Cambridge Skating Club / Cambridge Tennis Club

Lighting Project Overview

Cambridge Historical Commission
February 4, 2021

Lighting Project Overview

- Replace failing lighting fixtures (or heads) with the goal of improving lighting for tennis play and skating while gaining significant improvements over current fixtures:
  - The new fixtures will eliminate light trespass. Light trespass is the unwanted direct light that extends outside what we are intending to illuminate.
  - The new fixtures are dimmable and individually controllable – this will allow us to reduce the need to have lights at full brightness for non-tennis playing activities such as skating, and court and ice maintenance.
  - The new fixtures will have a historically appropriate color temperature (4,000 Kelvin) the same as existing lighting and current streetlights.
  - The new LED fixtures are significantly more energy efficient than our current lighting, giving us the same amount of light while reducing electricity consumption.

- Additional considerations incorporated into the plan
  - Lighting fixtures will be installed on existing poles instead of recommended new taller aluminum poles.
  - Lighting fixture boxes (see page 6) will be located remotely (in our basement) instead of recommended location which is on the poles to eliminate visual impact of boxes.

Current Lighting System Usage

- **Skating**: Over the past 10 years, CSC averages about 24 skating nights a season (December through March). The average light use starts at dusk. Lighting may occasionally used during the day if needed. Sunday to Thursday, lights are typically turned off by 10:30 pm and on Friday/Saturday, they are usually off by 11PM. Exceptions are for snowstorms and clearing when lights may be on longer.

- **Tennis:** May through October, the average light usage starts at dusk. Lights are turned off at 10:30 PM.

Current Lighting System Issues

- The current lighting system supplies inadequate lighting to the north end of the property
  - Three of our five courts are now unusable for night-time tennis play; new lights will make night play on four of our five courts feasible.
  - CSC could use better, dimmable lighting at the north end of the skating pond.
- The current lamps are energy inefficient and should be replaced with LED lights which will cut electricity usage by at least 30% for a given level of illumination.
- The current lights are not dimmable; the proposed LED lights are remotely dimmable, allowing us for to only turn up the lights as much as needed for each function.
- The current lamps require excessive amounts of high-cost maintenance.
  - There are several burned-out light bulbs that need to be replaced, and no one is willing to do the work without bringing a lift truck onto the property at high cost and risk of damage to plantings and tennis courts.
  - LED lights are expected to last decades based on the limited hours they will be operated.
- Existing metal halide lamps lose 20% of the luminosity in the first six months and up to 50% over their useful life. The proposed LED lamps will retain their luminosity over their much longer useful life. This will result in significantly better lighting for both tennis and skating.

Current Lighting System Issues (Continued)

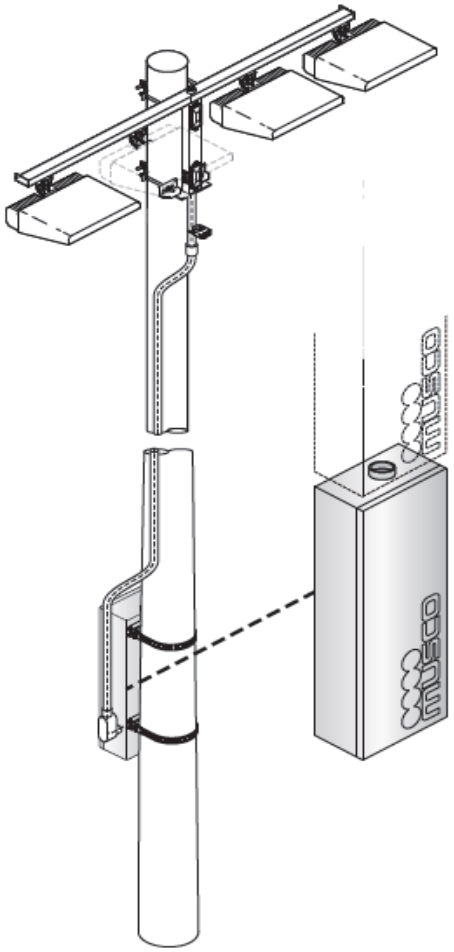
The current lamps do not control the light very well and they allow significant light spillage especially along Willard Street; the proposed LED technology directs the light to the courts and the lights are shielded to prevent stray light.

Willard Street when our lights are on

Willard Street when our lights are off

Trespassing light comes from poles on the east side of our property

TLC for LED® Electrical Components Enclosure



Overview

The electrical components enclosure contains all necessary equipment to operate luminaires.

Features

- Factory-built and tested as a unit
- Mounted 10 ft (3 m) above grade for servicing with ladder
- Labeled with pole identification and electrical information
- Drivers individually fused and spare fuses supplied
- Disconnect per circuit
- Brackets and straps to mount to pole

Technical Specifications

For amperage draws and circuitry refer to project specific document.

Construction

- 0.08 in (2 mm) thick, powder-coated aluminum
- Enclosure ratings: NEMA 3R, IP54
- Designed to operate in up to 50° C (122° F) ambient temperature
- Full length stainless steel hinge
- All stainless steel fasteners passivated and coated
- Meets touchsafe standards
- Up to four drivers per enclosure
- Approximate weight 65 lb (29 kg)
- Lower enclosure size 14.25 in (362 mm) wide x 8 in (203 mm) deep x 52.5 in (1334 mm) high
- Upper enclosure size 14.25 in (362 mm) wide x 8 in (203 mm) deep x 40.5 in (1029 mm) high

Quality Assurance Tests

- Grounding continuity
- High potential dielectric withstand
- Full functionality test