




# LED FACILITY LIGHTING CASE STUDY

*“The hockey and broomball players say they notice a huge difference in the lighting. It is much brighter and there are no shadows.”*

*John DeBoer, Arena Manager*

## FOR MORE INFORMATION CONTACT CHRISTIAN THAM, MES

 200 University Ave., Suite 801  
Toronto, ON M5H 3C6

 416.710.6610

 ctham@las.on.ca  
las.on.ca/facilitylighting

## ABOUT LAS

LAS is a preferred provider of competitively-priced and sustainable business services for Ontario municipalities and the broader public sector. LAS helps its customers *Save Money, Make Money & Solve Capacity.*



### Facility & Address

PMD Arena  
68 Main Street West, Drayton, ON

### Use(s)

Arena

### Annual Operating Hours

4,380 hours

### Project Size

182 Fixtures - 16 Metal Halide (MH) fixtures, 130 T12 fixtures, 24 T5 fluorescent lamps, and 12 incandescent flood lamps

### Existing Fixtures

MH @ 1080W, T12s @ 34W, T5 @ 54W, Incandescent flood lamp v@ 200W

### LED Replacement Fixtures

Acuity IBL 48000L @ 485W, T8 @ 15W, LED strips @ 32W

### Reason for Lighting Upgrade

High energy consumption and poor lighting quality

### Project Cost

\$56,410



## THE SITUATION

Mapleton's PMD Arena is used primarily as an arena. The pre-existing high bay luminaires resulted in a poorly lit light surface, had slow start up times, and often cycled on and off during games. The arena was originally equipped with 16 Metal Halide (MH) fixtures @ 1080W, 130 T12 fixtures @ 34W, 24 T5 fluorescent lamps @ 54W, and 12 incandescent flood lamps @ 200W. Mapleton was investigating opportunities to convert their arena's lighting to LED fixtures in an effort to reduce demand, annual energy costs, and maintenances costs.

## THE SOLUTION

The original MH luminaires were replaced with Acuity IBL 48000 fixtures @ 150W, and the number of fixtures was increased from 16 to 24. The T12s were replaced on a one-for-one basis with T8s, , and the T5s were replaced with LED strips @ 32W. The result was brighter and more even lighting, and a decrease in consumption from 79,845 kWh to 43,532 kWh. That translates into an energy cost savings of \$5,810. Controls were also included in the upgrade that could potentially decrease consumption and provide additional cost savings, but this case study does not include energy or cost savings related to those controls.

INSTALLED FIXTURES			
 <p>IBL High Bay</p>			
Total # Fixtures	Wattage / Fixture	Total kWh	kWh Savings
24	485	50,983	24,703

**“The lighting is even across the ice surface.  
During public skating, we dim the lights.”**

*- John DeBoer, Arena Manager*

THE RESULTS	
Annual Consumption <b>Before</b> Upgrade	79,845 kWh
Annual Consumption <b>After</b> Upgrade	43,532 kWh
<b>Energy Consumption Savings</b>	<b>36,313 kWh</b>
Energy Costs <b>Before</b> Upgrade	\$12,775
Energy Costs <b>After</b> Upgrade	\$6,965
<b>Energy Cost Savings</b>	<b>\$5,810</b>
Maintenance Cost Savings*	\$3,630
IESO Incentives	\$5,200
Return On Investment	20%
Simple Payback	5.1 years

**46%**  
Decrease in  
Energy Usage

**46%**  
Decrease in  
Energy Costs

**9.2%**  
Project Cost in  
IESO Incentives

**5.1**  
Years  
Simple Payback

\* Energy costs and savings are based on an average cost of \$0.16/kWh at the time of the project

\*\*Maintenance cost savings are estimated based on established lamp and ballast failure rates.