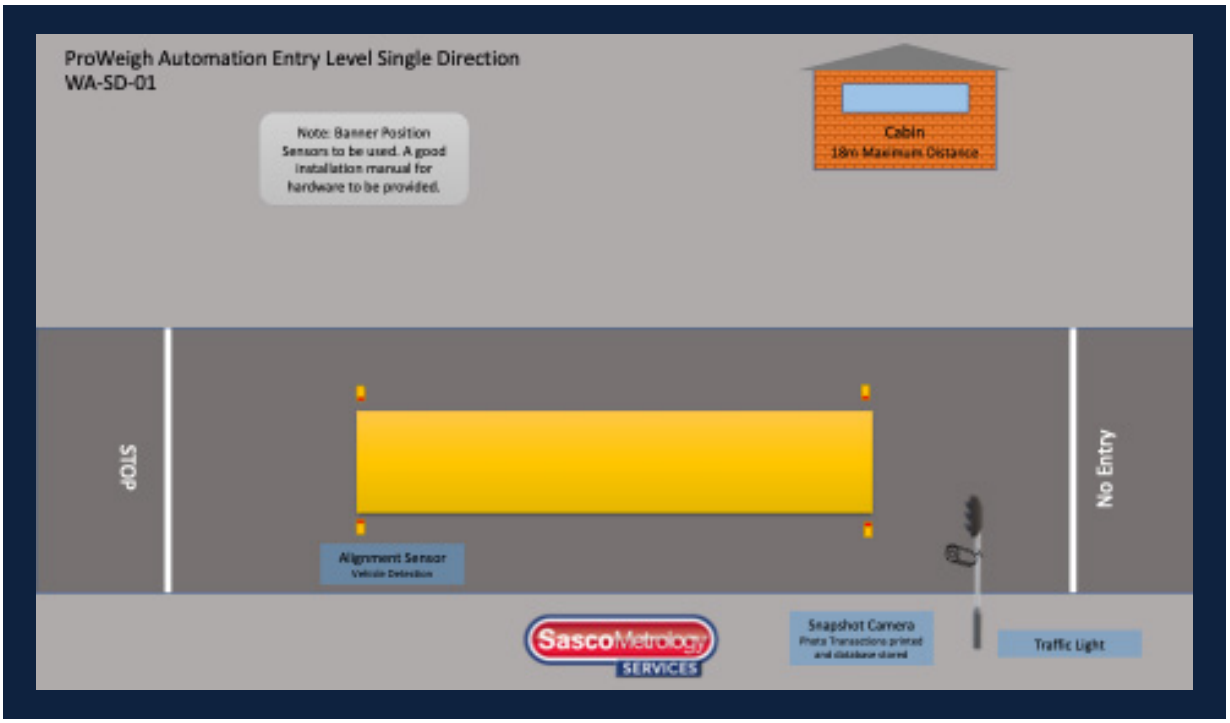
The significant components included in each solution are as follows:

HARDWARE	WA SD 01	WA BD 01	WA SD 02	WA BD 02	WA SD 03	WA BD 03	WA SD 04	WA BD 04
Traffic Lights	1	4	1	4	1	4	1	4
Booms	0	0	0	0	0	0	2	2
APNR Camera	0	0	0	0	1	2	1	2
Snap Shot Camera	1	2	1	2	1	2	1	2
Load Camera	0	0	1	1	1	1	1	1
Driver Terminal DT3500	0	0	0	0	0	0	1	2
Position Sensors	2	2	2	2	2	2	2	2
QR Code Reader (option)	0	0	0	0	0	0	1	2
PAPI (option)	0	0	0	0	0	0	1	2
Computer	1	1	1	1	1	1	1	1
Automation Panel	1	1	1	1	1	1	1	1

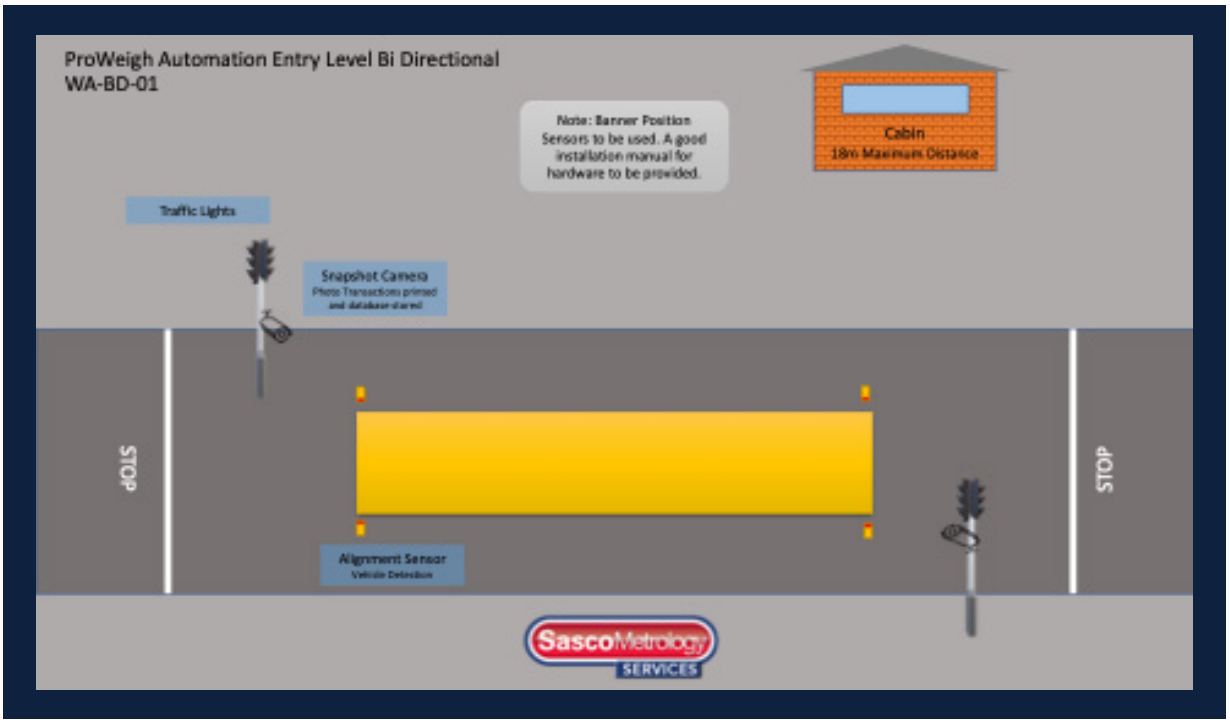
SOFTWARE	WA SD 01	WA BD 01	WA SD 02	WA BD 02	WA SD 03	WA BD 03	WA SD 04	WA BD 04
ProWeigh	1	1	1	1	1	1	0	0
MultiWeigh	0	0	0	0	0	0	1	1
ProWeigh Automation	1	1	1	1	1	1	0	0
Vaxtor	1	1	1	1	1	1	1	1

Site Layouts

WA-SD-01

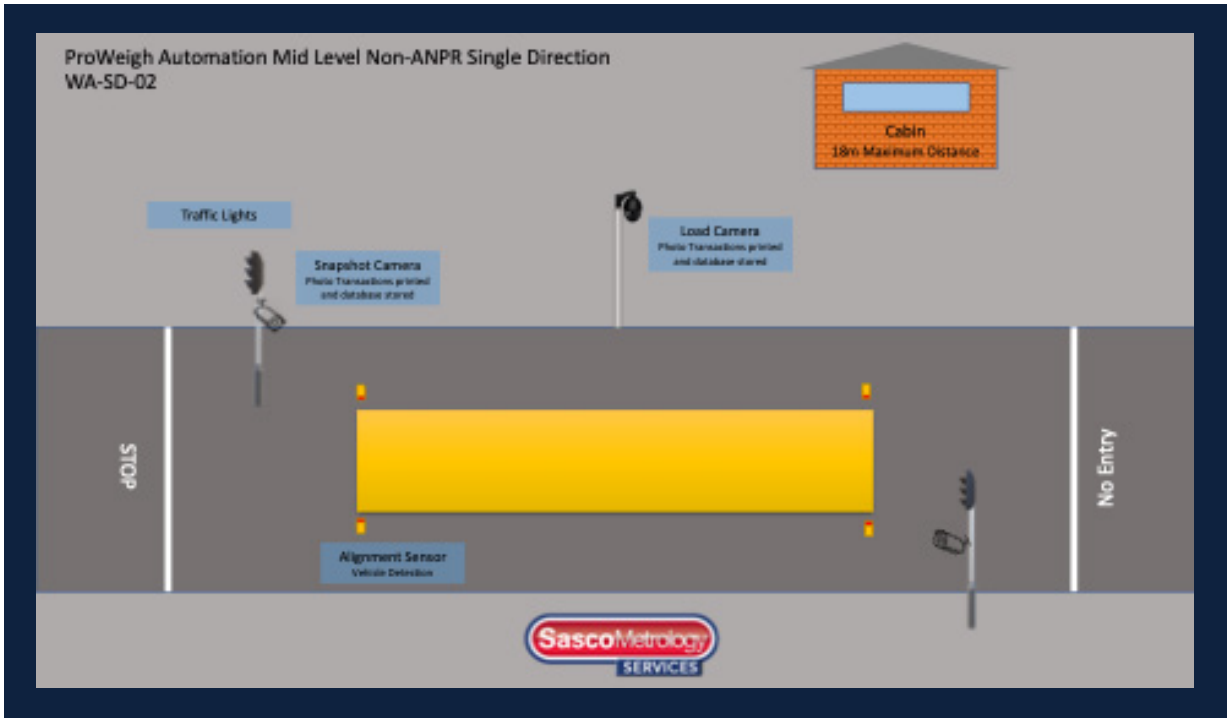


WA-BD-01

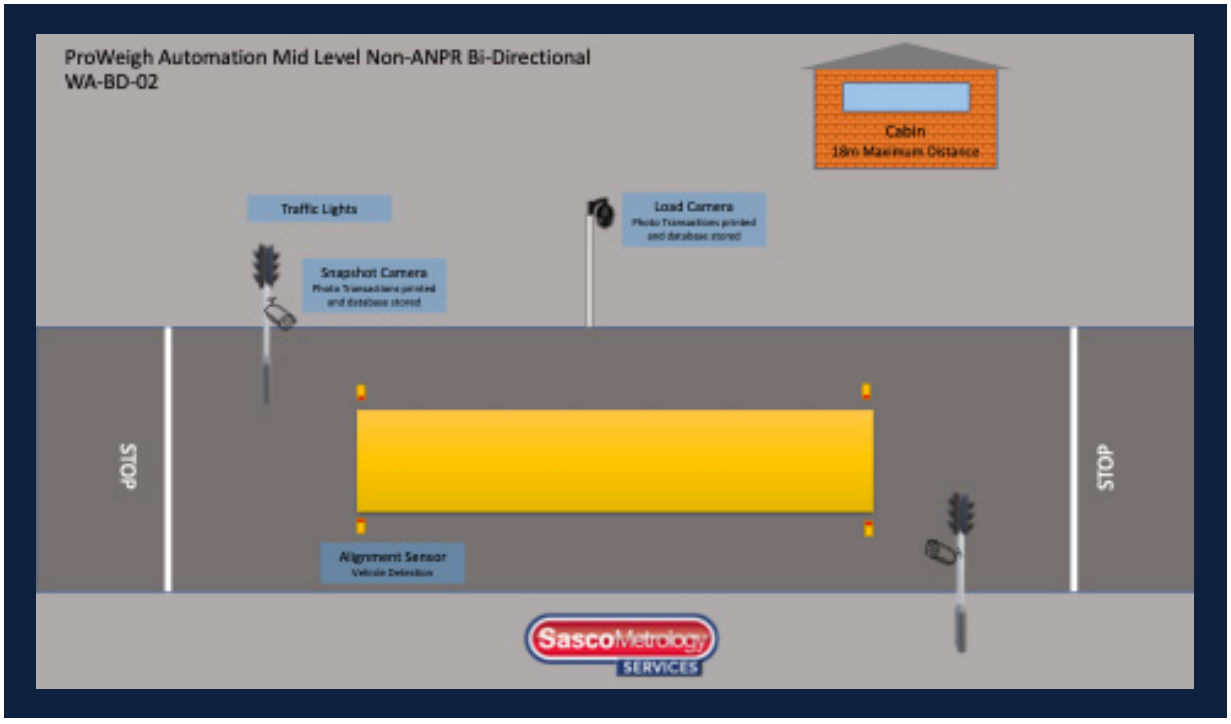


Site Layouts

WA-SD-02

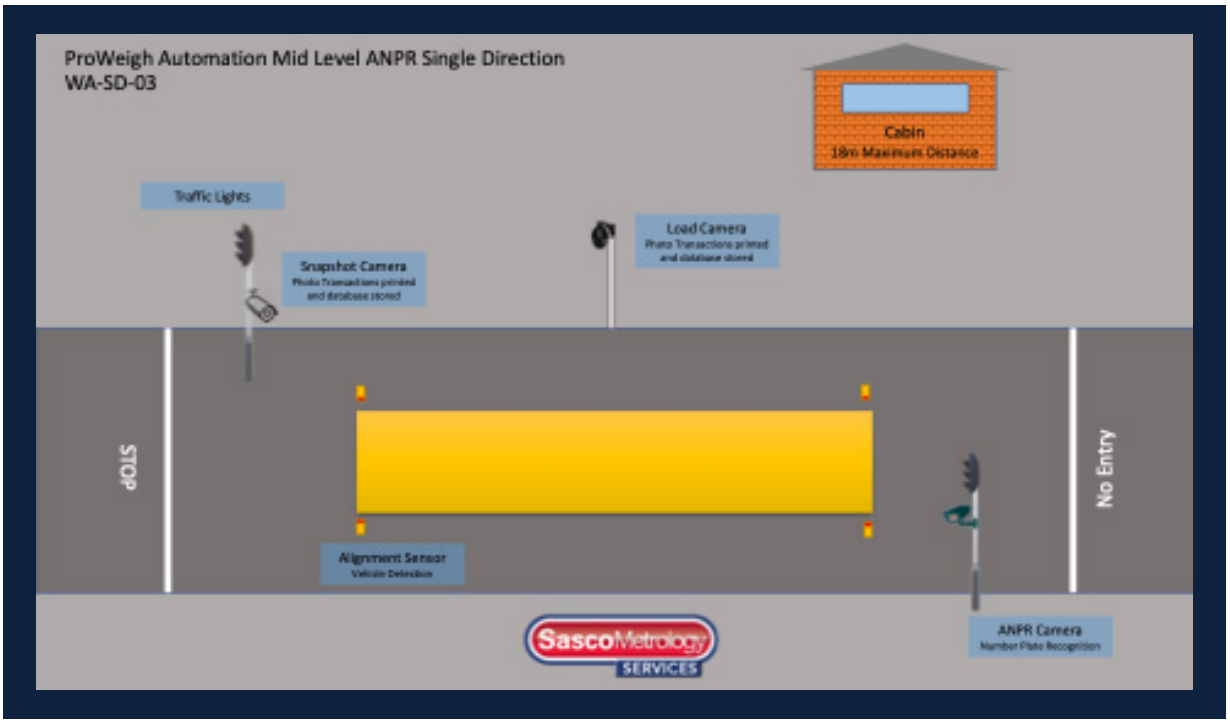


WA-BD-02

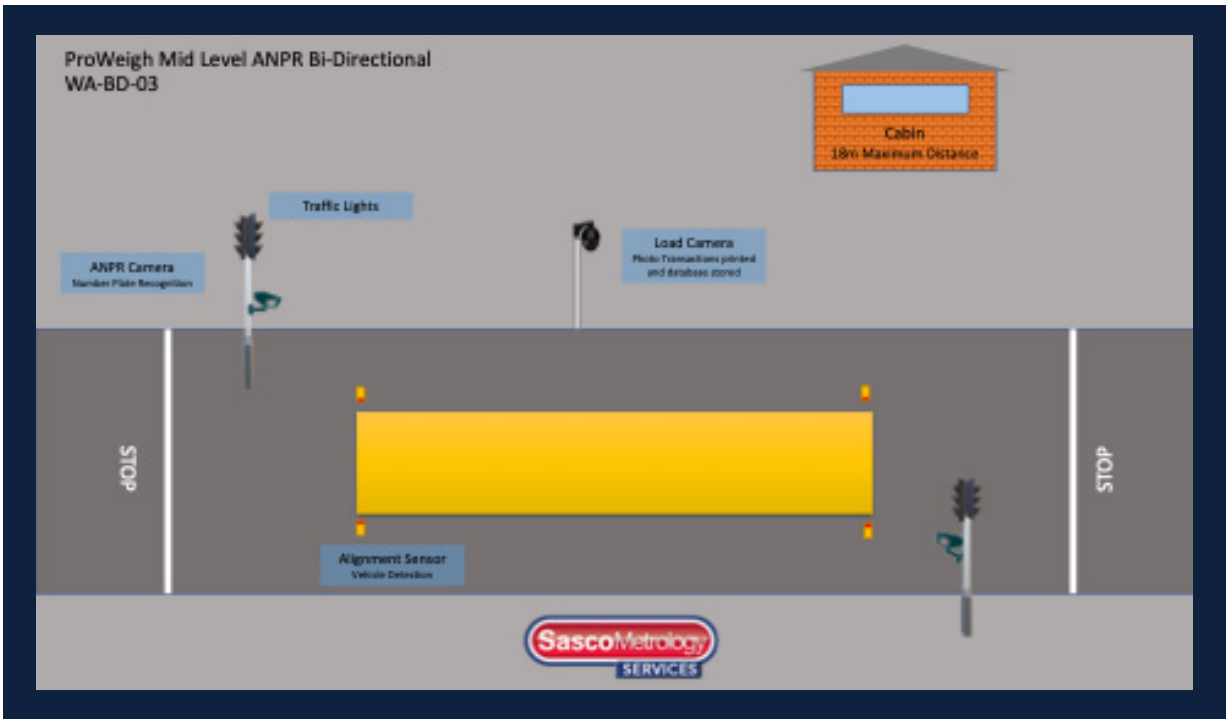


Site Layouts

WA-SD-03

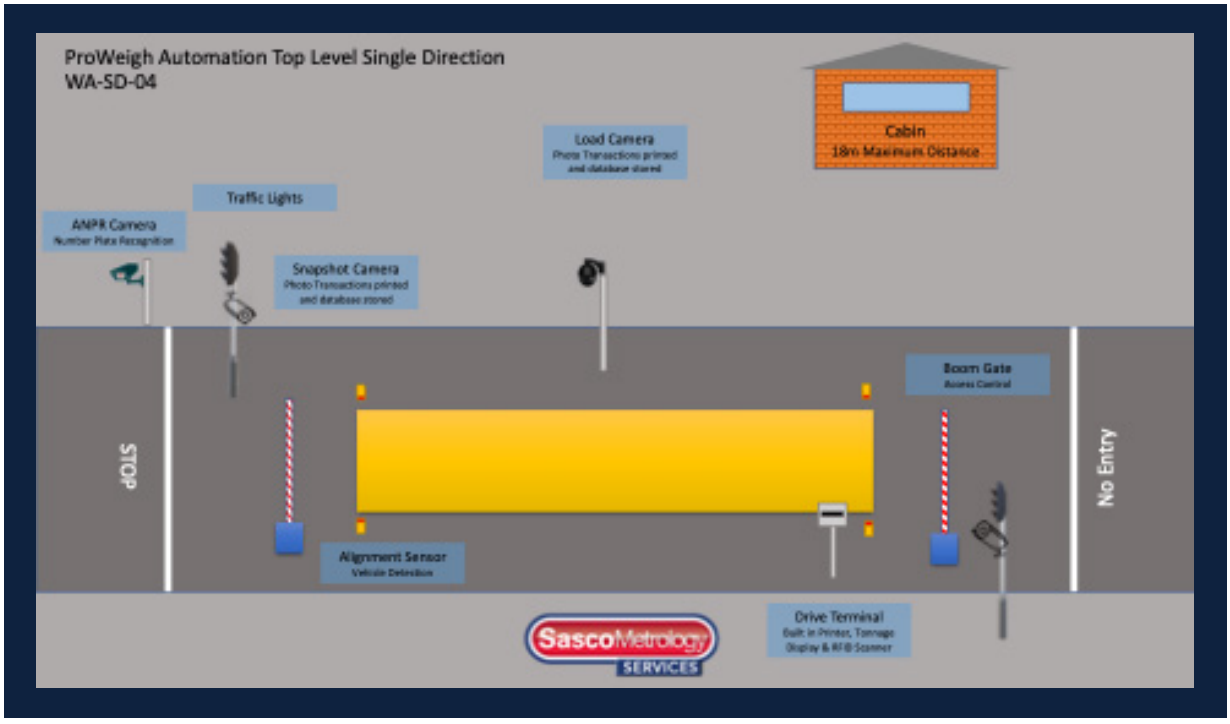


WA-BD-03

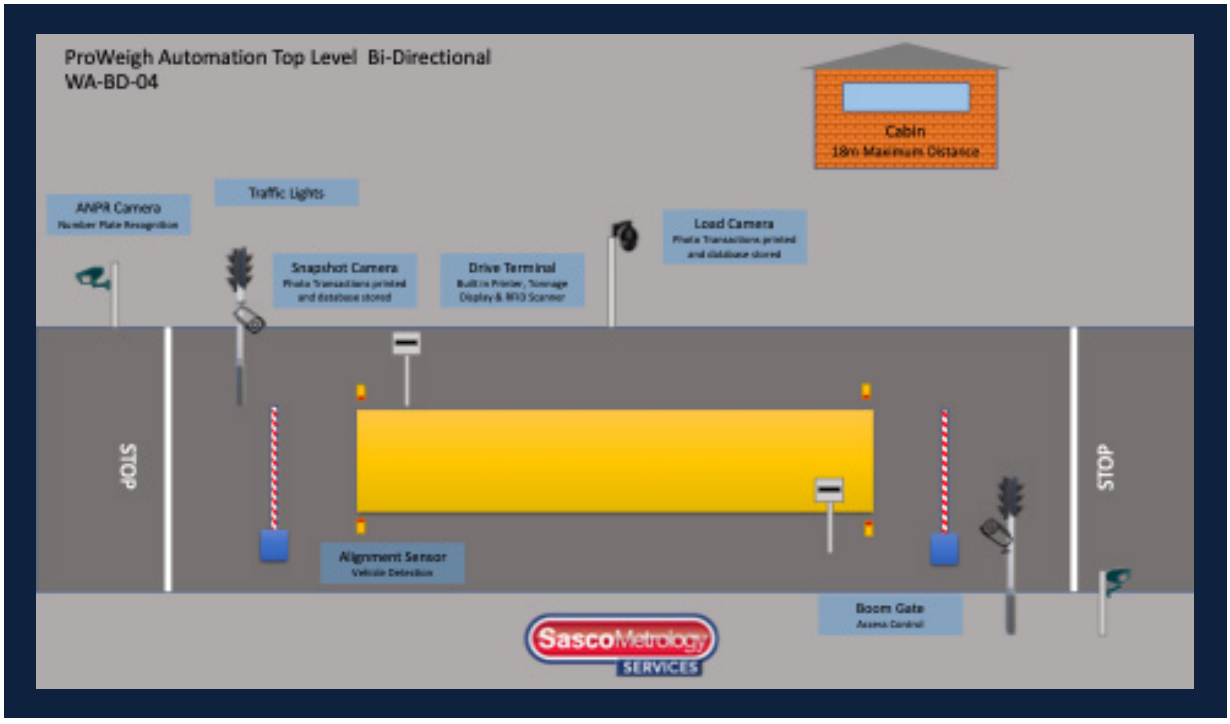


Site Layouts

WA-SD-04



WA-BD-04



Component Specifications

The specifications of the key hardware components included are as follows:

TRAFFIC LIGHTS	BOOMS	APNR CAMERA	LOAD CAMERA	SNAP SHOT CAMERA	DRIVER TERMINAL	POSITION SENSORS	COMPUTER	AUTO PANEL
Red, Green Or Red, Amber, Green	Boom Gate with LED indicator	High resolution IP camera	High resolution dome snapshot IP camera	High resolution dome snapshot IP camera	Sasco DT-3050 Or Bilanciai DD-2060X	Single Sided Beam, Dual Sided Beam, Radar	Dell Or HP	Sasco Automation Panel configu-rable to the site solution.

Functional Design Specification

The **WA-SD-04** and **WA-BD-04** require a detailed functional design specification (FDS) to be completed. This is an interactive process between Sasco and the Customer before the project is finalized and is important for the following reasons:

- **Clarity and Communication:** FDS ensures all stakeholders understand the system's functionality, reducing misunderstandings and aligning expectations.
- **Guidance for Development:** It serves as a blueprint, providing precise guidelines for developers to ensure consistency and meet requirements.
- **Scope Management:** FDS defines the project scope, managing changes and avoiding scope creep to keep the project on track and within budget.
- **Quality Assurance:** It forms the basis for testing, ensuring functionalities work as intended and meet predefined requirements.

Optional Additional Modules

The use of **MultiWeigh** software in **WA-SD-04** and **WA-BD-04** provides for a great deal of flexibility and the addition of other specialised proprietary hardware and software interfaces developed by Sasco which include:

- **Driver Validation Solution (DVS):** This module allows for driver's license to be validated against a driver data base as well as any required certification specified by the customer.

- **Precise Approach Path Indicator (PAPI):** This module allows for the addition of PAPI hardware that is a guidance system for trucks driving onto a weighbridge and then provides detailed positioning data for each weighing.

Application Example

AUTOMATION SOLUTION

Company A has experienced significant growth in the business but their ability to effectively handle the growth was being constrained on their weighbridges.

The increase in volume of vehicles they needed to weigh had resulted in several challenges, including traffic jams, incorrect data capture resulting in losses and additional work for the administration team capturing transaction into the ERP system as well as an increase in fraud.

The customer approached Sasco for a solution on how they can improve their weighing process to better support the business. After a thorough business process review, Sasco put forward a solution that included weighbridge automation as well as data integration into their ERP system.

The solution will effectively improve the weighing time by automating most of the weighing process, which also freed up the weighbridge operators who were also the site security team to focus on the necessary security checks and inspections.

The use of traffic lights and boom gates allowed for automatic traffic management and ensured that the drivers were directed and controlled on the weighbridges. This combined with our DT-3050 driver terminals, the drivers are kept up to date on the current step of the weighing process, the drivers also do not need to exit the vehicle as they receive their weighing ticket via the driver terminal printer. The driver terminal also has intercom systems installed allowing for the operator and driver to communicate quickly and effectively.

With the added camera's, the client can investigate any discrepancies and as well as provide the necessary proof to customers. Since the weighing system was integrated with their ERP system, they no longer needed to manually capture data into the system which brought the customer closer to real time inventory movements and freed up several personal to focus on the other aspects of their growing business.

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