SMART Signal, Traffic Data Collection for Urban Traffic Flow

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Category
Engineering & Physical Sciences/Transportation
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Traffic Data Collection to Improve Urban Traffic Flow

SMART Signal is a high resolution traffic data collection and arterial traffic performance measurement system that collects and archives event-based traffic data at multiple intersections simultaneously. Using the traffic data, SMART Signal generates time-dependent performance measures for intersections and arterials, including intersection queue length and arterial travel time. Traffic engineers can use this information to improve urban traffic flow on roads controlled by traffic lights—reducing congestion and saving drivers both time and fuel.

Urban Traffic Flow Monitoring for Arterial Traffic

SMART Signal is the first technology available for urban traffic flow monitoring of arterial traffic, and mirrors the way freeway performance data is captured. Arterial traffic performance data can be archived and made available to additional agencies and stakeholders for intra-corridor operations, planning, research, and traveler information systems. Built for integration, this object-oriented C-sharp tool can be deployed in two distinct ways. The first captures data from the existing system equipment only, without additional field instrumentation. The second approach captures traffic data through the installation of additional field hardware, in cases when agencies prefer not to upgrade controller equipment. The ultimate goal of SMART Signal is to develop a holistic framework that systematically measures, automatically fine-tunes, and realistically models traffic flow on signalized urban arterials.

FEATURES OF SMART SIGNAL FOR COLLECTION OF URBAN TRAFFIC DATA

- Traffic signal database--Simultaneously collects and archives event-based traffic signal data for planning purposes.
- Real-time performance measures--dynamically generates travel time and number of stops along an arterial delay, queue length, and level of services for intersections and arterial corridors.
- Increases effectiveness of traffic signal monitoring--extends the existing capability for automatic diagnosis of operational problems and fine-tuning of signal control parameters.
- Enables real-time arterial decision-making by traffic management systems and professionals.

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