SECURETRACK™
by piper

SMART BLUE FLAG WORKER SAFETY

The Piper SecureTrack™ Blue Flag solution uses wearables, smart blue lights and a work zone awareness platform to localize the worker in territory or yards, communicate the position of the worker to approaching trains, and allow for remote work zone creation and management.

Advanced Blue Flag Protection

Piper SecureTrack™ is a dynamic Roadway Worker Protection (RWP) solution for establishing work zones and identifying the locations of workers on the track in real-time. It brings Engineering Controls, Administrative Controls, and PPE improvements to existing Blue Flag protection rules.

Workers are often unaccounted for at the end of protected shifts therefore confirmation of their safe location must be obtained before vehicles are allowed to move. Various forms of blue flags are acceptable but we believe that rugged lights provide many advantages and when enhanced with additional features like GPS and other location awareness technologies, they can form a robust safety solution.

How Piper SecureTrack™ Works

Railway workers are positioned in the system with the use of GPS and Ultra Wideband (UWB) radios attached to their PPE. As workers move about the work zone, their wearables communicate passively with a lineside communications network. This reports the centimeter-level position of workers and work zones to the ATS, which in turn alerts train operators and EICs in the area of the worker's presence. Workers also receive audible alerts to warn of approaching trains.

Piper Smart Flags are physical blue flags (lights) installed on the tracks that include the same GPS-RTK/UWB functionality as the wearables and serve as an additional protection layer.

Train operators use the intuitive in-cab displays to identify their proximity and entry to work zone areas. EICs use ruggedized handheld Android devices to communicate directly with the train operator, letting them know when they can release the train and resume movement.

The SecureTrack™ system can ensure that the proper order of operations is followed prior to releasing a protected train. For example, the lights can only be deactivated upon successful completion of a multifactor clearance process.
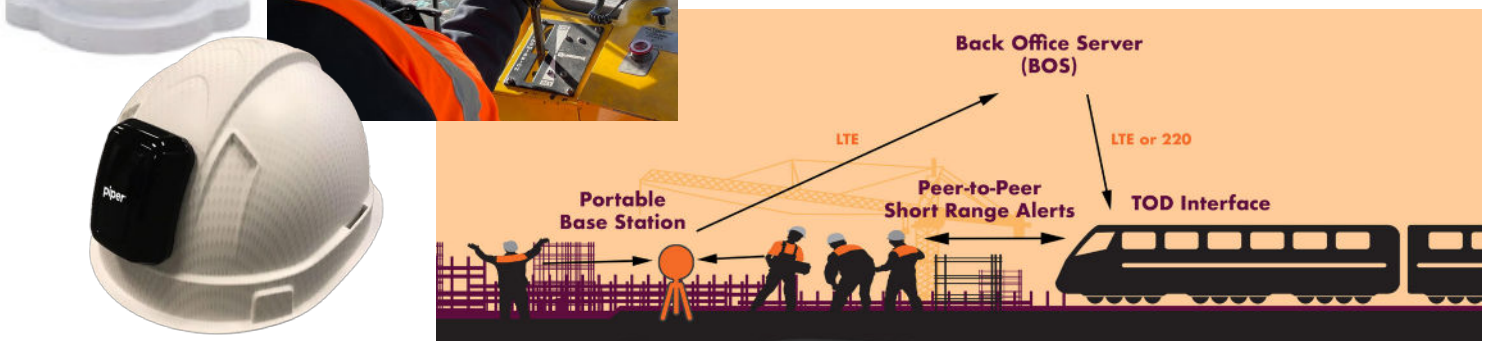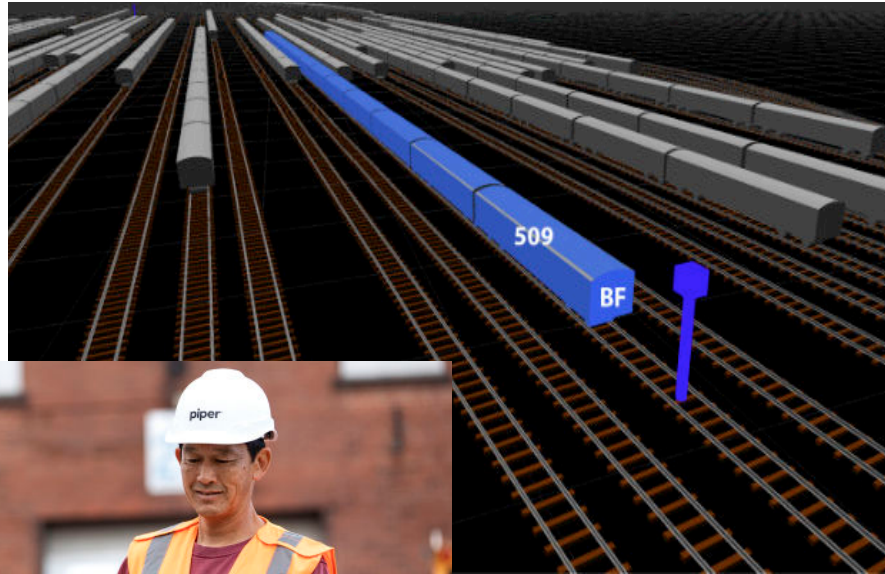
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Advanced Tools for Piper Blue Flag Protection

Creation of Blue Flag Protection Order

SecureTrack™ is capable of microlocating every train within the yard territory with centimeter level precision. Using the embedded territory simulator, EICs can select specific train consists for blue flag protection. This image shows the functionality for remotely installing flags (blue pins) which dynamically activates several critical safety features in the yard including: remote switch status, onboard TOD blue flag warnings, and verifies the assignment of workers to that order.

Before protected trains can be released, a multifactor verification of the safe clearance for workers is required. EIC tablets are used to confirm safe clearance prior to the SecureTrack™ system releasing any dynamic protection controls.
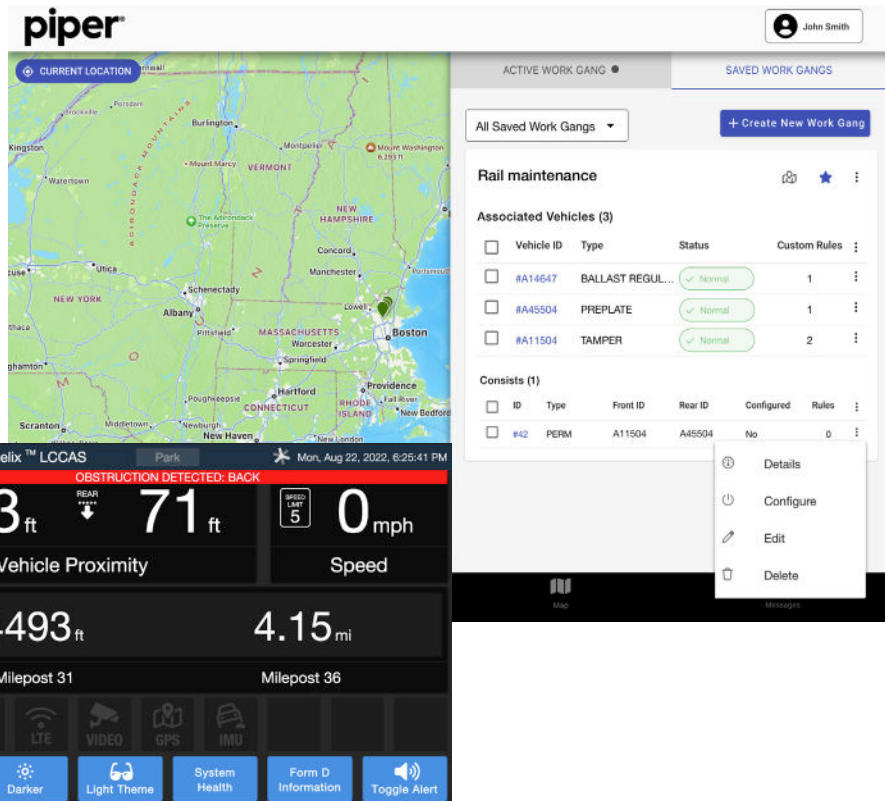

Dynamic Work Zone Creation

Piper has also developed an interface for Rail Control Center (RCC) personnel to remotely set protection limits for work zones. The system was designed in accordance with industry standard flagging rules.

SecureTrack™ offers the ability to integrate with Train Operator Displays (TOD) to warn train operators through audio/video alerts of upcoming work zones or flagging points as a means to supplement Flagging operations.

The fleet manager app (FMA) shows all the equipment operating within the work zone and displays all the same information that the selected equipment is showing its operator, as well as live telemetry and alerts. Foremen can also create work gangs, couplings and work zone parameters.

SecureTrack™ works in conjunction with existing office systems and includes back-office components for real-time monitoring, management, configuration, reporting, and system maintenance tracking.

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