

OPTICOM™ | Emerging Applications

Opticom™ Transit Signal Priority improves travel times for bus and trolley riders in Memphis

CHALLENGE: Time-conscious riders left waiting for a solution

Nearly 11 million trips are taken using Memphis Area Transit Authority (MATA) services every year. About two million of those trips are taken on two primary bus routes through the heart of the city. Unfortunately, they're joined by hundreds of thousands of motorists that bog traffic down, creating longer travel times.

Traffic congestion on Poplar Avenue and Elvis Presley Boulevard — the busiest transit corridors in the city — stymied free-flowing traffic and transit delays were common. Transit riders were frustrated.

"We strive to create a reliable, on-time experience for everyone," said Tom Fox, Interim General Manager for MATA. "But, it's frustrating when you know you're going to be late for work or for an appointment. So, while our customers sat waiting, our buses sat idling — wasting fuel and money. We knew we needed to find a way to improve transit services. And, we had to find a way to pay for it."

SOLUTION: Reduce delays with transit signal priority (TSP)

Opticom™ traffic signal priority control had been implemented in Memphis several years prior to help first responders reach emergency scenes more quickly. MATA upgraded the city's trolley system to take advantage of the technology, too.

"The ability to extend or truncate traffic signals reduces the time spent waiting at red lights unnecessarily and improves our ability to serve the greater Memphis community," said John Lancaster, Manager of Planning for MATA. "So why not use a similar approach for our buses? We could reduce transit delays without compromising everyday traffic flow."

MATA officials sought a grant for installing TSP at key intersections to improve transit operations. Buses include Opticom™ GPS equipment so a green light can be requested from up to 400 feet away or 30 seconds before reaching the intersection — even around corners, obstructions and other intersections. MATA officials were also impressed by Opticom™ CMS, new software that can be used behind the scenes to ensure the TSP system worked consistently.

Opticom™ CMS offers built-in intelligence, from real-time alerts to automated diagnostics to customized reports, so MATA personnel can check activity logs, update firmware and even troubleshoot equipment from a remote location. This means engineers can monitor performance without sending technicians on expensive, time-consuming trips to the field.

"We knew Opticom™ TSP could help us and even be part of the foundation for Bus Rapid Transit (BRT) in the future," said Lancaster. "We were able to demonstrate that we could use it to better serve the community. We feel very fortunate to have been awarded a Bus Livability Grant from the Federal Transit Administration for more than \$800,000."



LOCATION

Memphis, Tennessee

MUNICIPALITY

Memphis Area Transit Authority (MATA)

CHALLENGE

- MATA struggled to maintain on-time performance amid heavy traffic congestion on two major corridors in Memphis
- Longer travel times drove fuel and operating costs higher
- Transit riders grew increasingly weary of longer-than-expected transit commutes

SOLUTION

- Install Opticom™ GPS Transit Signal Priority (TSP) at more than 50 intersections along the city's two most congested transit routes
- Integrate Opticom™ Central Management Software (CMS) for comprehensive monitoring and reporting

PERFORMANCE

- Reduced bus travel times by up to 20 percent
- Desktop reporting tools are expected to expedite maintenance and reduce technician trips to the field
- MATA expects faster travel times to improve ridership rates while reducing the number of buses

OPTICOM™ SOLUTIONS



MATA installed Opticom™ GPS vehicle equipment on 140+ transit buses and placed GPS intersection equipment at 40 intersections over a 13-mile stretch on the Poplar Avenue corridor. MATA also installed equipment at another 17 intersections over a 10-mile stretch on the equally diverse and trafficked Elvis Presley Boulevard.

PERFORMANCE

Right on schedule

It didn't take long before MATA — and most importantly, riders — noticed the difference.

MATA coordinated with GTT, the manufacturer of Opticom™ TSP and Temple, Inc., GTT's authorized dealer in Tennessee, to measure performance before and after installation. Technicians took readings over several especially busy sections of each corridor without Opticom™ TSP in place. The team tried to match volume levels when it measured on-time performance after installation.

"Opticom™ TSP is helping us improve travel times by almost 20 percent," said Lancaster. "That has the potential of saving us five or even ten minutes every trip, every day, so we're able to serve more people more consistently in less time. And we've only begun to tap into the possibilities."

With nearly 50,000 trips down these two corridors every year, MATA expects to cut about 7,000 hours of travel time. The team is looking at other cost-saving options, too. With significantly improved cycle times, fewer buses may be used

to accommodate the same number of riders. Lancaster estimates that removing one bus from the route could save MATA about \$200k annually.

Soon, savings may extend to the City of Memphis maintenance crews, too. MATA and the city expects to be using Opticom™ CMS to obtain detailed activity reports and maintenance alerts in real time. Technicians can receive real-time updates and check the status of equipment at the intersection from a laptop and make adjustments quickly without expensive trips to the intersection.

Reliable and affordable

Opticom™ TSP can do more than help MATA save money. It may even help them make money.

"People are more willing to ride public transit if it's convenient," said Lancaster. "Opticom™ TSP has helped us improve transit service for our riders, which makes them more willing to use it. In fact, if we can continue to improve the on-time accuracy we think we have a real chance to increase our ridership by at least 10 percent in the near future."

There's no reason to stop now. MATA plans to add Opticom™ GPS equipment at more signalized intersections throughout the city and sees it as a critical component in driving higher capacity transit in Memphis.

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