



Staff Report

Coalville City
Community Development Director

To: Coalville City Planning Commission
From: Don Sargent, Community Development Director
Date of Meeting: January 20, 2026
Re: Draft Sports Field Lighting Standards Amendment
Action: Work Session Review and Discussion

Draft Sports Field Lighting Standards Amendment

REQUEST

Review, discuss, and provide direction to Staff on proposed amendments to development code Section 05-060:H Outdoor Recreation and Athletic Facility Lighting standards for preparation of a public hearing.

This item is scheduled for a work session only. Public comment may be received in a public hearing at a subsequent meeting.

BACKGROUND

Staff has been coordinating the development code and engineering standards with the architects, engineers, and other disciplines involved in the design and layout of the proposed new high school campus project.

The lighting contractor, Justin Carteton, with Musco Lighting requested an opportunity to review and discuss possible exceptions to the development code lighting standards with the City Council for the sports field lighting of the new high school. A discussion was held at the January 12th City Council meeting wherein the council directed Staff and Planning Commission to initiate an amendment to the outdoor lighting standards of the code dealing with sports lighting.

ANALYSIS

The city development code includes an outdoor lighting chapter that was drafted with respect to general night sky protections. Outdoor Lighting Chapter 5, Section 05-060:H is included as Attachment A for reference. Section 05-060:H identifies the specific requirements for Outdoor Recreation and Athletic Facility Lighting which is highlighted in the attachment.

Musco Lighting proposed several modifications to the lighting standards consistent with current best practices in sports field lighting and provided an information packet included as Attachment B that was presented at the city council meeting.

Attachment C includes draft amendments to sports field lighting for review and discussion with the Planning Commission.

The draft amendments are intended to establish clearer, more quantifiable performance criteria without being overly restrictive. While they are not as stringent as the Dark Sky Outdoor Sports Lighting program, they offer greater flexibility.

The key performance metric is the off-site candela limit. For reference:

A Candela is a measurement of the intensity of a light source and Glare is a disruptive light from a light source making it difficult to see, measured in candela.

1,000 candela – Dark Sky Outdoor Sports Lighting program

5,000 candela – Proposed code recommendation

7,500 candela – Maximum value for rural areas per CIE 150: Guide on the Limitation of the Effects of Obtrusive Light

10,000 candela – Maximum value for suburban areas per CIE 150

12,000 candela – Approximate luminous intensity of low-beam automobile headlights

30,000 candela – Approximate luminous intensity of high-beam automobile headlights

RECOMMENDATION

Staff recommends the Planning Commission review, discuss and provide direction to Staff on the draft amendment language for preparation of a public hearing at a subsequent meeting.

Attachments:

- A** Development Code Section 05-060:H
- B** Musco Lighting Information Overview
- C.** Draft Amendment Language

2. Gas station canopies may be illuminated provided all light fixtures are mounted on the undersurface of the canopy and all light fixtures are full cut-off. The undersurface of the canopy shall be a nonreflective material and non-gloss color.
3. Under gas station canopy lighting shall be exempt and not included in the total outdoor light output calculation for the property in which the canopy is located.

G. Soffit Lighting.

1. For Detached Single-Family Dwellings if lighting with fixtures mounted in the soffit of a building, the fixture shall not be mounted above twelve feet (12') in height, as measured from the fixture to Finish Grade.
2. For Commercial, Industrial and Multi-Family Dwellings, if lighting with fixtures mounted in the soffit of a building, the fixture shall not be mounted above twenty feet (20') in height, as measured from the fixture to Finish Grade.
3. Light fixtures mounted in soffits shall be recessed so that the lens cover is recessed or flush with the bottom surface of the soffit and/or shielded by the fixture.

H. Outdoor Recreation and Athletic Facility Lighting. Recreational lighting shall minimize the Glare of spill light and up-light by using louvers, hoods, or shielding.

1. Recreational lighting shall only illuminate the field or court area avoiding any direct illumination beyond those areas or into adjoining properties.
2. Pole mounted recreational lighting shall be limited to twenty feet (20') in height.
3. Pole mounted recreational lighting must be set back a minimum of fifty feet (50') from adjacent residential properties.
4. Lighting for outdoor sports fields and courts shall be shut-off no later than eleven o'clock (11:00) pm.
5. Lighting for non-field and non-court areas shall conform to the provisions of this Chapter.

Exemption-Public Recreational Facilities: Because of their unique requirements for nighttime visibility and limited hours of operation, lighting fixtures for public baseball diamonds, playing fields and tennis courts may exceed the twenty-foot (20') height limit subject to the following:
 - a. All applications for pole height greater than twenty feet (20') shall be reviewed by the City Staff and approved by the City Council.
 - b. In no case shall any lighting fixture exceed sixty feet (60') in height as measured from the top of the fixture to the adjacent grade.
 - c. Maximum lumens per fixture shall not exceed eighty thousand (80,000) lumens.
 - d. Lighting fixtures shall be subject to all other requirements in this Chapter.

I. Towers.



North Summit HS Football Lighting

01/12/2026

Who are We

Musco has been a leader in sports lighting for 50 years. We specialize in delivering responsible, high-performance lighting solutions that expand recreational opportunities while minimizing environmental impact. Our experience includes professional baseball and football stadiums, racetracks, and Olympic venues around the world. Our equipment is manufactured in the United States.

Utah Presence



Football

Bear River High School
Bountiful High School
Box Elder High School
Deseret Peak High School
Dixie High School
New Herriman High School
Park City High School
Providence Hall Charter School
Rich High School
Southern Utah University
Tooele High School
Weber State University Stewart Stadium

Baseball / Softball

Bloomington Park
Daybreak Field
Lindquist Field
Logan High School
Manti City Multi Recreational Facility

Murray Park Softball Field
Providence City Softball
Riverside Ballfields
Sandy Quarry Bend Park
Saratoga Springs – Patriot Park
Serge at Miles Goodyear Park
Snow Canyon High School
Southfork Park Ballfields
South Summit High School
The Old Spanish Trail Arena Complex
Utah Valley University Softball

Pickleball

Art Dye Pickleball Courts
Farmington Park Pickleball Courts
Fields at Little Valley Pickleball
Hillcrest Park Pickleball
Kaysville City Pickleball Courts
Southfork Pickleball Courts
South Jordan Pickleball Court

Complexes

Art Dye Sports Complex
Cedar City Fields at The Hills
Clinton Recreation Complex
Constitution Park Ballfields
Cook Family Park
C R Hamilton Sports Complex
Farmington Park Sports Complex
Fields at Little Valley
Garden City Ballfields and Pickleball
Hillman Recreation Complex North & South
Ivins Recreation Complex
Lakeside Sports Park Soccer
Lone Peak Park
Ron Wood Sports Complex
Spanish Fork Sports Park
Washington City Complex

Equestrian / Rodeo

Bluffdale Rodeo

Cache County Rodeo Arena
Hurricane Rodeo Arena
Oakley City Rodeo Arena
Spanish Fork
West Jordan Rodeo

Soccer

Salt Lake City Regional Athletic Complex
Santaquin City Soccer
University of Utah
Weber State University
Westminster College, Demke Field

Other

Delta Center, Utah Jazz
Pioneer Park
Washington Wheel Park
West Valley Skatepark

Why are We Here?

While well intentioned, the current City of Coalville Land Use and Development Management Code contains lighting provisions that restrict the ability to implement best-practice sports lighting solutions.

Specific Ordinance Challenges

The following provisions present limitations or ambiguity:

- §05-050 H5b: Maximum pole height limited to 60 feet
- §05-050 H5c: Fixture output limited to 80,000 lumens
- §05-050 A1 vs. §05-060 H: Conflict between “no light emitted above the horizontal plane” and language calling to “minimize uplight”
- §05-060 A: Requirement that light not trespass onto adjacent properties without defining measurable limits



Why This Matters

Pole Height



Pole height directly affects aiming angles and off-site light impacts. Taller poles allow fixtures to be aimed more steeply downward, keeping more light on the field and reducing spill and glare.



Why This Matters

Fixture Lumens



Lighting a football field to an average of 50 footcandles requires approximately 5.4 to 6.2 million lumens. Limiting fixtures to 80,000 lumens would require roughly 40% more fixtures (≈ 20 more), increasing system cost by tens of thousands of dollars. Importantly, total lumen output can be delivered in different ways which doesn't accurately reflect the desired intent. Flashlight example.

Why This Matters

Aerial Sports



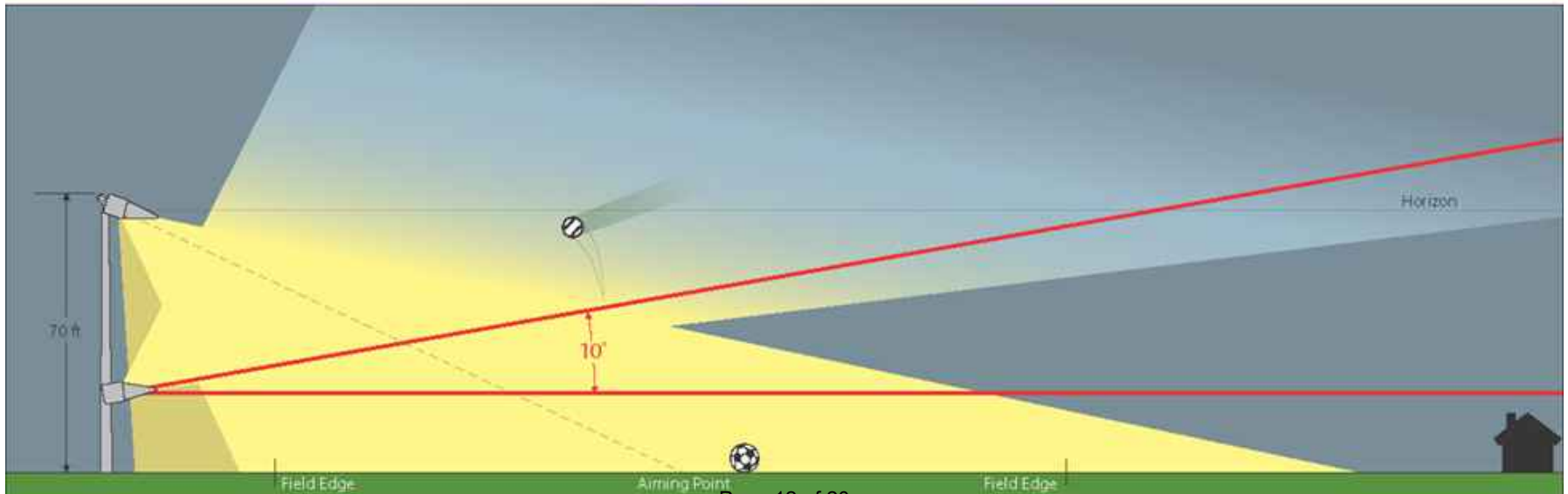
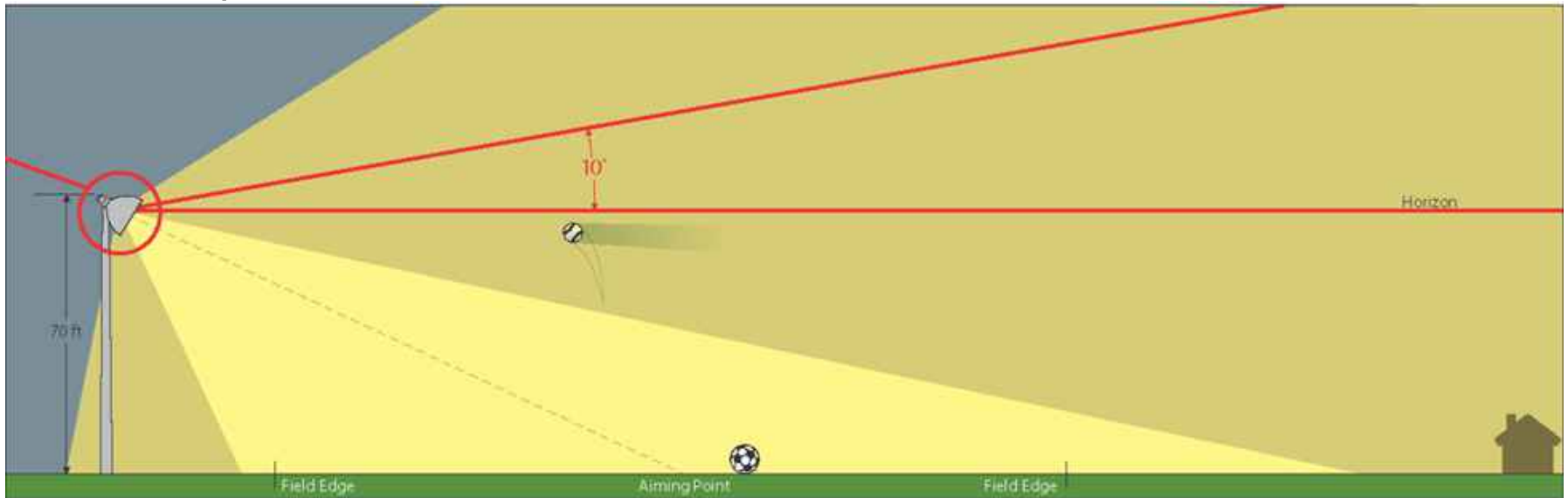
Football is an aerial sport, requiring some uplight to track the ball during punts and kicks. This can be achieved in two ways:

- Open the fixture aiming angle, or
- Providing a separate lower-mounted, targeted uplight fixture to enhance ball visibility

Musco utilizes the second approach through our **BallTracker** system, which improves visibility while minimizing unnecessary uplight.

Why This Matters

Aerial Sports



Light Pollution: Spill vs Glare

Many lighting ordinances focus on limiting **spill light**, measured in footcandles (fc), which represents wasted light falling into unintended areas. **Glare**, however, is often the greater concern for residents and is measured in candela (cd).

This example shows a bedroom impacted by glare from a single 52,000 lumen fixture located more than 500 feet away. While spill light is negligible, glare remains significant. This occurs because footcandles diminish over distance, while candela does not. For reference, vehicle headlights measure approximately 12,000 candela on low beam and 30,000 candela on high beam.



Prescriptive vs. Performance-Based Approaches

The current code relies primarily on prescriptive requirements, which specify exact limits such as pole height and fixture lumen output. A performance-based approach instead defines measurable outcomes—such as maximum glare or uplight—while allowing flexibility in how those outcomes are achieved.

The next image shows the evolution of our fixtures. Refer to the last two. It demonstrates this distinction by comparing two modern LED fixtures with identical wattage, mounting height, aiming angles, and full cutoff visors. Despite these similarities, the visual impact differs dramatically due to optical design.

Prescriptive vs. Performance-Based Approaches



Last two poles have identical fixture wattage, lumens, mounting height, aiming angles, and full cutoff visors.

Musco's Proposed Alternative



Musco proposes a performance-based solution that aligns with the stated purpose of Outdoor Lighting §05-010 by complying with the Dark Sky International Outdoor Sports Lighting (OSL) program and providing Phase 1 Certification.

Key requirements include:

- Maximum glare of 1,000 candela, measured 150 feet from the field perimeter
- Uplight limited to 8% of total on-field lumens

Additional details are available at:

<https://darksky.org/what-we-do/darksky-approved/outdoor-sports-lighting/>

The program also maintains a list of Phase 2 certified facilities. This project would be among the first Dark Sky-approved sports lighting installations in Utah.

Requested Code Modification



DarkSky

Permit taller pole heights, limited uplight, and higher-lumen fixtures than currently allowed under the Land Use and Development Management Code **provided the lighting system achieves Phase 1 Certification under the Dark Sky International Outdoor Sports Lighting (OSL) program.**

Pole heights could be 90'
Individual fixtures could be 181,000 lumens

Quinn's Junction, Park City
50 fc, DarkSky OSL Ph 1 certified
70' pole heights, 160,000 lumen fixtures



Do It Right the First Time



DRAFT LIGHTING AMENDMENTS

Section 05-040: Definitions: Recommend revising the definition of “glare” and adding a definition for candela, as follows:

Candela: Measure of the intensity of a light source.

Glare: Disruptive light from a light source making it difficult to see. Measured in candela.

05-060: H. Outdoor Recreation and Athletic Sports Field Lighting: Sport and recreational lighting shall minimize light spill while ensuring safe and appropriate illumination levels for athletic activities. In the event of a conflict between this section and other provisions, this section shall govern.

1. Lighting designs shall comply with the most current version of ANSI/IES RP-6, Recommended Illuminance Criteria for Sports and Recreational Areas, for the applicable Class of Play.
 2. The correlated color temperature (CCT) of luminaires shall be between 4000K and 5700K.
 3. The maximum luminous intensity from any luminaire serving a field shall not exceed 5,000 candelas, measured along a perimeter located 150 feet from the field edge and 5 feet above grade. For retrofit projects involving existing installations with non-ideal pole heights, higher candela values may be permitted provided mitigation measures are clearly described, and the proposed candela levels are identified. Such exceptions shall be reviewed and approved by the City on a case-by-case basis.
-
1. Lighting systems shall include automatic or manual shutoff capability. Field lighting shall not operate later than the established curfew of 11:00 pm.
 2. There shall be no limitations on pole height or luminaire lumen output, provided all other requirements of this section are met.
 3. Up light (light emitted above the horizontal plane) shall be permitted for aerial sports such as baseball / softball and football.