

Proposal Details

G Hendrix

Section 1: Summary Information

* Project Title:	100% LED - Roadway & Parking Lots LED Light Project
* Duration (months):	12
* Total Budget (\$):	\$281,700.00
* Requested SGEF Funds (\$):	\$281,700.00
* Matching Funds (\$):	\$0.00
* Proposed Starting Date:	1/23/2017
PI Graduation Date (if applicable):	12/16/2017

Section 2: Applicant Information

	Full Name	Unit/Department	Phone	Email
* Principal Investigator	Lauren Reilly	Global Sustainability	727-420-07	lmreilly@mail.usf.edu
Investigator 1	Jeffrey Lowe	Engineering		jlowe2@mail.usf.edu
Investigator 2	Rajeev Kamal	Engineering Science		rajeev@usf.edu
Investigator 3	Arun Kumar Narasimhan	Chemical & Biomedical Engineering		arunkumar@usf.edu
Investigator 4	Antonio Lourenco	Facilities Management	alourenc@usf.edu	313-974-93

Section 3: Project Description

* Project background and purpose (reasons motivating request) (Max 500 words)

Currently, there are a variety of roadway and parking lot poles that are fiberglass, wood, aluminum, and concrete with either 250 watt or 400 watt high pressure sodium (HPS) fixtures, and under 100 as 103 or 154-watt LED. The purpose of this proposal is to request funding to replace the 250/400-watt HPS fixtures to LED campus wide. Facilities Management will provide the aluminum poles where necessary such as, to replace fiberglass poles. Last semester, a Roadway and Parking lot light conversion to LED project was funded by SGEF to convert 316 roadway and parking lot light fixtures to LED. The information in the application was based on a survey by Facilities department. During the design development phase of the project, an exhaustive survey of the campus roadways and parking lots was completed. It was found that the original estimate of 316 fixtures was for fiberglass poles only. There are additional 626 light fixtures on aluminum and other poles that need to be converted to LED as well, in order to see a greater impact on energy and carbon emission reduction.. As per the previous proposal for 316 fixture conversions, the energy and CO2 emission savings were about 178,224 kWh and 107 metric tons (US Environmental Protection Agency, 2015), respectively, per year. Adding the additional 626 lights would mean about additional 353,064 kWh in energy savings, \$30,010 in energy savings, and 212 metric tons reduction in CO2 emissions.

* Project activities (Max 250 words)

Student Assistants for Facilities Management were tasked with collecting data on every single light fixture on campus. Rajeev, Arun, Jeffrey, and Lauren collected the data over winter break using a map provided by facilities to note the type of pole, the type of fixture, and the wattage. It was found that a few fixtures were already LED, leaving 626 to be converted in order to achieve 100% roadway and parking lot LED lights in use.

* Project results (Max 500 words)

Overall, with all 942 roadway and parking lot light fixtures converted to LED campus wide, the energy demand is reduced by 531,288 kWh, \$45,159 is saved every year, and about 319 metric tons of carbon never emits into the atmosphere bringing USF closer to our 2070 carbon neutral goal. This project directly satisfies the Carbon Commitment, previously known as the American College and University President’s Climate Commitment which was signed in 2008, and beautifies the campus as all the illumination will be uniform campus-wide. An initial investigation to determine how many other universities in the state of Florida and countrywide were 100% roadway LED was started. Using phrases such as “100% LED University” and “Green University 100% LED” brought up examples such as university buildings or residence halls that were 100% LED, but did not mention the roadway and parking lot lights on campus. With further research, it is possible that USF would gain national recognition for having all the roadway and parking lot lighting as 100% LED.

*** Outcomes of the project (Max 250 words)**

This project aims to reduce the energy consumption on campus by targeting energy efficient lighting. Utilizing LED lighting throughout the campus will reduce the lighting energy demand by about 40%. Thus, the project will enable the University to reduce GHG’s along with its total electricity consumption. The upgrade of existing lighting to LED lights in the parking lot and roadway would result the following: • CO2 emissions reduction: 319 metric tons per year • Annual energy savings: 531,288 kWh • Annual energy cost savings: \$45,159 • Payback period: 10 years • Total fixtures to be changed: 942

* Annual Energy Savings	531,288 kWh
Annual Cost Savings	\$58,441.68
Return of Investment in %	0.21
Annual Green House Gas Reduction	0.00

*** Project Sustainability (Max 200 words)**

Installation, Operation, and Maintenance will be carried out by Facilities Management.

Section 4: Workplan and Budget Details

*** Detailed work plan/schedule of activities (Max 250 words)**

• Develop specifications for labor and materials working with FM engineers and staff • Issue and analyze bids • Managing product inventory • Create work schedules for contractor work • Inspect contractor’s work • Prepare interim status reports for SGEF, • Assist in troubleshooting issues through the project execution • Prepare final project completion report for the stakeholders

*** Budget breakdown**

Category	Request from SGEF	Applicant contribution	Total
Personnel (include all involved)	\$0.00	\$0.00	\$0.00
Equipment	\$0.00	\$0.00	\$0.00
Supplies/Materials	\$219,100.00	\$0.00	\$219,100.00
Contractual	\$0.00	\$0.00	\$0.00
Construction	\$62,600.00	\$0.00	\$62,600.00
Other (specify in budget justification)	\$0.00	\$0.00	\$0.00
Total Project Cost	\$281,700.00	\$0.00	\$281,700.00

*** Budget justification (Max 250 words)**

As the survey of every light pole and fixture has already been completed by students during winter break 2016, the additional budget being requested \$281,700 is solely for the 626 fixtures at \$450 each. SGEF has already funded \$152,200 previously for the conversion of 316 light fixtures. With this data mapped out, the light conversions will be conducted by the electrical contractors.

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