TRAFFIC OPERATIONS POLICY DIRECTIVE

TR-001 (REV 8/2021)

TRAFFIC OPERATIONS POLICY DIRECTIVE	NUMBER: **22 - 03**	PAGE: 1 of 4
JASVINDERJIT S. BHULLAR, DIVISION CHIEF (Signature)	DATE ISSUED: February 11, 2022	EFFECTIVE DATE: February 11, 2022
SUBJECT: **Communications to Traffic Signals**	DISTRIBUTION ☒ All District Directors ☒ All Deputy District Directors - Traffic Operations ☐ Chief Counsel, Legal Division Headquarters Division/Program Chiefs for: ☒ Construction ☒ Design ☒ Maintenance ☐ Safety Programs ☐ Transportation Planning ☐ Additional:	
DOES THIS DIRECTIVE AFFECT OR SUPERSEDE ANOTHER DOCUMENT? ☐YES ☒NO	IF YES, DESCRIBE	
WILL THIS DIRECTIVE BE INCORPORATED IN A DEPARTMENT MANUAL, GUIDELINE OR STANDARD PLAN? ☒YES ☐NO	IF YES, DESCRIBE Electrical Systems Design Manual, and the Traffic Signal Operations Manual	

DIRECTIVE

Districts shall establish communications to all state operated traffic signal systems for remote monitoring, optimization, and management of traffic signal intersections on the State Highway System (SHS).

IMPLEMENTATION

District Traffic Operations shall make the best use of existing resources by leveraging internal expertise to achieve communications to traffic signals by:

- **Establishing a district traffic signal communications connectivity plan that is part of the overall TMS communication plan.**
- **Determining state owned or leased options for establishing communications to the traffic signals and associated intersection surveillance cameras by referencing the Traffic Operations Statewide Transportation Management System (TMS) Communications Plan and Decision Tool Worksheet.**
- **Ensuring that programmed projects include communications at traffic signals.**
- **Collaborating with the TMS Asset Managers and TMS Field Element Support teams to establish or upgrade communications through TMS life cycle replacement projects.**
- **Working with Design teams and the Division of Information Technology to ensure secure communication to traffic signals and intersection cameras for surveillance and performance measures are included in all available project opportunities.**
- **Ensuring the traffic signal communications is on the same secure TOSNET and/or TMC network as other TMS elements.**
- **Working with TMS Central System teams to ensure traffic signals are connected, configured, and accessible through the central traffic signal management system.**
- **Coordinating with Maintenance when installing, upgrading or replacing communications technologies and intersection cameras.**
- **Actively identifying broadband inventory needs and adding site communication information to the TMS Inventory Database for traffic signals in concurrence with Traffic Operations Policy Directive 22-02, "Statewide TMS Broadband Plan and Communication Management."**
- **Actively managing leased communications lines in concurrence with Traffic Operations Policy Directive 21-10, "Transportation Management Systems (TMS) Telecommunications Cost Management."**
- **Coordinating with local agencies that maintain state owned traffic signals to ensure delegated traffic signals are connected, configured, and accessible through a central traffic signal management system.**

District Traffic Operations may collaborate with local agencies for signals along local transit routes to consider center-to-center Transit Signal Priority (TSP) and/or Emergency Vehicle Preemption (EVP) support as a project opportunity.

Exception(s) to establishing communications to state operated traffic signal systems on a qualified project shall be approved by the District Director, or their designee, and documented in the project files.

District Traffic Operations shall utilize existing resources and capital project delivery resources to the extent possible to establish communications from the traffic signals to the central traffic signal management system. District TMS Field support personnel and/or Traffic Signal engineers

IMPLEMENTATION (Cont'd)

shall be responsible for the setup, configuration, and commissioning of operational communications equipment and components including network switches, wireless modems, fiber devices, microwave, etc. District TMS Central System support, in accordance to the Division of Traffic Operations and IT Memorandum of Understanding, shall be responsible for installing, updating and maintaining the central traffic signal management system servers including applications, communications, database, and web resources. Traffic Signal Operations staff shall assist with establishing and reporting communications issues and setting up and configuring the central traffic management system. Communication malfunctions shall be reported to the Division of Traffic Operations TMS Field Element Support team and the Division of Maintenance using Trac ticketing system for repair.

DELEGATION

No new delegations of authority are created under this policy.

BACKGROUND

Traffic signals perform critical automated traffic control at intersections on the SHS. Communications for traffic signals enable remote management and monitoring of traffic signals and sufficient bandwidth for additional technology for Automated Traffic Signal Performance Management (ATSPM), Adaptive Traffic Signal Control, Transit Signal Priority, Connected and Automated Vehicle applications, multimodal data collection, and traffic anomaly detection. Remote connectivity saves valuable time, resources, and reduces the number of field review visits. Remote monitoring through a central application allows the districts to monitor the health status of the traffic signals and receive alerts. The Traffic Signal Management and Surveillance System (TSMSS) displays the health status of the traffic signals and can send alerts when the status has changed, i.e. preemption operation, power outages, flashing operation, signal Battery Backup System (BBS) monitoring, transit operations, and communication failures. During expected Public Safety Power Shutoffs, the TSMSS can be programmed to put the traffic signals on all-red flash before the utility power shut-off in the affected area. The TSMSS is also capable of monitoring status of the traffic signals BBS which also plays a crucial role during power outages. The TSMSS is capable of issuing TSP messages to intersections with TSP originating from a local agency. Additionally, it can facilitate remote signalized intersection peak performance reviews and help meeting department goals. All the benefits of remote monitoring mentioned above requires communication to the signals.

As of late 2021, only about 36% of the Department's nearly 5,000 traffic signals have communications connected to a central system.

DEFINITIONS

When used in this Traffic Operations Policy Directive, the text shall be defined as follows:

1) **Standard** – a statement of required, mandatory or specifically prohibited practice. All standards text appears in **bold** type. The verb **shall** is typically used. Standards are sometimes modified by Options.

2) Guidance – a statement of recommended, but not mandatory, practice in typical situations, with deviations allowed if engineering judgment or engineering study indicates the deviation to be appropriate. All Guidance statements text appears in underline type. The verb should is typically used. Guidance statements are sometimes modified by Options.

3) Option – a statement of practice that is a permissive condition and carries no requirement or recommendation. Options may contain allowable modifications to a Standard or Guidance. All Option statements text appears in normal type. The verb may is typically used.

4) Support – an informational statement that does not convey any degree of mandate, recommendation, authorization, prohibition, or enforceable condition. Support statements text appears in normal type. The verbs shall, should and may are not used in Support statements.