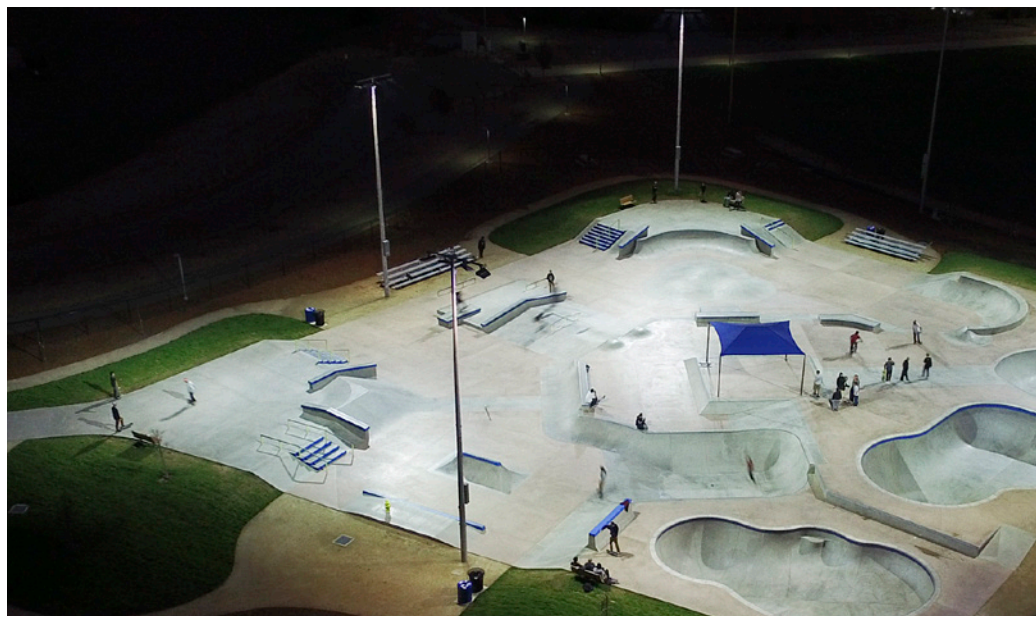
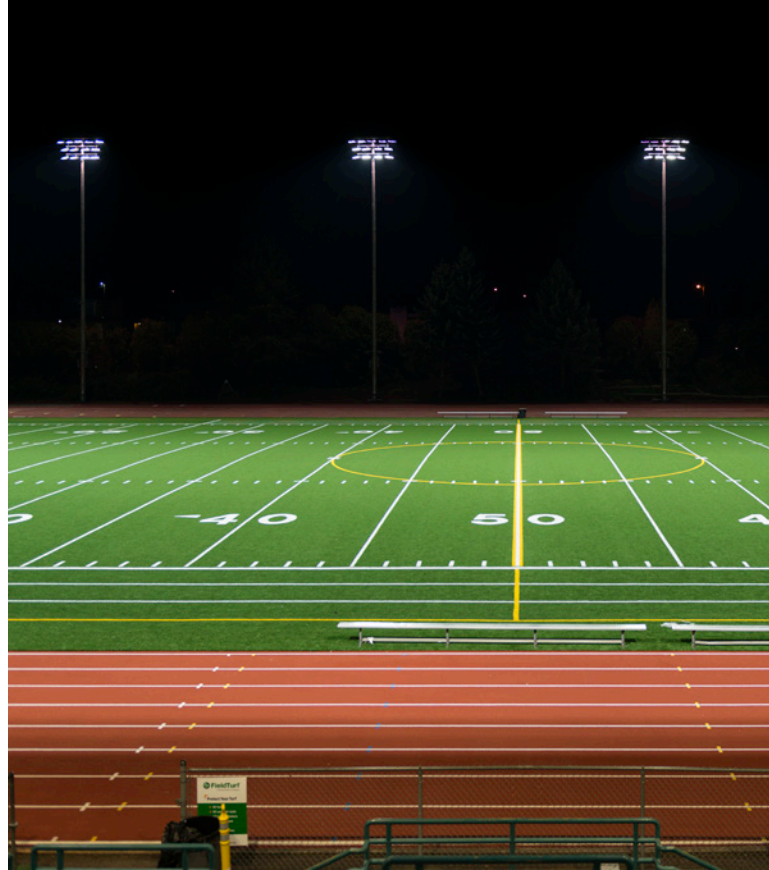


Retrofit Lighting Solutions

Musco's TLC for LED™ Technology



We Make It Happen.®





A Proven Retrofit System

The quality of LED sports lighting is only as good as the system that applies it. Across the country, and around the world, sports venues of all sizes are discovering this every day.

At Musco, we're using our more than 40 years of experience in light and glare control to take advantage of the unique characteristics of the LED source. As a result, our system-based TLC for LED™ technology realizes the potential of LED as a retrofit solution in ways single fixtures simply can't.

Better On-Field Lighting

The whiter and more uniform distribution of TLC for LED improves visibility for players and fans.

Total Light Control™

Our patented glare control technology preserves darkness around fields like never before.

Improved Efficiency

We've helped retrofit customers reduce energy consumption by as much as 80 percent.

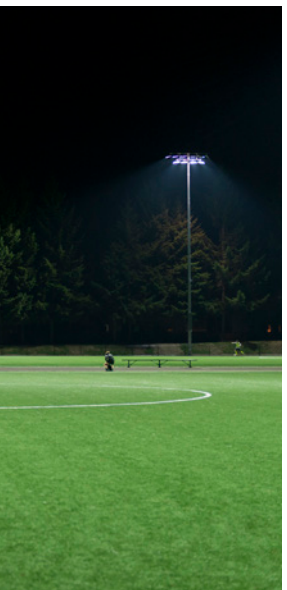
Long-Term Parts and Labor Warranty

No worrying about maintenance, or paying for it, for anywhere from 10 to 25 years.



"Musco's design for Petco Park was different from the competitors by far. They actually redesigned our sports lighting racks. So we basically put up a brand new rack, already pre-aimed. When we compared Musco's product to all the competitors we felt they had the least amount of glare. We don't have any dark spots on the field, and our light levels blow away Major League standards."

*- Randy McWilliams, Senior Director of Engineering
San Diego Padres*



Retrofitting with Musco's TLC for LED™ Technology

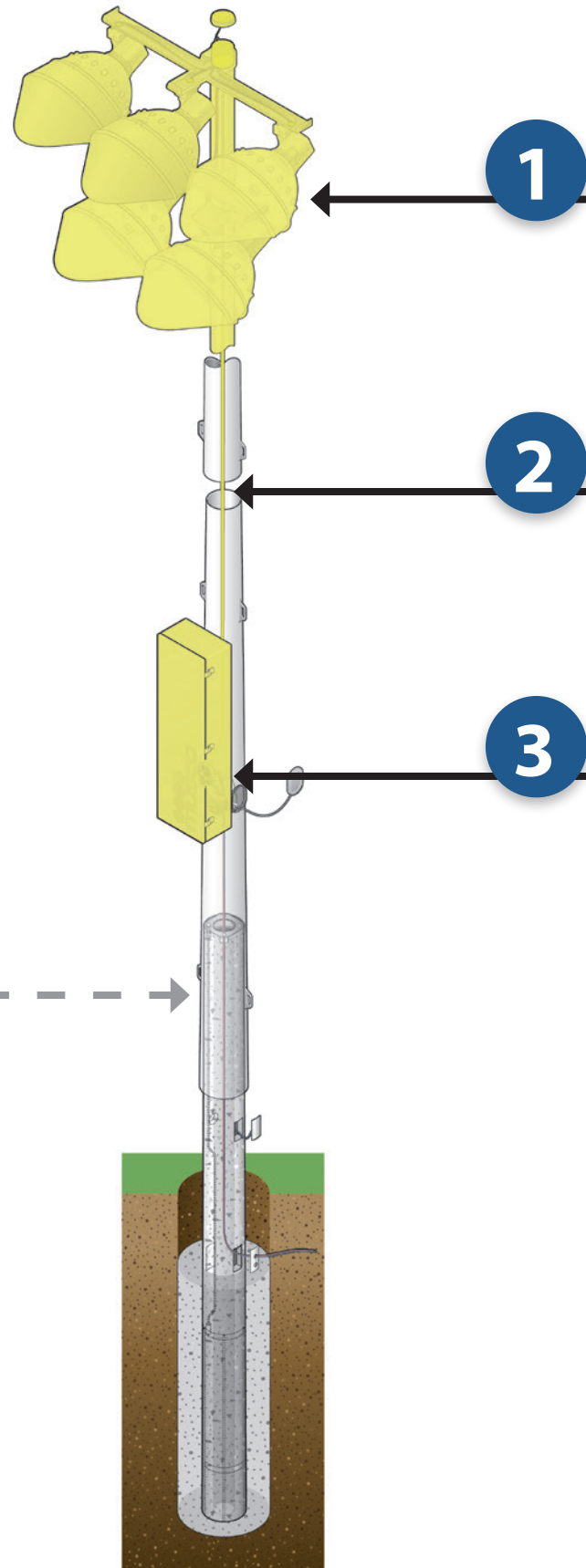
When you walk onto a field that's been retrofitted with Musco's LED technology, it just looks better. There's a reason for that.

Our solutions are designed as a system—with lighting, electrical, and structural components engineered to work together. We'll conduct a structural assessment of your current lighting, and our retrofit solution will include a new wire harness and new, custom cross arms to ensure structural integrity and long-term reliability.

Structural Analysis

- To determine integrity of existing support structure

Existing Light-Structure System™



Retrofit to TLC for LED™ Technology

Poletop Luminaire Assembly

Wire Harness

Electrical Component Enclosure

- Patented optics and glare control for better on-field lighting and precise control
- New cross arms to replace existing support structure
- Factory wired, aimed, and tested
- Single aiming point for fast, reliable installation
- New factory-built wire harness
- Custom made per pole length and luminaire configuration
- Ensures no exposed wiring and solid connections with quick connect plug-ins
- Located remotely for easy access
- Houses major electrical components
- Factory wired and tested, with surge protection and fusing for sensitive electronic components

In addition to retrofits, Musco also provides industry-leading sports lighting solutions that are complete and newly installed at stadiums, fields, and arenas of all sizes.

Better On-Field Lig

Every lighting project is unique. But at the core of each of them is improving the quality of light on the field of play.

We've spent more than a decade researching and designing systems around LED. TLC for LED™ along with our innovative BallTracker™ technology delivers a whiter and more uniform light, allowing players and fans to track the entire flight of the ball.



"This is my 25th year in coaching and this is far and away the best lighting I have ever seen at a baseball stadium. We feel like Plainsman Park now possesses the best lighting system in America and that is a big deal to us."

Butch Thompson
Auburn University, Head Baseball Coach

Lighting

Auburn University – Samford Stadium-Hitchcock Field at Plainsman Park

Auburn, Alabama, USA

The Challenge

- Increase light levels and improve the quality of on-field lighting and player visibility
- Mount luminaire assemblies on the existing poles from the previous lighting equipment
- Make the experience at one of college baseball's best stadiums even better

The Solution

- University project leaders visited two other college stadiums to observe the performance of different LED lighting
- One featured Musco's TLC for LED™ technology, while the other had LED fixtures from another manufacturer
- Auburn chose TLC for LED with BallTracker™ technology, which proved far superior in player visibility and reduced glare

The Result

- TLC for LED luminaire assemblies were successfully retrofitted onto the stadium's poles
- Playability has been significantly enhanced and glare has been virtually eliminated
- Musco's system technology ensures long-term reliability, and its long-term parts and labor warranty means no maintenance concerns or costs for 25 years



Energy cut by
43%

CO₂

845

metric tons
reduced
(25 years)



178

Cars off the road for
one year CO₂ reduction
equivalent



\$158,917

maintenance
cost saved
(25 years)



Hear from the coach and
university staff, scan or visit
www.musco.com/news/auburn

University of Colorado Colorado Springs – Alpine Field

Colorado Springs, Colorado, USA

The Challenge

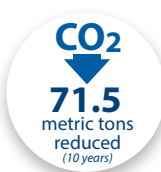
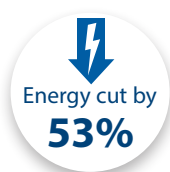
- Eliminate glare spilling into nearby homes from another manufacturer's newly installed lights
- Utilize existing poles and overcome challenges of the field's elevation atop a four-level parking garage
- Maintain existing light levels and improve uniformity on the 85,000-square-foot multi-sport field

The Solution

- When the original manufacturer failed to resolve neighborhood complaints, UCCS reached out to Musco
- Within days of receiving the call Musco's engineers and project managers were on site
- A customized system featuring TLC for LED™ technology was designed and retrofitted onto Alpine Field's existing 90-foot poles

The Result

- Glare in nearby homes was virtually eliminated, dropping from 80,000-90,000 candela per fixture to 1,000.
- The system maintained the field's existing 30 footcandles and greatly improved light uniformity
- UCCS solidified its positive relationship with homeowners in the Colorado Springs community



Hear from the neighbors and
university staff, scan or visit
www.musco.com/news/alpine



otal Light Control™



We believe in designing lighting solutions responsible to the needs of everything being impacted—from facility owners and users, to neighbors and the night sky.

The patented light control technology of TLC for LED™ delivers a level of precision never before possible, re-directing previously wasted light onto the field and virtually eliminating glare and spill.

"Musco really responded. Their representative was here within days, we explained the problem and they engineered a solution using the four poles in the corners of the field using their LED technology."

Gary Reynolds
UCCS, Assistant Vice Chancellor for Administration

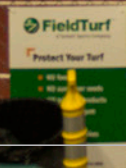
Improved Efficiency

Our TLC for LED™ technology has helped retrofit customers reduce their energy consumption by as much as 80 percent.

But when we talk about efficiency, it goes beyond energy—and dollars—saved. It's also about the efficiency of your lights, putting more on your field and spilling less around it. And it's about improving operations with streamlined scheduling and facility management.

"The direction and control of the field lighting system is extremely efficient, there is a significant reduction of light spill onto the neighboring properties."

Matt Finch
Edmonds School District, Design & Construction Manager





Edmonds School District Stadium

Edmonds, Washington, USA

The Challenge

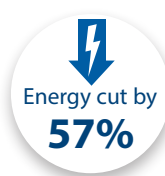
- Provide a high-quality lighting system that would help the district reduce energy consumption
- Customize a retrofit system using existing roof-mounted structures on one side of the stadium
- Reduce glare from spilling into the surrounding area while maintaining light levels on the field

The Solution

- Musco's TLC for LED™ technology using two custom-designed lighting systems
- Light-Structure System™ complete from foundation-to-poletop was installed on one side, with SportsCluster System™ retrofitted on the roof-mounted structures
- Took advantage of a \$50,000 public utility incentive for energy savings

The Result

- Energy consumption was reduced by 57 percent compared to the previous metal halide lights
- A much whiter and more uniform light on the field with the virtual elimination of glare and spill around it
- Efficient scheduling and system management with the 24/7 support of Control-Link®



Ken Pridgeon Stadium

Houston, Texas, USA

The Challenge

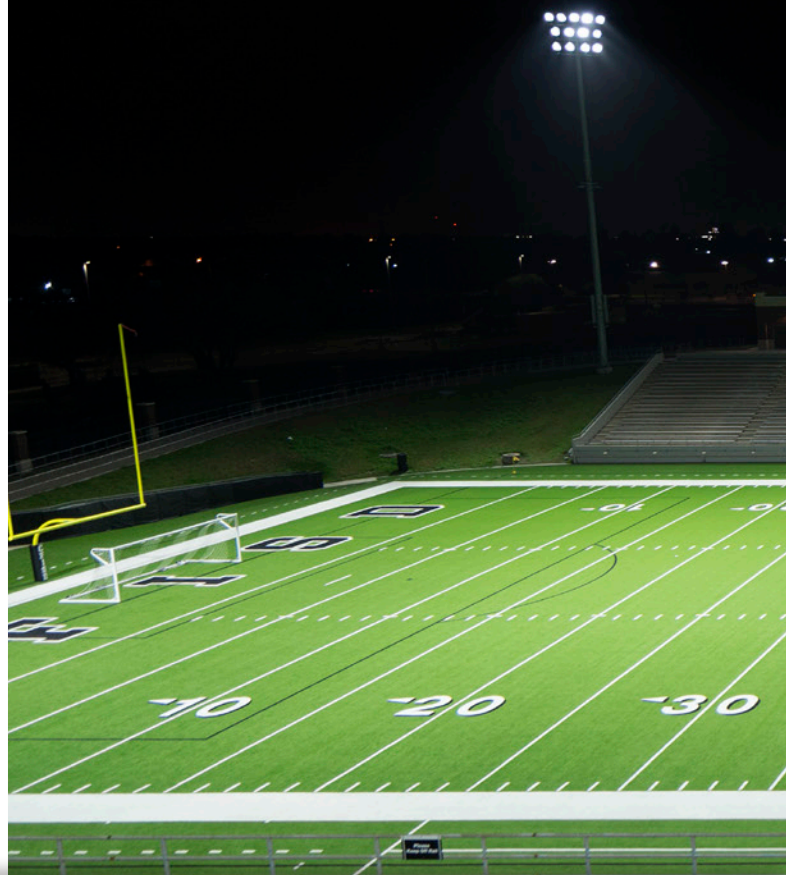
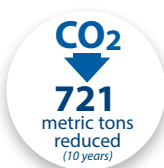
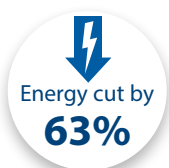
- Eliminate maintenance hassles and costs for the school district
- Deliver a solution that would reduce operating costs through improved efficiency and maintenance
- Help position Cypress-Fairbanks Independent School District as the first all LED lighted high school athletic complex in the country

The Solution

- Musco's TLC for LED™ technology was retrofitted at the stadium which was built in the 1970s
- Solution included 10-year parts and labor warranty
- Included guaranteed light levels for the duration of the warranty

The Result

- School district will save more than \$148,000 over 10 years between the elimination of maintenance costs and energy efficiency
- Will reduce CO2 emissions by 721 metric tons over the next decade
- Eliminates the hassle of re-lamping and having to budget for maintenance expenses for 10 years



Parts are

In one year alone the Musco Team has...



**Monitored and
turned lights on
and off remotely for
more than 5 million
games and events**



**Taken more than
350,000 calls answering
questions and helping
with scheduling**



**Traveled enough miles
servicing fields to circle
the equator 33 times**

nd Labor Warranty

Throughout our history we've always stood by our solutions, and our customers.

Our long-term warranty and product assurance program—which ranges from 10 to 25 years—includes guaranteed light levels, covers parts and labor, and is backed by a global team of technicians. So when an issue with your system arises, you don't touch it, and you don't pay for it. And our Control-Link® system scheduling and monitoring service provides 24/7 support.



"We're going from a maintenance agreement that was changing out bulbs. With the extended warranty that Musco provides, we won't be looking at doing any of that maintenance any time soon."

Josh Solis
Project Manager , Cypress-Fairbanks Independent School District



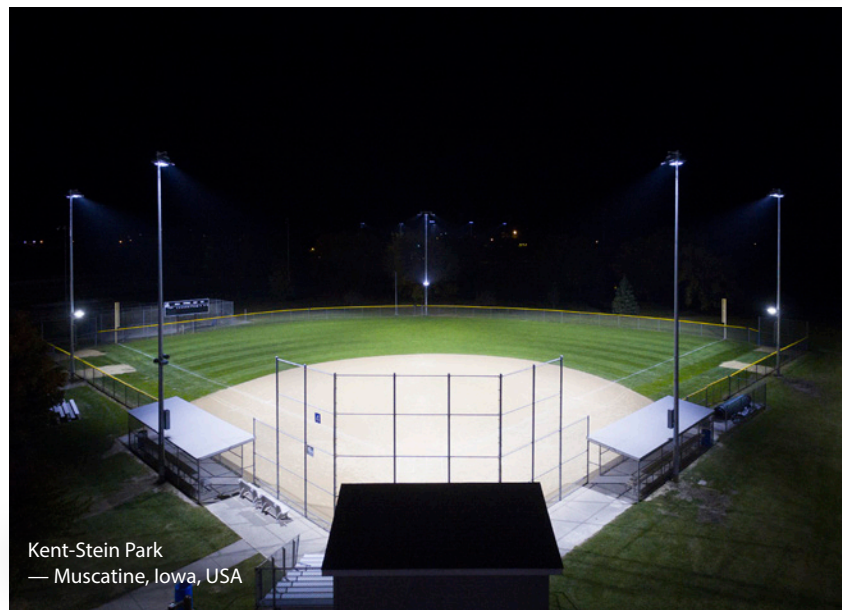
Petco Park, Home of the San Diego Padres
— San Diego, California, USA



LakePoint Sporting Community, South Campus
— Emerson, Georgia, USA



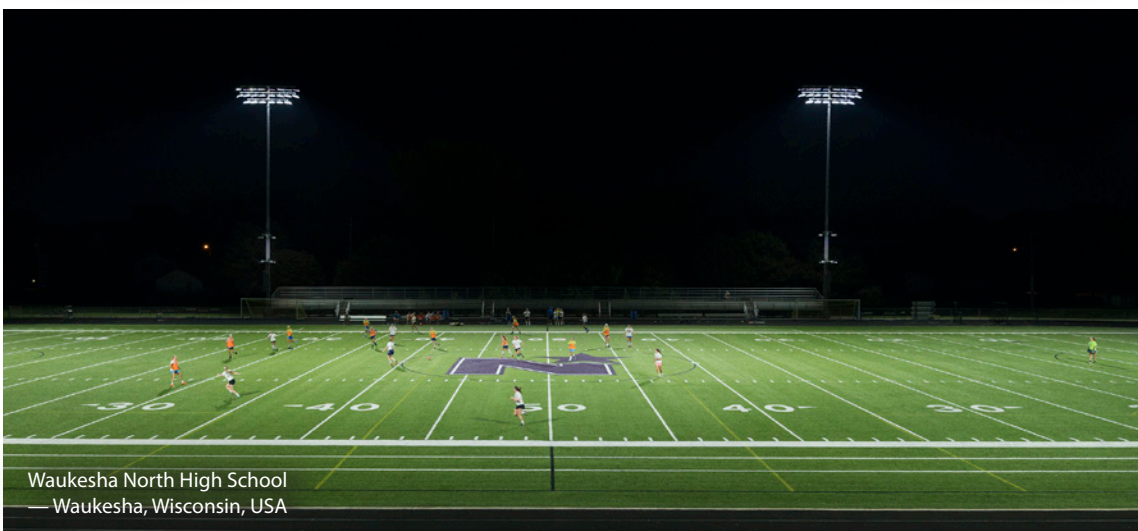
Steve Cox Memorial Park
— Seattle, Washington, USA



Kent-Stein Park
— Muscatine, Iowa, USA



Seminole County Sports Complex
— Sanford, Florida, USA



Waukesha North High School
— Waukesha, Wisconsin, USA



University of Alabama, Sewell-Thomas Stadium
— Tuscaloosa, Alabama, USA



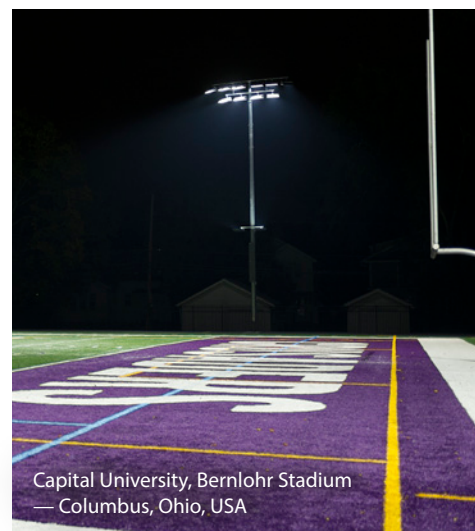
New Milford High School
— New Milford, Connecticut, USA



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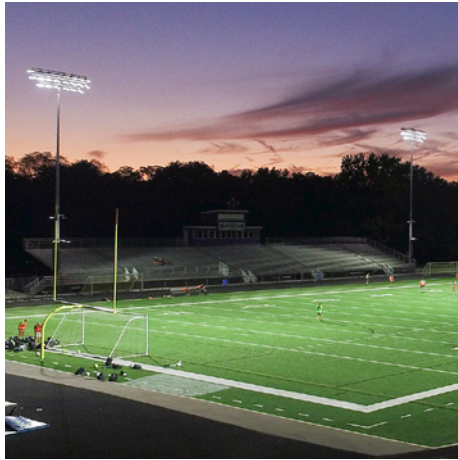
Clemson University, LoConte Family Field
— Clemson, South Carolina, USA



Capital University, Bernlohr Stadium
— Columbus, Ohio, USA



University of Colorado Colorado Springs, Alpine Field
— Colorado Springs, Colorado, USA



Unequaled performance . . .
for your budget, for the environment.



We Make It Happen®

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e-mail: lighting@musco.com

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