

Rural

MAY 2026**Project Title:** ATC Cabinet Pilot Project**Task Number:** 4445**Start Date:** December 28, 2023**Completion Date:** December 31, 2025**Task Manager:**

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ATC Cabinet Pilot Project

The California Department of Transportation (Caltrans) District 10, in partnership with the Materials Engineering Testing Services (METS) Lab and HQ Traffic Operations, is piloting the use of Advanced Traffic Controller (ATC) Cabinets to replace traditional 33X and 34X models due to their enhanced capabilities and compatibility with existing infrastructure. The pilot will install cabinets from two manufacturers at a signalized overpass, with risk mitigation through spare units and interchangeable wiring. This project aims to evaluate ATC performance across maintenance, operations, and construction, potentially setting a new statewide standard.

WHAT IS THE NEED?

Current traffic signal cabinets are of a dated design that requires specialized knowledge to operate and maintain. This presents a significant challenge for new and under-resourced maintenance staff. The ATC cabinet was designed to increase efficiency and safety by going from an integrated system to a completely modular system with remote diagnostics and troubleshooting capabilities.

The METS Electrical Quality Assurance and Source Inspections (EQASI) branch, in collaboration with Caltrans District 10, would like to pilot ATC cabinets at both ends of an on/off-ramp intersection (two neighboring locations). Because the Caltrans Traffic Signal Control Program (CTSCP) lacks the capability to communicate using the Synchronous Data Link Control (SDLC) protocol of the cabinet, this project will also require the use of non-standard traffic signal control software. These programs are similar to those used by cities, counties, and other state DOTs (Department of Transportation). HQ Traffic Operations is aware of this and is willing to provide a variance to the requirements to deploy and test this equipment on Caltrans Right of Way.

WHAT ARE WE DOING?

This research will deploy two cabinets with third-party software to evaluate the usability and maintainability of the ATC cabinet system. The timeline of this research will



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include one year to install and deploy these systems successfully and one year for the data acquisition on maintainability.

WHAT IS OUR GOAL?

The goal of the research is to evaluate the effectiveness and feasibility of deploying ATC Cabinets as a modern replacement for standard 33X and 34X traffic signal cabinets. By piloting installations in District 10, the project aims to assess performance across maintenance, operations, and construction, while identifying potential statewide implementation benefits.

WHAT IS THE BENEFIT?

The benefits of piloting the ATC cabinet will be a controlled test to determine whether this system can integrate into the existing Caltrans ecosystem. Many local agencies rely on Caltrans Specifications, including Transportation Electrical Equipment Specifications (TEES), for their traffic signal equipment. Providing a thorough evaluation of this system will allow not only Caltrans but also all other DOTs to have data on how these systems integrate into existing networks and the potential benefits that can be seen by utilizing this new technology.

Caltrans can leverage existing deployments by other agencies to streamline the deployment process and utilize test criteria developed by METS to qualify products in the future. The ATC cabinet is expected to result in a significant decrease in troubleshooting time required by maintenance personnel, and this improvement will be measured through the testing criteria developed.

WHAT IS THE PROGRESS TO DATE?

From January through March 2026, the project steadily advanced as all supporting equipment for the ATC cabinets was procured and a shipment date of March 17th was confirmed. By February, District 10 Electrical Maintenance had begun installing the necessary field wiring, while EQASI

initiated work on wireless communications, CCTV, and advanced off-pavement video detection systems. By March, all intersection preparation work was complete, the ATC cabinets arrived for testing, and the remaining equipment needed for installation was fully received.

Significant installation progress followed in April, when the first two ATC cabinets were successfully deployed and made fully operational at the I-5 corridor and Lathrop SB/NB off-ramp intersections, all within a single day of work. These locations were also outfitted with enhanced battery backup systems to ensure reliable operation in an area frequently impacted by grid stability issues. In May, the final two ATC cabinets are scheduled for installation on May 9th at the I-5 corridor and Louise SB/NB off-ramp intersections. Additionally, finalized updates to the statewide TEES for ATC cabinets are set to be posted publicly on the Caltrans TEES website.