



Fast Facts

Technology: Adaptive Control Decision Support System

Technology Features: An adaptive traffic control system that optimizes and adjusts signal timing for a dense network in real time to better suit traffic conditions.

Environmental Impact: In field trials, the system reduced travel and queuing times by more than 10 percent, with related reductions in emissions. Average fuel consumption also dropped by an estimated 8 percent.

Lessons Learned: Having both a timely, commercialized product and a sound marketing strategy are critical for success.

Added Value: Signal timing plans directly support vehicle traffic safety, reducing opportunities for speeding. They accommodate pedestrians and bicyclists as well.

INNOVATIVE TRANSPORTATION SOLUTIONS

KLD Gives Green Light to Traffic Mobility

Sitting in traffic wastes more than just time. It also causes excessive greenhouse gas emissions and loss of productivity. At busy intersections, traffic signals manage the flow of vehicles and help reduce congestion, but getting the signal timing right is key to improving travel times.

A primary challenge in optimizing signal timing is addressing unanticipated ebbs and flows in traffic. Vehicle detection systems can monitor and control traffic more effectively than typical signal timing schedules, but they are expensive to install and maintain. Traffic managers need a more versatile and cost-effective solution.

Intelligent Control for Smarter Signals

Based in Islandia, NY, KLD Engineering, P.C. delivers professional traffic management services based upon its Adaptive Control Decision Support System (ACDSS™). The prototype for this system was developed in collaboration with NYSDOT and during subsequent work funded by the New York City Department of Transportation (NYCDOT), which supported installations of adaptive traffic control in Staten Island and Manhattan.

The system provides strategic information on traffic signal control in real time to operators who can then make adjustments to signal timing in a given area. It can also adjust signal timing automatically, with an operator available to override the decisions; this is now the preferred mode of operation chosen by users.

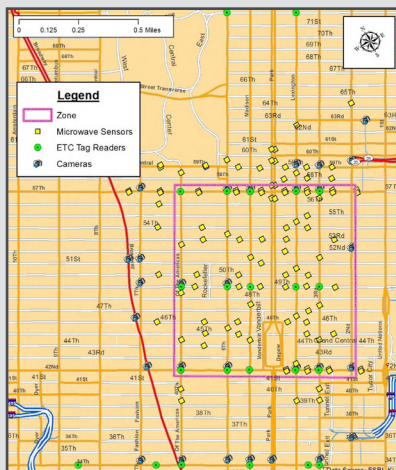


KLD's Advanced Control Decision Support System communicates traffic conditions in real time to operators at traffic management centers such as this one, at NYCDOT, where they can then make adjustments to signal timing in a given area.

To commercialize ACDSS™, KLD teamed with TransCore, LP, which already had significant reach into the network of national and international traffic management centers. NYSDOT supported technical aspects of commercializing the product, and facilitated the strategic relationship with TransCore.

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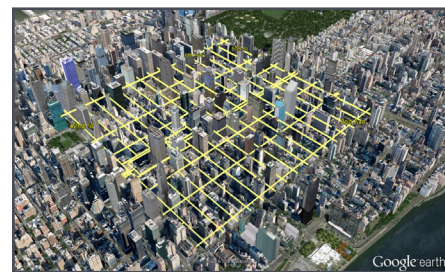


This map shows the location of microwave sensors (yellow dots), tag readers (green dots), and cameras (black dots) deployed for Midtown in Motion. These detection tools help operators keep track of current traffic conditions 24 hours a day, 7 days a week.

The System in Action

NYCDOT installed a prototype ACDSS™ on Victory Boulevard in Staten Island, then at more than 300 intersections in Midtown Manhattan, and at six interchanges along the Staten Island Expressway. Soon it will install the system at interchanges in Flushing and Brooklyn as well.

The system installation in Midtown Manhattan, coined “Midtown in Motion,” was a major NYCDOT initiative, completed in 2012, that provided an important proof of concept in one of the largest, densest cities in the world. Since then, data have shown more than 10 percent reductions in travel time and queuing time, with related emissions savings. Even more important, the system has decreased congestion.



This image shows the system's deployment area in Midtown Manhattan.

Primed for Resilience

KLD, with its partner TransCore, is now providing professional services and implementing ACDSS™ at sites across the United States and around the world.

The system also lends itself to emergency management, which requires traffic control solutions that can adapt quickly to extreme weather events, terrorist attacks, or other emergencies. KLD's adaptive traffic management systems are proving useful for more than just improving traffic flow — they also are building resilience across the nation.

THE BENEFITS



Economic Development



Quality of Life



Carbon Footprint



Reducing Barriers

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“NYSERDA's partnership helped us market and deliver the system to city officials.”

— William McShane, President and CEO of KLD Associates

