

State Owned Computerized Traffic Signal Systems (CTSS) Guidance and Design Document

Need

The role of CTDOT and Highway Operations with CTSS continues to evolve with changes in design/construction project requirements, technology and resources. FHWA defines CTSS as an Intelligent Transportation System (ITS) component.① The FHWA definition requires any ITS/CTSS project or any project impacting CTSS intersection(s) shall meet 23 CFR 940. The following is some information about CTSS to provide background and information to help understand the needs to design, implement, operate and maintain CTSS.

History

The initial CTSS installed in 1982 has grown to over 100 systems and over 900 traffic signals statewide estimating over \$100,000,000 for design, installation, operations and maintenance. In the early 1990's the Traffic Management Systems Unit 1402 in Traffic Engineering was moved to Maintenance Highway Operations as part of a re-organization to establish the office of Highway Operations and meet the needs of the traveling public. In the early 2000's, similar to many CTDOT offices, a significant downsizing occurred decreasing staffing in Highway Operations from 11 engineers to 4. CTSS engineering needs and support capabilities suffered like many other offices significantly impacting FHWA sponsored programs. The remaining engineers were unable to meet the demands of CTSS resorting to supporting Advance Traffic Management Systems (ATMS or CCTV, VMS, etc.) simply due to public profile nature of the technology.

Recent Advancements and Key documents

In 2014 it was agreed between Chief Engineer's Office, Traffic Engineering, Highway Operations and support from FHWA-CT office to re-establish the CTSS group within Highway Operations. Since 2013, two (2) engineers have been assigned to service CTSS including engineering, support and guidance for State CTSS. Below are some of the some resources to help stakeholders plan, design and implement and maintain CTSS:

1. [2015 Statewide Computerized Traffic Signal Systems Needs Assessment Brochure](#) and [Appendices](#)
2. [Spare Parts policy for supporting CTSS](#) and [Spare Parts Memo for non-CTSS signals](#)
3. [CTSS Guidelines and Reference document](#)
4. [May 2015 Stewardship & Oversight Implementation Manual – Program Responsibilities, Intelligent Transportation Systems \(ITS\)/Operations](#) Pg. 41-46.
5. [ITS SEAFORM](#) and [Guidelines for ITS Stewardship](#)

Requirements for Highway Operations ITS Engineering and Support for CTSS

Below are some key requirements for Highway Operations ITS Engineering and Support needs to design and support CTSS:

Contacts:

1. Anna Bongiorno is the Unit contact for all routine engineering correspondence and request for reviews. Harold Decker and John Korte should be copied.
2. Anna will collaborate with the Signal Lab with any project questions, equipment requirements or system capabilities.
3. Kevin Danh is the Unit contact for request of CTSS timing plan information. All requests should be made via email to Kevin. Anna Bongiorno should be copied.

CTSS SEAFORM Requirements:

1. A SEAFORM is required for any traffic signal replacement project involving State and Federal funding for CTSS. SEAFORM completion is the responsibility of the Project Manager (PM) and shall be submitted to FHWA for PODI projects per the Stewardship & Oversight Implementation

Manual. SEAFORMs do not have to be submitted to FHWA for non-PODI but should be completed and retained in the administrative project folder in ProjectWise.

2. Any MTG or permit involving CTSS should include a SEAFORM.

CTSS Transyt Systems:

1. Transyt manufacturer of Closed Loop Systems equipment is at the end of useful service life and can no longer be supported. Any projects impacting these locations need to include a SEAFORM for documenting replacement consistent with the 2015 Statewide CTSS Needs Assessment and FHWA regulations and Stewardship & Oversight Implementation Manual.
2. PM should contact Anna to collaborate alternatives and project impacts as early as possible in the project development process.
3. The SEAFORM should include details documenting the needs, systems requirements, maintenance and operations when replacing Transyt intersections.

CTSS Naztec Systems:

1. Naztec closed loop manufacturer is supported and the current standard for state owned systems.
2. The Project Manager should collaborate with Anna as early as possible in the project development process to determine project impact on the existing intersection(s) and needs for the project.
3. The SEAFORM should include details documenting the needs, systems requirements, maintenance and operations when replacing Naztec intersections.

Spare Parts Requirements:

1. Project Manager should collaborate with Anna to determine spare parts needs for both CTSS and non-CTSS locations as early as possible in the project development process. Specific CTSS spare parts are eligible for FHWA funding.
2. Spare parts for Non-CTSS signals are not eligible for FHWA funding and should be procured by State funds if needed.
3. SEAFORM shall record spare parts to be procured by the project in Section 11 Operations and Maintenance.

CTSS Coordination Timing plans:

1. The PM is responsible for any projects that impact the CTSS coordination timing plans. The Project Manager should collaborate with Anna to determine alternatives and design requirements for the coordination timing plans.
2. The SEAFORM should include details documenting the needs and systems requirements when impacting coordination timing plans.

CTSS Video Detection:

1. CTDOT's video detection specification allows various manufacturers to bid on equipment. CTDOT's Bureau of Highway Operations' ability to support and maintain is limited to funding, expertise and staffing. The PM should contact Anna to collaborate any needs for the type of video detection for a CTSS intersection.
2. The SEAFORM should include details documenting determinations in Section 11 supporting needs and systems requirements for the type of video detection.

This information should be retained and included in the design process for traffic signal projects and any capital improvement project including or impacting CTSS as required by 23 CFR 940 and the May 2015 Stewardship & Oversight Implementation Manual. Any changes to the information herein will be released by Highway Operations as needed. Please contact John Korte x-3459 with any questions.