



Solution: Cradlepoint NetCloud Service ■ **Industry:** Smart Cities ■ **Use Case:** IoT

Smart City Uses 5G for Connected Intersections and Innovative Parking

The City of Peachtree Corners employs Cradlepoint 5G Wireless WAN solutions to improve traffic safety and streamline parking access



With high-speed 5G connectivity, we can better manage our public spaces. Cradlepoint routers allow us to connect smart parking and smart intersection applications at a lower cost than wired infrastructure, and with stronger performance and stability.”

Brandon Branham, CTO and assistant city manager, Peachtree Corners

Success Story Highlights

Challenge — Home to one of the nation’s premier smart city ecosystems, Peachtree Corners, Georgia, sought to expand its ever-growing list of public innovations by establishing connected intersections and parking structures capable of monitoring and analyzing traffic patterns to improve current and future infrastructure. However, access to wired network connectivity was limited, and lean staffing could not properly support manual data collection.

Solution — Peachtree Corners deployed Cradlepoint’s NetCloud Service and ruggedized 5G routers at smart intersections and in parking structures to establish a Wireless WAN (WWAN). High-bandwidth, low-latency connectivity via the T-Mobile 5G network supports high-definition cameras, and artificial intelligence and machine learning applications. These technologies provide real-time information for the city to make informed decisions that improve public safety and transportation efficiencies.

Benefits — Secure, cloud-managed 5G connectivity enables Peachtree Corners to access the information needed to adjust traffic patterns, notify residents of travel and parking obstacles, and improve public safety. With a comprehensive dashboard of connection and security data available through NetCloud Manager, the city’s IT staff is also equipped to monitor and rapidly fix potentially expensive problems.

Background and Challenges

Nestled in the metro-Atlanta region, Peachtree Corners is home to 45,000 residents and the Curiosity Lab, an innovation laboratory that works with companies to develop, test, deploy, and demonstrate their technologies in the public sphere.

Partnerships through the Curiosity Lab have made Peachtree Corners a premiere smart city powered by 5G and real-world connected infrastructure, demonstrating how government and private industry can effectively collaborate to create a safe, sustainable future for society and business.

Whether it's pressure sensors in fire hydrants, artificial intelligence-based identification systems, autonomous shuttles, or the largest electric vehicle fast-charging hub in the region, Peachtree Corners' innovations all have one thing in common: connectivity.

To successfully establish their latest connectivity innovations — smart intersections and smart parking — the city first needed to overcome a handful of challenges.

No access to wired connectivity

Peachtree Corners needed to establish connectivity for cameras in traffic intersections and parking structures, including open-air and third-level locations. However, since the developments had been in place for more than three years, running new fiber to these locations was expensive, time consuming, and ultimately a nonstarter.

“Having the infrastructure in place to support our vision for safety and innovation is a top priority,” said Brandon Branham, CTO and assistant city manager for Peachtree Corners. “We simply can't accomplish that with the limitations of wired broadband.”

Manual data collection

When safety and performance improvements depend on timely, accurate data, sending a team into the streets with clipboards is not the most efficient means of information collection. As a result of increased gas prices and labor costs, it can also be cost prohibitive.

“We can't just rely on handwritten notes when we're making critical infrastructure decisions,” Branham said. “We have to take advantage of newer technologies to shape our path forward.”

High volumes of data

Plans to establish smart intersections and smart parking included the ability to collect and process extreme volumes of data via artificial intelligence and machine learning programs. Peachtree Corners needed a network solution with high bandwidth and low latency capable of handling this workload.



Solution

Peachtree Corners determined that the network infrastructure for its latest smart intersection and parking endeavors would need to include 5G WWAN solutions.

“After conducting tests in the Curiosity Lab and taking the environmental factors into consideration, we knew the Cradlepoint R1900 was going to be the highest performer out in the field,” Branham said.

At the Peachtree Corners smart intersection, T-Mobile mmWave antennas are attached to masts that feed into a traffic cabinet containing a Cradlepoint 5G ruggedized router equipped with Cradlepoint NetCloud Service. The cabinet also protects the power supply for the intersection cameras, including high-performance LIDAR (laser, imaging, detection, and ranging) cameras.

Cameras and sensors used in the city’s parking structures are connected to Cradlepoint 5G routers located inside a NEMA enclosure, connecting single or dual cameras used for parking surveillance.

Benefits

A wide-area network without wires

In lieu of wired connectivity, Cradlepoint enables Peachtree Corners to connect its smart intersections and parking infrastructure to the 5G network from anywhere, providing the performance needed to run data-intensive applications and transmit information back to city transportation offices instantaneously.

“Cradlepoint connects us to the 5G network where we can access the speed and latency needed to run artificial intelligence and machine learning applications at the edge,” Branham said.

Streamlined budget management for network services

Like most enterprises, Peachtree Corners is cognizant of its budget, particularly when it involves the cost of data across multiple SIM cards, which can skyrocket if equipment or network malfunctions are left unmonitored. Cradlepoint NetCloud Manager allows the city’s IT staff to quickly recognize changes in data usage and make modifications as needed.

“Using Cradlepoint NetCloud Manager to monitor and manage data consumption allows us to troubleshoot and make quick adjustments that save us money,” Branham said.

Reduced setup time through a cloud-managed platform

Working together with the Cradlepoint and T-Mobile teams, the Peachtree Corners IT staff was able to activate their routers and SIM cards, configure the Cradlepoint NetCloud Service, establish VPN access for team members, and train employees in significantly less time compared to the establishment of wired broadband services, which can take weeks or even months.



Cradlepoint’s NetCloud Service allows us to easily stand up our VPNs, open protocols for machine learning, and configure each device on the network. We’ve seen about a six-day project management time savings since implementing Cradlepoint solutions.”

Brandon Branham, CTO and assistant city manager,
Peachtree Corners



Always-on connectivity for community-minded digital transformation

With cameras and sensors in place to actively monitor intersections and parking structures, the city's transportation specialists, planners, and residents can use real-time information to make informed decisions for safety, travel, and community growth.

High-definition camera surveillance has enabled a reduction in traffic deck loitering by 95% while analytics from connected devices in smart intersections have enabled public transit teams to reduce the autonomous shuttle route time by three minutes.

“With our Cradlepoint and 5G technology in place, we're able to not only notify residents of parking congestion before they arrive, but also monitor dwell times in electric vehicle charging stations and pickup and delivery parking. This provides an extra layer of knowledge that empowers our public safety employees and helps our residents feel safe and informed,” Branham said.

Learn more about the ways 5G can advance city operations at [cradlepoint.com/5G](https://www.cradlepoint.com/5G)