

LIGHTING ILLINI

Katie Burns - Alex Hovel - Logan Honegger - Rebecca Livingston - Peter Schmidt

University of Illinois

AGED 480 - Dr. Keating

May 2016

This material is based upon work supported by the University of Illinois Agricultural Education Program. Any opinions, findings, conclusions, or recommendations are those of the authors (students) and do not necessarily reflect the views of the University, its employees or its administration.

AUTHOR PROFILES



Katie Burns

Hometown: Coulterville, IL

Major: Agricultural Leadership & Science Education

Plans after graduation: Communications Specialist at Illinois FFA Association

Katie got involved with this project because she wanted to create a safer environment for students walking around campus at night.



Logan Honegger

Hometown: Forrest, IL

Major: Agricultural Leadership & Science Education

Minor: Animal Science

After graduation: Master's at UIUC in Higher Education

Logan got involved with this project because safety on campus is very important to her. She has multiple sisters on campus and want them to feel safe walking at night, wherever they are.



Alex Hovel

Hometown: St. Joseph, IL

Major: Finance in Agri-Business

Minor: Leadership Studies

After graduation: Graduate school for Master of Business Administration at Illinois State University

Alex got involved with this project because he wanted to make a lasting impact on campus. By joining the Lighting Illini team, he was able to help create a safer environment for students on campus.

AUTHOR PROFILES



Rebecca Livingston

Hometown: Taylorville, IL

Major: Agriculture Leadership & Science Education

Plans after graduation: 4-H Youth Development

Intern for Unit 18

Rebecca got involved with this project because she wants others to feel safe when walking around on campus at night.



Peter Schmidt

Hometown: Springfield, IL

Major: Civil and Environmental Engineering

Minor: Leadership Studies

After graduation: Associate Engineer for Lane

Construction in the Chicago Area

Peter got involved with this project because he cares about safety on campus. He serves on the Senate Committee on Student Discipline, the Chancellor's Public Safety Advisory Committee, and the Student Senate's Subcommittee on Student Rights and Public Safety. He wanted to do something concrete to improve safety on campus and saw an opportunity to improve our lighting through AGED 480.

EXECUTIVE SUMMARY

Our AGED 480 team realized the effects of not having safe lighting on campus, and we wanted to do our part in making students feel safer walking alone at night on the University of Illinois campus. In a survey of students on campus 46% said they felt unsafe or somewhat unsafe walking alone on campus at night. 91% of students said that they would go out of their way to take a better lit path when walking at night.

Two poorly lit areas in particular, the path bordering the west side of Illini Grove and the path on the west side of the National Soybean Laboratory, are popular night routes for residents in the south campus hall using the ACES Library, CRCE, and late night dining options. Both areas are noticeable to students and to the Campus Lighting Committee, who has been monitoring the area for several years. We have been incredibly fortunate to create partnerships with Kristine Chalifoux Architect, F&S Engineering Services and Brian Finet Electrical Engineering Specialist- Facilities and Services Engineering Services. They have been able to guide us through this application process with their vast technical knowledge and allowed us the use of their equipment.

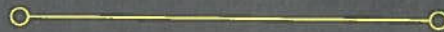
We were also able to partner with Ryan Johnson the Security Coordinator in the Division of Public Safety at the University of Illinois. He connected us with campus SafeWalks to gain an insight of thoughts on student safety at night and the need for better lit areas on campus. A team of students brought forward a proposal to improve the two areas to the Campus Lighting Committee and will carry the project out with the support of Facilities and Services. To align with the campus's wider goal of sustainability, the project will utilize energy efficient LED lighting that is dark sky compliant. Blending safety and sustainability in this project will allow Facilities and Services to better understand the costs associated with future green lighting projects.

PARTNER PROFILES



Kristine Chalifoux
kmchalif@illinois.edu
Campus Lighting Committee Chair
Architect, F&S Engineering Services

Partner Role:
Oversee project completion, help with
application/funding, building site plan
Connected us with Brian Finet



Facilities & Services
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Brian Finet
bfinet@illinois.edu
Electrical Engineering Specialist
F&S Engineering Services

Partner Role:
Designing lights, taking photometrics,
coordinating with the electrical shop

PARTNER PROFILES

Ryan Johnson
rsjohns@illinois.edu
Security Coordinator
Division of Public Safety

Partner Role:

Helped us connect with Student Patrol and SafeWalks, gain insight on student safety and places that need improvement
Connected us with Angela, SafeWalks



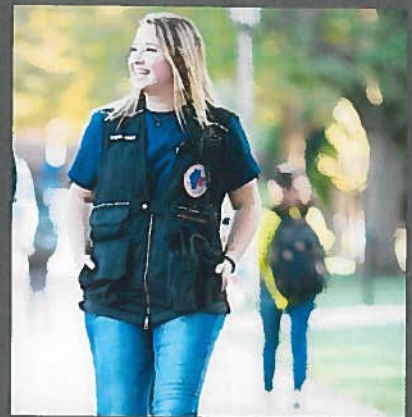
UNIVERSITY OF ILLINOIS
POLICE DEPARTMENT
URBANA - CHAMPAIGN



Angela Annarino
aannari2@illinois.edu
SafeWalks

Partner Role:

Information about patrolled regions on campus. Also informed us of areas that need more lights and how to submit a proposal



Bobby Knier
knier2@illinois.edu
Student Government Contact
Molecular and Cellular Biology

Partner Role:

Submitting the SSC Application after we graduate



VISUAL AIDS AND BUDGET

Student Sustainability Grant Application Stage 1

Student Sustainability Grant Application Stage 2 Narrative

Student Sustainability Grant Application Supplements

-Project Site Plan, Photometrics, and Budget

Student Sustainability Grant Application Stage 2 Powerpoint



STUDENT SUSTAINABILITY COMMITTEE

Funding Application – Step 1

Please submit this completed application and any relevant supporting documentation by the deadline listed on the SSC website to Sustainability-Committee@illinois.edu. The Working Group Chairs will be in contact with you regarding any questions about the application. If you have any questions about the application process, please contact the SSC Program Advisor, Micah Kenfield, at kenfield@illinois.edu

General Information

Project Name: South Campus Pathway Lighting Improvements

Total Amount Requested from SSC: \$47,029.29

Project Topic Area(s): Energy Education Food & Waste
 Land Water Transportation

Contact Information

Applicant Name: Kristine Chalifoux
Unit/Department: Campus Lighting Committee
Email Address: kmchalif@illinois.edu
Phone Number: 217-244-1315

Project Team

Name	Department	Email
Bobby Knier	Student Government	knier2@illinois.edu
Brian Finet	Facilities and Services	bcfinet@illinois.edu
Kristine Chalifoux	Campus Lighting Committee	kmchalif@illinois.edu
Name	Department/Organization	Email Address

Project Information

Please provide a brief background of the project, the goals, and the desired outcomes:

In the spring of 2017, a group of students came together to address the effects poorly lit areas around campus. In a short survey of students, 45.62% said they felt unsafe or somewhat unsafe walking alone on campus at night. 91% of students surveyed said that they would go out of their way to take a better lit path when walking at night.

The group partnered with Student Patrol Officers and solicited feedback from other students to identify some of the poorly lit areas on campus. They then identified to critical areas, the path bordering the west side of Illini Grove and the path on the west side of the National Soybean Laboratory, both popular night routes for residents in the south campus hall using the ACES Library, CRCE, and late night dining.

Initial lighting measurements were taken along the two paths and lighting was as low as 0 foot candles and as high as .6 foot candles near existing lights.

The group partnered with Kristine Chalifoux Architect, Facilities and Services Engineering Services and Brian Finet Electrical Engineering Specialist- Facilities and Services Engineering Services to bring forward a proposal to the Campus Lighting Committee, who will carry the project out with the support of Facilities and Services.

In order to align with the campus's wider goal of sustainability, the project will utilize energy efficient LED lighting that is dark sky compliant. These lights will pay for themselves in just a few years by saving on energy costs when compared with the standard. The lights will be dark sky compliant to make sure that we are not contributing to the light pollution. By blending safety and sustainability in this project will allow Facilities and Services to better understand the costs associated with future green lighting projects.

Please provide a brief summary of how students will be involved in the project:

This project was initiated by a group of students from all over campus. They brought together stakeholders from across campus community. Together, we identified areas several areas in critical need of lighting improvements, put together a plan, and sourced various funding opportunities.

The proposed improvements were specifically selected because of the impact they will have on students. The two improvements are popular night routes for residents in the south campus halls using the ACES Library, CRCE, and late night dining options. By improving the lighting in these areas, students will feel safer to use the paths at night.

Please provide a brief summary of the project timeline:

The project will break ground in mid-march 2018, weather dependant. It will consist of four phases. Electrical boring will take one week, digging and pouring the pole foundations will take

one week, and erecting the poles and electrical work will take a week. The entire project should be completed in a three week timeframe

Additional comments

Attached to this application, you will find a site plan, photometrics, and a cut sheet of the selected energy efficient light pole.



STUDENT SUSTAINABILITY COMMITTEE

Funding Application – Step 2

Please submit this completed application, the supplemental budget spreadsheet, and any relevant supporting documentation by the deadline indicated in your Step 1 notification letter to Sustainability-Committee@illinois.edu. The Working Group Chairs will be in contact with you regarding any questions about the application. If you have any questions about the application process, please contact the SSC Program Advisor, Micah Kenfield, at kenfield@illinois.edu

General Information

Project Name: South Campus Pathway Lighting Improvements

Total Amount Requested from SSC: \$47,029.29

Project Topic Area(s): Energy Education Food & Waste
 Land Water Transportation

Contact Information

Project Lead

Applicant Name: Kristine Chalifoux
Unit/Department: Campus Lighting Committee
Email Address: kmchalif@illinois.edu
Phone Number: 217- 244-1315

Financial Contact *(Must be Full-time University of Illinois Staff Member)*

Contact Name: Name of Applicant or Project Lead
Unit/Department: Department / Organization of Project Lead
Email Address: Preferred Email Address
Phone Number: Preferred Contact Number
Organization Code: UIUC Organization Code (for CFOP) – Must not start with 9

Facilities Management Contact *(If Applicable)*

Contact Name: Name of Applicant or Project Lead
Email Address: Preferred Email Address

Primary Project Team

Name	Department	Email
Bobby Knier	Student Government	knier2@illinois.edu
Brian Finet	Facilities and Services	bcfinet@illinois.edu
Kristine Chalifoux	Campus Lighting Committee	kmchalif@illinois.edu
Name	Department/Organization	Email Address

Project Description

Please provide a brief background of the project, the goals, and the desired outcomes:

In the spring of 2017, a group of students came together to address the effects poorly lit areas around campus. In a short survey of students, 45.62% said they felt unsafe or somewhat unsafe walking alone on campus at night. 91% of students surveyed said that they would go out of their way to take a better lit path when walking at night.

The group partnered with Student Patrol Officers and solicited feedback from other students to identify some of the poorly lit areas on campus. They then identified two critical areas, the path bordering the west side of Illini Grove and the path on the west side of the National Soybean Laboratory, both popular night routes for residents in the south campus hall using the ACES Library, CRCE, and late night dining.

Initial lighting measurements were taken along the two paths and lighting was as low as 0 foot candles and as high as .6 foot candles near existing lights. Complete lighting measurements are available in the appendix.

The group partnered with Kristine Chalifoux Architect, Facilities and Services Engineering Services and Brian Finet Electrical Engineering Specialist- Facilities and Services Engineering Services to bring forward a proposal to the Campus Lighting Committee, who will carry the project out with the support of Facilities and Services.

To align with the campus's wider goal of sustainability, the project will utilize energy efficient LED lighting that is dark sky compliant. These lights will pay for themselves in just a few years by saving on energy costs when compared with the standard. The lights will be dark sky compliant to make sure that we are not contributing to the light pollution. By blending safety and sustainability in this project will allow Facilities and Services to better understand the costs associated with future green lighting projects.

How will the project improve the sustainability of the Illinois campus and how will the project go above and beyond campus standards?

This project focuses on energy efficiency and light pollution. It fits within iCAP's goal of Strengthening Centralized Conservation Efforts, more specifically Extending Campus Lighting Projects. This is further discussed in the environmental impact section of this application. Campus facilities standards for Pedestrian Walkway Lighting require a pole-top globe with internal louver. The improved lights will be LED's, a suggestion from the 2015 iCAP report. They will not use a pole top globe so that they limit light pollution. This project can improve safety while not pushing the University energy consumption.

Where will the project be located? Will special permissions be required to enact the project on this site? If so, please explain and submit any relevant letters of support with the application.

The project will take place on the sidewalk directly west of Illini Grove and the path on the west side of the National Soybean Laboratory. Both areas are noticeably darker than the surrounding areas. The Campus Lighting Committee has been monitoring the area for several years but has never had the funding to make the necessary upgrades.

There is currently one light on a 275 foot long sidewalk to the west of the National Soybean Laboratory. The additional lights will be placed at 75 foot increments on the same side of the sidewalk to comply with electrical lighting requirements. A total of four more lamps will be erected. The improvements west of Illini Grove will add eight lamps at 75 foot intervals. This arrangement creates .8 fc average levels of light at an energy cost of 24 Watts. These improvements have prepared with the help of Facilities and Services who can enact the project at these two sites.

Other than the project team, who will have a stake in the project? Please list other individuals, groups, or departments affiliated directly or indirectly by the project. This includes any entity providing funding (immediate, future, ongoing, matching, in-kind, etc.) and any entities that will be benefitting from this project. Please attach letters of commitment or support at the end of the application.

The following groups all have a stake in the successful completion of this project. Their letters of recommendation are attached.

Campus Recreation

University Housing

Residence Hall Councils

Illinois Student Government

Please indicate how this project will involve or impact students. What role will students play in the project?

This project was initiated by a group of students from all over campus. They brought together stakeholders from across campus community. Together, we identified areas several areas in critical need of lighting improvements, put together a plan, and sourced various funding opportunities.

The proposed improvements were specifically selected because of the impact they will have on students. The two improvements are popular night routes for residents in the south campus halls using the ACES Library, CRCE, and late night dining options. By improving the lighting in these areas, students will feel safer to use the paths at night.

Financial Information

In addition to the below questions, please submit the supplemental budget spreadsheet available on the Student Sustainability Committee website. Submission of both documents by the submission deadline is required for consideration of your project.

Have you applied for funding from SSC before? If so, for what project?

The Campus Lighting Committee has never submitted a funding application but Facilities and Services received funding for a lighting project at the E-37 Parking lot during 2016.

If this project is implemented, will there be any ongoing funding required? What is the strategy for supporting the project in order to cover replacement, operation, or renewal costs?

Please note that SSC provides funding on a case by case basis annually and should not be considered as an ongoing source of funding.

The lights will use 3.2604 kWh of electricity a day. At the Uofl's 2017 electric cost of \$.0859/kWh, the project will cost \$102.23 per year in ongoing electrical costs.

Please include any other sources of funding that have been obtained or applied for. Please attach any relevant letters of support as needed in a separate document.

None

Environmental, Economic, and Awareness Impacts

In addition to the below questions, please indicate specific measurable impacts as applicable on the supplemental budget spreadsheet.

Which aspects of sustainability does your project address, and how? Does the project fit within any of the iCAP goals? If so, how does the project go beyond the university status quo standards and policies.

This project focuses on energy efficiency and light pollution. The project fits in with iCAP's goal of Strengthening Centralized Conservation Efforts, more specifically Extending Campus Lighting Projects.

The campus has committed to becoming an LED campus, which requires all exterior fixtures and interior wayfinding fixtures be LED by FY25 and that the majority of all campus lighting use LED technologies by FY50. Cost avoidance by implementation of LED technologies typically provides a payback for initial investment within three to seven years. The Facility Standards could be updated to require that all lighting related alteration and capital projects use LEDs. Additionally, the campus could increase funding for the LED transformation, so that the majority of all lighting on campus is LED well in advance of FY50.

The campus facilities standards for Pedestrian Walkway Lighting is as follows:

Lighting for pedestrian walkways (not along roadways) shall be via pole-top globe with internal louver. Pole shall be UI standard concrete, direct embed. Walkway illumination levels shall be in compliance with the IESNA Handbook. See Drawing 26 56 00 -2, Pedestrian Area Light Installation.

This project will exceed the above campus standard and will meet the 2015 iCAP goal. It will also allow Facilities and Services to determine the feasibility of carrying out similar upgrades in the future.

How will the environmental impacts of your project be measured in the near and long term? What specific monitoring and evaluation processes will you be using to track outcomes and progress?

The energy consumption of the new fixtures can be measured at the control of each tie in. This energy consumption can be compared to the standard baseline for a lighting fixture to determine the environmental impact that the project will have. The efficiency of the LED lights should pay themselves after approximately five years of use. The impact of the light pollution can be measured using a light meter. Baseline measurements were taken before the project and they will be taken again after the project to determine the effectiveness of the project and the light pollution from the additional lighting.

What is the plan for publicizing the project on campus? In addition to SSC, where will information about this project be reported?

The project will impact students on the south end of campus the most. Given that, we will publicize the completed projects with posters and digital signage in the ACES Library and University Housing to promote the improved areas.

The project will also be shared with the *Daily Illini*, the Student Government and the Agricultural Leadership Program to encourage additional student initiated projects on campus.

What are your specific, measurable outreach goals? How will these be measured?

Reach out to the *Daily Illini* to run a story about the project and the collaboration between the Agricultural Leadership Program, the Campus Lighting Committee, and the Student Sustainability Committee.

Provide the ACES Library and University Housing with digital ads to display in their lobbies and dining halls to promote the project.

Do you have any additional comments or relevant information to aid in evaluation of this application?

Attached you will find the current lighting measurements, a site plan, a cut sheet for the selected light, and photometrics.



STUDENT SUSTAINABILITY COMMITTEE Step II Application

Please submit this completed application and supporting documentation to Sustainability-Committee@illinois.edu. The Working Group Chairs will be in contact with you regarding any questions about the application. If you have any questions about the application process, please contact the SSC Program Advisor, Micah Kenfield, at kenfield@illinois.edu

GENERAL INFORMATION

Project Title:	South Campus Pathway Lighting Improvements
Total Amount Requested from SSC:	\$47,029.29
Amount Requested as:	GRANT (LOAN or GRANT)

SCOPE, SCHEDULE, AND BUDGET VERIFICATION

If the project required you to obtain information from Facilities & Services Planning Division, please include that here and attach any supporting documentation.

Scope & Schedule

What is the plan for project implementation? Describe the key steps of the project including the start date, target completion date, target date for submitting a final report, and any

Task	Timeframe (# of weeks to completion)	Estimated Completion Date
Dig and Pour Footings	1	3/23/2018
Underground Electrical Work	1	3/30/2018
Erect Poles	1	4/6/2018
Fixture Electrical Work	1	4/6/2018

Budget

List all budget items for which funding is being requested under the appropriate category in the following table. Include cost and total amount for each item requested. Please be as

Item	Cost Per Item	Quantity	Total Request
Equipment & Construction Costs			
Boring and 4" Conduit (lf)	\$1.23	900	\$1,107.00
5kV XLP Cable (clf)	\$163.30	9	\$1,469.70
Control Cable (clf)	\$35.28	9	\$317.52
10' x 3/4" Copper Plated Steel Bar (ea)	\$39.31	12	\$471.72
Poles (ea)	\$1,035.15	12	\$12,421.80
MSA-E01-LED-E1-T3 Light (ea)	\$1,108.80	12	\$0.00
Concrete (cy)	\$330.03	4	\$1,155.11
#4 Rebar (inc)			\$0.00
22" x 18" Forms (inc)			\$0.00
Electrical Connection	\$522.52	2	\$1,045.04
		Subtotal	\$31,293.49

Publicity & Communication

Item	Cost Per Item	Quantity	Total Request
Digital Signage	\$0.00	5	\$0.00
			\$0.00
			\$0.00
			\$0.00
			\$0.00
			\$0.00
			\$0.00
			\$0.00
			\$0.00
			\$0.00
		Subtotal	\$0.00

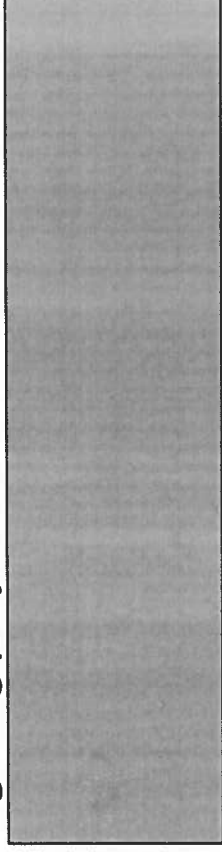
Personnel & Wages

Item	Cost Per Item	Quantity	Total Request
Boring and 4" Conduit (lf)	\$4.15	900	\$3,735.00
5kV XLP Cable (clf)	\$220.40	9	\$1,983.60
Control Cable (clf)	\$55.65	9	\$500.85
10' x 3/4" Copper Plated Steel Bar (ea)	\$113.51	12	\$1,362.12
Poles (ea)	\$429.78	12	\$5,157.36
MSA-E01-LED-E1-T3 Light (ea)	\$50.14	12	\$601.68
Concrete (cy)	\$265.58	4	\$929.53
#4 Rebar (inc)			\$0.00
22" x 18" Forms (inc)			\$0.00
Electrical Connection	\$732.83	2	\$1,465.66

South Campus Pathway Lighting Improvements

- Kristine Chalifoux
- Campus Lighting Committee
- \$47,029.29
 - Equipment and Construction Costs- \$31,293.49
 - Personal and Wages- \$15,735.80
- 3 Weeks
- 5.45 lbCO2/hr
- Expected 5 year payback period

Twelve new light posts will be installed on two pathways that connect the ACES Library, CRCE, and late night dining at PAR. The project will utilize energy efficient LED lighting that is dark sky compliant. By blending safety and sustainability, F&S to better understand the costs associated with future green lighting projects.



CAMPUS WALKWAY LIGHTING

ACES 480

NATIONAL SOYBEAN RESEARCH
 BUILDING NO. 0124
 1101 PEABODY DRIVE, URBANA IL

PROJECT CONTACTS:

MANAGEMENT ENGINEER: NORTH ZONE
 KRISTINE M. CHALIFOUX, LEED AP
 1501 S. OAK ST., ROOM 132
 CHAMPAIGN, IL
 kmchalif@illinois.edu
 ph. 217.244.1315

ELECTRICAL ENGINEER:
 BRIAN C. FINET, PE, LEED AP
 1501 S. OAK ST., ROOM 131
 CHAMPAIGN, IL
 bcfinet@illinois.edu
 ph. 217.265.9438

LEGEND
 - Not Included in Sheet Set
 - Included in Issued Set
 - Revised with Changes

INDEX OF SHEETS

NO.	DESCRIPTION	DATE	BY	CHKD.
E-001	COVER SHEET	05.01.2017		
E-100	PARTIAL SITE PLAN - WALKWAY LIGHTING			
E-101	PHOTOMETRIC PLAN			
E-500	ELECTRICAL DETAILS			

NO.	DESCRIPTION	DATE	BY	CHKD.
E-001	COVER SHEET	05.01.2017		
E-100	PARTIAL SITE PLAN - WALKWAY LIGHTING			
E-101	PHOTOMETRIC PLAN			
E-500	ELECTRICAL DETAILS			

1 2 3 4 5 6 7 8 8 10 11 12 13 14 15 16

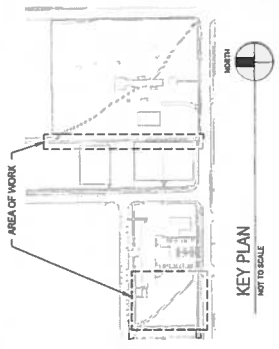


Facilities & Services
 ENGINEERING AND TRANSPORTATION SERVICES
 ENGINEERING DESIGN
 1501 S. Oak St., Champaign, IL
 Physical Plant Services Building
 MC-800

CAMPUS WALKWAY LIGHTING
 ACES 480
 NATIONAL SOYBEAN RESEARCH CENTER
 BUILDING NO. 0124

NO.	DATE	REVISION	BY	CHKD.
1	05/01/17	ISSUE FOR PERMITS		
2	05/01/17	ISSUE FOR PERMITS		
3	05/01/17	ISSUE FOR PERMITS		
4	05/01/17	ISSUE FOR PERMITS		
5	05/01/17	ISSUE FOR PERMITS		
6	05/01/17	ISSUE FOR PERMITS		
7	05/01/17	ISSUE FOR PERMITS		
8	05/01/17	ISSUE FOR PERMITS		
9	05/01/17	ISSUE FOR PERMITS		
10	05/01/17	ISSUE FOR PERMITS		
11	05/01/17	ISSUE FOR PERMITS		
12	05/01/17	ISSUE FOR PERMITS		
13	05/01/17	ISSUE FOR PERMITS		
14	05/01/17	ISSUE FOR PERMITS		
15	05/01/17	ISSUE FOR PERMITS		
16	05/01/17	ISSUE FOR PERMITS		

G-00
 of 3



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Symbol	Quantity	Description	Unit	Material	Remarks
IX	1	10' DIAMETER WALKWAY LIGHT FIXTURE	EA	10' DIAMETER WALKWAY LIGHT FIXTURE	10' DIAMETER WALKWAY LIGHT FIXTURE

Lot	X	Y	Z	Dist	Orientation	TS	Area
1	1	1	1	1	1	1	1
2	1	2	1	1	1	1	1
3	1	3	1	1	1	1	1
4	1	4	1	1	1	1	1
5	1	5	1	1	1	1	1
6	1	6	1	1	1	1	1
7	1	7	1	1	1	1	1
8	1	8	1	1	1	1	1
9	1	9	1	1	1	1	1
10	1	10	1	1	1	1	1
11	1	11	1	1	1	1	1
12	1	12	1	1	1	1	1
13	1	13	1	1	1	1	1
14	1	14	1	1	1	1	1
15	1	15	1	1	1	1	1
16	1	16	1	1	1	1	1

Dimension	Spaced	Area	Dist	Material	Length
1	1	1	1	1	1
2	1	1	1	1	1
3	1	1	1	1	1
4	1	1	1	1	1
5	1	1	1	1	1
6	1	1	1	1	1
7	1	1	1	1	1
8	1	1	1	1	1
9	1	1	1	1	1
10	1	1	1	1	1
11	1	1	1	1	1
12	1	1	1	1	1
13	1	1	1	1	1
14	1	1	1	1	1
15	1	1	1	1	1
16	1	1	1	1	1



Facilities & Services
 ENGINEERING AND CONSTRUCTION SERVICES
 1501 S Oak St, Champaign, IL
 MC-800

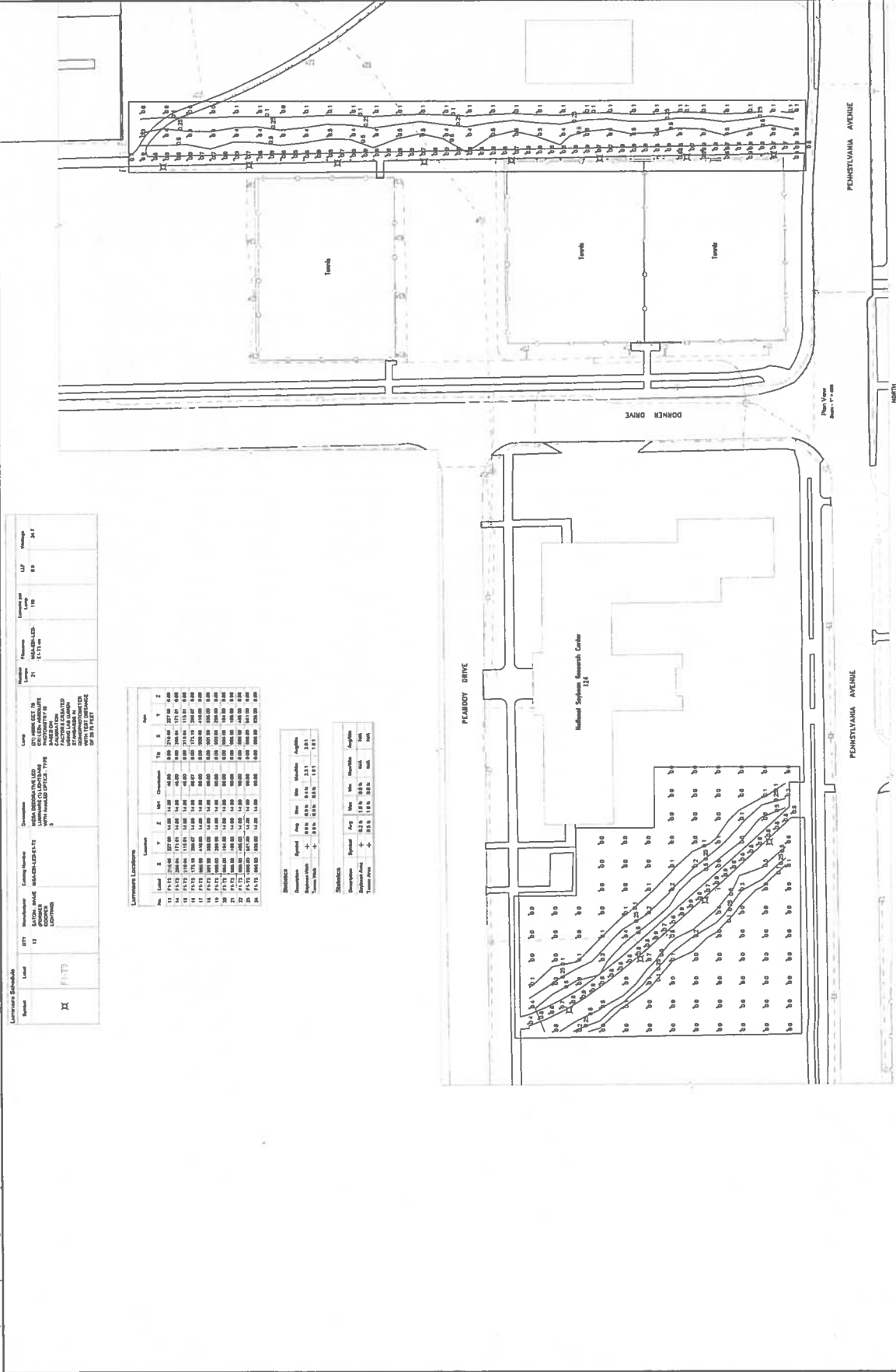
CAMPUS WALKWAY LIGHTING

ACES 480

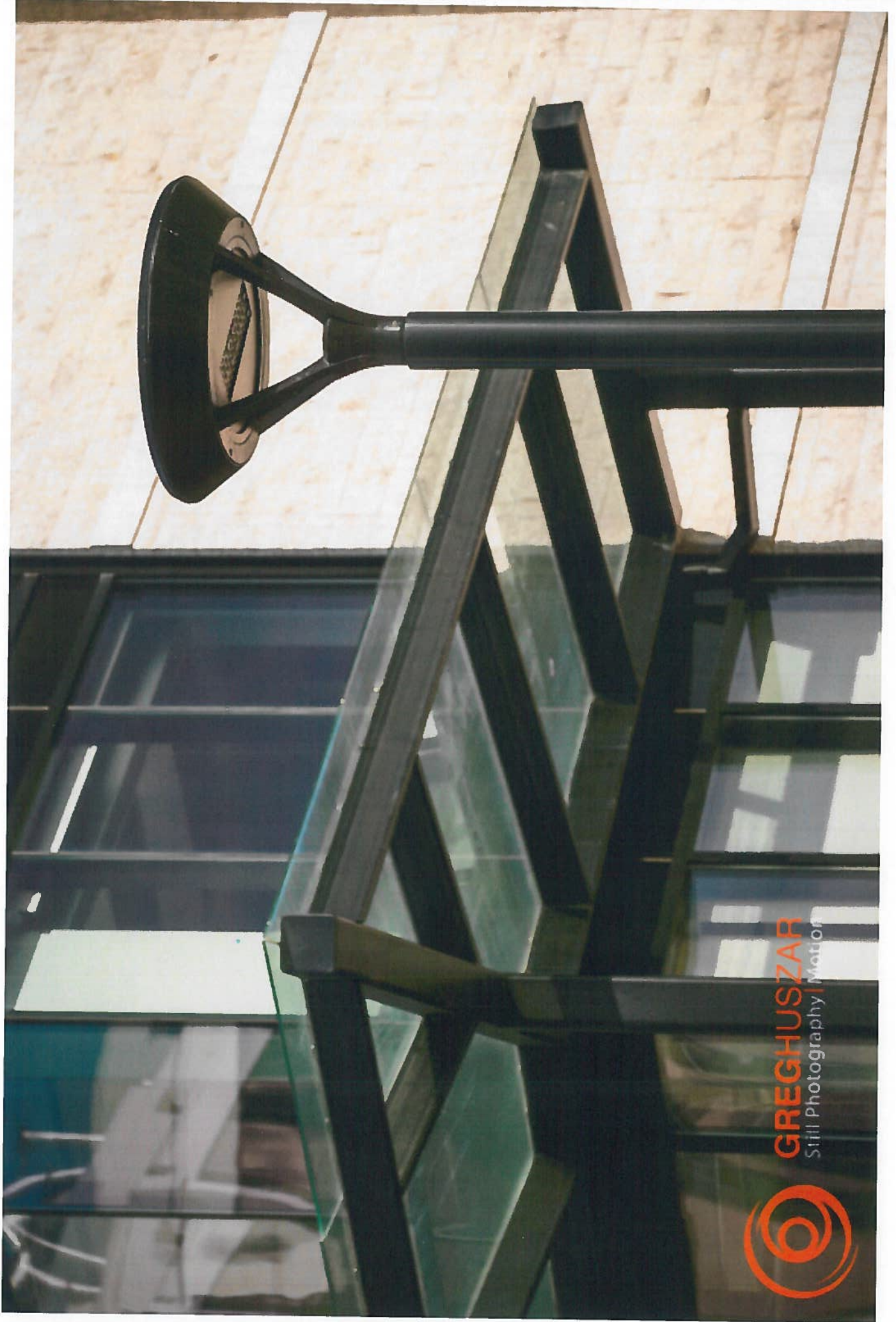
NATIONAL SOYBEAN RESEARCH CENTER BUILDING NO. 0124

SD
 AS BUILT DRAWING
 PROVIDE AS BUILT DRAWING
 THIS PLAN IS SUBJECT TO A
 COORDINATOR FOR PRC
 CLOSURE AND PAVING
 CLOSURE AND PAVING
 CLOSURE AND PAVING

E-101
 of 3



A PARTIAL SITE PLAN - WALKWAY LIGHTING
 SCALE: 1/8" = 1'-0"
 NORTH



**GREGHUSZAR**
Still Photography | Motion

DESCRIPTION

The geometric form of MESA LED luminaire allows it to adapt to either contemporary or traditional architectural settings. Available in single or twin pole mount configurations with optional wall mounting capability, the MESA LED luminaire's mounting options allow for harmonized site design whether at the entryway or in the parking lot. UL/cUL listed for use in wet locations.

Catalog #		Type	
Project		Date	
Comments			
Prepared by			

SPECIFICATION FEATURES

Construction

HOUSING: Die-cast aluminum main housing and spider mount base maintain a minimum 0.125 wall thickness. Integral aluminum heat sink provides superior thermal heat transfer in +40°C ambient environments. **DOOR ASSEMBLY:** Top mounted, heavy wall, die-cast aluminum door maintains a nominal 0.125 thickness. Door includes a self-retaining interior hinge. **GASKET:** Continuous silicone gasket provided to seal housing door assembly and optic tray. **LENS:** Downlight lens is LED board integrated acrylic over-optics, each individually sealed for IP66 rating. **HARDWARE:** Four inset fasteners on underside of housing provide access to luminaire interior. Concealed, stainless steel four bar hinge lock allows door to lock in the open position.

Optics

Choice of twelve patented, high-efficiency AccuLED Optic™ technology manufactured from injection-molded acrylic. Optics are precisely designed to shape the light output, maximizing efficiency and application spacing. AccuLED Optic technology, creates consistent distributions with the

scalability to meet customized application requirements. Offered Standard in 4000K (+/- 275K) CCT and minimum 70 CRI. Optional 3000K CCT and 5000K CCT. For the ultimate level of spill light control, an optional house-side shield accessory can be field or factory installed. The house-side shield is designed to seamlessly integrate with the SL2, SL3 or SL4 optics. LightBAR optic tray is removable and able to rotate 360° in 90° increments for specific placement of the distribution relative to fixture.

Electrical

LED drivers mount to die-cast aluminum back housing for optimal heat sinking, operation efficacy, and prolonged life. Standard drivers feature electronic universal voltage (120-277V 50/60Hz), 347V 60Hz or 480V 60Hz operation, greater than 0.9 power factor, less than 20% harmonic distortion, and is suitable for operation in -40°C to 40°C ambient environments. All fixtures are shipped standard with 10kV/10kA common – and differential – mode surge protection. LightBARs feature and IP66 enclosure rating and maintain greater than 95% lumen maintenance at 60,000 hours per

IESNA TM-21. Occupancy sensor and dimming options available.

Mounting

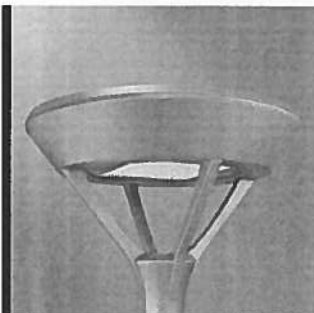
Fitter assembly mounts over 3" O.D. tenon and is secured via three concealed stainless steel set screws. Design of fitter provides seamless transition to 4" round poles. Additional mounting accessories include a dual fixture post top mounting arm and wall mount arm.

Finish

Housing is finished in five-stage super TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. LightBAR™ cover plates are standard white and may be specified to match finish of luminaire housing. Standard colors include black, bronze, grey, white, dark platinum and graphite metallic. RAL and custom color matches available. Consult Outdoor Architectural Colors brochure for a complete selection.

Warranty

Five-year warranty.

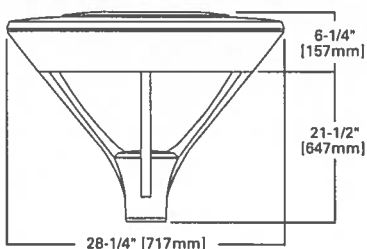


MESA MESA LED

1-6 LightBARs
Solid State LED

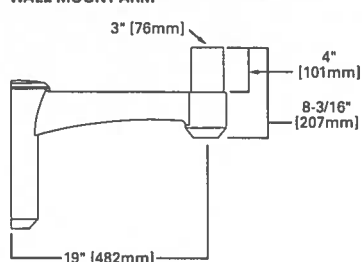
DECORATIVE LUMINAIRE

DIMENSIONS

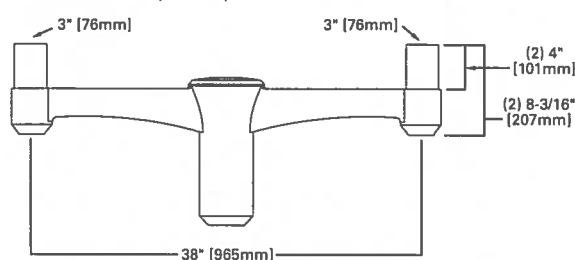


MOUNTING ACCESSORIES

WALL MOUNT ARM



DUAL MOUNT ARM (EPA 1.36)



CERTIFICATION DATA

UL/cUL Listed
ISO 9001
IP66 LightBARs
LM79 / LM80 Compliant
2G Vibration Tested

ENERGY DATA

Electronic LED Driver
>0.9 Power Factor
<20% Total Harmonic Distortion
120-277V/50 & 60Hz, 347V/60Hz,
480V/60Hz
-40°C Minimum Temperature
40°C Ambient Temperature Rating

EPA

Effective Projected Area: (Sq. Ft.)
Single Mount 1.1

SHIPPING DATA

Approximate Net Weight:
50 lbs. (22.7 kgs.)

POWER AND LUMENS BY BAR COUNT (21 LED LIGHTBARS)

Number of LightBARs		E01	E02	E03	E04	E05	E06
Drive Current		350mA Drive Current					
Power (Watts)		25W	52W	75W	97W	127W	150W
Current @ 120V (A)		0.22	0.44	0.63	0.82	1.07	1.26
Current @ 277V (A)		0.10	0.20	0.28	0.36	0.48	0.56
Power (Watts)		31W	58W	82W	99W	132W	159W
Current @ 347V (A)		0.11	0.19	0.28	0.29	0.39	0.48
Current @ 480V (A)		0.09	0.15	0.20	0.21	0.30	0.36
T2	Lumens	2,460	4,920	7,379	9,839	12,299	14,759
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3
T3	Lumens	2,485	4,970	7,456	9,941	12,426	14,911
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3
T4	Lumens	2,423	4,845	7,268	9,690	12,113	14,535
	BUG Rating	B1-U0-G1	B1-U0-G2	B1-U0-G2	B2-U0-G2	B2-U0-G3	B2-U0-G3
5MQ	Lumens	2,615	5,230	7,844	10,459	13,074	15,689
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2
5WQ	Lumens	2,604	5,207	7,811	10,415	13,018	15,622
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2
5XQ	Lumens	2,603	5,206	7,809	10,412	13,015	15,618
	BUG Rating	B2-U0-G1	B3-U0-G2	B3-U0-G2	B4-U0-G3	B4-U0-G3	B4-U0-G3
SL2	Lumens	2,445	4,891	7,336	9,781	12,226	14,672
	BUG Rating	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G3
SL3	Lumens	2,461	4,921	7,382	9,842	12,303	14,763
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G3
SL4	Lumens	2,376	4,752	7,128	9,504	11,880	14,256
	BUG Rating	B1-U0-G1	B1-U0-G2	B1-U0-G2	B2-U0-G2	B2-U0-G3	B2-U0-G3
RW	Lumens	2,398	4,796	7,194	9,591	11,989	14,387
	BUG Rating	B1-U0-G1	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B4-U0-G4
SLL/SLR	Lumens	2,227	4,453	6,680	8,906	11,133	13,360
	BUG Rating	B1-U1-G1	B1-U1-G2	B1-U1-G3	B1-U1-G3	B2-U2-G3	B2-U2-G4

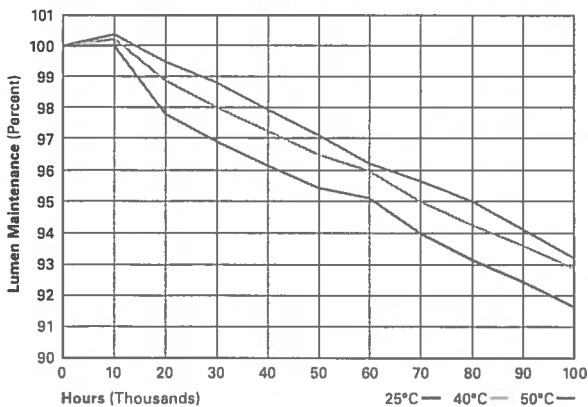
LUMEN MAINTENANCE

Ambient Temperature	25,000 Hours*	50,000 Hours*	60,000 Hours*	100,000 Hours	Theoretical L70 (Hours)
25°C	> 99%	> 97%	> 96%	> 93%	> 450,000
40°C	> 98%	> 97%	> 96%	> 92%	> 425,000
50°C	> 97%	> 96%	> 95%	> 91%	> 400,000

* Per IESNA TM-21 data.

LUMEN MULTIPLIER

Ambient Temperature	Lumen Multiplier
10°C	1.02
15°C	1.01
25°C	1.00
40°C	0.99
50°C	0.96



POWER AND LUMENS BY BAR COUNT (7 LED LIGHTBARS)

Number of LightBARs	F01	F02	F03	F04	F05	F06	
Drive Current							
1A Drive Current							
Power (Watts)	26W	55W	78W	102W	133W	157W	
Current @ 120V (A)	0.22	0.46	0.66	0.86	1.12	1.31	
Current @ 277V (A)	0.10	0.21	0.29	0.37	0.50	0.58	
Power (Watts)	32W	60W	85W	105W	137W	164W	
Current @ 347V (A)	0.11	0.19	0.28	0.30	0.41	0.49	
Current @ 480V (A)	0.09	0.15	0.21	0.22	0.31	0.37	
T2	Lumens	2,031	4,061	6,092	8,122	10,153	12,184
	BUG Rating	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3
T3	Lumens	2,052	4,103	6,155	8,206	10,258	12,310
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3
T4	Lumens	2,000	4,000	6,000	7,999	9,999	11,999
	BUG Rating	B1-U0-G1	B1-U0-G1	B1-U0-G2	B1-U0-G2	B2-U0-G2	B2-U0-G3
5MQ	Lumens	2,159	4,317	6,476	8,634	10,793	12,951
	BUG Rating	B1-U0-G1	B2-U0-G1	B3-U0-G1	B3-U0-G2	B3-U0-G2	B4-U0-G2
5WQ	Lumens	2,149	4,299	6,448	8,597	10,747	12,896
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G2	B3-U0-G2	B4-U0-G2	B4-U0-G2
5XQ	Lumens	2,149	4,298	6,446	8,595	10,744	12,893
	BUG Rating	B2-U0-G1	B3-U0-G2	B3-U0-G2	B3-U0-G3	B4-U0-G3	B4-U0-G3
SL2	Lumens	2,019	4,037	6,056	8,075	10,093	12,112
	BUG Rating	B1-U0-G1	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2
SL3	Lumens	2,031	4,062	6,094	8,125	10,156	12,187
	BUG Rating	B1-U0-G1	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2
SL4	Lumens	1,961	3,923	5,884	7,846	9,807	11,769
	BUG Rating	B1-U0-G1	B1-U0-G1	B1-U0-G2	B1-U0-G2	B2-U0-G2	B2-U0-G3
RW	Lumens	1,980	3,959	5,939	7,918	9,898	11,877
	BUG Rating	B1-U0-G1	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3
SLL/SLR	Lumens	1,838	3,676	5,514	7,352	9,191	11,029
	BUG Rating	B0-U1-G1	B1-U1-G2	B1-U1-G2	B1-U1-G3	B1-U1-G3	B2-U2-G3

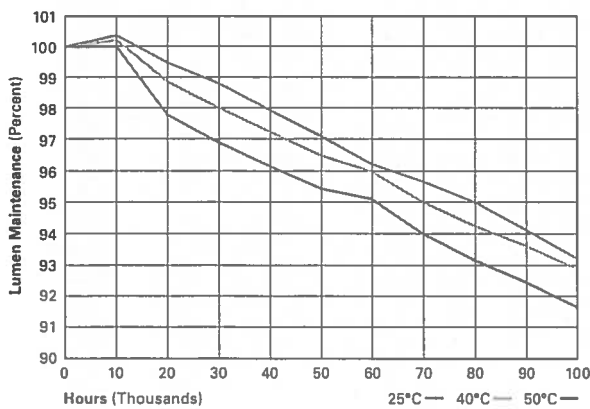
LUMEN MAINTENANCE

Ambient Temperature	25,000 Hours*	50,000 Hours*	60,000 Hours*	100,000 Hours	Theoretical L70 (Hours)
25°C	> 99%	> 97%	> 96%	> 93%	> 450,000
40°C	> 98%	> 97%	> 96%	> 92%	> 425,000
50°C	> 97%	> 96%	> 95%	> 91%	> 400,000

* Per IESNA TM-21 data.

LUMEN MULTIPLIER

Ambient Temperature	Lumen Multiplier
10°C	1.02
15°C	1.01
25°C	1.00
40°C	0.99
50°C	0.96



CONTROL OPTIONS

0-10V (DIM)

This fixture is offered standard with 0-10V dimming driver(s). The DIM option provides 0-10V dimming wire leads for use with a lighting control panel or other control method.

Photocontrol (PC, PER and PER7)

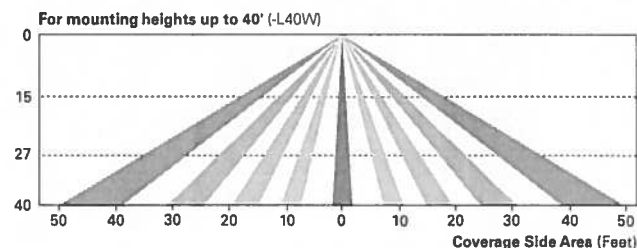
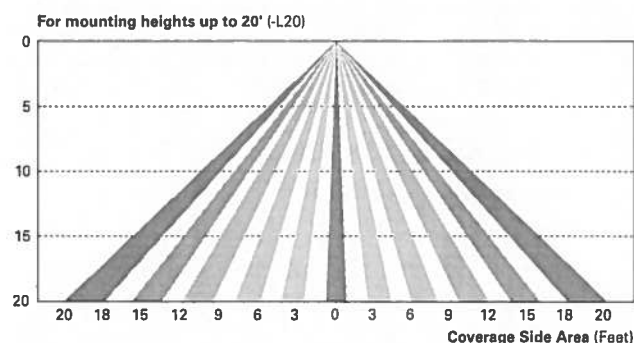
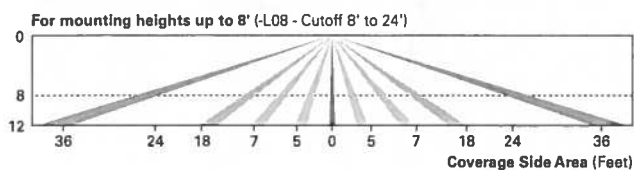
Optional button-type photocontrol (PC) and photocontrol receptacles (PER and PER7) provide a flexible solution to enable "dusk-to-dawn" lighting by sensing light levels. Advanced control systems compatible with NEMA 7-pin standards can be utilized with the PER7 receptacle.

Dimming Occupancy Sensor (MS/DIM-LXX, MS/X-LXX and MS-LXX)

These sensors are factory installed in the luminaire housing. When the MS/DIM-LXX sensor option is selected, the occupancy sensor is connected to a dimming driver and the entire luminaire dims when there is no activity detected. When activity is detected, the luminaire returns to full light output. The MS/DIM sensor is factory preset to dim down to approximately 50 percent power with a time delay of five minutes. The MS-LXX sensor is factory preset to turn the luminaire off after five minutes of no activity. The MS/X-LXX is also preset for five minutes and only controls the specified number of light engines to maintain steady output from the remaining light engines.

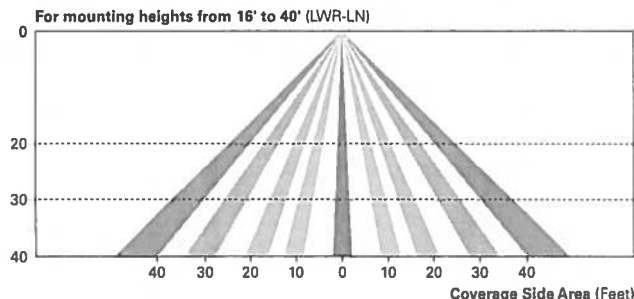
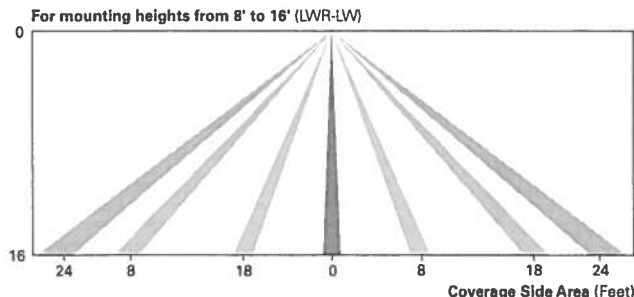
These occupancy sensors includes an integral photocell that can be activated with the FSIR-100 accessory for "dusk-to-dawn" control or daylight harvesting - the factory preset is OFF. The FSIR-100 is a wireless tool utilized for changing the dimming level, time delay, sensitivity and other parameters.

A variety of sensor lens are available to optimize the coverage pattern for mounting heights from 8'-40'.

**LumaWatt Pro Wireless Control and Monitoring System (LWR-LW and LWR-LN)**

The LumaWatt Pro system is a peer-to-peer wireless network of luminaire-integral sensors for any sized project. Each sensor is capable of motion and photo sensing, metering power consumption and wireless communication. The end-user can securely create and manage sensor profiles with browser-based management software. The software will automatically broadcast to the sensors via wireless gateways for zone-based and individual luminaire control. The LumaWatt Pro software provides smart building solutions by utilizing the sensor to provide easy-to-use dashboard and analytic capabilities such as improved energy savings, traffic flow analysis, building management software integration and more.

For additional details, refer to the LumaWatt Pro product guides.



ORDERING INFORMATION

Sample Number: MSA-E06-LED-E1-T3-GM

Product Family	Number of LightBARs ^{1,2}	Lamp Type	Voltage	Distribution	Color ³
MSA=Mesa	E01=(1) 21 LED LightBAR ³ E02=(2) 21 LED LightBARs E03=(3) 21 LED LightBARs E04=(4) 21 LED LightBARs E05=(5) 21 LED LightBARs E06=(6) 21 LED LightBARs F01=(1) 7 LED LightBAR ³ F02=(2) 7 LED LightBARs F03=(3) 7 LED LightBARs F04=(4) 7 LED LightBARs F05=(5) 7 LED LightBARs F06=(6) 7 LED LightBARs	LED=Solid State Light Emitting Diodes	E1=Electronic (120-277V) 347=347V 480=480V ⁴	T2=Type II T3=Type III T4=Type IV SL2=Type II w/Spill Control SL3=Type III w/Spill Control SL4=Type IV w/Spill Control RW=Rectangular Wide 5MQ=Type V Square Medium 5WQ=Type V Square Wide 5XQ=Type V Square Extra Wide SLL=90° Spill Light Eliminator Left SLR=90° Spill Light Eliminator Right	AP=Gray BZ=Bronze BK=Black DP=Dark Platinum GM=Graphite Metallic WH=White
Options (Add as Suffix)				Accessories (Order Separately) ¹⁸	
PC=Button Type Photocontrol (Specify Voltage) R=NEMA Twistlock Photocontrol Receptacle 2L=Two Circuits ⁶ LCF=LightBAR Cover Plate Matches Housing Finish 7030=70 CRI / 3000K CCT ⁷ 7050=70 CRI / 5000K CCT ⁷ 8030=80 CRI / 3000K CCT ⁷ ICB=Integral Cold Weather Battery Pack (Specify 120 or 277V) ⁸ LWR-LW=LumaWatt Pro Wireless Sensor, Wide Lens for 8' - 16' Mounting Height ⁹ LWR-LN=LumaWatt Pro Wireless Sensor, Narrow Lens for 16' - 40' Mounting Height ⁹ HSS=Factory Installed House Side Shield ¹⁰ MS/DIM-L08=Motion Sensor for Dimming Operation, Maximum 8' Mounting Height ^{11, 12, 13, 14, 15} MS/DIM-L20=Motion Sensor for Dimming Operation, 9' - 20' Mounting Height ^{11, 12, 13, 14, 15} MS/DIM-L40W=Motion Sensor for Dimming Operation, 21' - 40' Mounting Height (Wide Range) ^{11, 12, 13, 14, 17}				VA6028-XX=Dual Mount Arm (EPA 1.38) VA6029-XX=Wall Mount Arm OA/RA1016=NEMA Photocontrol - Multi-Tap OA/RA1027=NEMA Photocontrol - 480V OA/RA1201=NEMA Photocontrol - 347V MA1253=10kV Circuit Module Replacement LB/HSS-21=Field Installed House Side Shield for "E" LightBARs ^{16, 18} LB/HSS-07=Field Installed House Side Shield for "F" LightBARs ^{16, 18}	

NOTES:

- Standard 4000K CCT and nominal 70 CRI.
- 21 LED LightBAR powered at 350mA, 7 LED LightBAR powered at 1A.
- Streetside orientation 90° to LightBAR.
- Only for use with 480V Wye systems. Per NEC, not for use with ungrounded systems, impedance grounded systems or corner grounded systems (commonly known as Three Phase Three Wire Delta, Three Phase High Leg Delta and Three Phase Corner Grounded Delta systems).
- Cutsom and RAL color matching available upon request. Consult your lighting representative at Eaton for more information.
- Low-level output varies by bar count. Consult factory. Not available with 347V or 480V. Requires quantity two or more LightBARs.
- Consult factory for lead times and lumen multiplier.
- Available with E01-E04 or F01-F04 configurations only. Specify 120V or 277V. LED cold weather integral battery pack is rated for minimum operating temperature -40°F (-20°C). Operates one LightBAR for 90-minutes. Not available in all configuration, consult factory. Rated for use in 25°C ambient.
- LumaWatt wireless sensors are factory installed and require network components LWP-EM-1, LWP-GW-1, and LWP-PoE8 in appropriate quantities. See www.eaton.com/lighting for LumaWatt application information.
- Only for use with SL2, SL3 and SL4 distributions.
- Consult factory for more information.
- Utilizes internal step-down transformer when 347V or 480V is selected.
- The FSIR-100 accessory is required to adjust parameters including high and low modes, sensitivity, time delay, cutoff and more. Consult your lighting representative at Eaton for more information.
- Not available with HA option.
- Approximately 22' detection diameter at 8' mounting height.
- Approximately 40' detection diameter at 20' mounting height.
- Approximately 100' detection diameter at 40' mounting height.
- Replace XX with color designation.
- One required for each LightBAR.



ACTION PLAN CHART

Strategic Initiative: Secure funding and execute the project to improve lighting and student's sense of security on the southern end of campus.

When? <i>We commit by...</i>	What? <i>We commit to the following specific actions:</i>	Who? <i>Who are the lead and key partners responsible?</i>	How Measured? <i>What is the indicator of success?</i>	Notes/Resources <i>Other considerations for partners?</i>
September 1, 2017	Submit Stage 1 Application to the Student Sustainability Committee	Kristine Chalifoux, Campus Lighting Committee Bobby Knier, Student Representative	1. Confirmation of submittal 2. Successfully moving to stage 2	Submit at: http://ssc.sustainability.illinois.edu/?page_id=231
October 21, 2017	Submit Stage 2 Application to the Student Sustainability Committee	Kristine Chalifoux, Campus Lighting Committee Bobby Knier, Student Representative	1. Confirmation of submittal 2. Successful receipt of funding	Submit at: http://ssc.sustainability.illinois.edu/?page_id=231
December 2018	Finalize construction drawings	Brian Curtis, Facilities and Services Electrical Engineer Kristine Chalifoux, Campus Lighting Committee	We will have a complete set of buildable plans for the Electrical Shop	
March 2018	Break ground on lighting improvements	Facilities and Services Electric Shop	1. Complete project 2. Lighting measurements of improved area(s)	

EVALUATION

To evaluate the effectiveness of lighting upgrades, we will compare the results from the lighting meter from when we initially measured the lights to after the lights have been installed. The lighting meter was provided by Facilities and Services, which was used to measure lumens. Lumens measure the amount of light emitted per second from a uniform source of light. The lighting committee can then analyze the data further in order to determine if the new upgrades are sufficient.

After the completion of new lights being installed, we would take new photometric of the improved areas. We will also evaluate our project through the confirmation of the submittal and through the successful receipt of funding in order to begin the next steps of the project. Once the project has been carried through, a new survey will be sent to students to gauge the effects that the upgrades had on students' sense of safety.

Through the combination of successful funding, completed improvements, and increased student safety, we will consider our project as successful.

CHALLENGES

In the upcoming months, some challenges we face are approval of our funding application. If denied, this could potentially inhibit the results of our project should other funding not become available. On the other hand, the application could be partially approved and not provide adequate funding to complete the project. This would require additional funding from another source, or only a partial completion of the anticipated upgrades. We hope to include a strong case in our proposal for Student Sustainability funding to reduce the risk of denial. In addition to funding approval, we must obtain permission from the University for additional lighting. If the university does not approve the electrical work necessary to complete the project, the project would become void.

As a group of all seniors, we have partnered with Bobby Knier to submit the funding proposal to Student Sustainability Committee. Bobby is a junior at UIUC, which will allow him ample time to see the project through. In order to avoid communication issues between Bobby and other partners, we will introduce all parties (current and new) to exchange contact information.

With more time, we could have been able to complete the funding application for submission during the Spring 2017 awards. This would have enabled us to hand over the project plans with pre-approved funding. By having pre-approved funding, our partners would have permission to move forward with the next step towards completion.

ACKNOWLEDGEMENTS

The Lighting Illini team would like to thank everyone who provided support, advice, information, and guidance throughout our project this semester. The amount of support we received has been overwhelming, and we feel very fortunate to belong to such a well-connected community. We would like to thank Dr. Keating for her endless support and guiding our group through the Tuckman stages. We would also like to thank the advice and suggestions from our fellow AGED 480 students. Through their leadership lessons and suggestions we were able to improve and narrow down our ideas towards our overall goal.

This project would not be possible without the help of our partners, Kristine and Brian. Their dedication and enthusiasm for our ideas has been essential to the progression of our project. Due to the hard work of our combined efforts, we have made great strides towards the improvement of campus lighting and overall safety. We look forward to seeing how the final steps conclude. A special thank you to Bobby Knier for serving as our student representative and submitting our completed funding application.

Special Thanks:

Dr. Kari Keating
Ms. Kristine Chalifoux
Mr. Brian Finet
Mr. Bobby Knier

Thank you!

REFERENCES

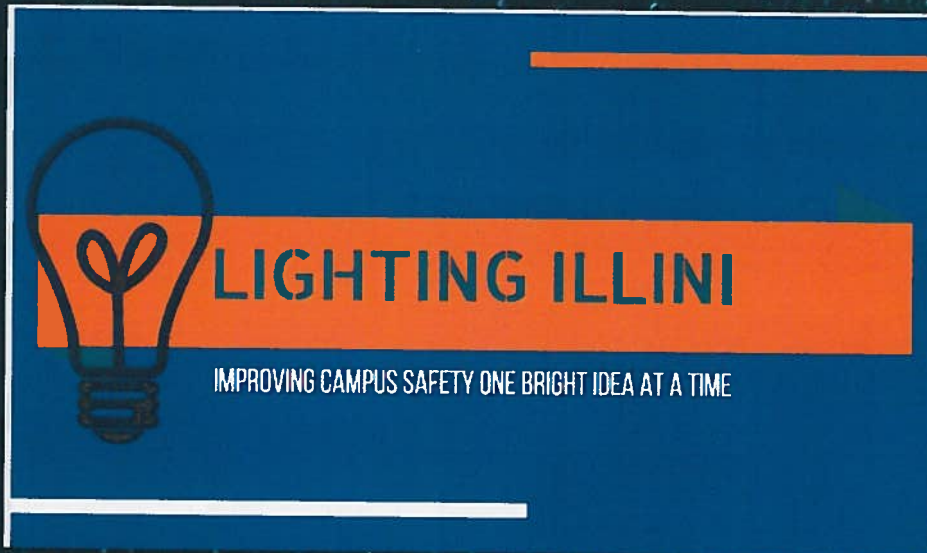
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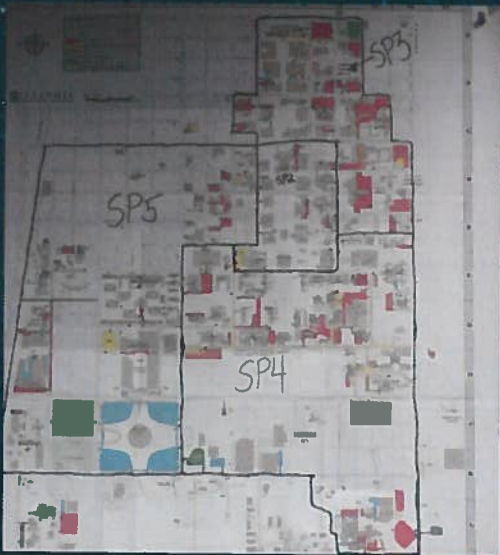
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Our vision is for every UIUC student to feel safe walking on campus at night.



SafeWalks Partner Meeting



Facilities and Services Partner Meeting

SMART Goals

By March 30, 2017, we will determine a location and analyze two lighting safety upgrades on campus for improvement to present to our partners.

By April 21, 2017, we will complete a Student Sustainability Committee grant proposal to be submitted in the fall of 2017 to fund our project.

MEETING SUMMARY 1

Present- Peter Schmidt, Kristine Chalifoux (F&S)

Peter- Introduced the project and asked where our group could prove useful in improving lighting

Kristine- Thought the project was great. Said that she would help as much as possible. Expressed reservations because F&S is extremely busy because of a hiring freeze.

She wants to be able to provide as much assistance and input as possible without exhausting too much time

Reinforced that input from students is one of her most important resources for quality, safe light. Encourages student input as much as possible. Talked about problems with funding the necessary changes needed throughout the campus. Talked about ongoing, slow, changes that are happening.

Peter- Asked about an appropriate project scope

Kristine- Come up with a place where the lighting needs a safety upgrade, their highest priority Analyze it closely and help us look for ways to fund it. Create a sustainable, rounded project

MEETING SUMMARY 2

Project: AGED 480 Project

Date: February 26, 2017

Time and Date: February 26 at 9:00 p.m.

Location: Public Safety Building

Present: Katie and Logan, Safewalk Student head - Angela

Katie and Logan met with Angela, the student head of SafeWalks. She brought us to the meeting room before the students were going out to look at the lights. Angela explained what SafeWalks is, how they submit lights that are broken, and showed us the map of campus. The map was sectioned into 5 zones in which they organized the lights. Most light poles have identification numbers on them and they report that number, the street it is on and the zone it is in. Angela gave us an example sheet of how they report the lights as well. Those sheets go to Facilities and Services so they can fix the lights. The meeting overall lasted about 15 minutes.

MEETING SUMMARY 3

Project: AGED 480 Project

Date: April 10, 2017

Time: 1:00 p.m.

Location: Facilities and Services Building

Present: Lighting Illini- Peter, Alex, Katie, Rebecca- Not present: Logan, Kristine- Campus Lighting Committee Chair, and Brian- Electrical Engineer.

A meeting was held at the Facilities and Services Building at 1:00 p.m. on Monday, April 7th to brief Kristine and Brian on the details of the lighting project. We first discussed the two different locations: the sidewalk on the east side of the tennis courts and the sidewalk west of the Soybean Research Center. Kristine pointed out that every year those two locations are on the Campus Lighting Committee's report. So there is a need for lighting improvements in both of those areas.

Moving on to budgets, we discussed applying for funding from the Student Sustainability Committee and using lights that would be friendly to the environment. We discussed all of the deadlines for the presentation to the committee, which is September 1, 2017. The funding would be dispersed in Spring of 2018. We asked them if there was any other funding direction that they would recommend besides this, and as a group we collectively decided to continue with pursuing the Student Sustainability Committee funding. We spoke about the SSC funding of the lighting of Lot E37 and bike racks.

F&S will likely self perform the work, but it is not something they traditionally do. The budget will include lighting poles, boring for power, tie ins, and controls. Chuck from the F&S electric shop will be a good contact for putting together a budget.

We then decided to continue with our plans for submitting both locations. The proposals will be done separately, and we will pursue LED lighting that is dark sky compliant. Solar is not a viable option at this point in time. The Lighting Illini is going to send Brian and Kristine rough schematics for the lighting improvements. Kristine will put together a site plan and a cut sheet of the selected light. Brian will put together photometrics and F&S will get pricing information.

During the time between now and our next meeting the Lighting Illini will continue to work on the project proposal for the Student Sustainability committee. Kristine will have a meeting with F&S to begin preparing documentation.

Lighting Upgrade Proposal and Schematics
Spring 2017, AGED 480

In a survey of 60 University students, many noted that there could be improvement to the lighting on south end of campus. We focused our efforts there and identified two possible upgrades. One, located to the west of the National Soybean Laboratory and one located just west of Illini Grove. There are popular night routes for students, as they connect the ACES Library to several residence halls and private certified houses. The latter connects Lincoln Avenue Residence Hall to Pennsylvania Avenue Residence Hall's late night dining hall.

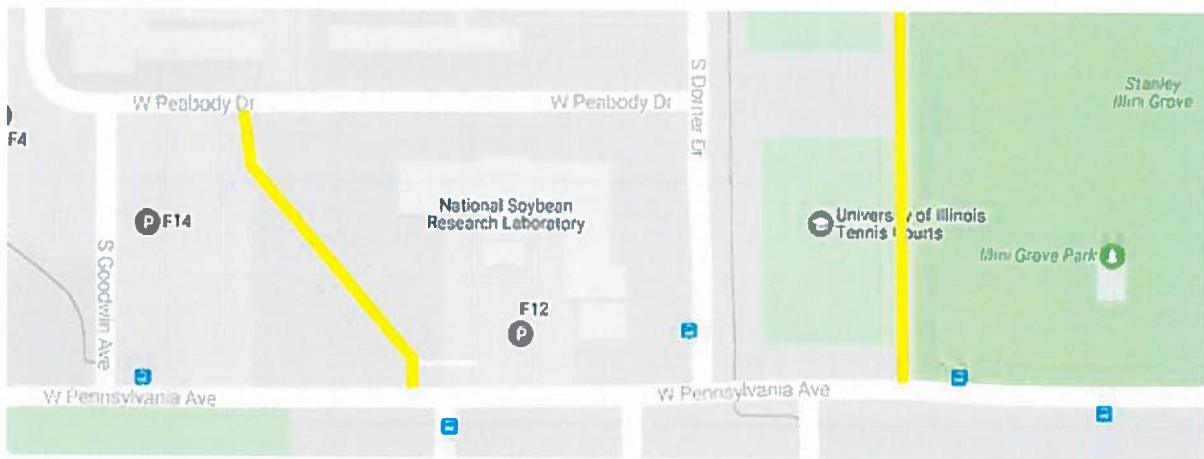


Figure 1. Suggested Lighting Improvement Locations

Improvement 1. West of Illini Grove

Current Status: A single light illuminates the path, between the 2nd and third tennis courts. Additional backlight from lamps in Illini Grove provide lighting. When the foliage grows in during the spring, the ambient lighting will be blocked by the overhead trees.

Proposal: Two to three additional lamp posts between Pennsylvania Avenue between and the second set of tennis courts adjacent to Peabody Drive.



Figure 2. Current State



Figure 3. View from Pennsylvania Avenue

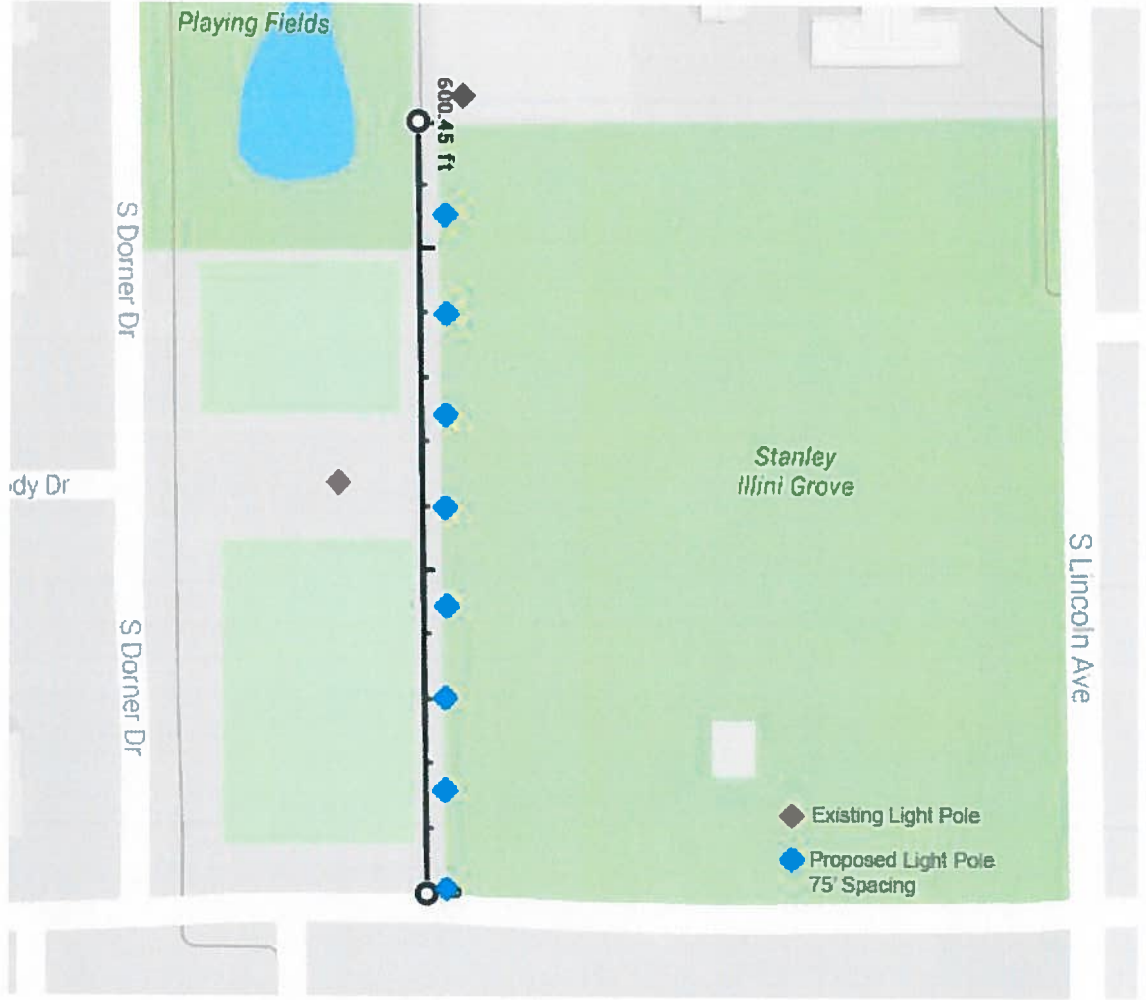


Figure 4. Proposed Upgrade

Improvement 2. West of National Soybean Laboratory

Current Status: A single light illuminates the path, as well as backlight from the greenhouses. A similar path near the Grainger Engineering Library is lit with several lamps. While on our second walk through the area we saw several runners avoid the path all together and run through the adjacent well lit parking lot.

Proposal: One to four additional lampposts spaced at 75 feet.



Figure 5. Current State
Pennsylvania



Figure 6. View from



Figure 7. Similar, well lit path near the corner of Wright and Springfield.

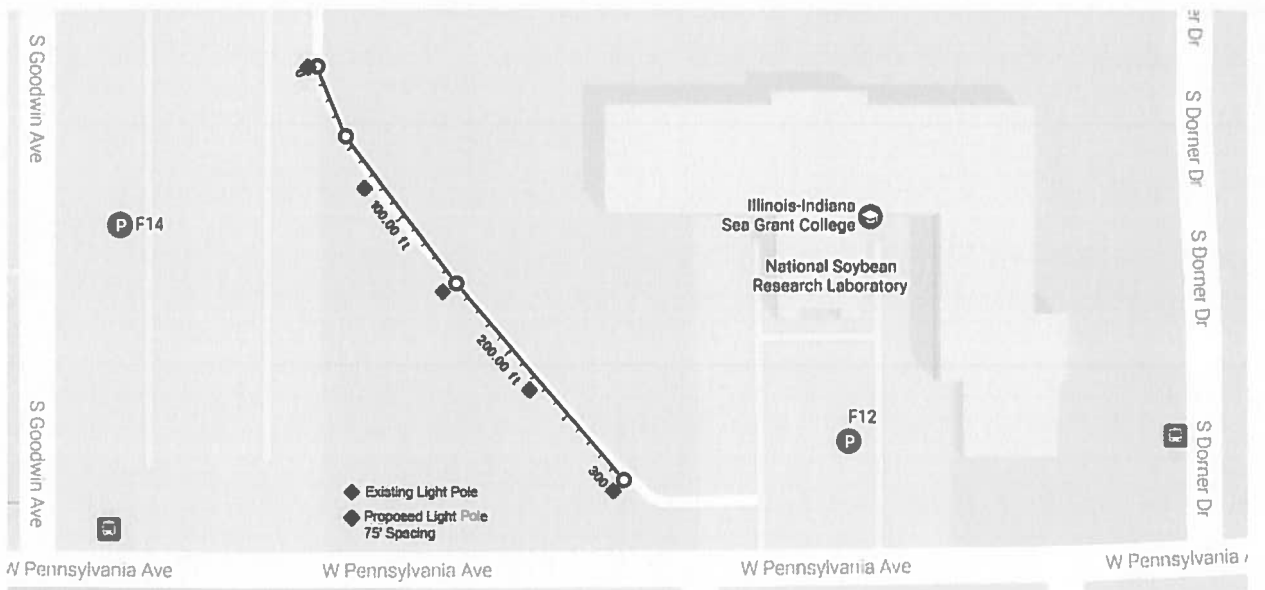


Figure 8. Proposed Upgrade

Lighting Measurements
 April 17th and 23rd, 2017

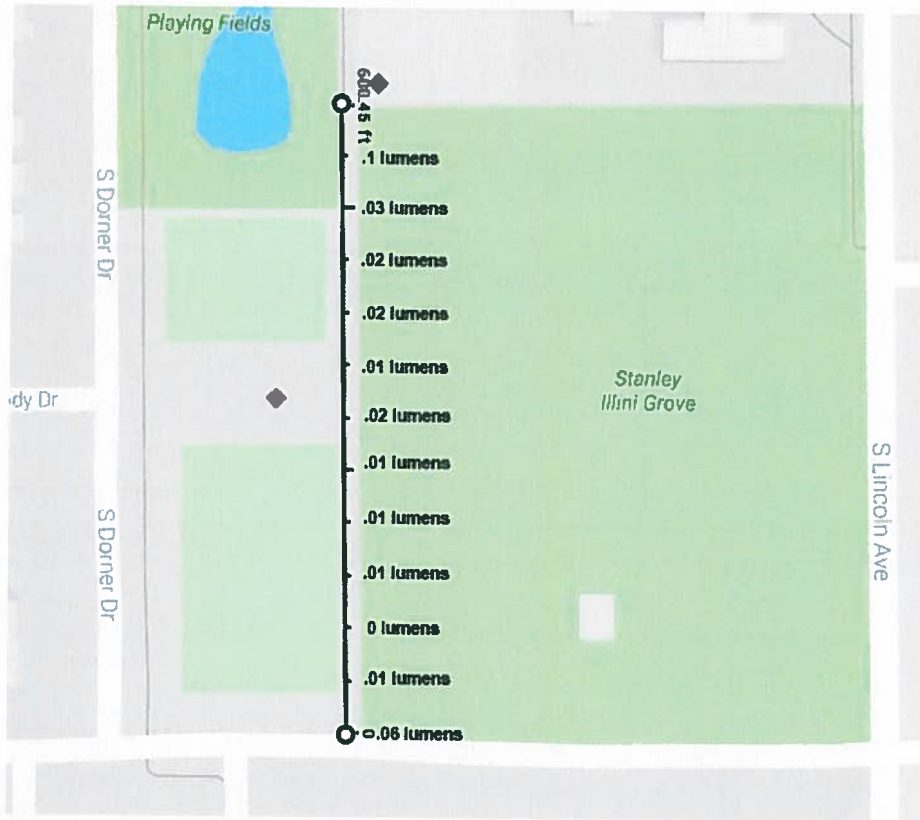


Figure 1. Lighting Measurements west of Illini Grove

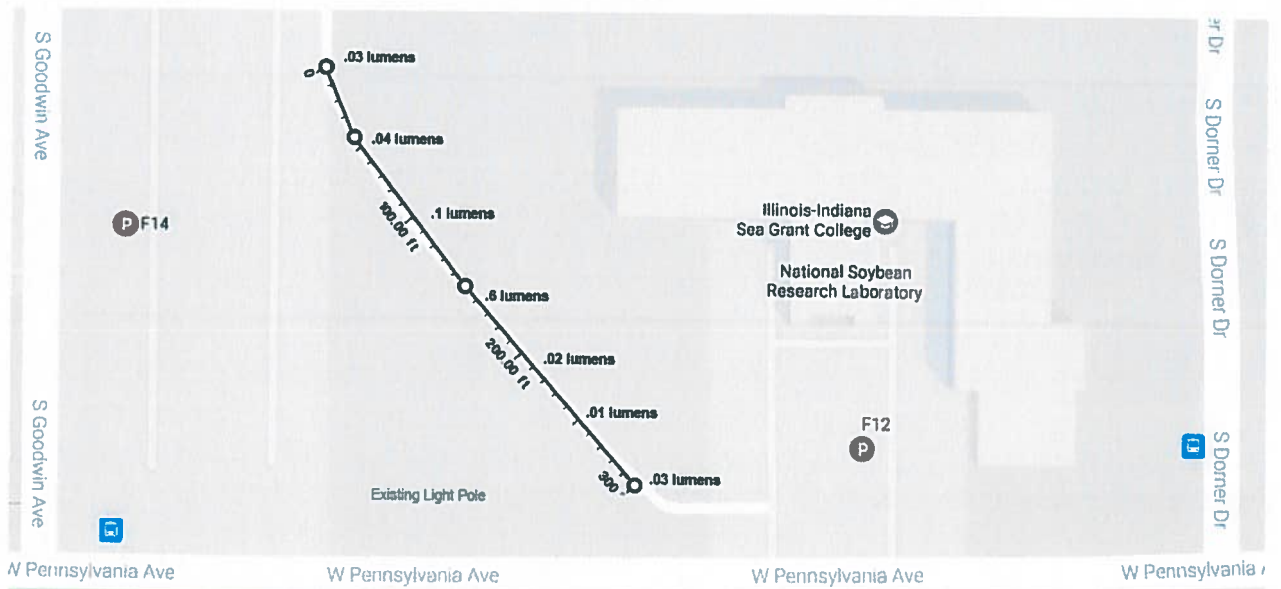
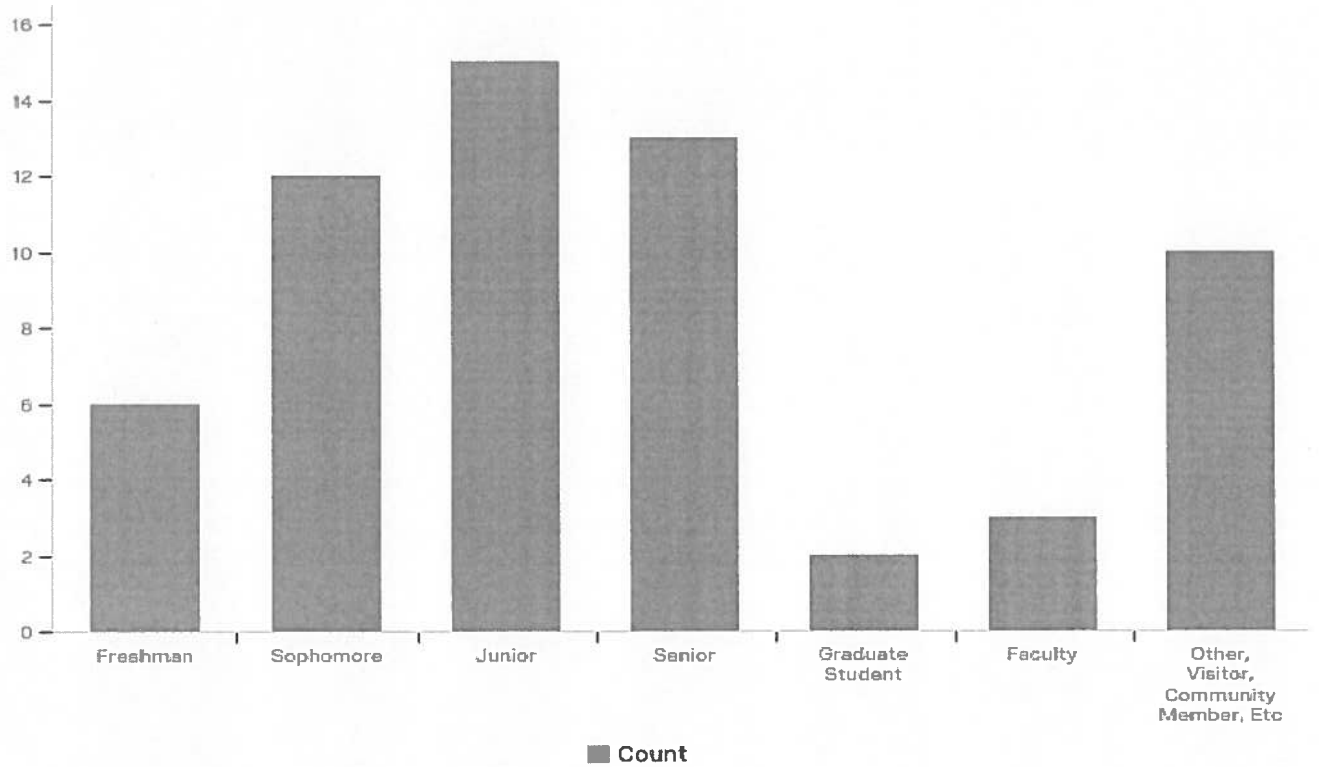


Figure 2. Lighting Measurements west of National Soybean Laboratory

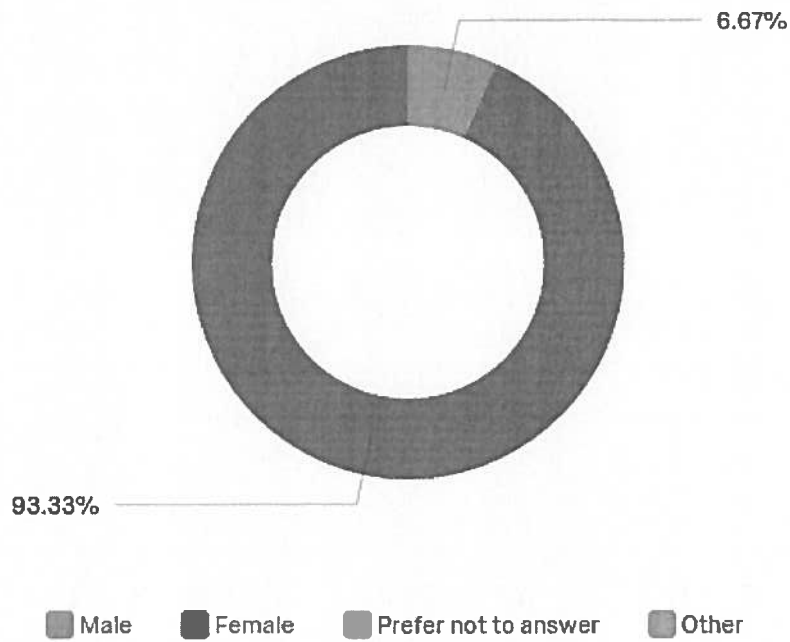
Survey Results

Q1 - Which best describes you?



#	Answer	%	Count
1	Freshman	9.84%	6
2	Sophomore	19.67%	12
3	Junior	24.59%	15
4	Senior	21.31%	13
5	Graduate Student	3.28%	2
6	Faculty	4.92%	3
7	Other, Visitor, Community Member, Etc	16.39%	10
	Total	100%	61

Q2 - What is your gender?

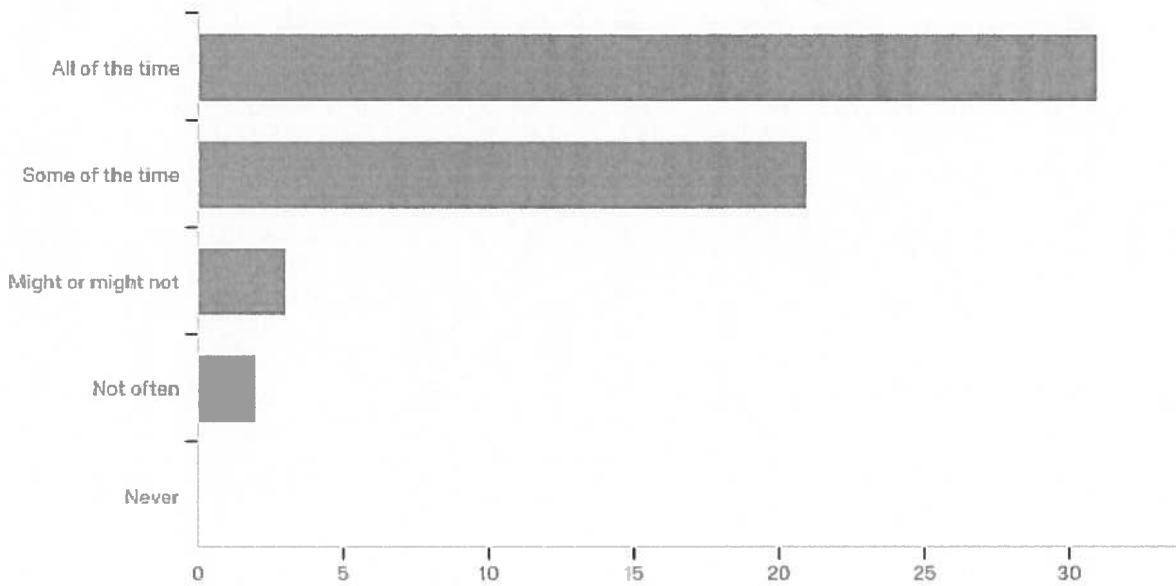


#	Answer	%	Count
1	Male	6.67%	4
2	Female	93.33%	56
3	Prefer not to answer	0.00%	0
4	Other	0.00%	0
	Total	100%	60

Q3 - On a scale of 1-5 how safe do you feel walking at night on the University of Illinois Campus?

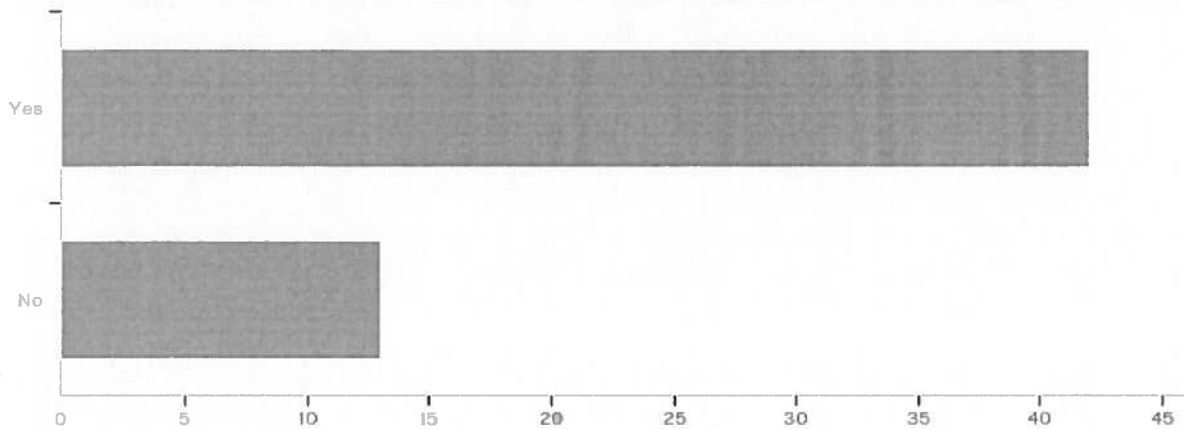
#	Answer	%	Count
1	I feel very unsafe	3.51%	2
2	I feel somewhat unsafe	19.30%	11
3	Neutral	22.81%	13
4	I feel somewhat safe	49.12%	28
5	I feel very safe	5.26%	3
	Total	100%	57

Q4 - Do you purposefully take better lit paths when walking alone at night?



#	Answer	%	Count
1	All the time	54.39%	31
2	Some of the time	36.84%	21
3	Might or might not	5.26%	3
4	Not often	3.51%	2
5	Never	0.00%	0
	Total	100%	57

Q5 - Is there a location on campus that you wish had better lighting?



#	Answer	%	Count
1	Yes	76.36%	42
2	No	23.64%	13
	Total	100%	55

Q6 - If yes, specify the location

- west side of campus (where most of the apartments are)
- Lincoln Avenue between LAR and PAR/FAR
- Path to South Quad by Turner Hall, Lincoln Avenue, Grange Grove
- Vet med
- From the aces library to the ikenberry quad, engineering quad as well
- Dorner
- Near childhood development center
- Parking lots
- Illini Grove
- LAR
- LAR
- South Quad
- Quad
- Around Foellinger/the quad
- All over parking lots and all around ACES buildings/parking lots
- 6th and Daniel
- Side streets
- Outside of LAR on the North/South sides
- Armory
- Going south from the Aces library toward the Meats lab. In general, the whole Aces campus
- South quad around ACES buildings
- Walkways between buildings
- South Quad
- North of the UGL, south of Foellinger
- South side of campus mostly
- North of the armory and south of green street has some poorly lit paths



STUDENT SUSTAINABILITY COMMITTEE

Funding Award and Acceptance Letter

February 18, 2016

Project Leaders: Mike Wise
Project: E37 Parking Lot Solar Lighting

Dear Mr. Wise:

On behalf of the University of Illinois at Urbana-Champaign Student Sustainability Committee (SSC), I would like to thank you for considering the funds raised by the Sustainable Campus Environment Fee to implement a project that improves the sustainability of our campus. SSC is pleased to inform you that we are recommending to the Institute for Sustainability, Energy, and Environment (iSEE) that the E37 Parking Lot Solar Lighting project **receives \$55,032 in grant funding.**

In order to remain eligible for this award, you must agree to the following conditions:

1. A final report of all work completed should be provided to the SSC Program Advisor by January 31, 2018.
2. Project status updates and detailed account statements must be provided at the end of each semester until the project is completed.
3. The CFOP provided for this award shall strictly be used for the money awarded in this proposal.
4. Any substantial modifications to project scope, budget, or timeline must first be approved by SSC. These requests must be submitted in a formal letter to the Chair and Program Advisor.
5. All projects will be expected to follow campus policies and procedures as well as any applicable State and Federal laws.
6. SSC reserves the right to revoke funding if the project does not comply with the terms and conditions outlined in this letter.
7. Any press releases or educational/promotional materials involving the project should acknowledge SSC funding.
8. Any signage involving the project or events surrounding this project should include SSC's logo and/or a statement of which fee funded the project. Projects must coordinate with SSC to ensure promotion appropriately highlights the SSC's contributions to the project.
9. Projects must participate in the Campus Sustainability Symposium at least once before June 30, 2018.

If you agree to the terms and conditions for the funding, please sign on the designated line at the bottom of this letter. If you have any questions regarding these requirements please contact the Chair, Paul Couston, at pcousto2@illinois.edu or the SSC Coordinator, Micah Kenfield, at kenfield@illinois.edu. You will be notified when the Institute for Sustainability, Energy, and Environment and Vice Chancellor for Student Affairs officially approves this project. Again, thank you for your interest in improving the sustainability of the University of Illinois at Urbana-Champaign. We look forward to working with you in the future.



STUDENT SUSTAINABILITY COMMITTEE

SSC Signatories

Paul Couston

Paul Couston, Chair
Student Sustainability Committee

Marcus Phillip

Marcus Phillip, Treasurer
Student Sustainability Committee

Awardee Signatory

Mike Wise

Mike Wise
UIUC Parking

iSEE Signatory

Evan DeLucia

Dr. Evan DeLucia, Director
Institute for Sustainability, Energy & Environment

Student Affairs Signatory

Renee Romano

Dr. Renee Romano
Division of Student Affairs



STUDENT SUSTAINABILITY COMMITTEE

Project Information

Project: E37 Parking Lot Solar Lighting

Funding Source: Sustainable Campus Environment Fee

Funding Amount: \$55,032

Receiving Campus Unit: UIUC Parking

Unit Financial Contact: Michelle Wahl

E-mail : mwahl@illinois.edu

Primary Contact: Mike Wise, UIUC Parking

E-mail: mwise@illinois.edu

Secondary Contact: Paul Foote

E-mail: gfoote2@illinois.edu

Project Description:

Parking Lot E37 (near the Illinois Sustainable Technology Center and Natural History Survey) currently lacks sufficient lighting to meet minimum light requirements, but unfortunately is located in a low-priority area located away from current electrical access. The use of standalone solar-powered lights for parking is an innovative solution that allows the system to remain off-grid while improving illumination for the lots – which in turn improves campus safety. There are currently no other universities in Illinois utilizing solar-powered parking lot lighting, allowing the University of Illinois to lead the way in one aspect of sustainability.

This proposal directly funds:

1. The light poles themselves
2. Labor for installation
3. Scope development and other Facilities and Services costs.