



SCAN TEAM REPORT

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Best Practices In Regional, Multiagency Traffic Signal Operations Management

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Executive Summary

This report summarizes the findings from a scan workshop of domestic regional traffic signal operations programs in the United States. The scan's purpose was to examine the different types of organizational structures, institutional agreements and arrangements, and operational policies that organizations throughout the United States use to manage and operate traffic signal systems from a regional perspective. Representatives from 17 different agencies met with the scan team in a peer exchange format over a three-day period to discuss how their agencies developed and sustain their regional traffic signal programs. Specifically, agencies were asked to discuss the following:

- The type and structure of any cooperative agreements that they use in their region to foster and enable communication and coordination among local signal operating authorities
- The benefits and risks associated with regionalizing traffic signal operations and maintenance in their jurisdictions
- The extent to which they use concepts like resource sharing and shared operations and maintenance to help improve the consistency of traffic signal system operations and performance in their region
- The certification and training needs of operations and maintenance staff involved in the effort
- The funding mechanisms implemented in their region to sustain regional traffic signal operations and the methods they use to contribute to management operations and maintenance expenses
- The strategies they use to overcome technical challenges to ensure the effective coordination of traffic signal timing across multiple jurisdictions

The scan team found that the goals and objectives of regional traffic signal operations programs vary considerably from region to region and reflect the needs and priorities of the local operating agencies. The manner in which programs are funded often drove how the agencies defined their goals and objectives. For example, agencies that have access to congestion mitigation/air quality funds often have program goals and objectives that are directed toward improving air quality and reducing emissions. Programs that utilize other sources of funding often have a more diverse set of program goals and objectives.

Many of the regional traffic signal operation programs (RTSOPs) that the scan team reviewed use multiple types of agreements. The type of agreement is highly dependent on the program's goals and functions.

- Program-level agreements (e.g., a memorandum of understanding or a memorandum of

agreement) are used to clarify the program's big picture intent, defining a vision and goals for the program and dealing more with organizational structure. These types of arrangements and agreements define the program's formal organizational structure.

- Program-level agreements (e.g., local partnership agreements, cooperative agreements, and cost-sharing agreements) are more likely to be used when regional partners are considering consolidating operations into a single entity.
- Project agreements, which also may be referred to as interlocal agreements, interagency agreements, or interjurisdictional agreements, are frequently used in RTSOPs to initiate a specific improvement project within a program (as opposed to being the program itself). Generally, these types of agreements are legally binding and are used when funds need to be exchanged between the agency responsible for distributing the funds (i.e., the RTSOP entity) and the agency responsible for performing the work (i.e., the local entity).

The team observed a variety of organizational structures during the workshop. Organizing the program into a structure that meets the agencies' needs and the region's objectives is of the utmost importance. It is possible for agencies to develop successful programs that distribute the authority for operating and developing regional traffic signal operations between various levels. In identifying the best structure for a program in a particular area, agencies should begin by conducting an inventory of assets, capabilities, and resources available within the region and structure the program around the strengths of these assets, capabilities, and resources.

The scan team also found that most of the programs use multiple sources of funds to develop and sustain their programs. Most of the agencies the team examined use the Congestion Mitigation and Air Quality (CMAQ) program as the primary source of funding for their programs; however, several of the agencies use Surface Transportation Program funds to fund all or a portion of their programs. Several locations, particularly those on the West Coast, indicated that they fund their programs through special tax revenues specifically earmarked for transportation operations and maintenance. Generally, the region's metropolitan planning organization or council of governments manages and implements these programs.

Agencies provided the scan team insight into the way their regional transportation signal operations program functions within their region and with respect to their local partners. The manner in which the programs operate varies considerably among the participants. While all of the programs focus on developing and installing interjurisdictional coordination timing plans, not all the programs actually operate the signals once the timings are installed. In some programs, the regional entities are responsible for just developing the timing plans. In other programs, the regional entity might also develop and implement timing plans. In other programs, the regional entity assumes the responsibility of installing, deploying, and maintaining the regional communications infrastructure. Only a few regions are responsible for performing real-time monitoring and signal timing adjustments functions.

The scan team also found that demonstrating the benefits of the programs is critical for sustaining the programs over time. Most of the agencies at the workshop reported that they often use performance measures to report the benefits achieved through individual projects. Providing programmatic assessments of the long-range benefits of regional traffic signal operations was also deemed critical to these programs. The type of performance measures the programs use to assess performance was directly related to the type of funding being used to make improvements. Having clear, definable performance measures allows agencies to market programs to decision makers, and marketing the successes of these programs is critical to being able to sustain and grow them.