

# Hyperconnected Streetlights

## Georgia Power is expanding the state's smart LED lighting network

One of the core foundational elements for many cities looking to transition into a smart city is the adoption of hyperconnected streetlights. At base level, these streetlights are equipped with LED lights with the ability to communicate through a centralized network, allowing cities to monitor the individual characteristics (luminosity, color, energy usage) of each streetlight, which leads to major energy costs savings. Beyond this, however, these connected streetlights serve as the backbone of smart city infrastructure, providing the base infrastructure for 5G and IoT technologies.



## Providing the baseline for smart city infrastructure

Georgia Power is the primary provider of electricity in Georgia and has the largest penetration of LEDs of any utility company in the world. Altogether, Georgia Power operates a system of nearly 500,000 LEDs, of which 300,000 are connected to an internal control system.

The internal controls allow Georgia Power to monitor each individual LED, providing the company with precise readings of different characteristics of each diode, including luminosity and color. These smart streetlights also have the ability to auto-adjust their energy usage based on integrated motion sensors.

Beyond providing advanced lighting capabilities to

cities, hyperconnected streetlights work well in conjunction with other technology because the lighting system is already centrally connected. This allows the streetlights to act as a type of hyperconnected mount for an array of different peripheral attachments such as 5G antennas, motion and environmental sensors, and integrated camera surveillance and monitoring systems.

Justin Harmond, the Operations Manager of Lighting & Smart Services at Georgia Power, emphasizes the importance of working towards a hyperconnected system: "We've been in the smart city space for a long time now, just with the connected lighting.

***That's the baseline for a smart city.***"

Over **35** separate cities surrounding the Atlanta metro area have replaced their old streetlights with connected LEDs

Georgia Power has the largest penetration of LEDs of any single utility in the world

## More than just a lightbulb

Georgia Power's connected system of streetlights allows various municipal governments throughout the state to establish the core smart city functionalities:

The linkage of the streetlights to a central system allows Georgia Power to immediately diagnose and respond to a problem any individual unit might have.

Georgia Power acts as "a real estate company for [their] poles", allowing telecoms to set up 4G and 5G infrastructure, thereby providing the backbone for many smart city technologies.

SiteView, a camera system which can be embedded into the streetlight, allows municipalities to monitor and detect crime.

Georgia Power plans to include intelligent nodes in their poles. These nodes would help to provide a variety of services including real-time emergency response, collection of traffic patterns for transportation planners, and provision of smart parking functionality through a consumer app.

Harmond explains that while switching from incandescent bulbs to LEDs saves money on energy costs, the increased capital costs largely offset those savings. However, since Georgia Power's LEDs are connected, the utility can closely monitor each set of diodes and quickly diagnose any problems as they arise.

The ability to monitor each set of LEDs in the system also allows for nearly complete control of

asset management. Georgia Power knows the exact location of each of their connected LEDs. Harmond provides an example: "Say a car hits a pole in the middle of the night, a distribution crew could change it out and not put the light back up. We would then be billing [the city] for more lights than they have. Thanks to connected lighting, we now know when lights are not reporting back in so we can reduce billing errors which were previously caught by inspections. We also know exactly where every light is so these costly inspections have been drastically reduced." In this way, smart streetlights not only increase energy efficiency and enable future technology deployment, they also create management efficiencies for the utility and city alike.

### Smart Lighting by the numbers At Georgia Power

**1M**

network of regulated and unregulated lights

**60%**

of LEDs connected to a central monitoring system

**\$3.7M**

annual savings on electricity

**90%**

less energy used than standard incandescent bulbs

### Cities in the Atlanta Metro Area use hyperconnected streetlights to detect crime in real time

In 2017, Brookhaven, a suburb northeast of Atlanta, became the first municipality to install SiteView, a surveillance system embedded into the existing connected lighting infrastructure. SiteView includes a connected system of cameras and license plate readers (LPRs) that allow local law enforcement to better detect and deter crime.

Since adapting SiteView, 44 LPRs have read over 57 million tags, helping Brookhaven police identify over 25,000 stolen vehicles and over 400,000 cars with suspended vehicle registrations. SiteView has also helped locate 8,600 wanted persons and, in January 2019, was crucial to an undercover investigation looking into child exploitation and computer crimes, in which police arrested 21 people in a span of five days.

Beyond typical law enforcement applications, SiteView is also used by homeowners' associations to monitor people entering and leaving their subdivision.