

Client

DuPage County Highway
Department

Location

DuPage County, Illinois

Services

- Design of infrastructure enhancement
- Software design and programming
- Systems Integration

Date

1997

Key Personnel

Joseph Brahm, P.E.

DuPage County Interconnected Signal Project

Scope of Services

DuPage County hired Delcan to design infrastructure enhancements, to design and develop software, and to provide systems integration services for their interconnected signal project.

Project Description

As part of this project Delcan developed a modular and open 1.5 generation control package that was capable of developing dynamic traffic signal timing plans. The resulting software became known as the *Advanced Timing Engine (ATE)*. The ATE concept bridged all elements of timing plan development into one integrated package.

On the front end, ATE obtained and formatted data from field devices such as controller data logs, count stations, or manual count boards. In the middle, there was a common data reference to run multiple models such as Transyt, Passer, Signal94, etc. Finally, on the back end, ATE formatted the resulting timing plans into a form that could be read by most any controller, or system software. Tools, consistency checks and reporting capabilities were built-in to ensure the plans were fully optimized and ready for field implementation. The software was overlaid by a very intuitive graphic environment that was designed by traffic engineers.

ATE, in its basic form, was similar to the Arterial Analysis Package (AAP) in that there was a common database or reference area to pull information and then to run various models. A significant difference however, was that AAP was designed such that it could only provide information for arterial analysis and it fell short when dealing with network configurations. In addition, AAP provided no assistance or support to import data or to download the new timing plans to the field controllers.

The ATE user interface was designed such that the user, in setting up a system, drew a link/node diagram. Attributes, such as link length, speed, intersection geometry, phasing, base timing parameters, etc. were assigned to each drawing element. These attributes become part of the permanent ATE database.

Results

The resulting software became known as the *Advanced Timing Engine (ATE)*. The ATE concept bridged all elements of timing plan development into one integrated package. Coordinated signal timing plans require maintenance or recalibration as often as every two years and the existing plans should be revisited more frequently, depending on circumstances. Dynamic Signal Timing helps agencies keep up with demand in the absence of ongoing manpower.