SIGNAL OPERATION & MANAGEMENT

Description

Signal improvements are among the most common, readily available, and cost effective strategies to alleviate congestion. Two primary categories of improvements increase travel speed, reduce stop-and-go traffic, and increase intersection capacity.

- Updating signal equipment—improving hardware and software that allow for efficient coordination and timing strategies.
- Improving signal timing and coordination—give main commuting streets the green time when they need it most.

City of Carlsbad, CA

Signal timing and equipment upgrades can improve congested freeways by increasing traffic flow on access roads or parallel street corridors. Technological advances now allow signals to learn from historical and real-time patterns using artificial intelligence. Using real-time information, signals can automatically retime and coordinate themselves to the most efficient plan, reducing delay up to 40 percent and increasing throughput up to 60 percent.

Cost:	●●○○○
Time:	**Short**
Impact:	**Spot/Corridor**
Who:	**City/County/DOT**
Hurdles:	**Manpower**

Target Market

- Local and major streets
- Major activity centers and downtown areas

How Will This Help?

- Reduce congestion directly through increasing intersection capacity and smoothing traffic flow.
- Relatively low cost and high benefit return for the investment.
- Improves safety of the intersection, reducing congestion due to crashes.

Success Story

The City of San Antonio, Texas, has been conducting a city-wide signal system upgrade since 2008, including signal retiming for most major roadway corridors. Benefits include an average travel time reduction (per each 0f 60 corridors) of 54 seconds, total annual delay savings (793 intersections) of 8.6 million motorist hours in traffic, and an annual delay savings of over $159 million.

Implementation Issues

Upgrading and maintaining proper signal timing can be labor intensive and time consuming. Many cities do not allocate the resources or manpower to constantly assess traffic signal timing plans. Signal retiming is recommended every three to five years, depending on regional growth. Resources required for signal retiming typically include 20 to 30 staff hours per intersection and a usual cost of $3,500 to $4,000 per intersection. Jurisdictional issues can arise when major streets cross agency boundaries; best practices for addressing these issues involve joint policies and procedures for maintaining coordination.

For more information, please refer to: http://mobility.tamu.edu/mip/strategies.php.

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INVESTMENT PRIORITIES