Data-Driven Transit

Massive LA Metro evolves to meet the needs of a new generation of riders and employees.

Almost everything has changed in Los Angeles County over the past quarter century — except the bus routes. Now those are evolving too.

The Los Angeles County Metropolitan Transportation Authority (LA Metro), operator of the nation's third-largest public transit system, recently created a NextGen Bus Plan to overhaul the bus system and better meet the needs of current and future riders. The plan proposes to restructure the critical metropolitan bus network, which carries 70 percent of all transit riders in the county, based on resident input collected through questionnaires and hundreds of live meetings, as well as insights gained from analyzing operational data.

"This has been a huge initiative for us, and we really needed to mine the data we have and use it to support how we provide the right transit offerings to our community," says Bryan Sastokas, CIO for LA Metro. "Our bus routes haven't changed in 25 years, even though the county has grown and evolved immensely over that time."

Like many public transit agencies, LA Metro historically has done a good job of moving commuters from outlying areas to central business and employment districts. But in sprawling Los Angeles County, home to more than 10 million people spread across 4,000 square miles, the old model no longer fits.

"LA doesn't quite have that core where everybody's coming from the outside to a central location. We have work centers all over the county," Sastokas says. "So people no longer travel from point A to point Z. There are a lot of people who live, work and use public transportation within a one- to three-mile radius."

Along with triggering the bus route revamp, these changes are prompting LA Metro to form innovative partnerships with other transit providers. For instance, the authority recently expanded a pilot project that was launched last year with a private microtransit company. The on-demand service — a cross between traditional bus service and ride-hailing services like Lyft and Uber — lets riders request inexpensive shuttle rides using a mobile app. Riders are picked up at a nearby location within a few minutes and can pay with a credit, debit or transit fare card.

Microtransit and other new options will be key to closing "last mile" gaps in traditional public transit networks, Sastokas says. Riders can use these services to get from transit stops to their final destinations.

"Covering that last mile is one of the biggest issues facing transportation agencies," he says. "We have to leverage these kinds of partnerships."

More Data, More Connections

As transit districts forge new partnerships and leverage more data for operational insights, their information-sharing requirements will become more complex, says AT&T's Chris Congo.

For instance, these agencies increasingly gather and share data to support citizen-facing services like real-time arrival trackers for bus and train systems, as well as regional trip planning apps that let riders assemble trips that incorporate services from multiple transportation providers. Internally, a growing number of transit systems use diagnostic data and other information to improve vehicle and infrastructure maintenance,

enabling them to deliver safer and more reliable service.

"Secure mobile connectivity is fundamental to supporting these and other evolving use cases," Congo says. "We often work with these organizations to deploy Private Mobile Connection technology, which securely extends a transit authority's intranet applications out to mobile end points, namely their buses, trains and vehicles. Now they can collect maintenance data that's coming from trains or buses, for example, and never have that information touch the public internet. That's a real advantage from a security and control perspective."

Congo also expects emerging 5G wireless technology to have a significant impact on transit districts. 5G's faster speeds and greater bandwidth will enable them to turn buses and trains into rolling offices or classrooms for riders.

"Citizens have rising expectations about staying connected and productive wherever they are," Congo says.

In addition, he says 5G will be a game-changer for the operational use of video. The technology will make it easier and cheaper for transit districts to use high-definition video and video analytics to spot security risks and other hazards. And, ultimately, high-definition video and real-time analytics will support the introduction of self-driving transit vehicles.

"I think the future of transit will leverage driverless buses, trains and shuttles," Congo says. "Video and artificial intelligence Mobile Edge Compute technologies will be very important to that evolution."

A CONNECTED FUTURE

Widespread and secure connectivity is increasingly important to LA Metro's future, Sastokas says. For example, the authority is deploying a massive new asset management system that will collect and track maintenance data from

Market Overview:
Transportation Districts

TRANSIT/TRANSPORTATION DISTRICTS are moving toward greater use of data and analytics to improve maintenance strategies and understand customer behavior and preferences. This trend is reflected in results from our 2019 Special Districts Survey, where transit/transportation district respondents ranked data management as their top technology concern.

A growing number of these districts are collecting and analyzing maintenance data from transit vehicles and related infrastructure to proactively address issues. Secure mobile connectivity is key to transferring this data from equipment in the field to asset management systems.

District leaders also view widespread mobile connectivity as important to improving rider experience. They expect growing customer demand for high-speed internet connections at transit stations and on trains and buses — a trend which could become even more pronounced as the nation recovers from the COVID-19 crisis, which vastly increased the number of citizens working and learning remotely. Some anticipate that remote work and learning will become the new normal for many citizens, driving up demand for connectivity throughout communities.

equipment and vehicles across its sprawling transit network. Insights from the system will help LA Metro keep equipment in good condition and proactively address problems before they trigger breakdowns.

The authority also is giving field staff mobile technology to increase productivity and effectiveness — an important move, given LA Metro's relatively lean workforce.

"Data and mobility are critical for us internally," Sastokas says. "We have 13,000 employees, but the majority of them are bus drivers, mechanics, etc. We have a small operational staff, so we need to be efficient."

From a customer perspective, data plays a growing role in providing riders with a positive transit experience. Today, LA Metro buses automatically report their position every three seconds, enabling the authority to give riders accurate arrival times. In the future, mobile connectivity coupled with onboard sensors could

automatically let passengers know when a rail car is full before they board.

"That could make the boarding of passengers go smoother, which improves arrival times," says Sastokas.

As LA Metro prepares to serve a new generation of riders, Sastokas sees highly connected and data-driven technologies like these as central to meeting the county's evolving transit needs and expectations.

"It's all about connectivity — that's really what we're looking at," he says. "We want to provide a more seamless, service-oriented transit system for our customers."