



Status of Metrolink's Positive Train Control (PTC) Implementation

Metrolink is a leader in the nationwide effort to implement PTC. In June 2015, Metrolink became the first railroad in the nation to be operating PTC trains in revenue service demonstration (RSD) across the entire network of track that it owns. Metrolink first began operating PTC-equipped trains in revenue service in February 2014, on the BNSF-owned 91-Line right-of-way. Metrolink continues to work closely with its railroad partners to ensure that PTC is in service across all of the shared tracks in the Southern California region that we operate over. As part of this project, Metrolink designed, constructed and rigorously tested many complex components including a new computer-aided dispatch (CAD) system, back office hardware systems, PTC on-board equipment on all Metrolink-owned cab cars and locomotives, a robust communication network, PTC devices at 476 wayside signals and construction of a new hardened facility for dispatching and train control.

Recent and Up-coming Milestones:

- PTC in RSD on all five Metrolink-owned subdivisions as of June 2015
- PTC Safety Plan submitted to the FRA in June, 2015, and resubmitted in December, 2015.
- Seeking FRA System Certification by mid-2016.
- Successful interoperable testing with freight partners (Burlington Northern Santa Fe and Union Pacific) in late 2015; Interoperable RSD anticipated in summer 2016. Interoperable testing with commuter partners (North County Transportation District and Amtrak) depends on implementation status of those railroads.
- PTC infrastructure is fully installed and tested across Metrolink's territory.
- PTC onboard units installed and tested all of Metrolink-owned locomotives and cab cars. Currently in process of equipping 40 leased BNSF Locomotives.
- New PTC-compatible CAD System in service.
- Secured over \$220 million in funding for PTC.
- Constructed new, hardened Dispatching and Operations Center (DOC).
- Secured five-year spectrum lease from PTC 220 while Metrolink pursues FCC approval of spectrum acquisition.

Remaining Challenges

- As an early-adopter of this technology, Metrolink has encountered and overcome numerous challenges. Key remaining challenges include:
 - Transition Capital Development Project to Metrolink's PTC Operations – Robust staff capabilities and resources are required to support PTC operations, particularly if the industry's development, testing and implementation process extends over a protracted time period. Staff may not have technical capacity to perform complex software updates or potential changes in requirements that involve extensive testing, documentation and record keeping requirements.
 - Interoperable Revenue Service – Potentially complex challenges with tenant/host arrangements and dependence on uncertain implementation timelines of other railroad hosts on all shared tracks.
 - Spectrum Acquisition – The planned purchase of 220MHz spectrum which began in 2009 was challenged by a third party followed by bankruptcy of the holding firm. An agreement has been reached with PTC 220 LLC to lease spectrum for five years. We continue to proceed with our spectrum acquisition efforts before the Federal Communications Commission (FCC).

- Costly Software and Hardware Updates and Changes – the inter-operable PTC System is still immature and continues to undergo frequent software and hardware revisions. Deployment of the changed software and hardware on a frequent basis while performing change management and configuration management is a challenge, especially when applied to multiple railroads.
- Funding Constraints – As a result of the prolonged implementation schedule, project costs could exceed the \$221million in available funding. Over thirty separate grant allocations have been compiled from federal, state and local funding sources with varying scope and match requirements, expirations and other restrictions. Approximately 85% of the project funding has come from state and local sources.

Policy Priorities

Reward early implementers

The Fixing America's Surface Transportation Act that was passed into law in December, 2015, provides \$199M in new funding to the Federal Railroad Administration (FRA) to support PTC installation. Railroads across the United States have invested billions of dollars in PTC and are providing an important model for the industry to emulate. These early adopters, including Metrolink, should receive priority for the funding to support and ease ongoing implementation efforts. We ask Congress to provide direction to the FRA to ensure early adopters receive a fair share of the \$199M that is available.

Support and incentivize implementation

The sooner the nationwide system is complete, the sooner passengers and freight will travel more safely. The National Transportation Safety Board has been calling for the development and implementation of PTC for over 45 years. Since the 2008 legislation was passed, numerous accidents that could have been prevented with PTC have occurred. In 2015, 732 accidents or incidents were caused by human error on American railroads—more than by signal and track defects combined. PTC can prevent those errors from becoming dangerous, but without PTC, these accidents have resulted in injuries, property damage, and loss of life.

Encourage timely FCC approval of spectrum acquisition

The availability and accessibility of wireless spectrum is essential for implementation and operation of Positive Train Control technology. Acquiring the necessary dedicated spectrum has been a challenge for railroads across the country. The Federal Communications Commission should help facilitate the acquisition of spectrum by railroads and expedite the regulatory approval process so that federally mandated PTC systems are enabled to operate as soon as possible.

Maintain interoperability requirements and safety standards

PTC systems are also required to be interoperable with other railroads. Interoperability means that the PTC system on any railroad's locomotives can seamlessly interface with the systems of any other railroad. This means that as a train moves among other tenant and host railroads, the preventive qualities of PTC are maintained. Loss of interoperability would negate the objective and protective characteristics of PTC.