



January 26, 2018

# Positive Train Control

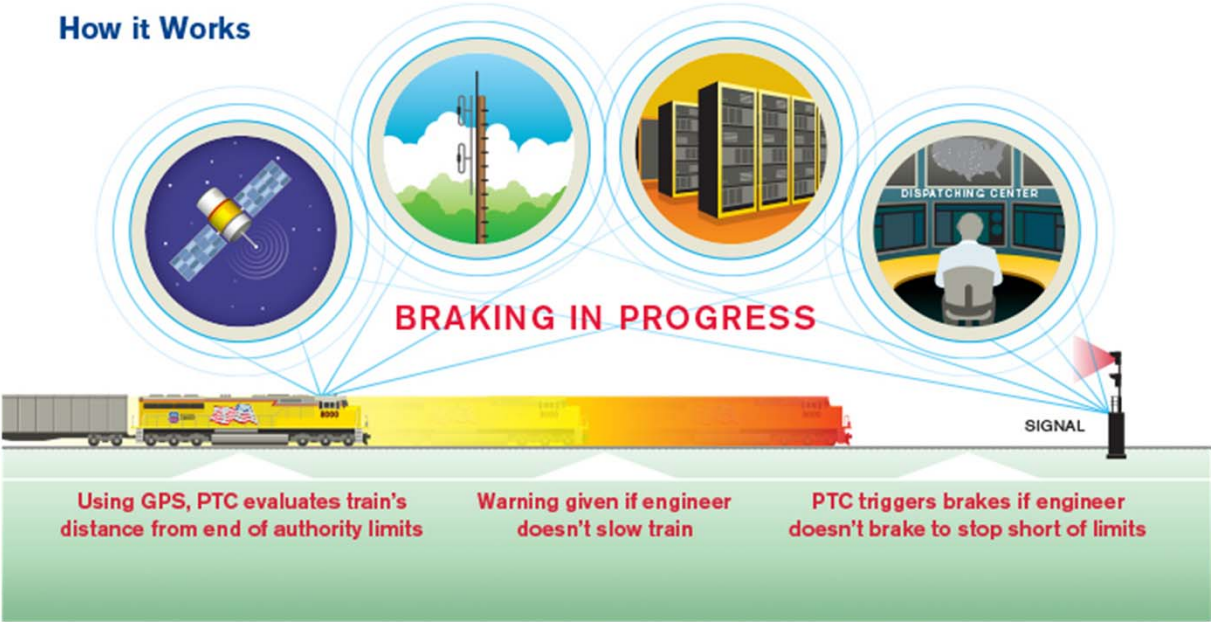
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# Positive Train Control

The Rail Safety Improvement Act of 2008 (RSIA) requires railroads to install PTC systems on tracks that carry passengers or poison-by-inhalation (PIH) or toxic-by-inhalation (TIH) materials.

### How it Works



# Positive Train Control



## What it WILL DO

- Designed to Prevent
  - Train-to-Train Collisions
  - Derailments due to excessive speed
  - Movements through misaligned track switches
  - Unauthorized train entry into work zones

## What it WON'T DO

- Will Not Prevent
  - Grade Crossing Accidents
  - Trespasser Accidents
  - Accidents due to track or equipment malfunctions



# The Challenge of PTC



**Much of the technology did not exist before the government mandate**



**Must be interoperable across all railroads**



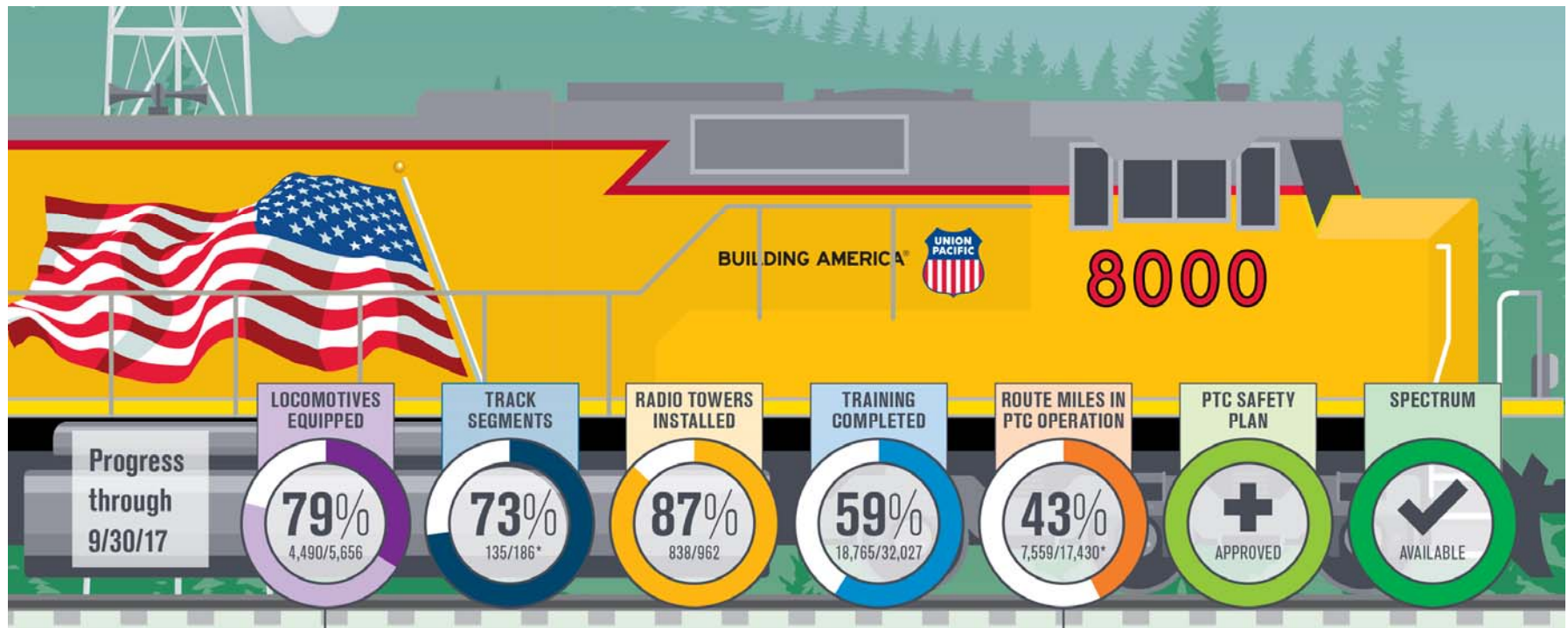
**Must relay critical operational data**



**Must operate across all terrain types and calculate stopping distances regardless of weather conditions.**

# The Success of PTC

As of November 2017 (Next report to FRA in early February)





# What is PTC Implementation?

- Radio Towers
- Track Segments
- Locomotive Equipment
- Personnel Training



# System-wide PTC Implementation Progress

Over 7,500 PTC-required miles were in operational status as of September 30, 2017, as shown in green.

During 4Q2017, UP crews worked on the track miles shown in blue.

The remainder of PTC-required segments will be addressed in 2018.



# Known Challenges During Implementation



- Occasionally trains may experience unintended stops, which are a result of a built-from-scratch technology
- These unintended stops may have an adverse impact on our system
- The stops may also, on occasion, impact vehicular traffic in a community
- UP is consistently reducing these situations to eventually eliminate these occurrences

