The Rail Safety Improvement Act of 2008 requires that Positive Train Control (PTC) systems be installed by 2015 on rail lines providing passenger service. The Act also applies to certain freight services with a minimum gross tonnage and carriage of certain toxic materials.

In early 2010, the Federal Railroad Administration (FRA) issued regulations that detail the requirements established by the Act. The National Transportation Safety Board has identified PTC as one of its “most wanted” initiatives.

Positive Train Control (PTC) is a sophisticated automated system that can locate the position of any train at any time. On-board equipment determines a train’s location and where and at what speed it can safely travel based on database elements and status reports of the wayside signal system communicated by radio to the train.

The on-board equipment then determines both the distance to go and the maximum speed of any point, this is known as the movement authority. The train’s speed is continuously supervised and enforced by the on-board PTC equipment to determine if an override of the train engineer’s actions is necessary. Temporary changes such as train orders and temporary speed limits are transmitted to the train from the central office equipment.

Positive Train Control

The PTC Mandate

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PTC: THE PB APPROACH

PB Staff

PB staff of 14,000 professionals include signal engineers and railroad operations experts who are familiar with rail system conditions nationwide, as well as seating and proposed Federal Railroad Administration (FRA) regulations. Also on PB’s staff are senior managers with extensive experience in railroad operations who can assist rail operators in the development of PTC implementation plans for submission to the FRA. Our safety professionals can help devise safety plans that must be submitted to the FRA in order to install, test and implement PTC systems.

Experienced & Expertise

Parsons Brinckerhoff (PB) draws on more than a century of experience in railroad engineering and more than 150 years of railroad operations experience. PB’s staff of 14,000 professionals includes signal engineers and railroad operations experts who are familiar with rail signal systems nationwide.

PB’s staff also engage federal and state regulatory agencies, managers can help devise safety plans that must be submitted to FRA in order to install, test and implement PTC systems.

Training

Training is key to the successful implementation of PTC systems. Before opening training equipment, PB conducts a detailed assessment that includes a complete survey of existing training documents. Facilities and training schedules are designed to determine if training requirements will be on an existing signal radio system. The assessment considers the needs of the operators and their training personnel.

Quality

Quality assurance/quality control (QA/QC) is an integral part of our PTC implementation approach. QA/QC is applied to operating and training deliverables as to engineering drawings, construction plans and hand-operated switches upgraded as part of the project.

Burlington Northern Santa Fe Railroad

PB is supporting the ongoing implementation of PTC throughout the Burlington Northern Santa Fe’s system by performing microprocessor application programming, software support and maintenance of the CBOSS system and the PTC systems being deployed by Union Pacific Railroad.

Selected PB Experience

BNSF PTC Project

PB was part of the project team that worked toward the operation of PTC on a section of the NS&W main line between Water Fork and Paulden, Arizona.

Caltrain PTC Project

Caltrain’s CBOSS (Communications-Based Overlay Signal System) project is a train control system developed by the Peninsula Corridor Joint Powers Board to meet the 2008 PTC mandate. The CBOSS project is intended to provide for faster trains operating on Caltrain’s San Francisco peninsula corridor with much improved reliability and safety, as well as operations and signal engineering resources to UTA. PB will provide project management and engineering services, as well as operations and signal engineering resources, and system safety support to the project.

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