



**Digital Mine**

Safer | Smarter | Greener

# Collision Avoidance System 'CAS'

ENABLING YOUR ZERO HARM GOALS



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**Your CAS journey starts** with optimizing and maturing your **Level 1** through **Level 6** controls when augmenting this with a solution that serves to enable your zero harm objectives.

We have used industry operational expertise, human behavioural science and the best technology minds in the industry to deliver the most advanced CAS equipment on the market today. Wabtec has redefined the meaning of CAS.



# Wabtec's Digital Mine is Aligned with Industry Leading Practices

*"An investment of \$1 in prevention yields in \$3-6 in loss avoidance"*

According to the American Society of Safety Engineers



## Digital Mine CAS

Digital Mine supports mining customers to improve efficiency and production whilst achieving zero harm objectives. By augmenting existing mine site controls without market leading technology, risk is significantly reduced.

### Estimated cost of an accident:

Serious Injury: USD 46,000 in 1996

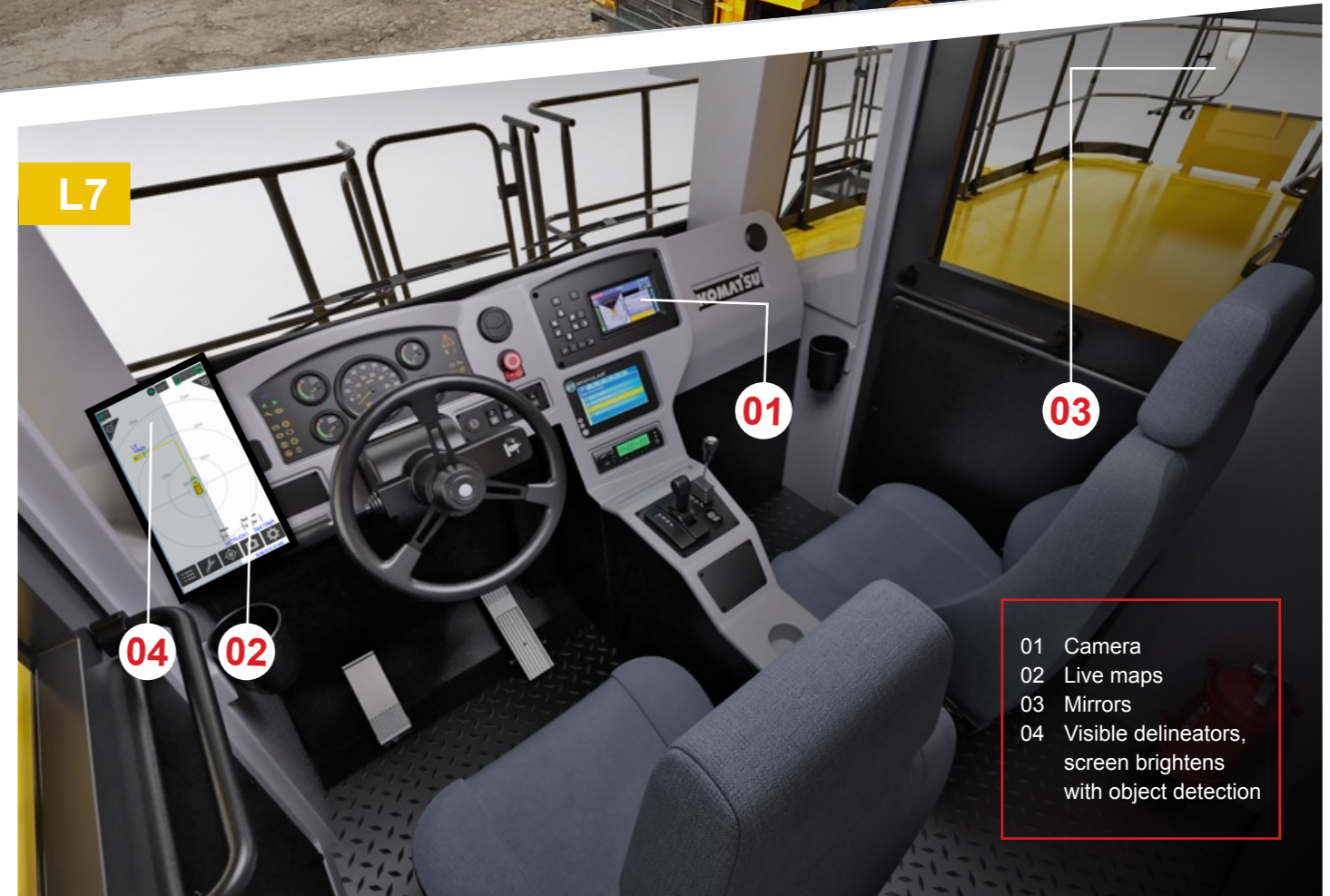
(Adjusted to 2023: USD 91,000)

Fatality: USD 2 to 5 Millions in 1996

(Adjusted to 2023: MMUSD [3.9 to 9.8])

(Liverty Mutual 2003), (Miller and Galbraith, 1995 Viscusi, 1996)

















# Understanding L7, L8 and L9



# Your Partner in Safety and Productivity

# Wabtec Capabilities

Generation 3 CAS is the mining industries most advanced collision awareness system on the market.

Capability	Wabtec
 Industry Best Practice HMI	✓
 Exception-Based Alarming	✓
 Real-Time Self-Test	✓
 Voice-Based Advisory & Response	✓
 Level 9 – All Speeds	✓
 Dynamic Detection Zones	✓
 Predictive Beam Curving	✓
 Instant Heading	✓
 Reliable, Repeatable & Accurate Detection	✓
 CAS Operational Without Vehicle Power	✓
 Differentiates Safe Vs. Un-Safe Interactions.	✓
 Sensor Redundancy	✓
 Fully Configurable Rules & Intelligence	✓
 360-Degree Detection	✓
 EMESRT & Minerals Council Compliant	✓
 Wireless Portable Systems	✓



## 01 - Reputation

**Wabtec** has been designing, testing and deploying proximity detection and collision avoidance technology for over 23 years. It's not a coincidence we've had zero unreported events and zero fatalities.



## 02 - Actively Investing

**Wabtec** actively invests in ongoing research and development into proximity detection and collision avoidance technologies. We have a long term commitment to zero harm whilst enhancing productivity.



## 03 - Partner

**Wabtec** is a true partner, one that works with you and your partners to solve the most complex problems. Whether it be integration with your existing operational technologies, working alongside your labor providers or financing, Wabtec Digital Mine delivers flexible options.



# Principle of Operation and Hardware Overview



# Wabtec's Value Generation

## Plan

- Pre-Scoping & Scoping
- Configuration: Hardware & Software

## Deploy

- Collaborative Project Delivery Models
- End-User Training
- Hypercare
- Transition to Operations
- OPEX / CAPEX

## Operate

- Help Desk
- Remote Support
- Onsite Maintenance
- Alarm Analysis
- System Health
- Parts Supply
- SLA
- Software Updates

## Optimize

- Leverage Expertise & Data
- Improve Road Design
- Optimize Alarm Logic
- Enhanced Operator Training
- Hotspot Analysis
- Incident Analysis
- OT Integrations



## CAS: Reporting Capacity

### CAS-WEB Outcomes

- Rich data analytics for informed decision making enables continuous safety improvements whilst accelerating 'zero-harm' objectives.
- Continuous asset health monitoring & reporting allows for maximum CAS availability which drives maintenance programs.
- Vehicle interaction hot spot analysis provides review & risk reduction.
- Historical journey replays provide incident analysis & risk reduction.
- Insights to improve mine traffic management plan.
- Insights to improve haul road design.

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*“Web based reporting ensures safer operations through total fleet visibility and analysis.”*

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- Actively monitor & improve operating compliance
- Monitor effectiveness of operator training
- Monitor & improve control effectiveness of CAS to reduce VI risk
- Rich geofence management capabilities for scenario management across vehicle types
- In-Vehicle Monitoring with safety adherence reporting
- Over-the-air CAS software and configuration updates to ensure optimal operation
- Remote monitoring & troubleshooting improves supportability
- Integration with FMS / Dispatch enables centralized exception monitoring & strengthens CAS value.

# About Wabtec

Wabtec Corporation is a leading global provider of equipment, systems, digital solutions and value-added services for freight, transit rail and mining. Drawing on nearly four centuries of collective experience across Wabtec, GE Transportation and Faiveley Transport, the company has unmatched digital expertise, technological innovation, and world-class manufacturing and services, enabling the freight, transit rail and mining ecosystems. Wabtec is focused on performance that drives progress, creating solutions that move and improve the world. Wabtec has approximately 27,000 employees in facilities throughout the world. Visit the company's new website at: <http://www.wabteccorp.com>

It's not just about your career... or your job title...it's about who you are and the impact you are going to make on the world. Do you want to go into uncharted waters... do things that haven't been done to make yours and someone else's life better?

Wabtec has been doing that for decades and we will continue to do so! Through our people, leadership development, services, technology and scale, Wabtec delivers better outcomes for global customers by speaking the language of industry. Digital Mine is at the forefront in enabling safer operation of mobile mining equipment through use of the Wabtec Collision Awareness technology in support of the industry vision free of fatalities, injuries and occupational illnesses associated with operating and maintaining earth moving equipment. Learn more here - <https://www.wabteccorp.com/mining/digital-mine>. At the leading edge of driving innovative technologies and responsible operations across the world. Drawing on over 150 years of experience, we are leading the way in safety, efficiency and reliability.



- Wabtec offices:
- Distributors:
- Partners:

**Wabtec**  
CAS Footprint  
39 mine sites,  
12k+ assets







## Contact Us



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