

Giving the ROW its GLOW!

The Relighting Project to Make the Lights Last



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Fairmount Park Conservancy

About the Fairmount Park Conservancy

FAIRMOUNT PARK

CONSERVANCY



Mission:

Fairmount Park Conservancy brings parks to life. We work with the City of Philadelphia and its communities to steward our parks, nurture our shared environment, cultural resources, and public health.

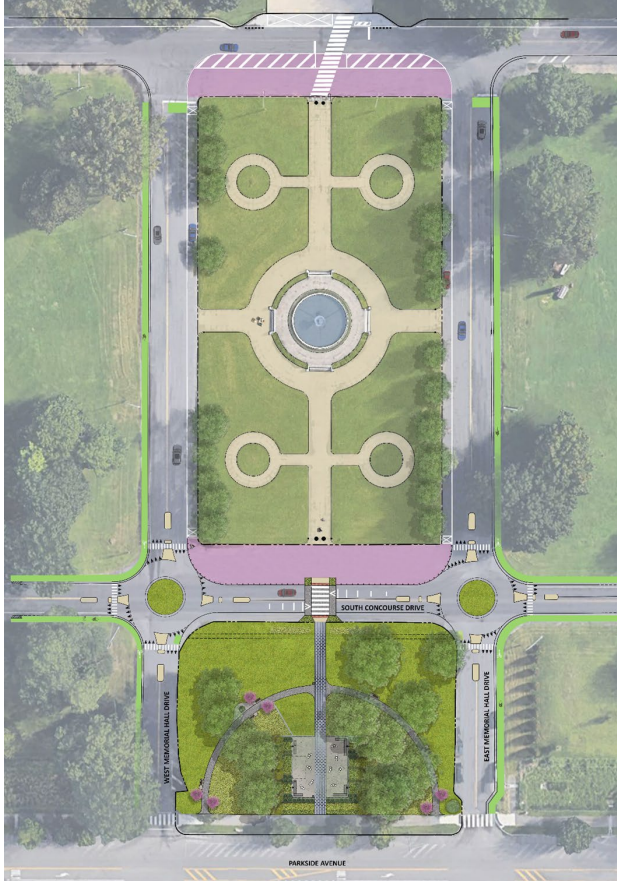
Vision:

We envision a vibrant, high-quality, and equitable Philadelphia park system for everyone.

Capital Projects

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Overview:

- Planning and concept Design
- Design and Engineering
- Construction & Restoration
- Handoff
- Ongoing Operations

Recent Highlights

- Parkside Pedestrian Improvements Project in West Fairmount Park
- Began construction on 3 projects for the FDR Park Plan in 2022-2023
- Projects at Cobbs Creek Environmental Center and Recreation Center with Rebuild

Activation & Public Programs

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Overview:

Helping park users to have a better park experience.
Making spaces operational & welcoming for people through events & programs.

Recent Highlights:

- 11,000 attendees at 180+ programs in 2023
- Launched community boating days
- Youth Soccer Day
- West Park Harvest Fest



Overview:

Protecting and restoring forests, meadows, wetlands, & riparian areas. Connecting people to nature through work.

Recent Highlights:

- Over 3,500 trees planted in 2023
- Chamounix Woods Restoration Planting
- Boxers' Trail re-route
- Mows-to-Meadows
- 1,440 hours training and planting with PowerCorps PHL workforce

Conservation

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Overview:

Providing high quality conservation services in the historic building trades with a mission to maintain and improve the historic assets in Philadelphia Parks through preservation, conservation, and restoration.

Recent Highlights:

- Renovating FPC's headquarters at the Ohio House
- Hatfield House
- FDR Park Welcome Center windows & doors

Volunteer Program

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Overview:

Debuted Fairmount Park Conservancy's first-ever volunteer program, including public and corporate volunteer events and Volunteer Leadership training corps.

Recent Highlights:

- 2,327 volunteers for Love Your Park in 2023
- Over 130 registered Park Friends Groups
- Weekly individual volunteer workdays
- Relaunch of Volunteer Leader program
- 1,106 pounds of trash & organic debris removed

1979-2005: First iteration

Boathouse Row is series of 10 landmarked structures that serve as the training facilities, boat storage, and social gathering spaces for 12 rowing clubs from the Philadelphia area.

1979: lighting architect Ray Grenald designed original system installed using an incandescent lighting system of string light to trace out building features.

1987: Listed on the National Register of Historic Places - lights featured in prominently in the application



21st Century System Upgrades

2005: The incandescent system was replaced with the current LED system in . The LED system allows for programming of color and animated light shows.

2015: Additional system upgrades to replace failed components and centralize the lighting control system into Lloyd Hall.

In the 14 years since the lighting system transitioned to LED, it has been beleaguered with failures and high maintenance costs to keep the system up and running.



Project Phases

1) PROJECT PLANNING AND COORDINATION WITH CLUBS

- 2019: Analysis and Concept Report from **The Lighting Practice** - surveyed existing conditions and made recommendations for upgrades
- Fairmount Park Conservancy's Capital Project Team with assistance from the **Schuylkill Navy** coordinated with each of the 12 rowing clubs who occupy the 10 buildings

2) REMOVAL OF OLD LIGHTING HARDWARE

3) REPAIRS ON THE HISTORIC HOUSES: opportunity to address any deferred building repairs that were previously inaccessible because of the lights. Clubs invested over \$850,000 combined. work included new stucco, woodwork, and trim, as well as replacing and rebuilding stone and brick masonry.

4) FINAL MEASUREMENTS AND PREPARATIONS FOR INSTALLATION

5) INSTALLATION

- Philadelphia-based lighting design firm **The Lighting Practice** designed an upgraded custom lighting system with mounting channel
- **Nanometer** custom fabricated lighting materials
- **Eagle Industrial Electric** as the onsite contractor

LESSON #1: Materials matter!



System Components



The lighting system was comprised of the following:

- **Main controller**, located in Lloyd Hall ✓ **KEPT!**
 - Color Kinetics Light System Manager - outputs the control signal via KiNET, an ethernet-based lighting control protocol proprietary to Color Kinetics.
- **Control Cabinets**, located in most Boathouses ✓ **KEPT!**
 - Network equipment for distribution of control signal
- **Power and Control cabling** ✗ **REPLACED**
- **Power Supply units** ✗ **REPLACED**
 - Color Kinetics Power/Data Supply DMX/Ethernet, 7.5V
- **Light Strings** ✗ **REPLACED**
 - Color Kinetics iColor Flex MX gen2
 - Including plastic mounting channels

NEW Power and Control Cabling

OLD



NEW



Figure 4. Typical worn power cable condition.

NEW Power Supply Units / Power Boxes

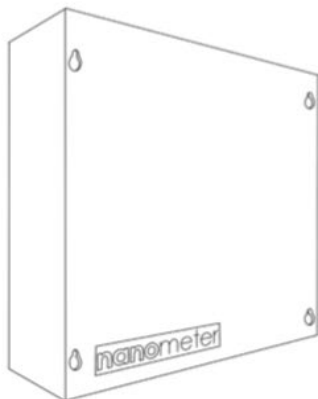
- New Nanometer dynamic power boxes – protect and consolidate components
- decreases number of places that the power can fail
- installed at ground level - accessible on foot, but above most flood events (fingers crossed!!)



TYPE L1

PROJECT NAME Boathc

- CONFIRM THAT POWER SUPPLY ENCLOSURE CAN BE POWDERCOAT PAINTED LIKE EXTERIOR MOUNTING CHANNELS.



nanometer
Dynamic Power Box Large

TECHNICAL SPECIFICATION

Housing	Steel
Dimension	36" x 36" x 12"
Wattage	960W
Input Voltage	Variable
Output Voltage	Variable
Data Protocol	sACN / KINET
Data Input	Cat5E / Cat6
Power Input	Terminal Block
Power/Data Output	Terminal Block

FEATURES

The Dynamic Power Box delivers integrated data and power directly to luminaire and simplifies architectural and media applications in a simple, rugged, fully assembled hub. Configurable to interface with a variety of of luminaire control methods and protocols, it is ethernet-based for flexibility and scalability and can configure with Windows and MacOSX with static IP network addressing.

CONFIGURATION

SERIES	TYPE	POWER (W)	OUTPUTS	OUTPUT (V)	INPUT (V)	ENVIRONMENT	EMERGENCY
NC-PBL DYNAMIC POWER BOX LARGE	DMX	1920	16	12	120 277	I INDOOR	0 NONE
		2880	24	15			
		3840	32	24 48			
CA CHROMASIC	800	16	7.5	0	O OUTDOOR	EM EMERGENCY BYPASS	
	1920						24
EO KINET	1920	8	48				

nanometer

Dynamic Power Box Large

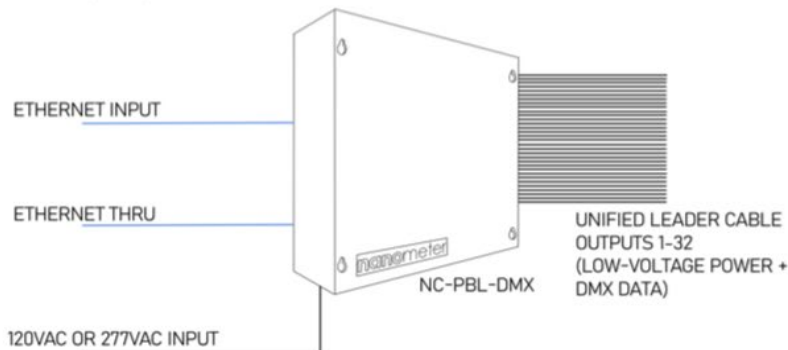
PRODUCT VARIANTS

DMX

Outputs	16, 24, 32
Max Wattage/Channel	220W
Total Max Wattage	3200W
Output Voltage	12V, 15V, 24V, 48V

Compatible with low voltage luminaires requiring direct DMX control such as the NanoFleck and NanoPixel product families. Includes control modules, luminaire power supplies, and network distribution.

WIRING (DMX)



nanometer
lighting

57-10 49th place, maspeth, ny, 11378 | 718.497.0394 | nanoltg.com

nanometer
lighting

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NEW Light Strings



OLD

NEW!



NEW Light Strings



Flex Micro gen3, RGB

Form Name: _____
Project: BOATHOUSE ROW

Clear Dome Lens, Black Housing, 12 in On-Center Node Spacing

Exterior flexible strands of high-intensity nodes with intelligent RGB light

Flex Micro gen3, RGB is a multi-purpose, high-intensity strand of 50 full-color LED nodes for generating extraordinary effects without the constraints of luminaire size or shape. Flex Micro gen3 enables patterns and video on almost any interior or exterior surface, including ceilings, floors, three-dimensional objects, sculptures, and more. Its small node size allows installation in tighter spaces than the larger iColor Flex LMX gen2 strands.



- Supports cost-effective video displays—Flexible form factor, offering maximum lighting control at 22 W per strand, accommodates unique lighting installations, including two- and three-dimensional video displays.
- Multiple lens options—Gear and translucent dome, Clear and translucent flat lenses are standard.
- Adaptable mounting—Strands can be mounted directly to a surface, like traditional string lights. Detachable Leader Cables in multiple lengths allow you to install strings at the appropriate distance from power / data supplies. Optional mounting tracks ensure straight linear runs, while snap-on spacers hide cabling and mounting hardware. Single node mounts can be positioned individually as anchor points for installations with uneven node spacing or complex geometries.

- Standard and custom lengths and node spacing—Flex Micro gen3 strands are available with standard on-center node spacing of 102 mm (4 in) or 305 mm (12 in) along a three-wire, 18 AWG cable. Custom on-center node spacing from 51 mm (2 in) to 610 mm (24 in) supports virtually any lighting or video design and offers finer pixel pitch than the larger Flex strands. Standard 50-node lengths can be shortened in the field. Custom lengths of 5 to 72 nodes are also available.
- Custom Leader Cables—Custom Leader Cable lengths are available in addition to standard cables of 7.6 m (25 ft), 15.2 m (50 ft), and 30.5 m (100 ft).
- Industry-leading controls—iColor Flex MX gen2 works seamlessly with the complete Color Kinetics line of controllers, including Light System Manager and iPlayer 3, as well as third-party DMX controllers.
- Durable and weather-resistant—Fully sealed for maximum luminaire life and IP66-rated for outdoor applications.

For detailed product information, please refer to the Flex Product Guide at www.colorkinetics.com/glob/ai/products/rgb/flex-micro-gen3/

Specifications

Due to continuous improvements and innovations, specifications may change without notice.

Output

Viewing Angle	112°
Lumens per node ¹	7.3
Luminance per node	8,605 cd/m ²
On-Axis Candela per node	2.8
Efficacy (lm/W) per node	16.7
LED Channels	Red/Green/Blue

Electrical

Input Voltage	7.5 VDC via SPD5-480ca and PDS-60ca
Power Consumption (Maximum per node at full output, steady state)	0.42 W

For additional Surge Protection Requirements for LED Lighting Systems, please refer to www.colorkinetics.com/KiBurge-protection

Control

Interface	SPDS-480ca 7.5V (Ethernet) PDS-60ca 7.5V (Pre-programmed or DMX/Ethernet)
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Control System

Color Kinetics full range of controllers, including Light System Manager, iPlayer 3, Antumbra iColor Analog, and ColorDual Pro, or third-party controllers.
Remote Monitoring & Management Works with iStanza Landmark

Lumen Maintenance

Threshold [§]	Ambient Temperature		Calculated ^{**}
	Reported ^{**}	Reported ^{**}	
L ₉₀	25 °C	> 100,000	
	50 °C	17,000	
L ₅₀	25 °C	> 100,000	
	50 °C	46,000	
L ₃₀	25 °C	> 100,000	
	50 °C	70,000	
L ₁₀	25 °C	> 100,000	
	50 °C	> 100,000	

¹ Lumen output measurements comply with IES LM-79-08 testing procedures.

[§] L₁₀ = 10% lumen maintenance (when light output drops below 10% of initial output). All values are given at 810, on the median value where 90% of the LED population is better than the reported or calculated lumen maintenance measurement.

^{**} Lumen maintenance figures are based on lifetime prediction graphs supplied by LED source manufacturers. Wherever possible, figures use measurements that comply with IES LM-80-08 testing procedures. In accordance with TM-21-11, Reported values represent the reported value based on the LM-80-08 total test duration (in hours). Calculated values represent time durations that exceed six times the total test duration.

Physical

Dimensions	19 x 16 x 16 mm (0.75 x 0.63 x 0.63 in)
Height x Width x Depth	7.3
Weight	1.5 kg (3.3 lb) 50-node strand
Housing Material	White polycarbonate
Lens	Clear UV-protected polycarbonate
Luminaire Connections	Integrated watertight 3-pin connector

Temperature Ranges

-40 to 50 °C (-40 to 122 °F) Operating
> 0 °C (> 32 °F) Handling
> 30 to 50 °C (> 86 to 122 °F) Startup
> 30 to 85 °C (> 86 to 185 °F) Storage

Corrosion Resistance

Not suitable for salt spray or harsh chemical environments. Please refer to www.colorkinetics.com/KiBCorrosion-resistance for more information.

Humidity

0 to 95%, non-condensing

Maximum Luminaires Per Power/Data Supply

SPDS-480ca 7.5V: 16 strands
PDS-60ca 7.5V: 2 strands

Certification and Safety

Approval: UL/cUL, FCC Class A, CE
Environment: Dry/Damp/Wet Location, IP66

For additional Energy Efficiency Class Information, please refer to <https://www.colorkinetics.com/ai/articles/2016/2/01/01>

NEW mounting channels

OLD
plastic



NEW
metal



LESSON #2: Quality Installation is Important!

- TLP found similar signs of poor installation of the lighting fixtures, power supplies, and wiring.
- the poor installation was a “significant contributor to product failures.”



It was a screwy installation!

Power Supply cover plates missing screws or with screws that weren't original to the device

Power supplies are mounted on a sloped surface, with the cable entries angled upward

mounted with the cables exiting from the side or top of the unit

this orientation allows for moisture to collect around the cable entries and enter the Power Supply unit.



Figure 16. BH#4 Power supply cover plate missing screws.



Cables exit power supply from top.

It was a crappy situation!

Placement of the power supply units on the the eaves = birds nested and defecated

Created the potential for damage to the wiring or the device itself



Figure 46. BH #13 Power supply with bird feces.

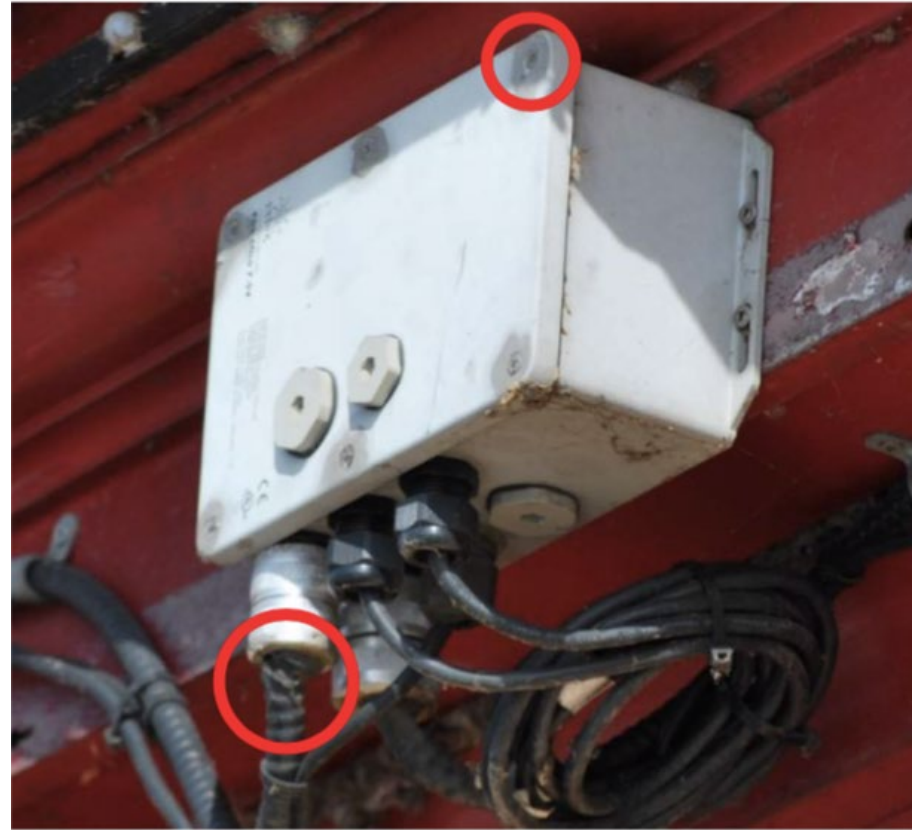


WHAAAAAAT??!

They forgot to seal the deal!

Sealant was not present or was missing from portions of the Power Supply

Where sealant was visible, it appeared old, broken, and worn



Damaged and missing power supply sealant.

It was all haywire!

- exposed wiring was twisted or bent
- excess cable was left hanging or coiled on the side of house
- excess wiring was folded to fit within the mounting channel
- lack of adequate strain-relief
- Light strings were cut and not properly terminated



Figure 10. Light string with excess wiring.



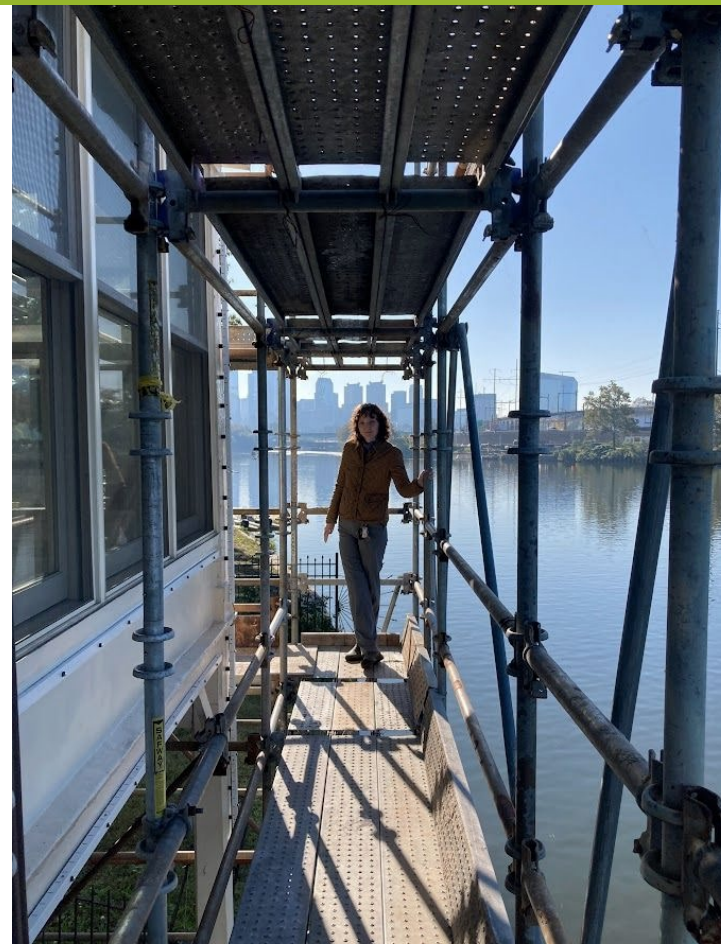
Figure 24. BH#6 Light strings are cut and not properly terminated.

HUGE improvement to cable management!



Figure 5. Typical cable management.

NEW and IMPROVED INSTALL! Winter 2023-2024



March 2023: Project Done! RELIGHT the ROW!!

Re-engaged to the city with a public Relighting Ceremony on March 7



Lighting Sponsorship Program

boathouserowlights Boathouse Row
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82 2 11
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boathouserowlights Happy St. Patrick's Day, Philly!
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LOVE YOUR PARK

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boathouserowlights The @phillies are painting the town red for the home opener tomorrow — Boathouse Row included! #ringthebell
phillies
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boathouserowlights The @philadelphiaeagles need your help preparing for Monday night's big game. Thursday night the lights were Midnight Green... more
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September 14

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boathouserowlights Tonight's lights are blue and gold in celebration of Drexel's University-Wide Commencement. Congratulations to the Class of 2024!
June 14

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boathouserowlights Boathouse Row is going #wrestlemania green to welcome WWE WrestleMania and its hundreds of thousands of fans to Philadelphia!!
April 4

boathouserowlights and 3 others Boathouse Row Philadelphia, PA 19130
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421 54
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boathouserowlights Philadelphia's Office of LGBT Affairs is lighting up Boathouse Row to celebrate the start of Pride Month!
May 31

● Nearly 40 requests fulfilled

● Total raised: \$38,400

THANK YOU!

IG: [@boathouserowlights](#) Web: boathouserowlights.org

