

POSITIVE TRAIN CONTROL ENGINEERING SERVICES

PTC technology will provide rail companies with new tools to save lives.

In September 2008, a Metrolink commuter train collided with a Union Pacific freight train, resulting in 25 fatalities and damages in excess of \$12 million.

In November 2007, an Amtrak passenger train struck a standing Norfolk Southern freight train, resulting in more than 70 injuries and \$1.3 million in damages.

According to the National Transportation Safety Board, contributing to these accidents was the lack of a Positive Train Control (PTC) system. PTC is designed to protect roadway workers and prevent train-to-train collisions, over-speed derailments and train movement on the wrong track due to switch position.

The federal government has mandated that all Class I railroads implement PTC on all main lines that carry passengers or toxic-by-inhalation materials by 2015. As the country moves toward a national interoperable PTC network, you need to be prepared for how your agency can utilize the PTC options and functionality.

Whether you are planning to implement PTC via a wireless implementation or a combination of wireless and fixed signaling infrastructure, having the right communications plan is critical.

RCC Consultants can help.

Our experts can assist you with:

- *Frequency Planning, Radio Propagation Modeling and Coverage Surveys*
- *Antenna and Filtering System Design and Optimization*
- *Interference Identification and Resolution*
- *Microwave System and Network Design*
- *FCC Licenses*
- *Rights of Way Leasing*
- *Regulatory Compliance Studies*
- *Site Acquisition*
- *Testing and Optimization of Full Systems or Individual Sites*
- *Strategic Planning*
- *Market/Technology Assessment*
- *Business Case Development*
- *Contract Negotiations*

IMPLEMENTING POSITIVE TRAIN CONTROL COMMUNICATIONS

There are three main options for the wireless implementation of a PTC system: 220 MHz, 160 MHz and WiFi/WiMax. RCC's engineers and consultants can help you implement the best solution in the technology that's right for you.

220 MHz

As part of their development of a joint interoperability standard, the four largest U.S. railroads – BNSF, Union Pacific, CSX Transportation and Norfolk Southern – have agreed to use the 220 MHz frequency for wireless communication networks. But this is a relatively new band, with many questions that each agency must answer before implementation. Additionally, the band may not be large enough or available to accommodate all PTC communications in high-volume rail traffic areas.

With limitations of spectrum availability, the proper planning and reuse of radio channels is critical. RCC can help you determine your spectrum needs and acquire the necessary channels within the 220 MHz band and others. We have licensed more than 50,000 frequency sets for our clients.

160 MHz

For a PTC system, it may be acceptable to continue using the existing 160 MHz band. However, the FCC has mandated that all licensees operating between 150-174 MHz must transition from 25 kHz to 11.25 kHz or less by January 2013. This is called narrowbanding and it may decrease the coverage area.

RCC can help you determine if your system can remain on 160 MHz and ensure you're in compliance with the narrowbanding mandate. Our regulatory experts have filed more than 10,000 FCC applications for licensing in connection with narrowbanding and otherwise.

WiFi and WiMax

WiFi (Wireless Fidelity) and WiMax (Worldwide Interoperability for Microwave Access) are two additional technologies that may be implemented for communications for a PTC system. WiFi uses unlicensed spectrum to provide access to a local network, while WiMax is a long range system that uses licensed or unlicensed spectrum to deliver connection to a network, usually the Internet. Both technologies offer significant advantages to rail and transit companies, especially for commuter rail.

RCC is a leader in the wireless communications industry, and we've deployed voice and data systems using WiFi and WiMax technology for clients around the world.

WHY CHOOSE RCC?

RCC has worked with rail and transit clients for more than 15 years. We specialize in helping transportation companies around the world stay connected through radio, microwave and wireless communications systems. Some clients include:

- Chicago Transit Authority
- Greater Cleveland Regional Transit Authority
- Long Island Rail Road
- Manchester Metrolink
- Massachusetts Bay Transportation Authority
- New York City Transit Authority
- NJ TRANSIT
- Port Authority of New York and New Jersey

RCC will help ensure you meet your communications needs while implementing a PTC system, within your budget. We differentiate ourselves in three key areas:

EXPERIENCE

Founded in 1983, RCC has helped more than 1,500 clients solve complex communications problems through wireless and wired communications. Our senior radio engineers have an average of 20 years of directly relevant communications experience. Our regulatory experts are some of the most experienced, having helped identify and license more than 50,000 frequency sets.

TECHNOLOGY

Our broad range of technical expertise includes the assessment, planning, design, procurement and implementation of the communications systems your agency will need to implement PTC.

INDEPENDENCE

RCC is completely neutral, unbiased and independent, focused only on providing the best custom solution for you.



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