Wellington Motors Innovates Outdoor Lighting Control with Bluetooth® Mesh Network

An early adopter of innovative lighting technology, Wellington Motors upgraded its LED parking lot lighting to include intelligent, proprietary Bluetooth mesh with McWong sensors and controllers and Casambi's smartphone app control platform. From concept to complete installation, the project spanned only 30 days.

Background

Located in Guelph, Ontario, Wellington Motors has served the Guelph & tri-city (Kitchener/Waterloo/Cambridge) area since 1940, offering Chrysler, Dodge, Jeep and now Fiat vehicles. The dealership also provides automotive service and collision repair. Their Guelph location encompasses about 4 acres with an inventory ranging between $9 - $18 million (CAD) new and used combined.

They had installed LED lighting several years ago with first-generation LED technology throughout their outdoor parking lots. Recently, however, some fixtures were failing and the business owners were unhappy with the light quality. They turned to Nexstar Lighting, an experienced LED lighting consulting firm, to explore options that would provide optimal lighting quality and easy-to-use intelligent control for nighttime dimming and increased energy savings. The challenge? Wellington Motors wanted the project complete as soon as possible.

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Selecting a Bluetooth mesh control solution

The facility parking areas encircle the central building, with a total of 34 fixtures. Prior to the new installation, these fixtures consisted of two-, three-and quad-head poles controlled by timers which turned on to full output at dusk and turned off at dawn. Nexstar identified a more flexible and energy-efficient solution, designing separate lighting zones with different fixture types. For instance, in the front parking areas, 14 300W area lights were selected, while the remaining parking areas would utilize 150W area lights, with 20 total fixtures throughout these latter areas. This would provide distinctive display zones where new inventory could be showcased while the other parking areas were reserved for remaining inventory or guest parking.

Project team members were very interested in implementing an app-based control network that would be capable of controlling different zones of lighting yet be extremely reliable, cost-effective and easy to use. They determined that the Casambi-powered proprietary Bluetooth mesh solution satisfied all these requirements. "While we took a risk on the Bluetooth technology, we ultimately chose this approach because we did not need a control gateway or costly commissioning," notes Bob McKellar, President of Nexstar Lighting.

The project team researched control hardware and discovered that McWong sensors and controllers were the ideal fit for this challenge. "We valued McWong's expertise in the lighting controls field as well as their meticulous attention to detail. What's more, McWong was the only provider who was able to meet our extremely challenging timeframe," added Chris Wcislo, the senior project manager. The project team chose passive infrared (PIR) sensing technology rather than microwave for the motion sensors to minimize

any risk of false triggers from weather events.

As soon as the installing contractors powered up the lighting and controls, the Casambi auto-discovery feature identified each control device. The project team was able to self-commission the network via the smartphone app. When technical support proved necessary from Casambi, they were able to connect the technical expert, Maarit Tötterman by phone; she accessed the project via the app and very shortly, the issues were resolved and the system was up and running.

The control network consists of 16 McWong motion sensors (PSC-BL-I-FM-DC0-BLE-CB/S) powered by 16 power packs (PSC-AC-PP-400) installed as follows:

- 1 sensor for each double head pole around the parking lot perimeters (10 sensors)
- 1 sensor for each double-head fixture on the building (2 sensors)
- 1 sensor for each triple-head fixture (1 pole in front and back lots respectively) (2 sensors)
- 2 sensors for the quad-head pole located in the rear lot (2 sensors)

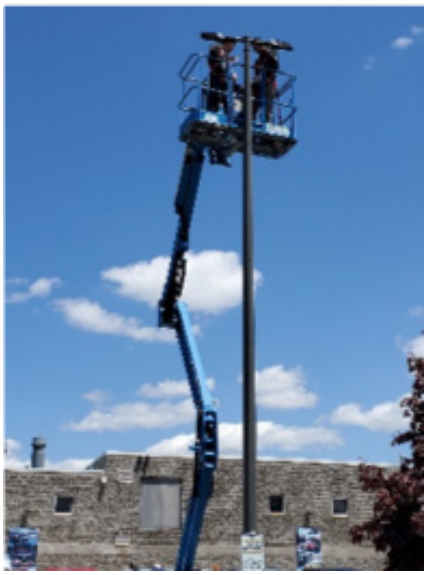
The installation allows for zone grouping so that managers can assign different control scenarios to the perimeter, front and rear lots as well as to specific portions of the rear lot.

The facility utilizes three control scenarios during the average nighttime hours:

- Lighting ON at full output at dusk via astronomical signal
- Lights DIM to 20% of full output at 10:30 p.m. If motion is detected, lighting immediately ramps to full output. When motion is no longer detected and the five-minute time delay elapses, light level returns to 20% output. Fade time is set for 3-5 seconds.
- Lights OFF at sunrise, via astronomical signal, from existing light level

Conclusion

The lighting and controls upgrade was completed in July 2019, 30 days after initial project conversations began. Early performance data reveals that the outdoor lighting consumes approximately10% less energy then the system did prior to the lighting and controls upgrade. "The lights are state of the art, very bright and I love the auto sense brighten up in the wee hours of the morning if there



is movement on the lot. The app on my cell that lets me see what's going on on my cell and control lights from my cell is very cool, the system is very high tech!", says Sam Fairhall, Dealer Principal.

Fairhall continued, "the install went smoothly with little disruption on the lot. The help Nexstar provided in applying for and completing the required paperwork for the energy rebate was a load off my back. All in all the lot looks great and I love the added lot security [theft deterrent] this system provides. "We were focused on improving the quality and controllability of our lighting in this upgrade, and we are satisfied with this outcome. While the energy savings were modest, this was not the primary focus of our efforts, so a 10% savings is an added bonus."

Project Participants

Wellington Motors
Sam Fairhall, Dealer Principal

Nexstar Lighting Limited
Sandra Marcus, Sales & Business Dev. Manager
Chris Wcislo, Senior Project Manager
Fahim Ahmadi, Master Electrician
Mortasa Yaqoubi, Electrical Apprentice

Casambi
Maarit Tötterman, Technical Support

McWong
Anthony Savalle, Eastern Regional Sales Manager