SPAULDING LIGHTING CASE STUDY CIMARRON LED AREA/SITE LIGHTER

COMPANY: TD Convention Center

LOCATION: Greenville, South Carolina

PRODUCT: Cimarron LED

Spaulding Lighting recently completed a very successful LED retrofit project at the TD Convention Center in Greenville, SC. There are six parking lots hosting eighty-five 400w HPS shoebox fixtures at a mounting height of 28 ft. According to Carl Horton, Engineering Manager for TD Convention Center, the HPS fixtures were installed in 1994. Due to a concern for lack of sufficient lighting to provide a safe environment for customers, the facility management applied for, and was awarded, a safety grant to help cover the cost of upgrading the old HPS system.

What type and how long were the existing fixtures in place?

The existing HPS fixtures were installed in 1994. Each 400w HPS fixture was replaced with catalog number CL1-A-90L-U-5K-3-DB for a savings of 254 watts per fixture (464 HPS input watts – 210 LED input watts).

What prompted the lighting change?

Lack of sufficient lighting from existing HPS fixtures, unsafe environment for customers, coupled with an award of a safety grant.

How do the Cimarron LED fixtures compare to the older HPS fixtures?

Carl Horton replied that he is most pleased with the "improvement in visual light". The footcandle measurements, after installation, were very close in comparison to the average measurements of the HPS system. However, the uniformity improved 28% providing a much safer environment.

Were the Cimarron LED fixtures easy to install?

Jason Galloway, Service Manager for NC&E, LLC of Greenville, SC, replied "the wiring access in the arm made the fixtures easy to install and saved time." The fixture ships with the arm installed so the contractor only needs to open the access door on the arm, mount the fixture to the pole, connect the incoming power and replace the access panel, without opening the fixture.

What was the average installation time per fixture?

Jason Galloway confirmed that a single fixture pole could be changed in 45 minutes and a double-fixture pole could be changed in one hour by one electrician in the bucket and one helper on the ground. This time included additional drilling of the pole to accommodate the Cimarron mounting configuration.

THE RESULTS

BEFORE

400w HPS units, double configuration, mounted at 28 ft.

AFTER

Cimarron 90LED units, double configuration, mounted at 28 ft.

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Comparing Lighting Technologies

The parking lot lighting at the TD Convention Center is a prime example for the future of LED lighting. The parking area was lit with 400w HPS fixtures mounted in double configuration at 28 feet. These fixtures were replaced with Cimarron 90LED 210w fixtures on the existing poles. The results included energy-savings of 55% over HPS, improved overall uniformity and a safely illuminated parking area. Reference the HID/LED Comparison chart below for savings of LED systems compared to PSMH and HPS lighting sytems.

HID/LED Comparison

HID SYSTEM	HID WATTAGE	HID LIFE HOURS[1]	LED WATTAGE[2]	LED LIFE HOURS[3]	SAVINGS
150w PSMH	185	15,000	70	60,000	**63%**
250w PSMH	283	15,000	140	60,000	**51%**
320w PSMH	361	20,000	210	60,000	**42%**
400w PSMH	459	20,000	210	60,000	**54%**
100w HPS	130	24,000	70	60,000	**47%**
250w HPS	295	24,000	140	60,000	**53%**
400w HPS	464	24,000	210	60,000	**55%**

NOTE: 1 Hours of life based on 50% mortality.
2 Actual wattage should be confirmed with site specific lighting calculations.
3 LED hours of life based on 70% of initial illumination.

HID/LED Energy & Maintenance Comparison

Annual Energy Costs		
Luminaire	**400 HPS HID Shoebox**	**Cimarron LED - 90**
Cost Per KWH	$0.09	
Operating Hrs / Day	12	
Fixture Qty	85	85
Input Watts per fixture	464	210
Annual Hours On per fixture	4380	4380
Annual KW	172,747	78,183
Annual Energy Costs	$15,547.25	$7,036.47
Annual operation savings with new LED system		**$8,510.78**

Annual Maintenance Costs		
Expected Relamp & Maintenance Costs Per Luminaire (parts, labor, disposal, and lift rental per instance)	$150	$0
Lamp Life (rated hrs)	20,000	60,000
Expected Lamp Life In Years Given Annual Operating Hours	4.57	13.70
Percentage of Lamp Life Consumed Each Year	22%	7%
Annualized Maintenance Costs (per luminaire)	$33.00	$0.00
Annualized Maintenance Costs (entire site)	$2,805.00	$0.00
End Of Lamp Life Maintenance Cost (entire site)	$12,818.85	$0.00
Annual maintenance savings with new LED system		**$2,792.25**

Annual Energy & Maintenance Summary		
Annualized Energy Costs (entire site)	$15,547.25	$7,036.47
Annualized Maintenance Costs (entire site)	$2805.00	$0
Total Annualized Cost	18,352.25	7,036.47
	Estimated annual savings	**$11,315.78**