*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 at* *Sustainability-Committee@Illinois.edu**.*

# General Information

**Project Name:** South Campus Pathway Lighting Improvements

**Total Amount Requested from SSC:** $58,889.60

**Project Topic Area(s):** [x] Energy [ ] Education [ ] Food & Waste

 [ ] Land [ ] Water [ ] Transportation

# Contact Information

### Project Lead

Applicant Name: Bobby Knier

Unit/Department: Student Government

Email Address: knier2@illinois.edu

Phone Number: Preferred Contact Number

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

Contact Name: Kristine Chalifoux

Unit/Department: Facility & Services

Email Address: kmchalif@illinois.edu

Phone Number: 217-244-1315

Organization Code: UIUC Organization Code (for CFOP) – Must not start with 9

### Facilities Management Contact *(If Applicable)*

Contact Name: Kristine Chalifoux

Email Address: KMChalif@illinois.edu

**Primary Project Team**

|  |  |  |
| --- | --- | --- |
| **Name** | **Department** | **Email** |
| Kristine Chalifoux | Facility & Services, Eng Design | KMChalif@illinois.edu |
| Brian Finet | Facility & Services, Eng Design | bcfinet@illinois.edu |
| Peter Schmidt | AgEd 480 Student | Email Address |
| Alex Hoveln | AgEd 480 Student | 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 of poorly lit areas around campus. In a 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. Many said they drive in order to not walk at night.

The group partnered with Student Patrol Officers, the Campus Lighting Committee, and Student Goverment 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 routes for residents in the south campus residence halls using the ACES Library, CRCE, and late night dining.

Initial lighting measurements were taken along the two paths and lighting was as low as zero foot candles and as high as .6 foot candles near existing lights. There is one existing globe style metal halide fixture on the west side Soybean that will be replaced. Existing lights within Illini Grove will remain. Due to the dense tree cover, these lights do not contribute to the availability of light along the west pathway.

The group partnered with Kristine Chalifoux, Architect and Brian Finet, Electrical Engineer, both at Facilities and Services Engineering Services to bring forward a proposal to the Campus Lighting Committee, who will carry the design 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 conventional lighting types. By blending safety and sustainability, this project will allow Facilities and Services to better understand the costs associated with future green lighting projects.

Providing better lit, safer walkways on campus, can also reduce the need for using automobiles. An overall reduction in environmental impact by just eliminating five vehicular trips balances the CO2 increase of the new lighting! Using LED lighting designed specifically for the application, with the least energy possible, best control of light spread, use-appropriate light levels, and sophisticated controls to allow only the light needed at any period of time all while improving the safety of our students on our pedestrian paths.

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

As we increase the safety of students on campus by adding lighting, this project will show how we can use lighting sustainably and help F&S develop improved Lighting Standards. Lighting will be energy efficient, low-glare, and Night Sky compliant. In addition, many students are relying on cars anmd cabs to move about campus due to wanting to avoid some of these overly dark areas. By providing safe, attractive lighting, we can increase safety with the smallest environmental footprint at the same time as reducing vehicular use. A win on all sides!

**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 on the path west of the National Soybean Laboratory. Both areas are noticeably darker than the surrounding areas. The Campus Lighting Committee has been monitoring both of these areas for several years but has not been able to direct these projects to funding sources to get them implemented.

There is currently one light on a 275 foot long sidewalk to the west of the National Soybean Laboratory. Four fixtures will be placed at 75 foot increments along the sidewalk to comply with electrical lighting requirements.

The improvements west of Illini Grove will add eleven fixtures at 50 foot intervals. The interval is smaller for this area so that the fixtures can be mounted below the tree canopy without requiring severe trimming of the branches and provide lighting only where neeeded.

Both arrangements create average 0.8 fc light levels at an energy cost of less than 25 Watts per fixture. These improvements have been prepared with the help of Facility and Services engineers.

**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 primary project team was five students from the ASES AgEd 480 class. All were seniors last spring and have moved on to careers beyond the University of Illinois. Their interest in this project was to provide a legacy for current and future students that touched on both safety and energy efficiency.

The Campus Lighting Committee, a subcommittee of the Campus Public Safety Committee, has long identified this area as needing lighting. Without funding, there has been no way to initiate this project. Should this project be funded, the Lighting Committee will be able to showcase another area of campus where they have worked together with various entities to improve the lives of our students.

The Facility and Services Maintenance Department maintains lighting throughout campus. With dwindling budgets, any improvement in the life cycle cost of lighting is an enourmous benefit. LED lighting will provide in excess of 400,000 hours of lighting compared to 20,000 for HID. This increase in life requires reduced maintenance, materials, transportation, and staff expense.

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

Students have been the driving force in developing this project. Both those surveyed, and the students who took on this project from ASES AgEd 480.

But the impact of safety is far greater than any other measurement. To be able to install this project in a way that reduces our impact on the earth is even better!

# 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 ASES AdEd 480 student group, Bobby Knier, nor the Campus Lighting Committee have submitted for funding in the past. Facility & Services has been awarded funding for projects.

**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 3.7 kWh of electricity a day. At the UofI’s 2017 electric cost of $0.0859/kWh, the project will cost $79 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.**

The project focuses on energy efficiency and light polition. The project fits in with the 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 withing 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 majoirity of all lighting on campus is LED well in advance of FY50.

The campus facility standards for Pedestrian Walkway Lighting is being revised. This project will be one of the first to test the proposed new standard. Nevertheless, this project will exceed the new standards and will meet the 2015 iCAP goal. It will also allow Facility 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 point of each electrical tie-in. This energy consumption can be compared to the standard baseline for a lighting fixture to determine the energy use and cost savings. The efficiency of the LED lights and reduced maintenance should pay for themselves within five years of use. The impact of light pollution can be measured using a light meter. Baseline measurements were taken before the project and they will be again afterward. In addition to energy and night lighting associated with the fixtures, the reduced use of personal cars and cabs will grow evident as this and future lighting projects are implemented by reduced parking contracts and surveys of students.

**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 living and visiting 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.

This project will also be shared with the Daily Illini, the Student Governament, 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?**

Outreach 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 Committtee.

Provide the ACES Library and the 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 is a copy of the “Lighting Illini” Submital by the ASES AgEd 480 class.