



Business Intelligence  
Solutions

## Success Story:

# H+H CELCON

### A Comprehensive vehicle Management System across site

H+H Celcon faced significant challenges managing high volumes of delivery traffic at its Great Heck site. Manual processes and static signage created congestion, delays, and safety risks.

To address these issues, H+H partnered with Bi3 and WRS to implement an advanced delivery management system using video analytics, integrated traffic control logic, and real-time reporting.



# The Case

## The Challenge

---

The Great Heck site operates in a high-pressure environment with continuous vehicle movements, tight schedules, and strict safety requirements. Traditional traffic management relied on manual checks and static signs, which were prone to human error and inefficiency. Congestion at entry and exit points, wrong-way driving, and speed violations posed operational and safety risks.

H+H needed a solution that could automate detection, control traffic flow dynamically, and provide actionable insights for management.

## The Objectives

---

- **Automate Detection:** Use video analytics to identify vehicle presence, congestion, speed, and wrong-way movement.
- **Dynamic Control:** Integrate logic to manage traffic lights, barriers, and LED signage for real-time stop/go instructions.
- **Data Visibility:** Deliver a live dashboard and automated reporting for operational oversight and compliance.
- **Adaptability:** Ensure flexibility to accommodate site changes and evolving requirements without compromising performance.





# The Solution

## Solution Design

---

The system combined advanced video analytics with integrated traffic control logic and a robust reporting framework:

- **Video Analytics:** Applied to strategically placed cameras to monitor vehicle presence, congestion, speed, and red-light running.
- **Integrated Logic:** Linked camera inputs with physical triggers and outputs, including traffic lights, barriers, and LED signage, enabling compound event logic for priority-based lane control.
- **Reporting & Dashboard:** Bi3's HVO Data Engine provided real-time dashboards, predefined reports, and live alerts, along with weekly/monthly summaries for management review.

This design ensured that operators could monitor and control traffic flow dynamically while maintaining full visibility of site performance.

## Results

---

The project delivered all core outputs, including analytics configuration, logic integration, and dashboard reporting. The system now provides:

- **Real-Time Traffic Control:** Automated stop/go instructions via integrated signage and signals.
- **Enhanced Safety:** Detection of speed violations, wrong-way driving, and red-light running.
- **Operational Efficiency:** Reduced congestion and improved vehicle flow through dynamic lane management.
- **Data-Driven Insights:** Comprehensive reporting for trend analysis and compliance audits.

One element—API integration for LED signage—was deferred pending external details but documented for future implementation.



# The Features

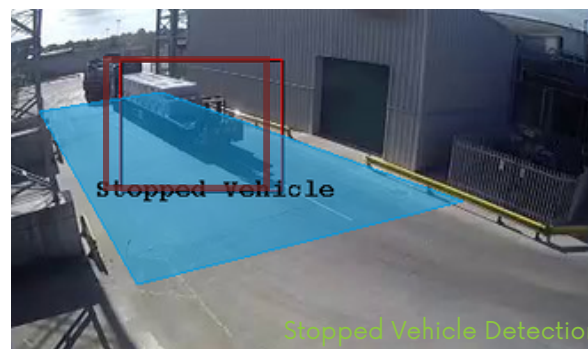
## 01. Wrong Way Detection

Vehicles traveling in the wrong direction pose a serious safety hazard. This feature continuously monitors lane compliance and instantly detects wrong-way movement, sending alerts to the control team and automatically switching traffic lights to red to prevent collisions.



## 02. Stopped/Abandoned Vehicle

Unauthorised parking or abandoned vehicles can disrupt traffic flow and create safety risks. The analytics system identifies vehicles that stop in restricted zones and detects if occupants exit the vehicle, prompting alerts for rapid intervention.



## 03. Vehicle Count & Zone Occupancy

Accurate traffic data is essential for planning and compliance. This feature counts vehicles entering and exiting the site and monitors occupancy levels in each zone, supporting traffic light logic, congestion management, and operational reporting.

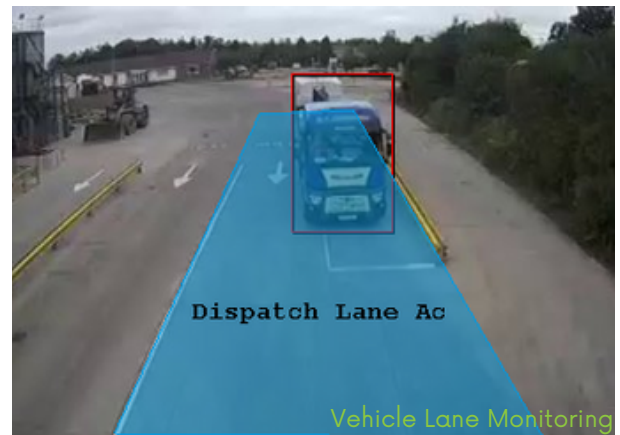


# The Features



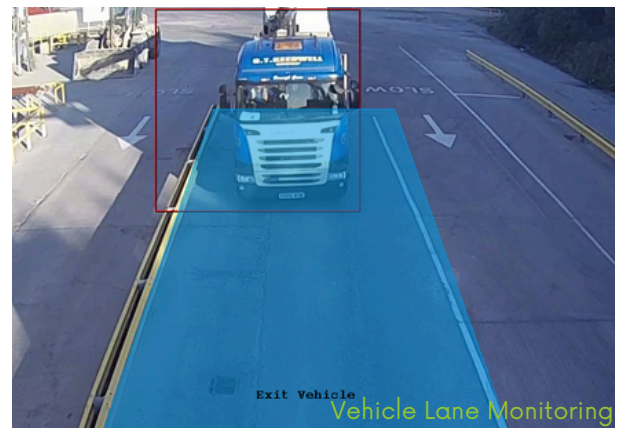
## 04. Lane Organisation

Every vehicle entering the site must follow designated lanes and bays to avoid collisions and maintain orderly traffic flow. This feature verifies lane compliance and tracks vehicle movement across zones, reducing congestion and improving site safety.



## 05. Traffic Light Compliance

Traffic lights are fully automated through analytics-driven logic. When lanes are clear, the system activates green signals, eliminating manual intervention and ensuring consistent, real-time traffic control.



## 06. Speed Monitoring

Speed violations are a major contributor to accidents in busy yard environments. Two systems have been deployed: On-the-Spot Speed Detection for instant checks and Average Speed Monitoring across zones, helping enforce speed limits and maintain safety.



# The Benefits

## Benefits

### For the Integrator (WRS)

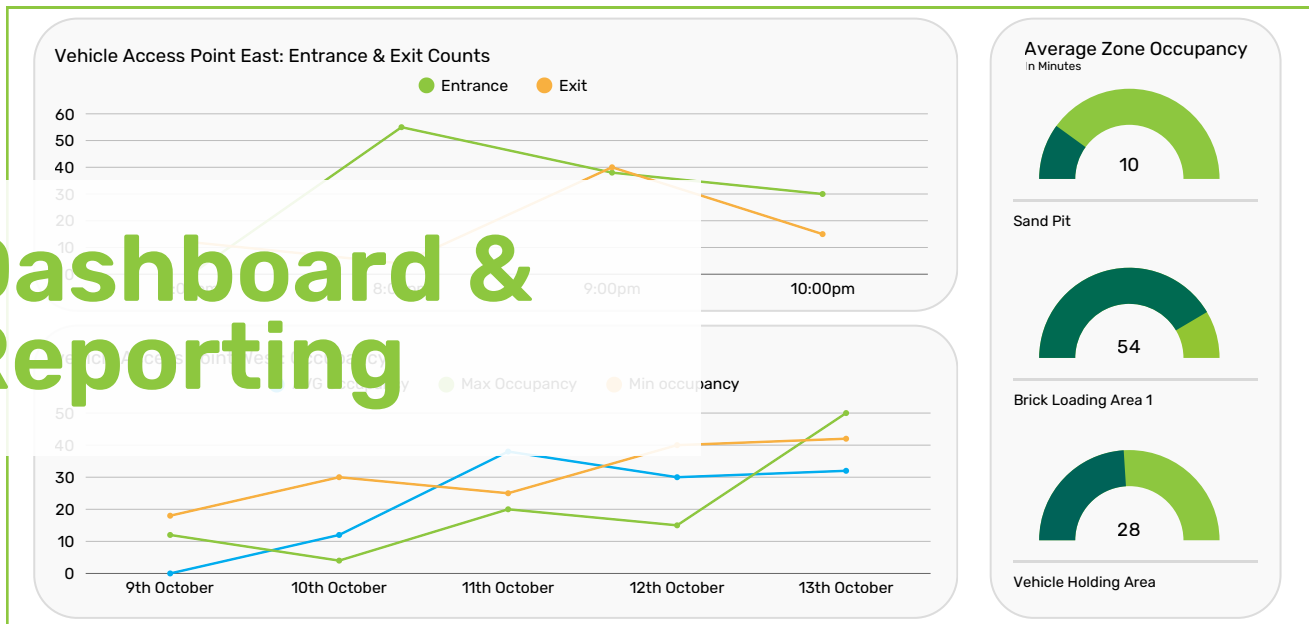
- **Proven Expertise:** Successful delivery of a complex, multi-technology integration project reinforces WRS's reputation as a trusted systems integrator.
- **Portfolio Enhancement:** Adds advanced traffic management and video analytics capabilities to WRS's service offering, creating new revenue streams.
- **Stronger Partnerships:** Collaboration with Bi3 and H+H strengthens relationships and opens doors for future joint projects.
- **Competitive Advantage:** Demonstrates ability to deliver bespoke, high-value solutions that combine physical security with intelligent automation.

### For the End User (H+H Celcon)

- **Safety First:** Automated detection of speed violations, wrong-way driving, and red-light running significantly reduces accident risk and improves compliance with Health & Safety standards.
- **Operational Efficiency:** Dynamic traffic control minimises congestion, reduces waiting times, and optimises yard throughput, ensuring smoother delivery schedules.
- **Data-Driven Decision Making:** Real-time dashboards and automated reports provide actionable insights for planning, resource allocation, and continuous improvement.
- **Regulatory Confidence:** Objective, auditable records support compliance with UK safety regulations and internal governance requirements.
- **Cost Savings:** Reduced manual intervention and improved traffic flow translate into lower operational costs and fewer delays.
- **Scalability:** The modular design allows easy expansion to additional zones or sites, supporting long-term strategic goals.



# Dashboard & Reporting

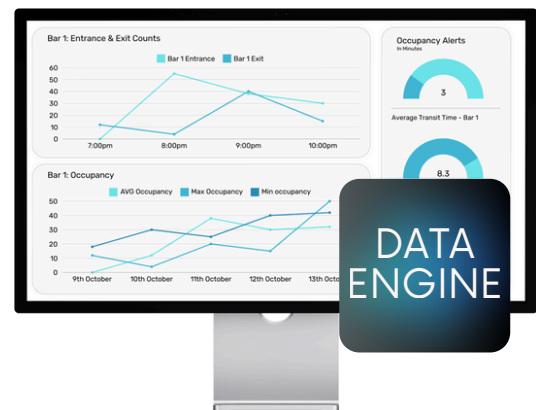


\*Synthetic Data

## Bespoke Bi3 Dashboards

A key component of the H+H Delivery Management System is the **Bi3 HVOB Data Engine**, which transforms raw analytics into actionable insights.

The dashboard provides real-time visibility of yard operations, including vehicle counts, congestion levels, and speed compliance. Operators can monitor live traffic conditions and respond quickly to emerging issues.



## Data Engine Reporting

Beyond live monitoring, the system delivers automated reporting to support operational planning and compliance. Daily summaries and weekly roll-ups highlight trends such as peak congestion times, lane utilisation, and violation patterns.

These reports enable managers to make data-driven decisions, optimise resource allocation, and maintain auditable records for Health & Safety reviews.

The combination of real-time dashboards and scheduled reports ensures that H+H has both immediate situational awareness and long-term performance insights—moving from reactive management to proactive control.

## Powered By Data Engine





# The Partners

## HH Celcon

H+H Celcon is a leading manufacturer of aircrete blocks and vertical wall panels, widely used in residential and infrastructure projects across the UK. With a strong commitment to innovation, the company continually invests in advanced technology and modern facilities to deliver high-quality products from state-of-the-art plants across Europe. This dedication has built a 75-year legacy of excellence, positioning H+H Celcon as a pioneer in sustainability, technology, and safety within the construction materials sector.



## Integrator - White Rose Security Solutions (WRS Solutions)

A leading security systems integrator delivering tailored solutions that merge advanced technologies with expert implementation. WRS designs, installs, and maintains high-performance integrated security systems focused on reliability, innovation, and compliance.



## Solution Provider - Business Insight 3 (BI3)

Experts in Human, Vehicle, and Object Detection who deliver high-grade security, business intelligence, and software solutions. BI3's Data Engine provides clear, actionable reporting, daily summaries and weekly roll-ups, for decision-makers.



## Quotes

*"This project showcases how intelligent video analytics can transform operational efficiency. By automating traffic detection and integrating dynamic control logic, we've helped H+H move from manual processes to a data-driven system that improves safety and streamlines delivery flow. It's a great example of technology solving real-world challenges."*

*Richard Eaves, Head of Business Intelligence At Business Insight 3*



*"Working with Bi3 and H+H on this project has been a fantastic opportunity to demonstrate the value of integrated solutions. The system not only enhances safety but also optimises yard operations, reducing congestion and improving turnaround times. It's a clear win for innovation and collaboration."*

*- Dale Thompson, Regional Director at WRS*



**"Experts in Human, Vehicle and Object Detection"**

Business Insight 3 Ltd, Preston Technology Centre, Marsh Lane, Preston, PR1 8UQ

01772 330 777 Email: [info@bi3.co.uk](mailto:info@bi3.co.uk) Website: [www.bi3.co.uk](http://www.bi3.co.uk)

Registered in England & Wales No. 8946421 | VAT Reg No: 973 9515 74