



Case study: Miami-Dade County, Florida, USA

Connecting Miami-Dade County

Signify and Smart City Capital are building a transformational infrastructure in Florida's most diverse county

In partnership with:





In collaboration with a host of ecosystem partners, Signify and Smart City Capital are delivering a major transformational connected infrastructure project in Miami-Dade County (MDC), the largest county in Florida.

Under the auspices of Miami Dade Smart Lighting Partners (MDSLP), a fit-for-purpose entity created specifically for the project by Smart City Capital, MDC is well on its way to setting new standards for smart and resilient communities. The project aims to upgrade over 28,000 streetlights from high-pressure sodium to energy-efficient connected LED fixtures from Genlyte Solutions, a business unit within Signify North America. The upgrade alone promises to cut lighting-related energy consumption throughout the county in half, with better lighting on the streets and highways promising to improve public safety and reduce light pollution. But that's only the beginning of what this project aims to achieve.

The newly installed LED street lights are part of a connected infrastructure managed by Interact, a cloud-based, IoT-enabled smart lighting platform from Signify. Each lighting fixture serves as an intelligent node that enhances efficiency, improves reliability, and ensures lighting uptime through predictive maintenance and automated notifications. The system also offers citizens a way of reporting public lighting issues and tracking replacements and repairs.

The project's ambitions include building public broadband, EV charging stations, traffic management systems, and wellness applications on top of the new county-wide connected lighting infrastructure. Oscar Bode, CEO of Smart City Capital and MDSLP, sees this as a way of overcoming the digital divide that deepens economic and social disparities between the well-to-do and underserved communities within the county.

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CEO, Smart City Capital

Overcoming the digital divide

Located at the southeastern end of the Florida peninsula, Miami-Dade County is one of the largest in the US. At almost 2,500 square miles, MDC is larger than Rhode Island and Delaware, and its population of 2.7 million exceeds the population of those two states combined.

Best known, perhaps, for the opulent city of Miami Beach and its glitzy South Beach neighborhood, MDC embraces 34 incorporated municipalities and around a dozen unincorporated communities. These range from wealthy communities like Miami Beach to underserved communities such as Homestead and Florida City. Median incomes across these communities vary greatly—in fact, a recent study shows that MDC has the second-highest income inequality of any large county in the country.

Income disparity isn't the only challenge the county faces. A 2024 study found Miami to be the worst city to drive in across the US. MDC officials have also reported that roadway networks and the interstate system in the county are operating at their limits, with very limited opportunity for expansion.

Smart City Capital CEO Bode knows what it's like to live in an underserved area: he was raised in Opa-locka, one of the lowest-income neighborhoods in the county, and he understands challenges like high traffic and significant crime rates from the inside. Bode's vision from the beginning has been to make sure that the entire solution would be available not only in affluent communities like Coral Gables and Miami Beach, but also in all of the county's underserved cities as well. "I knew this area quite well," says Bode, "and I wasn't just cherry-picking the high-rent districts."

From congestion corridors to intelligent corridors

Given the scale of traffic issues in the county, it's no surprise that the project started as a traffic remediation initiative. The county government recognized that traffic congestion throughout MDC would negatively affect economic development if it wasn't solved. Traffic remediation turned out to be just the jumping-off point for the wide-ranging connected infrastructure program that the county committed to fund.

Bode's vision included transforming twelve congestion corridors located throughout the county into what he has called intelligent corridors. An intelligent corridor is an area in which connected street lights, light poles, and other underground and above-ground assets—fiber and connectivity for public broadband, outdoor multisensors for environmental monitoring, and so on—communicate seamlessly. This requires coordination among a consortium of providers that includes Smart City Capital, Signify, and several others.

With seventeen years of experience running smart infrastructure projects all over the world for Cisco Capital, Bode was uniquely positioned to devise the solution, gather the ecosystem partners, and work out the financing. Initially, Smart City Capital worked with the county and consultants from KPMG to do community outreach and to validate the concept and approach.

As for financing, Smart City Capital and MDSLP educated the county on how to manage the multi-hundred-million-dollar project such that it would produce budget rather than consume it. This included combining existing street lighting and other assets with connected street lights and multisensors to reduce energy and operational expenses, realize efficiencies through the integration and connectivity, and prevent costly issues such as wire theft.

"In reality, we're delivering about a billion dollars worth in solutions, and the county is paying us about \$260 million all in," Bode explains. "This project creates so much additional value. It's a whole game-changer because it's outcome-based."

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Leveraging the connected street lighting infrastructure

Since notice to proceed was granted at the beginning of 2023, MDSLP has upgraded around 8,000 lights. They expect to have about 15,000 done by the middle of 2025, and a complete system of 28,500 light points in place by the end of the calendar year.

Genlyte is providing all the hardware and software for the street light upgrades. This includes luminaires, connected lighting systems, and sensors from several of the business unit's collection of brands. The street lights are Lumec RoadFocus cobra heads, while area and decorative lights include Hadco MainView urban post top LEDs, Renaissance urban pendants, TunnelView tunnel lights from Lumec, and Gardco OptiForm site and area lights.

Signify Interact provides most of the connectivity and data collection capabilities, along with around 900 Philips multisensors for gathering climate and street-level data. Interact offers dashboards for viewing real-time system performance and energy consumption information, as well as a cloud-based data lake for aggregating and reporting on historical data collected from the lights, controllers, sensors, and other applications in the system.

In addition to the street and area lights themselves, MDSLP is building a county-wide broadband network by putting fiber inside the street lights. The resulting multi-tenant open access broadband network will make internet service provider options available to all communities in the county, reduce costs by increasing competition, and improve quality of service. Ultra-fast fiber and fixed wireless, Wi-Fi 6, and 5G networks will support both residents and local businesses.

"It'll be the fastest network in the United States at 400/100 gig," says Bode. "We're adding a couple hundred miles of fiber for the last-mile infrastructure. I believe every seventh light will have this fiber in the pole itself," creating a Wi-Fi mesh network of around 10,000 poles throughout the entire county. Bringing ultra-fast fixed wireless into the county's underserved communities can begin to address MDC's economic and educational disparities and help to bridge the digital divide.

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Along with supporting residents and local businesses, the new ultra-fast broadband network will allow MDC to scale up for major events like the Super Bowl and the Formula 1 Miami Grand Prix, which takes place annually at the Miami International Autodrome.

Because these major events offer significant economic opportunities for residents and businesses, assuring broadband capacity even at times of peak demand increases customer satisfaction and reliability for all. They also tie into the MDSLP's smart wellness ambitions via the Stay Healthy Zone and wellness ambassadors such as all-time football great Dan Marino.

Bode envisions using lighting intelligence to bring smart wellness benefits to people in underserved areas, some of whom can't afford to see doctors. Circadian lighting and lighting for health and well-being solutions from Signify could become part of the MDSLP's offerings in the county.

Signify has partnered with the Mercedes-AMG PETRONAS Formula 1 team to drive responsible innovation on and off the track. Circadian lighting innovations from Signify are already being used to enhance the well-being and performance of drivers, trainers, and engineers, and could be used in homes and businesses to enhance the well-being and performance of residents and workers as well.

Champion Mercedes-AMG PETRONAS Formula 1 Team driver George Russell, who is driving in his fourth Miami Grand Prix in May of 2025, relies on Signify lighting innovations to achieve peak performance on race days. "Light has a massive impact on my performance," Russell says. He believes that his team is leading the way in promoting an understanding of the importance of light to stay sharp and alert at race time, and to sleep well at bedtime, and that using circadian light will become standard for all Formula 1 teams. He believes it should become standard for the average household, too.

As for traffic and mobility issues, the MDSLP is addressing these on several fronts, including installing 1,800 EV chargers across the county. Some will be curbside, and others will be at the street lighting poles or in street parking areas. When the installations are complete, motorists will never be more than eight miles from a charger, helping to eliminate EV anxiety and barriers to adoption.

Future mobility applications will include the creation of smart mobility arterial transportation corridors using the connected lighting infrastructure, smart traffic applications, and smart buses that can be tracked with sensors. Intersection monitoring and vehicle tracking promise to enhance driver and pedestrian safety and security, and may even help with crime scene analysis.

Making the dream a reality

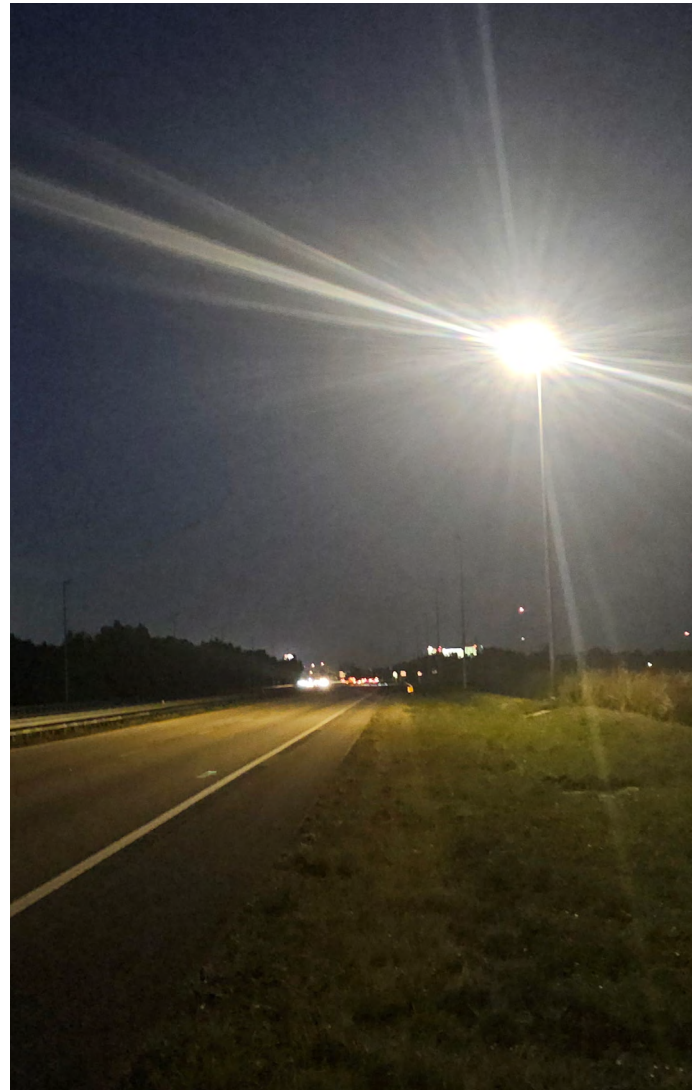
Bode sees good results, even though the project is not yet complete. “I believe that it's already making a very positive impact, and we haven't even begun to use all of the benefits,” he says. “Once people get the light and they're able to realize how much clearer it is, that part is very, very good. So I think once it's all fully done and we have the ability to leverage all those use cases on top of intelligent lighting—I think it'll be a real plus and people will see the difference.”

Miami-Dade County is already reaping financial benefits. Bode says that solutions typically return 70 or 80 cents on every dollar spent. The MDSLP solution, in contrast, is delivering almost \$3 for every 70 cents spent. “The county is paying us budget-neutral on the lighting,” explains Bode. With the money saved by the system, “we can turn around and do a revenue share with the county, sharing some of the savings, sharing some of the new revenues on fiber.”

The project has also been deeply rewarding for Bode personally. “Miami-Dade is the hottest market in the United States, and for my project to make a difference, that includes everyone being impacted, and that's what really excites me.” For a kid who grew up in a city where almost 30% of the residents live below the poverty line and crime rates have historically been high, being

able to make the MDSLP project a reality has been something of a dream come true.

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