



Outdoor

Project Overview

University of Minnesota Twin Cities

A Lighting Upgrade Boosts Feelings of Security while Saving Energy on Campus

“The system allows us to make changes and tweak settings remotely.”

— Ross Allanson, Director of Parking and Transportation Services

Background

College campuses pay special attention to lighting to make students feel more comfortable. As LED technology continues to improve, facilities teams often look for new fixture and control solutions to improve campus lighting, simplify maintenance, and reduce costs at the same time.

With thousands of fixtures in its parking facilities, the University of Minnesota Twin Cities worked with Walker Consultants to complete a parking structure lighting assessment that identified opportunities to save energy, enhance comfort, and improve maintenance –

- Provide lighting that enhances personal comfort and helps meet sustainability goals
- Reduce energy use and maintenance costs
- Decrease time spent on fixture inspections and repairs
- Comply with modernized University standards and IESNA guidelines

Ultimately, the University chose Limelight by Lutron for a control solution that covered all the bases, and left the door open to greater scalability and centralized control over time.





Church Street Garage

Parking and Transportation Services (PTS) is proud to help increase the University's energy efficiency.

The Challenge

The University of Minnesota Twin Cities has a sprawling campus, with thousands of light fixtures in parking ramps and garages. To be a valuable asset and support the campus master plan, a lighting retrofit of parking garages and ramps would have to enhance comfort throughout the entire space while reducing energy use, and simplifying maintenance.

The University identified four different fixture and control combinations that best met project needs and seemed able to deliver the required cost-benefit relationship.

Beyond performance requirements, there were physical installation limits. Many of the parking facilities were built with HVAC ducts, overhead drainpipes, condenser lines and electrical conduit that restricted surface-mount options for fixtures. Ceiling height was also a concern.

The low-profile and flexibility of the Limelight modules is a significant differentiator in these situations, as is the system's ability to work with a wide variety of fixture types. The unique Limelight wireless mesh network enables simple installation without the addition of costly conduit.



The upgrade has contributed to lower energy consumption – as much as 44% in one facility.

Overall energy consumption fell by



Limelight sensor modules

The Solution

Starting with a one-month test of four fixture manufacturers, the University collected comparative data, along with input from employees, administrators, and facility management personnel. They assessed quality of the light output, dimming capability, ease of installation and ability to effectively service the fixtures, ultimately selecting Kenall's TekDek TD-17 fixtures equipped with Limelight RF sensor modules that communicate wirelessly to the Limelight gateway.

The Limelight system uses high-density mesh technology to ensure clear communications between fixtures, and each gateway is capable of controlling 800 luminaires without the need for wireless repeaters. This reduced the amount of hardware required for each facility.

The Limelight sensor modules also enable fixtures to be individually addressed and programmed to promote everyday maximum energy efficiency and still accommodate special events. Fixtures can be assigned to intelligent light groupings, easily support scheduled events, and conserve energy by dimming or shutting off in response to ambient light levels.

Limelight also enables features such as activating in response to a car entering a specific area, or to an occupant entering a parking area from a door, stairway, or elevator. Each of these features supports an identifiable need.

The parking facility lighting upgrades at the University involved more than 4,500 luminaires across 15 facilities. "Proper training and support enable us to react when projects don't go exactly according to plan," says Ross Allanson, Director of Parking and Transportation Services.

"We received 24/7 support from the Lutron Limelight team. The training we received enabled us to analyze the data to make appropriate adjustments, and we were able to customize alert notifications to help us immediately address any issues that came up," said Allanson.

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Director of Parking &
Transportation Services



Limelight gateway



Oak Street Ramp

Limelight upgrades help save energy and improve comfort in the parking facilities.

The Results

Throughout the project, Lutron and the engineers from Walker Consultants worked with the Limelight engineers to set and refine lighting parameters and identify intelligent light groupings best for each facility. Because each fixture is individually addressed, they were able to field-verify the settings, and quickly adjust as necessary.

Each facility was programmed at the time of commissioning to take greatest advantage of the dimming, automated daylighting adjustments, and customized zone assignments for each space. "The system allows us to make changes and tweak settings remotely," said Allanson.

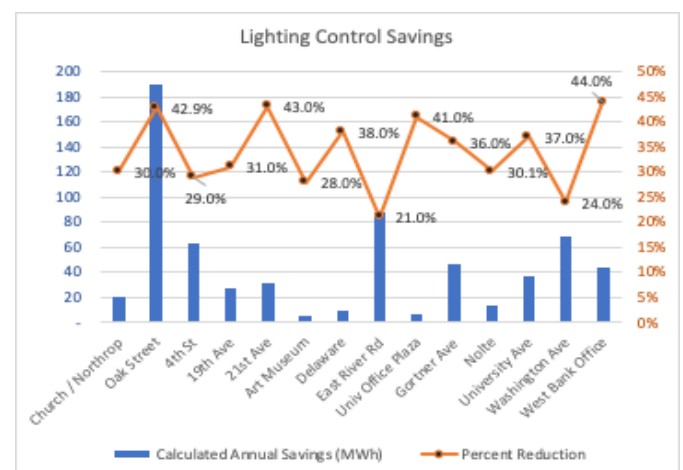
Limelight upgrades and the addition of high-quality LED fixtures are part of a comprehensive modernization plan that helps save energy and improve comfort in the parking facilities. The upgrade has contributed to lower energy consumption – as much as 44% in one facility – while overall energy consumption fell by 32%.

Compared with April 2019, there was a 14% decrease in the University's kilowatt use in parking facilities in April 2020. A good portion of that savings can be attributed to the Limelight lighting system, which self-regulates and uses minimal power during times of low or no occupancy.

When the COVID-19 stay-at-home order went into place, and activity in the parking facilities decreased, the Limelight system automatically operated at lower levels resulting in energy savings.

This represents an annual reduction of over 500 tons of carbon dioxide. While the typical number of vehicles parked on campus has increased, costs have decreased, comfort has improved, and that's all good news for the entire campus community.

Parking and Transportation Services (PTS) is proud to help increase the University's energy efficiency – a feat that has been recognized with multiple Lighting Energy Efficiency in Parking Campaign (LEEP) awards since the installation of the Limelight system.



Energy savings per facility, following the LED fixture and controls upgrade; overall energy savings of 32% across all PTS spaces.

Design Engineers – Walker Consultants

Provider – Lutron Electronics

Solution – Limelight Wireless Outdoor Lighting Control

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