Case Study

Overview: State Introduces a Pioneering AET System with No Room for Error

In 2007, when a state toll agency began construction on their state’s first all-electronic toll highway, they had much at stake. The tolled, limited-access highway promised to substantially reduce traffic delays, but the project had a controversial history with several studies conducted over 5 decades and much spirited public debate. In short, the state toll agency (STA) could not afford toll collection errors that might turn public sentiment against the project.

From the start, the project took on ambitious goals. The suburban area was notorious for its traffic, and the STA sought to create a congestion-free highway that would offer an alternative to the busy beltway. At the same time, the highway would relieve commuter traffic on other nearby interstates. To achieve its goal, the authority decided to implement the region’s first cashless system that would collect tolls at highway speed from gantries, eliminating tollbooths along its 19-mile stretch.

The STA wished to employ a time-based pricing strategy that lowered tolls during off-peak hours and raised them during peak hours. The STA also required a system that could accommodate congestion-based dynamic pricing-wherin cost is correlated to traffic congestion-in case the authority decided to implement it in the future.

The project called for the design and development of an integrated all-electronic tolling system and ongoing maintenance of the hardware and software. Given the size and degree of public interest in this toll road, the state toll agency sought a partner with close experience and a proven track record of successful implementations.

As the leading provider of transportation technology services worldwide and the largest integrator of E-ZPass® in the United States, Xerox fit the profile. We had processed more than half of all ETC transactions in America and had installed cashless all-electronic toll systems for transit authorities in North Carolina, Los Angeles, New Jersey and the San Francisco Bay Area. Additionally, we had already installed free-flowing cashless lanes for this state in 2008 and 2009. That experience made adding functionality for the multiple lane Automatic License Plate Recognition (ALPR) system more efficient for this new toll road.

“Xerox exceeded our expectations and was able to work with the state toll agency, the state highway administration, and other contractors to ensure an on-time opening with no major issues. They worked as a partner in order to meet all objectives. The Xerox project management staff stayed in constant communication with our project manager, which helped to foster a team that was able to respond quickly to resolve any issues that came up.”

– Deputy Director, Support Operations
State Toll Agency
The Challenge: Achieve Absolute Reliability in a Tighter Time Frame

A state-of-the-art AET system that captures vehicle information at highway speeds relies on precision technology and flawless execution. In addition to recognizing E-ZPass® transponders from people who have opened an E-ZPass® account, the system also must be able to recognize and capture information from non-account holders. That the project had garnered heightened public attention only added to the importance of a successful, error-free implementation.

Unlike drivers other nearby regions, the citizens who would be the heaviest users of this new toll road had little or no exposure to toll roads, much less all-electronic tolling. As a result, the state toll agency had to undergo exhaustive public education for which Xerox would serve as the chief subject matter expert. As part of the public information effort, we integrated the ALPR system with a technology that improves traffic flow through real-time data collection and communication.

Finally, and perhaps most challenging, the weather posed an unforeseen obstacle as the area experienced one of the rainiest years on record. With highway construction delayed for weeks due to weather, the window in which we had to implement the tolling system was diminished.

The Results: Flawless Execution as the Toll Highway Opened Ahead of Schedule

Despite weather-related delays in construction—and the consequent coordination challenges with sub-contractors—completed the installation to I-95 twelve days before the scheduled highway opening.

The commute that previously took 50 minutes now takes approximately half that time. Shipping costs also have been reduced to help the regional economy. The STA has achieved its objectives of improving quality of life and safety by curtailing over-crowding on roads and cutting down travel time so people can spend more time with their families. “A trip between [two local interstates] on the [new toll road] saves up to 25 minutes compared to driving local routes,” said state toll agency’s Acting Executive Secretary. “Traffic volumes are right in line with our projections.”

The new toll road continues to run smoothly. The Electronic Toll Collection accuracy stands at 99.9 % while toll revenue has met or slightly exceeded projections.

By turning the toll collection system over to Xerox, the state toll agency was able to follow its core mission of managing its transportation facilities, tunnels and bridges without having to worry about toll collection.