



# VILLAGE OF ORLAND PARK

14700 Ravinia Avenue  
Orland Park, IL 60462  
www.orlandpark.org

## Department Requested Action

File Number: 2018-0774

**Agenda Date:**

**Version:** 0

**Status:** PLACED ON FILE

**In Control:** Board of Trustees

**File Type:** MOTION

### **Title/Name/Summary**

Macy's LED Lighting Upgrade - Appearance Review

### **History**

#### **QUICKFACTS**

#### **Project**

Macy's LED Lighting Upgrade - 2018-0774

#### **Petitioner**

Nadia Seniuta, General Manager of Orland Square Mall

#### **Purpose**

The Petitioner proposes to upgrade existing parking lot lighting to LED. Two (2) existing poles in the Macy's parking lots will be converted to LED luminaires with wireless control nodes. The fixture head design will remain the same.

*Requested Actions:* Appearance Review

#### **Project Attributes**

Address: 1 Orland Square Drive

P.I.N: 27-10-300-009-0000

*Parcel Size:* 695,457 sf (15.97 acres)

*Building Square Footage:* 197,529 sf

*Comprehensive Plan Planning District:* Regional Core Planning District

*Comprehensive Land Designation:* Regional Mixed Use

*Existing Zoning:* COR Mixed-Use District

*Existing Land Use:* Retail

#### *Surrounding Land Uses:*

*North:* COR Mixed-Use District (Offices), VCD Village Center District (Institutional)

*South:* COR Mixed-Use District (Restaurants, Retail)

*East:* COR Mixed-Use District (Restaurants, Retail)

*West:* COR Mixed-Use District (Restaurants, Offices)

## **ATTACHMENTS**

- 1) Final approved Photometric Plan and associated spec sheets (10 pages)
- 2) Location Map
- 3) Various Photos of Existing Parking Lot Lighting at Orland Square Mall

## **PROJECT DESCRIPTION & CONTEXT**

The Petitioner proposes to make lighting changes at Macy's to improve safety within the site, increase energy efficiency, and upgrade the existing luminaires to match other Orland Square Mall LED lighting improvements completed in 2016. The existing luminaires project a more yellow light than the LED luminaires, which are closer to white light.

The scope of work includes the following:

- 20 Luminaire replacements (10 per existing light pole) using GE Evolve LED Roadway Lighting High Mast Luminaires (GE-ERHM-01-H-60-F1-7)
- 20 GE LightGrid Nodes (1 per luminaire) to allow remote monitoring and control of the luminaires (ELWN5A5UG5)

Overall, the project conforms to the Village's Comprehensive Plan, Land Development Codes, and policies for this area.

## **DETAILED PLANNING DISCUSSION**

The Petitioner submitted a Photometric Plan titled "Simon - Orland Square" by GE Lighting Solutions. The Photometric Plan details the light levels in footcandles (fc) in accordance with the proposed changes. This project relates only to the parking lot light poles directly north of the Macy's store (one pole) and northwest of the Macy's store (one pole). The submitted specification sheets also provide detailed product information on the proposed luminaire and nodes. The fixture heads will be removed, retrofitted with the proposed LED luminaires and nodes, and re-mounted at one hundred twenty feet (120') from grade.

Per Table 6-315.2.a (A) the subject site is classified as Lighting Class 1 because the overall building square footage of the Orland Square Mall is greater than 500,000 square feet. The subject site is bordered by non-residential land uses on all sides.

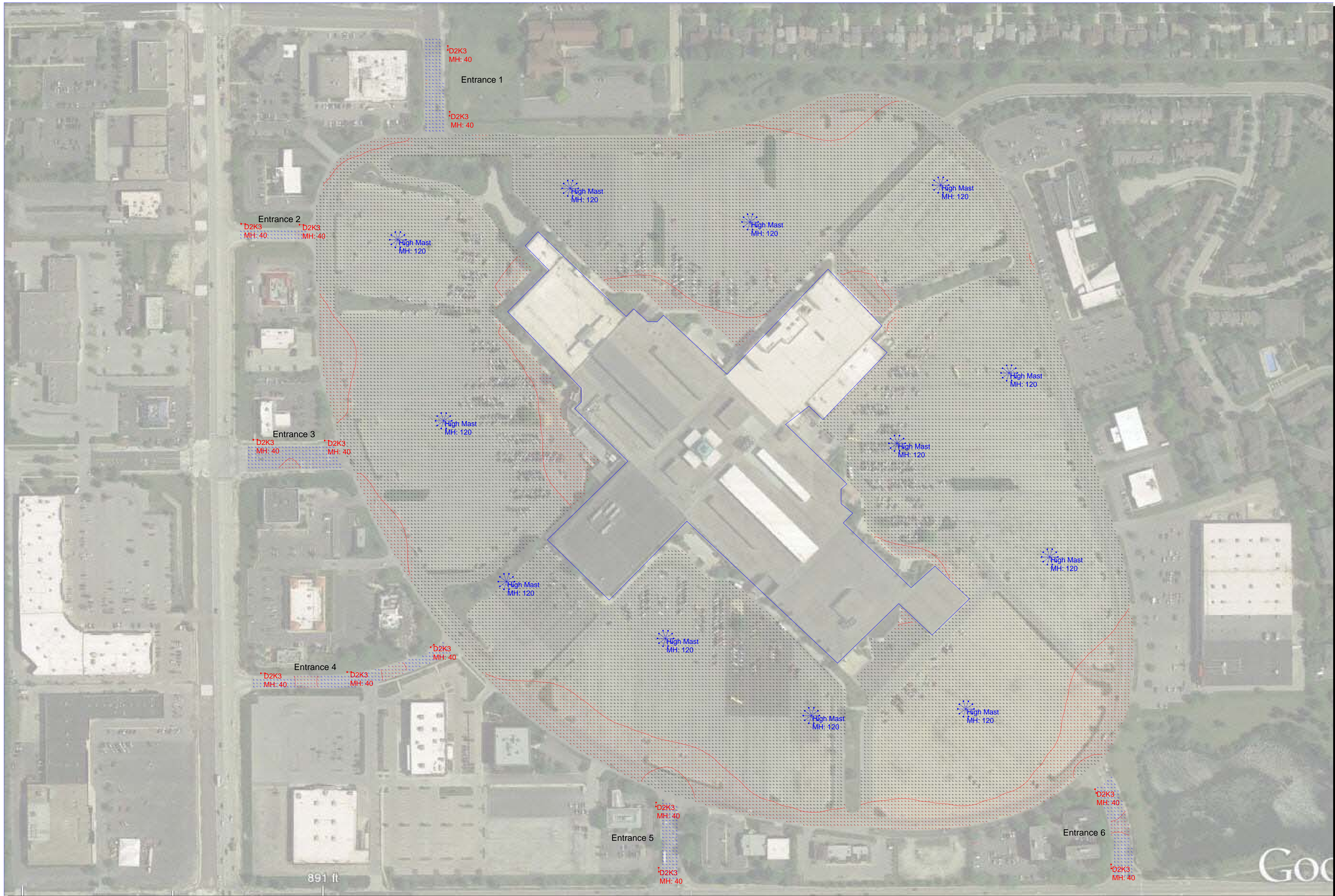
The Petitioner has not yet confirmed compliance with the maximum level of footcandles and lumens/sf per Section 6-315.A.2.a.1. of the Land Development Code. Compliance with these regulations is required as a condition of the approval. The proposed Photometric Plan complies with all other regulations for Lighting Class 1.

**Recommended Action/Motion**

The Appearance Review for the Macy's LED Lighting Upgrade, case number 2018-0774, as shown on the Photometric Plan titled "Simon - Orland Square" by GE Lighting Solutions along with the associated cut sheets/spec sheets, is hereby administratively approved on November 14, 2018, subject to the following conditions:

- 1) Provide confirmation that the footcandles and lumens per square foot on the Photometric Plan do not exceed the specified maximum limitations within Section 6-315.A.2.a.1. or revise the Photometric Plan to comply with said requirements; and
- 2) Meet all Building and Land Development Code requirements; and
- 3) Obtain the necessary permits from the Village's Building Division prior to initiating work.





Scale: 1 inch= 130 Ft.



GE LIGHTING SOLUTIONS  
1975 Noble Rd  
East Cleveland, OH 44112

Calculated light levels are based on specific information that has been supplied to GE. Any differences in luminaire installation, lighted area geometry and obstructions in the lighted area may produce different results from the predicted values. Normal clearance of voltage, lamp output, and ballast and luminaire manufacture will affect results.  
Ref: IES LM-79-08  
Identifying Operating Factors for HID Luminaires

Provided for:

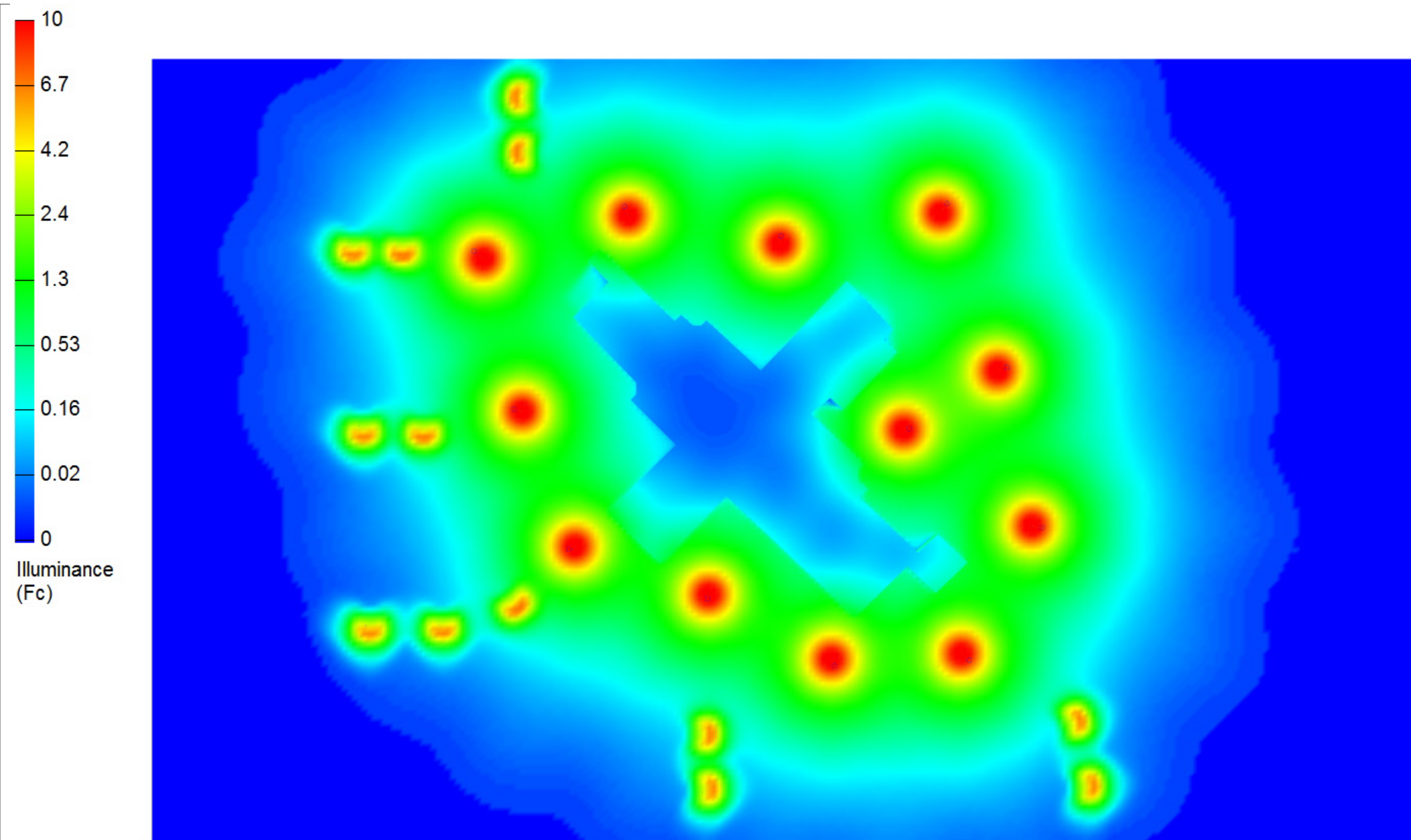
Provided BY:  
Application Engineering  
GE Lighting Solutions  
Nela Park  
1975 Noble Rd B328 #334  
East Cleveland, OH 44112-6300

Designer: Bismarck Newman  
GE LAYOUT REFERENCE: A161517  
Date: 8/23/2016

GE Drawing #: A161817B2

Simon - Orland Square  
Fixture Height: 40' & 120'  
4000K  
Horizontal FC's at Road





NOTE: PSEUDO RENDERING AND GRAY SCALE IMAGES ARE NOT TO SCALE

Luminaire Schedule							
Symbol	Qty	Label	Arrangement	Arr. Watts	Lum. Lumens	LLF	Description
	12	High Mast	10 @ 36 DEGREES	5000	58300	0.950	10 - ERHM01_60F1740
	13	D2K3	ROTATED OPTICS	548	32000	0.950	2-EALP01_K3AW740 w/HS2-S36-2xxxx HVL mtg bracket

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Entrance 1	Illuminance	Fc	3.73	8.1	0.5	7.46	16.20
Entrance 2	Illuminance	Fc	4.82	8.7	1.5	3.21	5.80
Entrance 3	Illuminance	Fc	3.02	8.4	0.2	15.10	42.00
Entrance 4	Illuminance	Fc	3.13	8.4	0.2	15.65	42.00
Entrance 5	Illuminance	Fc	3.92	8.1	0.7	5.60	11.57
Entrance 6	Illuminance	Fc	3.27	8.1	0.2	16.35	40.50
Parking Lot	Illuminance	Fc	1.82	12.7	0.1	18.20	127.00

- NOTES:
1. THIS DRAWING WAS TRACED FROM A GOOGLE EARTH IMAGE.
  2. SCALE OF AREA TO BE ILLUMINATED WAS APPROXIMATED.
  3. PLACEMENT OF LUMINAIRES AND LOCATIONS WERE APPROXIMATED.
  4. BUILDING INCLUDED AS BLOCKING OBJECTS.
  5. FIXTURE HEIGHT: 40' & 120'



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Ref: IES LM-79-08: Identifying Operating Factors for HID Luminaires

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1975 Noble Rd B328 #334  
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Designer: Bismarck Newman  
GE LAYOUT REFERENCE: A161517  
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GE Drawing #: A161517B2

**Simon - Orland Square**  
Fixture Height: 40' & 120'  
4000K  
Horizontal FC's at Road





**GE Evolve™**  
LED Roadway Lighting  
High Mast Luminaire (ERHM)

**current**  
powered by GE





## Product Features

The Evolve™ LED High Mast is an LED solution for expressway, freeway interchanges and other large area applications. GE's unique reflective optics are designed to optimize application efficiency and minimize glare. This reliable unit has a 100,000-hour design life, significantly reducing maintenance needs and expense over the life of the fixture. The ERHM luminaire is an efficient solution lowering energy consumption as compared to traditional HID fixtures providing additional operating cost savings.

### Applications

- Designed to meet recommended luminance and illuminance requirements for High Mast Applications such as Airport Lighting, Expressway and Freeway Interchanges, Port Facilities, Trailer/Container Yard and Rail Yard Operations.

### Housing

- Cast aluminum optical and electrical housings.
- Meets 3G vibration standards per ANSI C136.31-2010

### LED & Optical Assembly

- Field rotatable optics.
- Evolve™ light engine using reflective technology to optimize application efficiency and minimize glare.
- Utilizes high brightness LEDs, 70 CRI at 3000K & 4000K CCT typical.
- LM-79 tests and reports in accordance with IESNA standards.

### Lumen Maintenance

- Projected L90>60,000 hours per IES TM-21
- Projected Lxx per IES TM-21 at 25°C for reference:

SKU	LXX (10K)@HOURS		
	25,000 HR	50,000 HR	100,000 HR
ERHM	L95	L93	L88

NOTES: 1) Projected Lxx based on LM-80 (10,000 hour testing).  
2) DOE Lighting Facts Verification Testing Tolerances apply to initial luminous flux and lumen maintenance measurements.

### Lumen Ambient Temperature Factors:

LUMEN AMBIENT TEMPERATURE FACTORS:	
AMBIENT TEMPERATURE (°C)	INITIAL FLUX FACTOR
10	1.02
20	1.01
25	1.00
30	0.99
40	0.98
45	0.97

### Ratings

- UL/cUL listed, suitable for wet locations per UL 1598.
- IP66 rated optical enclosure per ANSI C136.25-2009.
- Temperature rated at -40° to 45°C.
- Upward Light Output Ratio (ULOR) = 0
- Compliant with the material use restrictions of RoHS.



Please refer to the DLC QPL website for the latest and most complete information. [www.designlights.org/QPL](http://www.designlights.org/QPL)

### Mounting

- 4 Bolt Slipfitter with +/- 5 degree of adjustment
- Integral mounting pipe stop
- 2 in. (2.375" OD) mounting pipe

### Finish

- Corrosion resistant polyester powder painted, minimum 2.0 mil. thickness.
- Standard color: Gray.
- RAL & custom colors available.
- Coastal Finish option\*  
\* Check with manufacturer for availability

### Electrical

- 120-277 volt and 347-480 volt
- System power factor is >90% and THD<20%
- Class "A" sound rating
- Surge protection per ANSI C136.2-2015:
  - Standard: 6kV/3kA "Basic": (120 strikes)
  - Optional: 10kV/5kA "Enhanced": (40 Strikes)
- Photo electric sensors (PE) available
- ANSI C136.41 PE receptacle
- Analog 0-10V or optional DALI dimming
- Optional single and double fusing
- EMI: Title 47 CFR part 15 class A

### Warranty

- 5 Year standard
- 10 Year option

### Suggested HID Replacement Lumen Levels

- ~28,800 -42,700 lm to replace 400W HID luminaires.
- ~46,500 -53,400 lm to replace 750W HID luminaires.
- ~50,900 -58,300 lm to replace 1000W HID luminaires.

# Ordering Number Logic

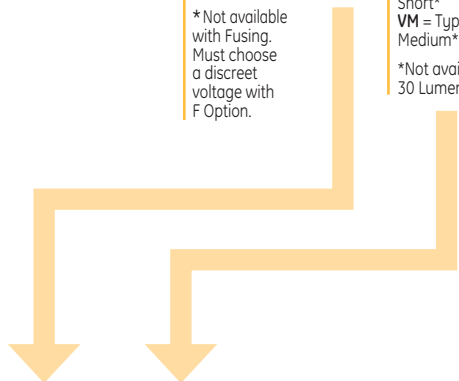
## Evolve LED High Mast Luminaire



ERHM 01

4B

PROD. ID	GENERATION	VOLTAGE	LUMEN OUTPUT	DISTRIBUTION	CRI	CCT	DIMMING	CONTROLS	MOUNTING	COLOR	OPTIONS
<b>E</b> = Evolve <b>R</b> = Roadway <b>H</b> = High <b>M</b> = Mast	01 = 1st Gen	0 = 120-277* 1 = 120 2 = 208 3 = 240 4 = 277 5 = 480 D = 347 H = 347-480V*  *Not available with Fusing. Must choose a discreet voltage with F Option.	30 40 50 60 See Data Table for more information.	<b>E1</b> = Type II Asym Med <b>F1</b> = Type IV Asym Wide <b>G1</b> = Type III Asym Extra Wide <b>VS</b> = Type V Short* <b>VM</b> = Type V Medium*  *Not available for 30 Lumen output	7 = 70* *70 CRI Typical	30 = 3000K<> 40 = 4000K <> Select 3000 CCT for IDA approved units	<b>N</b> = No Dimming Control Wiring <b>D</b> = Dimming Control Wiring Included*  *Dimming control wiring included to connect dimming control external to the fixture.  <b>Note:</b> Dimming controls wired for 0-10V standard unless DALI option "U" requested.	<b>1</b> = None <b>A</b> = ANSI C136.41 7-Pin Receptacle <b>D</b> = ANSI C136.41 7-Pin Receptacle with Shorting Cap <b>E</b> = ANSI C136.41 7-Pin Receptacle with Non-Dimming PE control.*  *PE Control Only available for 480V Discrete. Not available for 347-480V or 347V Discrete.  <b>Note:</b> Dimming controls wired for 0-10V standard unless DALI option "U" requested.	4B = 4 Bolt (std)	<b>GRAY</b> = GRAY <b>BLCK</b> = BLACK	<b>F</b> = Fusing <b>R</b> = Secondary Enhanced Surge Protection (10kV/5kA) <b>U</b> = DALI Programmable° <b>Y</b> = Coastal Construction* <b>XXX</b> = Special Options  ° Not available in 347V, 480V or 347-480V.  *Recommended for installations within 1 mile from the coast. Contact Manufacturer for Availability.

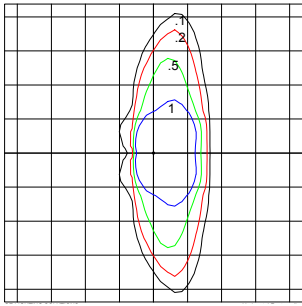


LUMEN OUTPUT	DISTRIBUTION	TYPICAL INITIAL LUMENS		TYPICAL SYSTEM WATTAGE	BUG RATINGS		IES FILE NUMBER	
		3000K	4000K		3000K	4000K	3000K	4000K
30	E1	28,800	30,000	253	B4-U0-G3	B4-U0-G3	ERHM01_30E1730__IES	ERHM01_30E1740__IES
	F1	28,800	30,000	253	B4-U0-G4	B4-U0-G4	ERHM01_30F1730__IES	ERHM01_30F1740__IES
	G1	28,800	30,000	253	B4-U0-G4	B4-U0-G4	ERHM01_30G1730__IES	ERHM01_30G1740__IES
40	E1	37,500	39,000	320	B4-U0-G3	B4-U0-G3	ERHM01_40E1730__IES	ERHM01_40E1740__IES
	F1	37,500	39,000	320	B4-U0-G4	B4-U0-G4	ERHM01_40F1730__IES	ERHM01_40F1740__IES
	G1	37,500	39,000	320	B4-U0-G4	B4-U0-G4	ERHM01_40G1730__IES	ERHM01_40G1740__IES
	VS	41,000	42,700	350	B5-U0-G3	B5-U0-G3	ERHM01_40VS1730__IES	ERHM01_40VS1740__IES
	VM	38,400	40,000	350	B5-U0-G4	B5-U0-G4	ERHM01_40VM1730__IES	ERHM01_40VM1740__IES
50	E1	46,500	48,400	402	B4-U0-G4	B5-U0-G4	ERHM01_50E1730__IES	ERHM01_50E1740__IES
	F1	46,500	48,400	402	B4-U0-G5	B5-U0-G5	ERHM01_50F1730__IES	ERHM01_50F1740__IES
	G1	46,500	48,400	402	B4-U0-G5	B5-U0-G5	ERHM01_50G1730__IES	ERHM01_50G1740__IES
	VS	51,300	53,400	445	B5-U0-G3	B5-U0-G3	ERHM01_50VS1730__IES	ERHM01_50VS1740__IES
	VM	48,100	50,000	445	B5-U0-G4	B5-U0-G4	ERHM01_50VM1730__IES	ERHM01_50VM1740__IES
60	E1	56,000	58,300	501	B5-U0-G4	B5-U0-G4	ERHM01_60E1730__IES	ERHM01_60E1740__IES
	F1	56,000	58,300	501	B5-U0-G5	B5-U0-G5	ERHM01_60F1730__IES	ERHM01_60F1740__IES
	G1	56,000	58,300	501	B5-U0-G5	B5-U0-G5	ERHM01_60G1730__IES	ERHM01_60G1740__IES
	VS	54,400	56,600	475	B5-U0-G4	B5-U0-G4	ERHM01_60VS1730__IES	ERHM01_60VS1740__IES
	VM	50,900	53,000	475	B5-U0-G4	B5-U0-G4	ERHM01_60VM1730__IES	ERHM01_60VM1740__IES

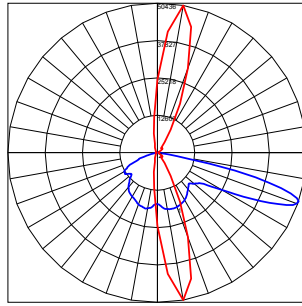


# Photometrics

**ERHM Type II - Asymmetric Medium (E1)**  
 58,300 Lumens, 5000K (ERHM\_60E1740\_\_\_.IES)

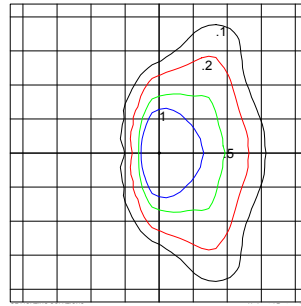


Grid Distance in Units  
 of Mounting Height at 60° Initial  
 Footcandle Values at Grade

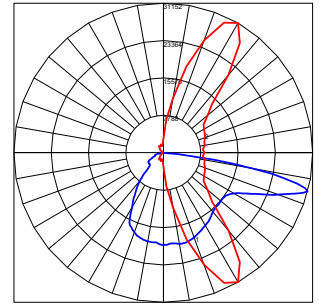


— Vertical plane through horizontal angle  
 of maximum candlepower at 45°  
 — Horizontal cone through vertical angle of 72.5°

**ERHM Type IV - Asymmetric Wide (F1)**  
 58,300 Lumens, 5000K (ERHM\_60F1740\_\_\_.IES)

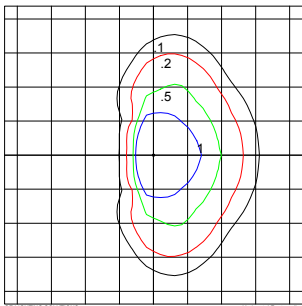


Grid Distance in Units  
 of Mounting Height at 60° Initial  
 Footcandle Values at Grade

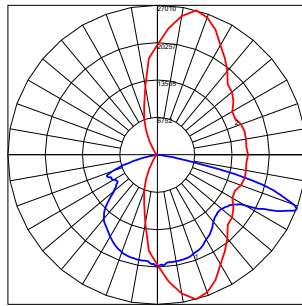


— Vertical plane through horizontal angle  
 of maximum candlepower at 45°  
 — Horizontal cone through vertical angle of 72.5°

**ERHM Type III - Asymmetric Extra Wide (G1)**  
 58,300 Lumens, 5000K (ERHM\_60G1740\_\_\_.IES)

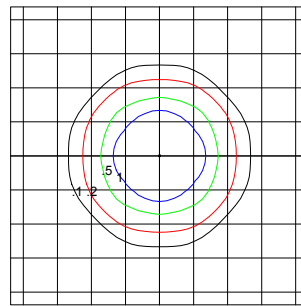


Grid Distance in Units  
 of Mounting Height at 60° Initial  
 Footcandle Values at Grade

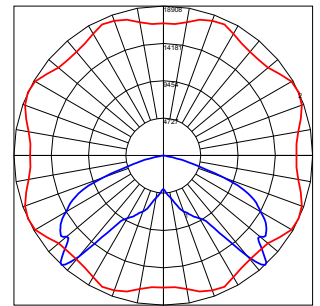


— Vertical plane through horizontal angle  
 of maximum candlepower at 45°  
 — Horizontal cone through vertical angle of 72.5°

**ERHM Type V - Short (VS)**  
 56,600 Lumens, 5000K (ERHM\_60VS740\_\_\_.IES)

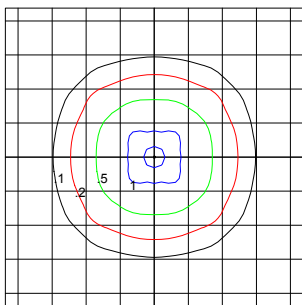


Grid Distance in Units  
 of Mounting Height at 60° Initial  
 Footcandle Values at Grade

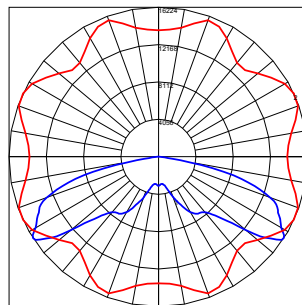


— Vertical plane through horizontal angle  
 of maximum candlepower at 45°  
 — Horizontal cone through vertical angle of 72.5°

**ERHM Type V - Medium (VM)**  
 53,000 Lumens, 5000K (ERHM\_60VM740\_\_\_.IES)



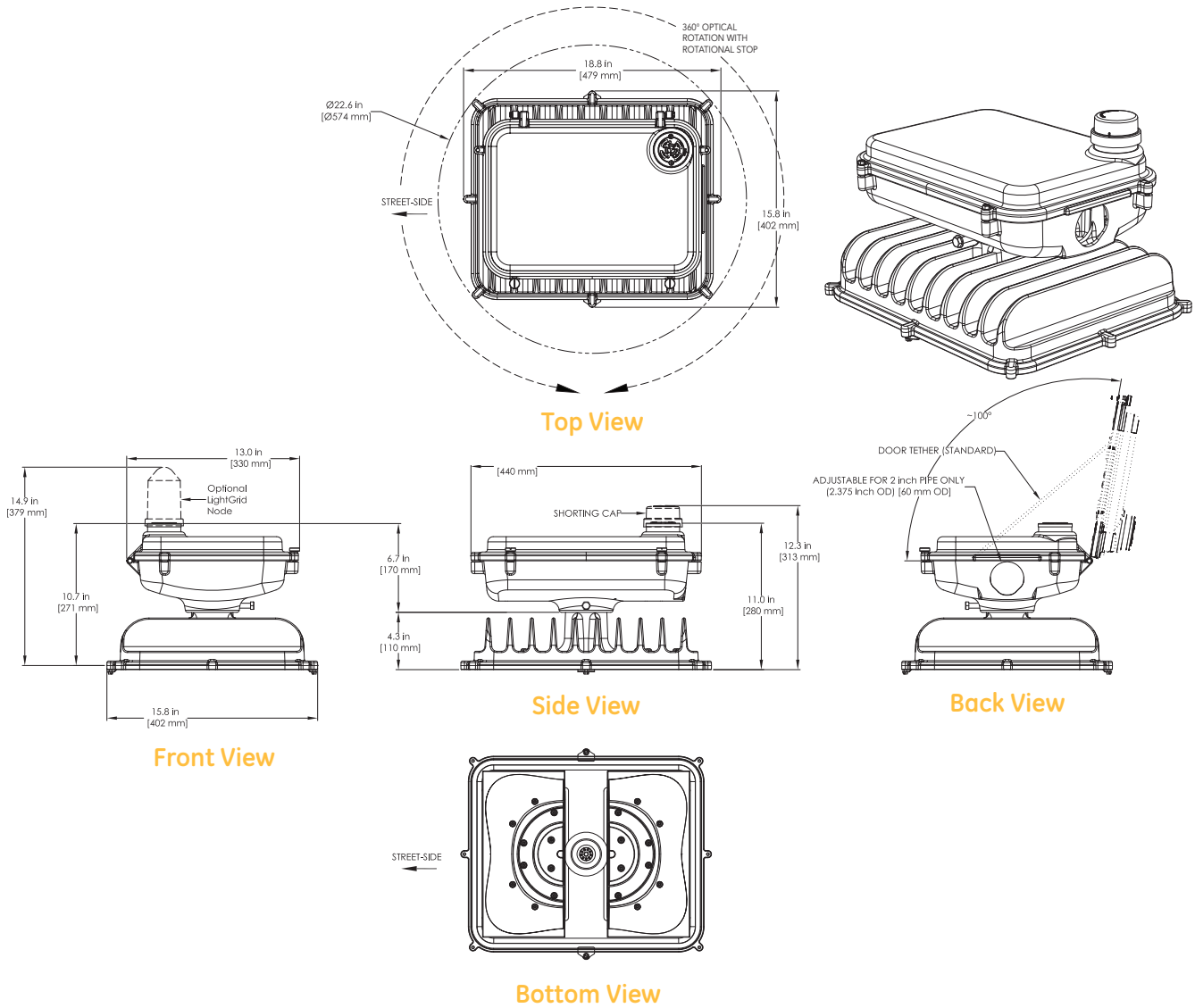
Grid Distance in Units  
 of Mounting Height at 60° Initial  
 Footcandle Values at Grade



— Vertical plane through horizontal angle  
 of maximum candlepower at 45°  
 — Horizontal cone through vertical angle of 72.5°

# Product Dimensions

## Evolve LED High Mast Luminaire • ERHM (For Distributions VS & VM)



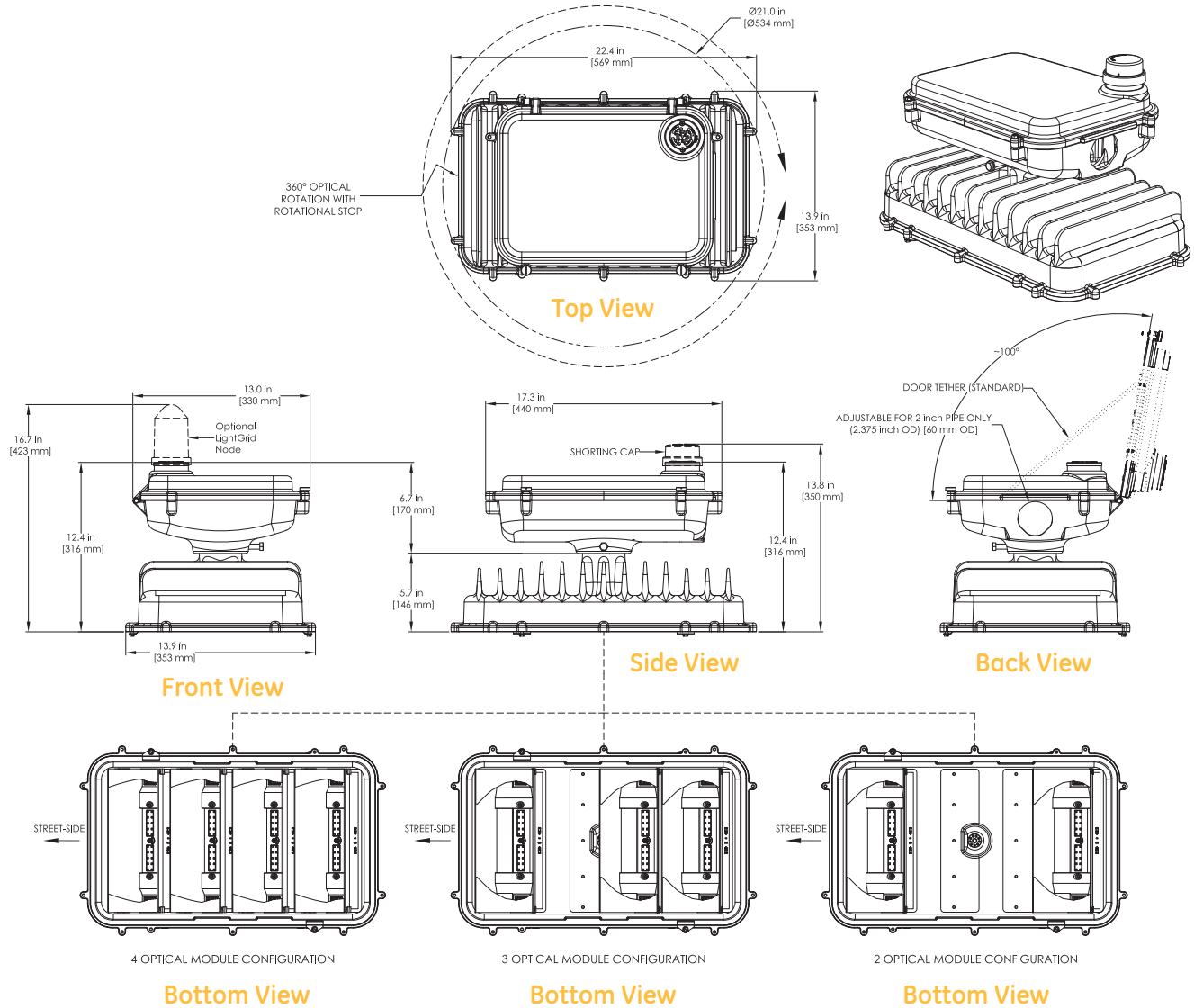
**DATA**

- Weight: 54 lbs (max.)
- Effective Projected Area: 2 ft<sup>2</sup> (max.)



# Product Dimensions

## Evolve LED High Mast Luminaire • ERHM (For Distributions E1, F1 & G1)



**DATA**

- Weight: 54 lbs (max.)
- Effective Projected Area: 2 ft<sup>2</sup> (max.)



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 © 2017 GE.



# LightGrid™ Node

## Outdoor Wireless Control System 2.0



### Description

LightGrid™ Outdoor Wireless Control System from GE allows remote monitoring and control, utility-grade energy measurement and GPS mapping of streetlights.

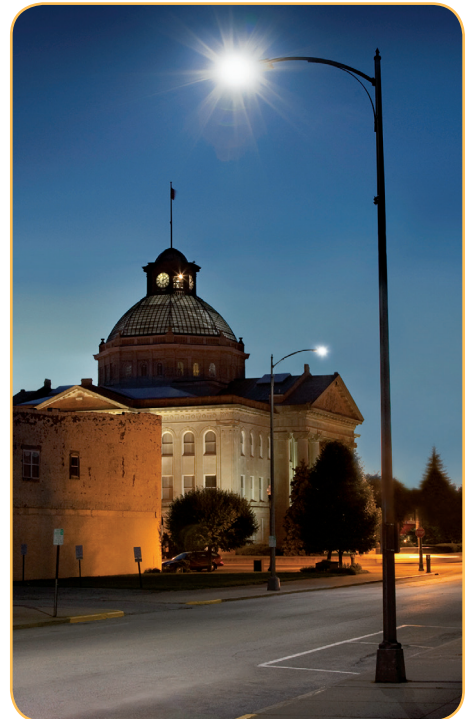
### Applications

- Street Lighting
- Area Lighting



### Product Features

- Integrated GPS in Each Node for Real Time Asset Reporting
- DALI Interface for Asset Management and Dimming
- Near Field Communication as Additional Commissioning option
- Inrush Current Limiting Circuit
- Utility Grade Measurement up to 0.5% Accuracy
- IR Communication for Metering Verification
- Self-Forming & Self-Restoring Mesh Network
- Static IPV6 Data Addressing and Routing
- Industry Standard Secure Encrypted Communications
- Nodes, Gateway spacing up to 1000ft apart depending on installation
- Energy Consumption Reporting as Frequent as 15 Minutes
- Full Autonomous Photocell Functionality (No wireless network required)
- Node Programable for Autonomous Time Based Schedules
- Flexible Output Level Control through Control Software
- Real Time Measurement and Storage of Voltage, Current, Wattage, Power Factor, and Hours of Operation



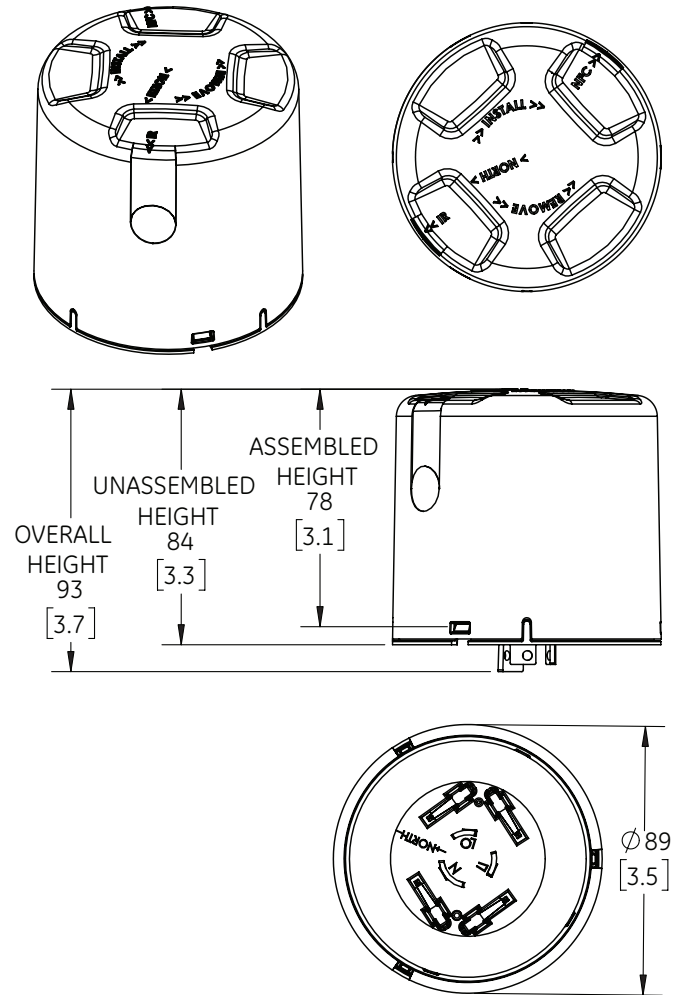
**current**  
powered by GE



## Product Specifications

- Input Voltage: 120-277V
- Radio Frequency: 915 MHz ISM Band, FCC CFR 47 15.247 Intentional Radiators, ICES-005
- Network Communication: IEEE 802.15.4, 6LoWPAN, 50 Channel FHSS
- Addressing: IPv6 Protocol
- Dimming: Automatically Detected 0-10V/DALI (GE Patent)
- Operating Temperature: -40 to +50C
- Surge: ANSI C136.2 2015, 6KV/3KA Combination Wave
- Power Consumption: 2W 120-277V
- Photocell: Complies with ANSI C136.10-2006
- GPS Accuracy: +/- 3m in Clear Open Sky
- Near Field Communication for Additional Commissioning
- IR(optical) Output for Utility Meter Calibration Validation
- Digital In/Out and Analog Inputs
- Configurable Serial In/Out Digital Communication
- Supports up to 1000W Load
- Inrush Current Limiting at Turn On
- Security: AES Encryption and Certificate Based Authentication
- Utility Grade Energy Measurement: Complies with Relevant Sections of ANSI C12.20
- EMI: Complies with FCC CFR 47 15.208, 15.209 and ICES-005 (B) /NMB-005 (B)
- Ingress Protection: Class IP65
- Complies with ANSI C136.41-2013 (ANSI Dimming)
- Weight: 0.51 lbs
- Warranty: 5 Years Standard, 10 Year Extended Available

## Product Dimensions



## Ordering Number Logic

ID	VOLTAGE	CONFIGURATION	METERING TYPE	METERING PRECISION	COMMISSIONING	MAXIMUM LOAD	NETWORK	LOCATION OPTIONS	DIMMING	OPTIONS
ELWLN	0 = 120-277	A = ANSI socket (External node)	8 = Load + Node	U = 0.5% Utility Grade	B = GPS+NFC	A = 1000 Watt	A = Network A	XX = Default	AD = 0-10V/DALI	None = Default
							B = Network B			
							C = Network C			

## Examples:

ELWLN0A8UBAAXXAD: 120-277V, ANSI Socket, Load and Node Metering, Utility Grade, GPS and NFC Commissioning, 1000W Load, Network A, DALI/0-10V Dimming

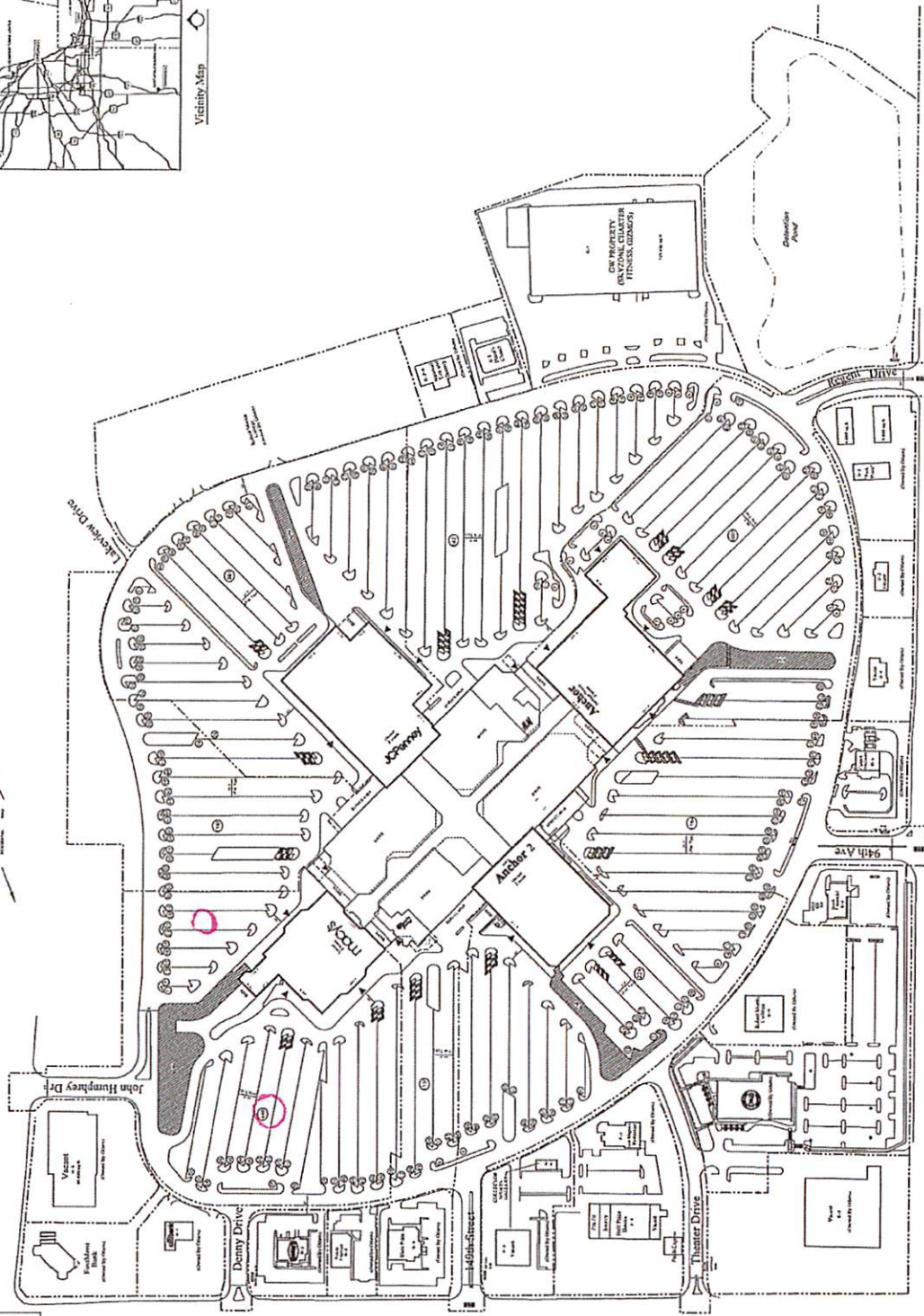
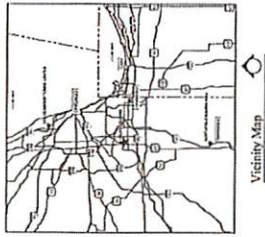
**current**  
powered by GE

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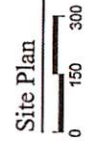
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**Project Data**

JOBNEY	226,625
ANCHOR 1	150,774
ANCHOR 2	160,000
MACYS	185,000
Total Department Store GLA	775,295
Level 01	214,824
Level 02	217,139
Total Small Shops GLA	431,973
Total GLA	1,205,268
TOTAL AMOUNT OF PARKING:	6,925
PARKING RATIO:	5.73

Modified: August 28, 2018



Site Plan

**Orland Square**  
 288 Orland Square  
 Orland Park, IL 60462  
 CORP # 4870



Existing Luminaires



New LED Luminaires





**Subject Light Poles**  
*(Photo Taken Facing West)*







