Receive Update Regarding Wireless Crossings

**CITIZENS ADVISORY COMMITTEE**
04/16/2025
AGENDA ITEM 10

Railroad Crossing Overview

- 41 at-grade vehicular crossings on the Caltrain-owned corridor between San Francisco and San Jose

- Crossing gates and activations are key safety feature for railroad and surrounding communities

- Two main crossings systems active as of 2024

  - Wireless Crossing (active for all Caltrain trains)

  - 2 Speed Check (active for tenant trains and as wayside backup)

Wireless Crossing Operations

- Communication between onboard computer, dispatch and wayside signal at crossing

- Positive Train Control enabled locomotive sends message to a wayside crossing controller

- Warning time calculated based on the trains GPS position and speed

- System knows stopping pattern of trains, allowing for inhibit feature

- Integrated with conventional warning system and PTC

GPS

Back Office
(Dispatch)
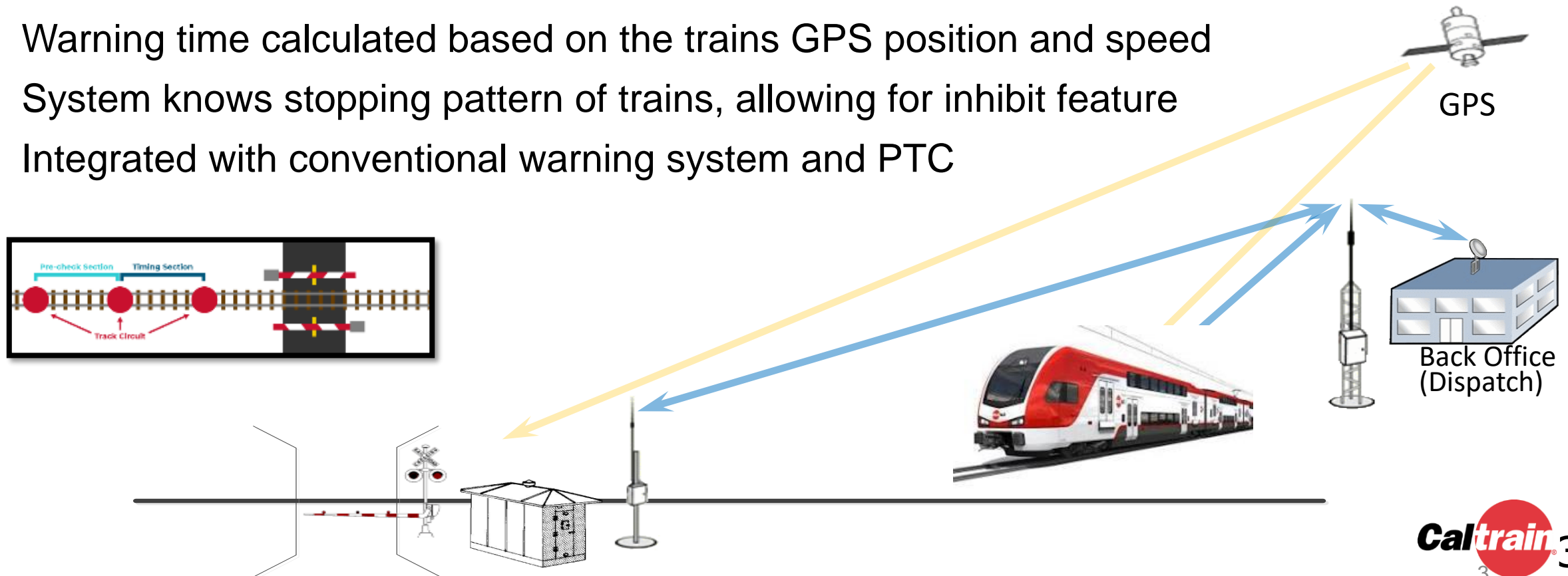
Wireless Crossing Key Features & Benefits

- Provides more consistent warning times than 2 Speed Check

- Reduces length of long warning times

- Provide performance similar or better when compared to other technologies, including legacy pre-electrification system

Inhibit Feature

- Reduces or eliminates the additional activation of gates at a downstream grade crossing by an approaching train for a scheduled station stop

- Crossings activate when the train is departing the station

Wireless Crossing Project Status

- Wireless Crossing system active at 41 vehicular crossings and 2 pedestrian (non-station) crossings

- Installation and testing were completed in August in 2024 prior to electrified service launch

- Inhibit feature launched in January 2025

- Operations noted on-time performance issues with inhibit feature active at crossings directly adjacent to stations

- Turned off inhibit feature at 10 crossings until long-term solution can be determined

- Long-term solution for activating inhibit feature at remaining 10 crossings without impact EMU on-time performance. expected in early 2026

Wireless Crossing Performance Results

Performance Results (January 5-31, 2026)

Item	Quantum
Average Daily Reduction of Gate Down Time Per Crossing (Range: 20-87 minutes)	45 minutes
Total Daily Reduction of Gate Down Time for All Crossings	18 hours, 11 minutes
Total Activations Prevented in January	24,285 activations

Wireless Crossings Benefits Example:

Burlingame Station Stop (North Lane & Oak Grove Avenue)
- 35 Scheduled daily Station Stop activations eliminated
- Oak Grove Avenue = 32 minute daily reduction in gate down time
- North Lane = 45 minute daily reduction in gate down time

Wireless Crossing Path Forward– Maintenance and Enhancements

- Station Inhibit Performance Updates - Q1 2026 Delivery

- Manual Start Activation - Q1 2026 Delivery

- Amtrak to start using system end of Q2 2025

FOR MORE INFORMATION

WWW.CALTRAIN.COM

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