Regional Transportation Committee

Meeting date: February 17, 2026

Agenda Item #: 7 (Attachment E)

Regional Transportation Operations Program and Signal Timing Briefs

Agenda item type: Informational Briefing

Summary
The Regional Transportation Operations and Technology program is a Transportation Information Program (TIP) set-aside that benefits from close coordination with staff from the region's partner jurisdictions. The program provides funding for capital and other improvements and funds DRCOG staff to provide interjurisdictional coordination.

Background
In 1989, DRCOG identified issues with regional traffic signal operations. Specifically, traffic signals were not coordinated between jurisdictions, the reliability of traffic signal coordination was generally poor, and the quality and effectiveness of traffic signal coordination plans were also poor. These issues contributed to congestion and poor air quality. DRCOG secured an energy block grant to demonstrate the benefit of interjurisdictional traffic signal timing coordination.

This effort led to the development of the Traffic Signal System Improvement Program (TSSIP) funded through a DRCOG Transportation Improvement Program (TIP) set-aside from the Congestion Mitigation and Air Quality (CMAQ) program.

In partnership with transportation professionals from DRCOG members, DRCOG led the development of the TSSIP, following a systems engineering approach. The purpose of the program was to provide safe traffic signal operations that make the most efficient use of the arterial street capacity. The efficiency objectives are:

- Minimize traveler stops.
- Minimize traveler stop time.
- Minimize disruption due to equipment failure.

The TSSIP adopted an approach strongly based in partnership across the region.

1. DRCOG staff manages the program, allocating funds to capital projects for jurisdictions to improve infrastructure providing minimum functionality required to support good traffic signal timing coordination plans.
2. DRCOG staff manages consultants preparing the designs on behalf of the partner jurisdictions and the partner jurisdictions manage construction.
3. DRCOG staff develops good signal timing coordination plans on key corridors across the region. Generally, these are longer corridors that involve multiple jurisdictions.
4. Partner jurisdictions are responsible for maintaining both the infrastructure and the signal timing coordination plans provided by DRCOG.

5. Finally, DRCOG staff prepares a benefits report called a signal timing brief for public distribution.

Program Achievements
The TSSIP funded the deployment of:

- Upgraded traffic signal systems for every agency with more than 20 signals.
- Hundreds of miles of fiber optic communications that interconnect the traffic signal systems with the traffic signals in the field. 95% of the signals on the Regional Roadway System are connected to and monitored by a traffic signal system.
- Thousands of traffic signal controller upgrades.

Additionally, over the last 25 years, the program reported on 208 signal timing coordination projects yielding annual reductions of:

- Over 25 million hours of delay (valued at over $591 million).
- Over 15 million gallons of fuel consumption.
- Over 6,000 tons of pollutants.
- Over 116,000 tons of greenhouse gases.

Timing Process and Reporting
DRCOG staff follow a structured signal timing project process in close coordination with jurisdictional partners. At a high level, the project tasks include: observation and data collection; traffic signal timing operation modeling; plan recommendation and implementation; and, benefits reporting.

For each project, DRCOG staff prepare a signal timing brief available for public consumption and shared with partners jurisdiction staff and the DRCOG Board. The brief describes the project scope, identifying specifically the subject corridor, the project partners and the number of signals considered. The brief also provides a summary of the measured benefits, including: reduction in stops, reduction in delay, reduction in fuel consumption and reduction in pollutant emissions.

Program Evolution
The program has evolved over time as new technology and management processes are deployed. New functionality and advanced management support multijurisdictional and multimodal approach. This is largely based on performance management analyses made available by the increase in availability of data.

The program, renamed Regional Transportation Operations and Technology (RTO&T), is now funded by the Surface Transportation Block Grant (STBG) program. The change in the funding source provides greater opportunity and flexibility for regionally coordinated operations.

The RTO&T Strategic Plan identifies several high priority initiatives that are at a regional scale, bridging monitoring and operations between jurisdictions, leveraging the previously deployed infrastructure. DRCOG staff will lead initial project development, coordinate operations with select partner jurisdictions and evaluate the success of these initiatives, before defining the expansion to cover the entire region.

Action by others
None.

Previous discussion/action
None.

Recommendation
None.

Attachment(s)
1. Staff presentation
2. Signal timing briefs:
    a. 104th Avenue traffic signal timing project: Lowell Boulevard to McKay Road.
    b. Kipling Parkway traffic signal timing project: Belleview Avenue to C-470 eastbound ramps.
    c. Ken Caryl Avenue traffic signal retiming project: Valley Road to Platte Canyon Road/Mineral Avenue.
    d. South Boulder Road traffic signal retiming project: CO 42 (Courtesy Road) to Saratoga Drive.
    e. Bowles Avenue traffic signal retiming project: C-470 eastbound ramps to Grant Ranch Boulevard.
    f. Iliff Avenue traffic signal timing project: Quebec Street to Parker Road.

For more information
If you need additional information, please contact Greg MacKinnon, Regional Transportation Operations Program Manager, Transportation Planning and Operations, at 303-480-5633 or gmackinnon@drcog.org.