About TranSync-D

TranSync-Desktop is a Windows-based optimization and data management tool for traffic signal systems. It provides abundant functions for optimization of coordinated signals including offsets, phasing sequence, green splits, and partition strategies for long arterial streets. It also provides visualized database for signal data management and maintenance. Data are transferable between TranSync-D and TranSync-M.
Data Management

Transportation agencies either work independently or together with consulting firms to update signal timing plans on a regular basis for better accommodation of changing traffic flow patterns. These signal timing plans are usually archived in paper files or in computers. TranSync-D is a helpful tool that enables users to archive, edit and manage signal timing data through visualized databases. Signal timing data can be manually coded into the software or directly imported from the off-the-shelf signal timing tools such as Synchro.

Relation with TranSync-M

TranSync-D can be used as a standalone tool for optimization and data management, or together with TranSync-M, a mobile tool for real-time diagnosis and evaluation of coordinated signals. While TranSync-D optimizes signal coordination plans offline, TranSync-M provides a portable tool for field evaluation and develops field data for fine-tuning. Data are transferrable between TranSync-D and TranSync-M.

Interface

TranSync-D enables automatic geo-referencing and map-matching. An intersection’s signal timing information can be viewed, edited, and managed directly from a visualized interface on digital map.

Signal Timing Optimization without Traffic Volume Data

Carefully designed coordination plans may reduce number of stops and vehicular delays at signalized intersections, mitigate congestion, and contribute to fuel savings and reduction of emissions. Nearly all signal timing tools rely on big amount of traffic count data for optimization and performance measurement, which can be tedious and time consuming. TranSync-D is unique in that it only uses vehicular trajectories and dynamic time-space diagram for optimization and thus totally eliminates the needs for traffic counts. It provides two-way green bands by optimization of phasing sequence and offsets. It also provides unique partitioning techniques for segment-by-segment optimization of long corridors and street arterials with excessive number of signals.
TranSync-D is capable of archiving and managing nearly unlimited traffic signal timing data, including signal timing parameters and plans for peak and off-peak hours, signal location, and the up-to-date maintenance information.

TranSync-D handles position data through its built-in models for automatic geo-referencing and map-matching. This allows users to project the physical location of a traffic signal on digital maps simply through the input data. Once the information of downstream, upstream and crossing links are defined, the software will automatically locate the intersection.
Flexible Editing Features

In Transync-D, signal timing data can be either manually coded or directly imported from the off-the-shelf signal timing tools such as Synchro. Once imported, the signals can be automatically geo-referenced and mapped to digital map with the associated signal timing information displaying in visualized platforms for ease of editing.

Visualization of Field Trajectory And Videos on TSD

Referencing vehicle trajectory onto time-space diagram is the most efficient way to evaluate the performance of a coordination plan. This is achieved automatically in TranSync-D. In addition, it also enables laboratory test of newly developed coordination plans by allowing users to develop virtual trajectories based on given speed profiles and merge it with the time-space diagram for detailed analysis.
Signal Timing Optimization

TranSync-D’s optimization model is specifically designed for improving signal coordination along arterials. It optimizes two-way green bands by using the combined information of the existing timing plan with its time-space diagram, and the vehicular trajectories taken from the field. It also provides a unique partition technique for long corridors with excessive number of intersections. As the data is transferrable between TranSync-D and TranSync-M the optimized signal timing plan can be easily examined in the field. The data collected by TranSync-M can also be imported to TranSync-D for further fine-tuning.

Optimal Partition for Long Corridors

When developing coordination plans for long corridors with excessive number of intersections, a partition strategy that divides the whole corridor into several parts for best segment-by-segment optimization is critical. TranSync-D is the only signal timing software that provides this function.