# Project Description

## Project Overview

The Southern California Regional Rail Authority (SCRRA) is proposing the Control Point (CP) Avery to CP Songs Signal Respacing Project (Project) to improve the operational flexibility and service speeds between CP Lantern and CP Pier along Metrolink's Orange County Subdivision (Figure 1). The Project comprises four separate locations that are staggered in between the Cities of Dana Point and San Clemente, California.

Under the Project, the existing eastbound intermediate signal located approximately 100 feet south of Avenida Estacion's intersection with North El Camino Real at Senda De La Playa (Mile Post [MP] 203.56) would be removed. The westbound signal 2031 at this location will remain. Three new intermediate signals and three new positive train control (PTC) antennae towers would be installed, at CP Lantern (MP 202.4242), Intermediate Signal 2036 (MP 203.959), and CP Pier (MP 205.153).[1] The new PTC antennae towers would be approximately 45 feet in height and positioned approximately 33 feet from the centerline of the mainline tracks. The Project's physical footprint would be discontinuous and limited to those areas along the Project corridor where a new signal, PTC antenna tower, and power source are proposed (Figure 2).

SCRRA's goal for implementing the Project is to enhance operational flexibility and increase safety and reliability along portions of the Orange County Subdivision within the Cities of Dana Point and San Clemente. Once installed, the Project would provide independent utility by adding two eastbound and two westbound blocks of separation[2] for train traffic within the Project corridor. The Project includes the following objectives:

- Objective 1: Increase train safety and reliability of train operations throughout the Project corridor
- Objective 2: Accommodate additional train capacity, including express trains, within the Orange County Subdivision's Inland Empire–Orange County Line and Orange County Line

## Project Location

The Project includes three new signal facilities within an approximately 2.73-mile-long segment of Metrolink's Orange County Subdivision, which serves the Orange County and Inland Empire-Orange County Lines. The Project corridor runs west to east from CP Lantern at MP 202.4242, in the City of Dana Point, to CP Pier at MP 205.153, in the City of San Clemente (Figure 1). The Project alignment is located within the Dana Point 7.5-Minute Quadrangle for the County of Orange. Although CP Lantern and Senda De La Playa are not located within a Bureau of Land Management grid, Signal 2036 and

[1] A control point (CP) is the general location of the alignment's controlling mechanisms for that specific segment of the alignment, while a signal is one physical component (i.e., a colorlight) of the control point that communicates travel patterns to trains travelling in the same stretch of alignment, oftentimes in the same direction.

[2] A block of separation is a defined segment of rail track, controlled by corresponding signals, that allows trains to move past each other within the same segment.

the CP Pier signal/tower locations are located within Bureau of Land Management Section 4, Township 9S, Range 7W.

# Project Components

Signal respacing is one method through which the safety, reliability, capacity, speed, and efficiency of railroad lines can be improved without implementing major physical infrastructure improvements. Signal respacing involves modifying the existing signals within the Project corridor, either by removing, replacing, or relocating them, in order to add additional signal blocks[3] throughout the corridor. By providing additional signal blocks, train-to-train coordination is enhanced, thereby improving the safety and reliability, as well as capacity and efficiency, of multiple train movements through the corridor. Signal respacing is one aspect of PTC implementation, which is vital for safe train operations. The Project components are generally described below.

**New intermediate signals:** Intermediate signals are used to space trains that are traveling in the same direction, one behind the other. As shown on Figure 2 through Figure 6, three new intermediate signals would be installed under the Project.

**Absolute signals:** Signals showing "stop" indication means "stop and stay," thereby allowing only one train to occupy a defined section of track (signal block) at any time.

**PTC installation:** PTC is a system designed to track trains' locations and speeds in order to prevent train-to-train collisions, derailments, unauthorized train movements in work zones, and the movement of trains resulting from accidental switch positions. PTC networks enable real-time information sharing between trains; rail wayside devices; and back office applications regarding train movement, speed restrictions, train position and speed, and the state of signal and switch devices (Federal Communications Commission 2020).

As shown on Figure 7, a PTC antenna tower is a communications tower that relays data from trains and trackside interfaces to the necessary communications channels (i.e. dispatcher, onboard locomotive systems, etc.). Power source connections are required for each location. As shown on Figure 2 through Figure 6, three new PTC towers would be installed under the Project.

## Signal and Positive Train Control Improvements

The improvements that would be implemented along Metrolink's existing railroad rights-of-way within the Cities of Dana Point and San Clemente are detailed in Table 1 and illustrated on Figure 3 through Figure 6.

[3] A signal block is a defined segment of rail track that is controlled by corresponding signals.

**Table 1. Project Components**

| Proposed Action | Location | Description |
|---|---|---|
| Install new bidirectional signal | CP Lantern at MP 202.4242 | A new signal, enclosure, and PTC antenna tower would be installed. |
| Remove intermediate signal 2032 | Senda De La Playa at MP 203.56 | The eastbound intermediate signal (2032) at Senda De La Playa would be removed. The existing westbound intermediate signal (2031) would remain, along with the location's existing PTC antenna tower and instrument enclosure. |
| Install new intermediate signal 2036 | Signal 2036 at MP 203.959 | A new signal and PTC antenna tower would be installed. The existing enclosure at Dije Pedestrian Crossing will be utilized. |
| Install new bidirectional signal | CP Pier MP 205.153 | A new signal and PTC antenna tower would be installed. The existing enclosure at 'T' Street would be replaced with a new enclosure. |

Notes: CP=control point; MP=mile post; PTC=positive train control

### Utilities

The CP Lantern location would require a new commercial power feed. A power source located between the Metrolink track and the ocean closest to 35757 Beach Road was identified as an acceptable power source.

## Project Construction

Project construction would begin in 2021 and last for approximately 1 year, ending in October 2022. Construction activities would take place within approximately 4.2 acres of SCRRA's existing right-of-way, with each of the four sites comprising approximately 1 acre (Figure 2). No temporary construction easements and property acquisitions would be required.

The proposed intermediate signals and PTC antennae towers would be installed individually. Installation of each of the new signals and each of the new PTC towers would require trenching of a maximum 1,000 square foot area, resulting in the disturbance of a maximum of 37 cubic yards of soil per signal/PTC tower installed (approximately 222 cubic yards total). Excavated soil would be used as fill in the signal/PTC antenna tower installation and, as such, no export is required.

Existing SCRRA railroad operations would not be impacted during construction.

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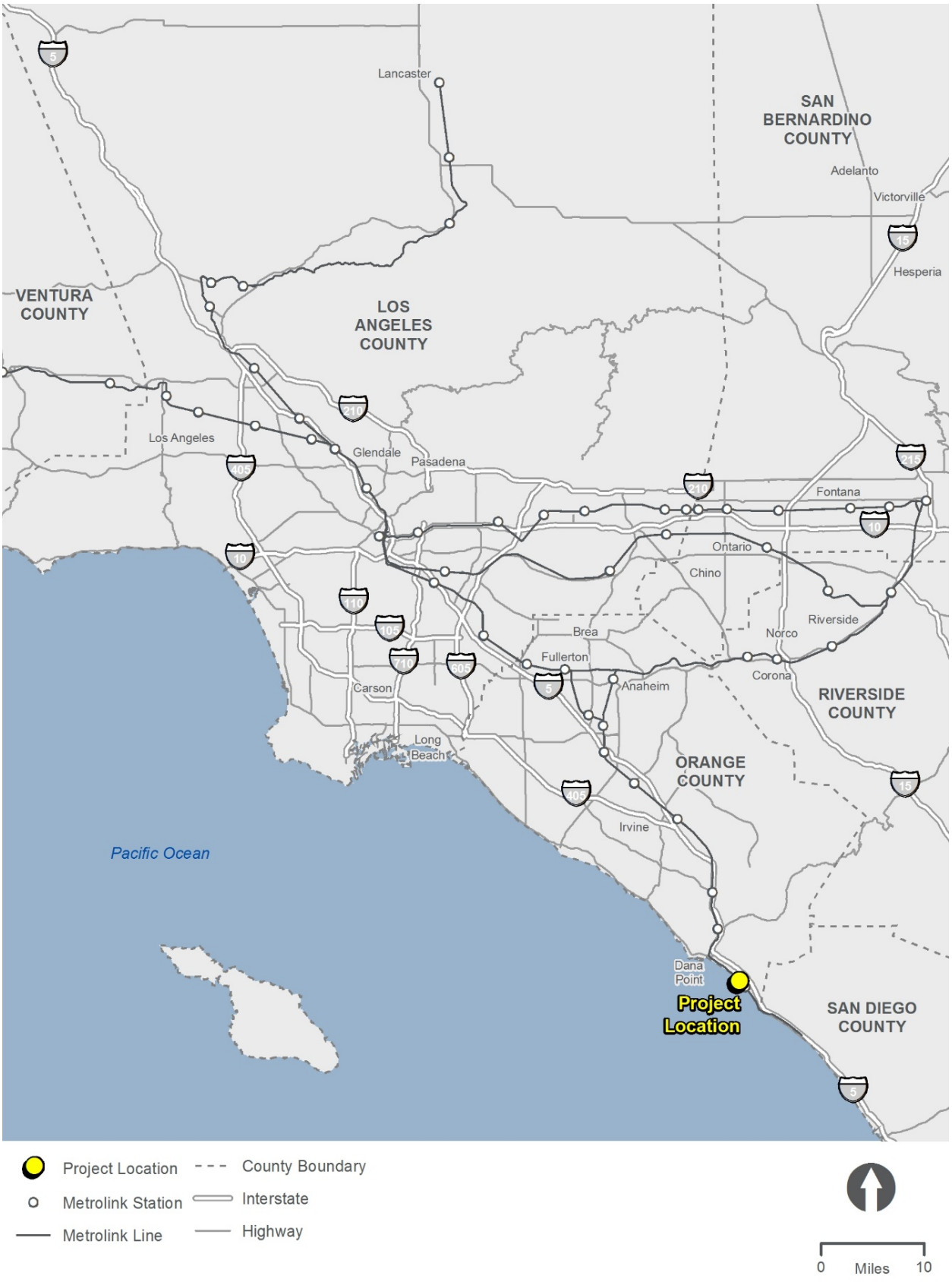
## Figure 1. Regional Location



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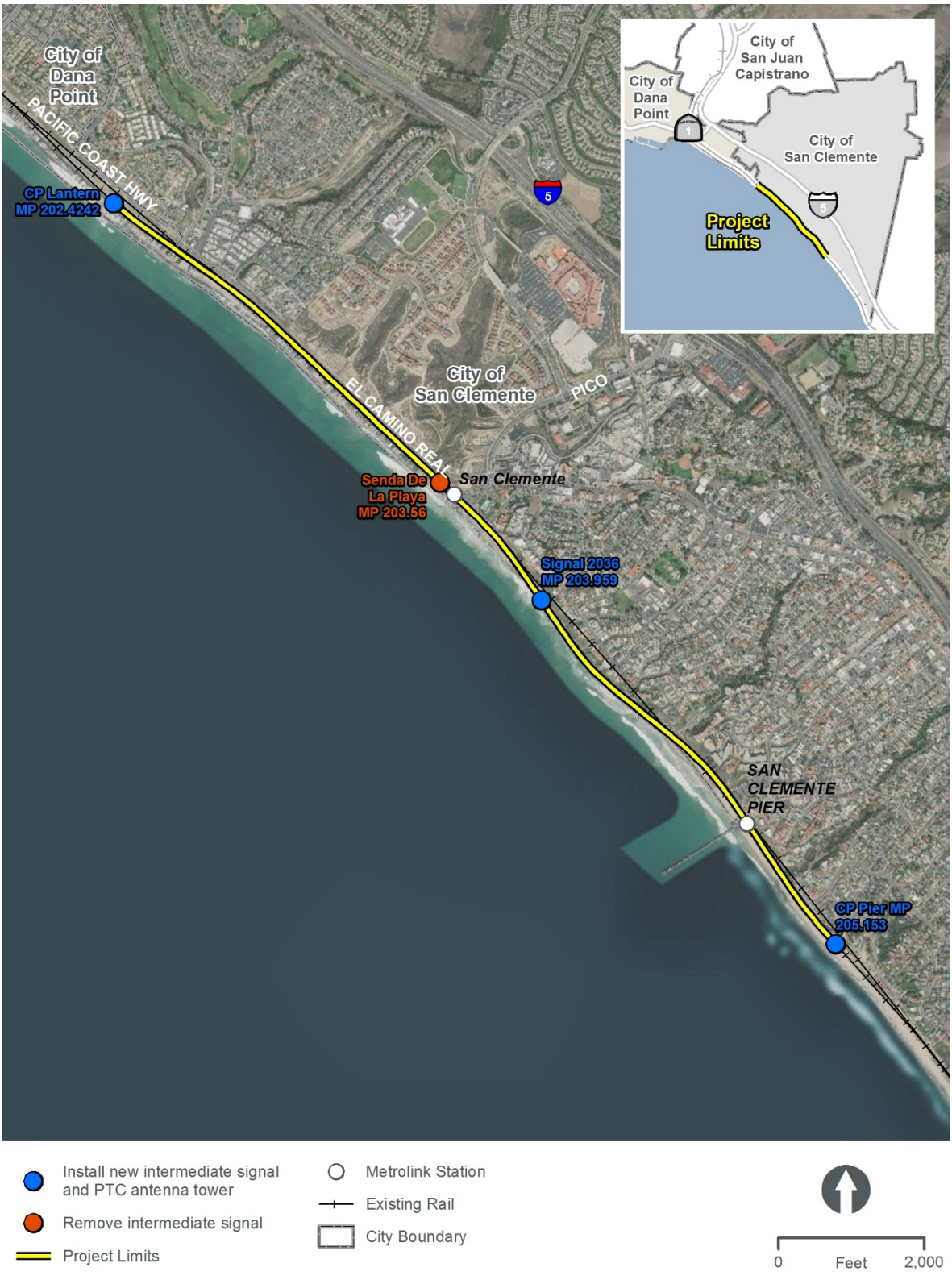
## Figure 2. Project Location



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## Figure 3. Project Components at Control Point Lantern

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**Figure 4. Project Components at Senda De La Playa, only eastbound Signal 2032 will be removed (westbound Signal 2031 will remain).**

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**Figure 5. Project Components at Signal 2036**

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## Figure 6. Project Components at Control Point Pier

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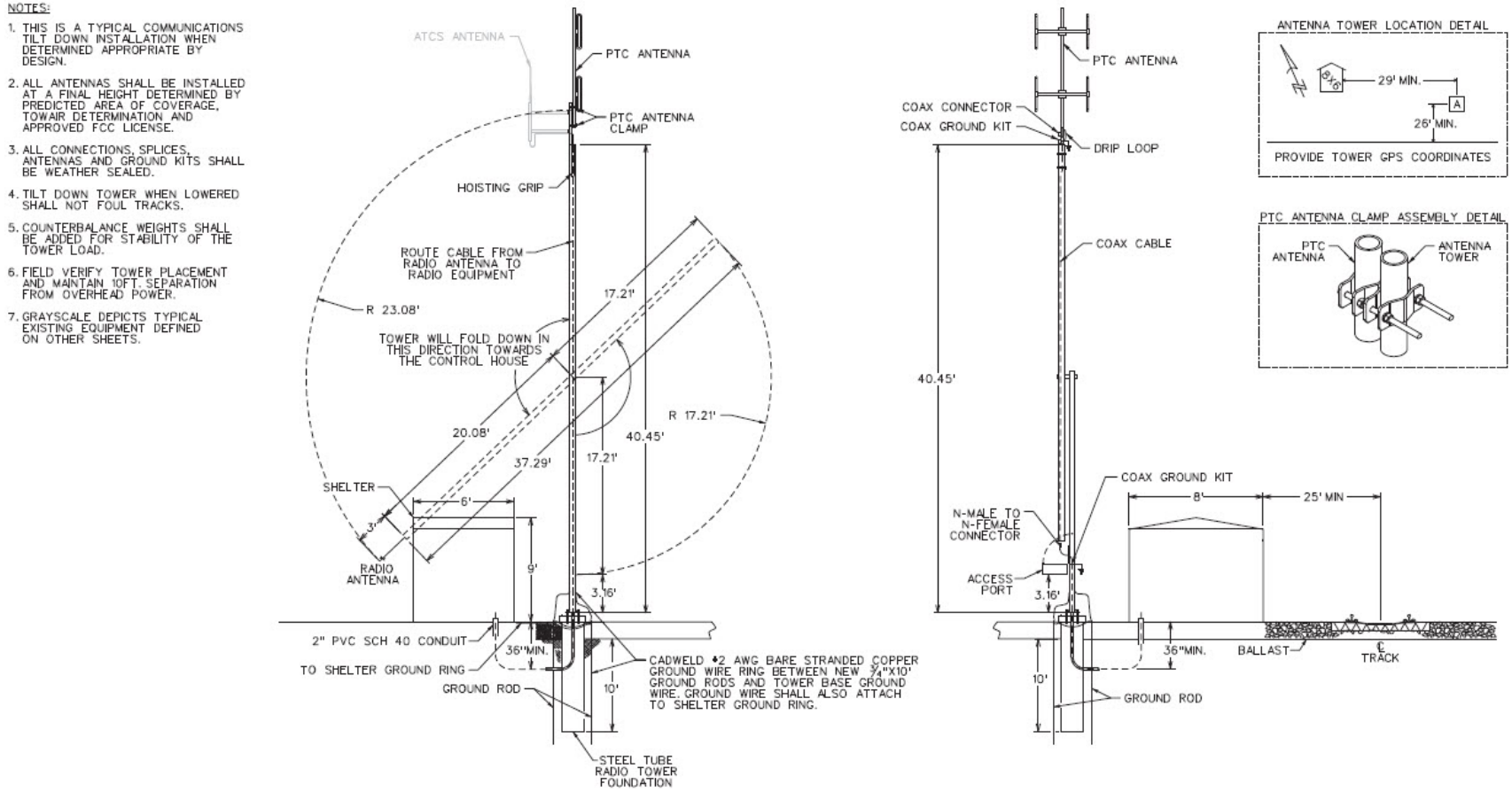
## Figure 7. Positive Train Control Antenna Tower Profile



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# References

Federal Communications Commission. 2020. "Positive Train Control (PTC)." Accessed April 21, 2020. https://www.fcc.gov/general/positive-train-control-ptc.

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