Solar Powered Lamps

University of Richmond

Emma Lenning, Elizabeth Bernstein,
Andrew Lopez, Maia Musial

Project Components

01
Culture of Sustainability

02
Environmental Impact

03
Implementation

04
Budget

Culture of Sustainability

"Implement sustainable practices in campus operations and services that steward the natural world and support human well-being."

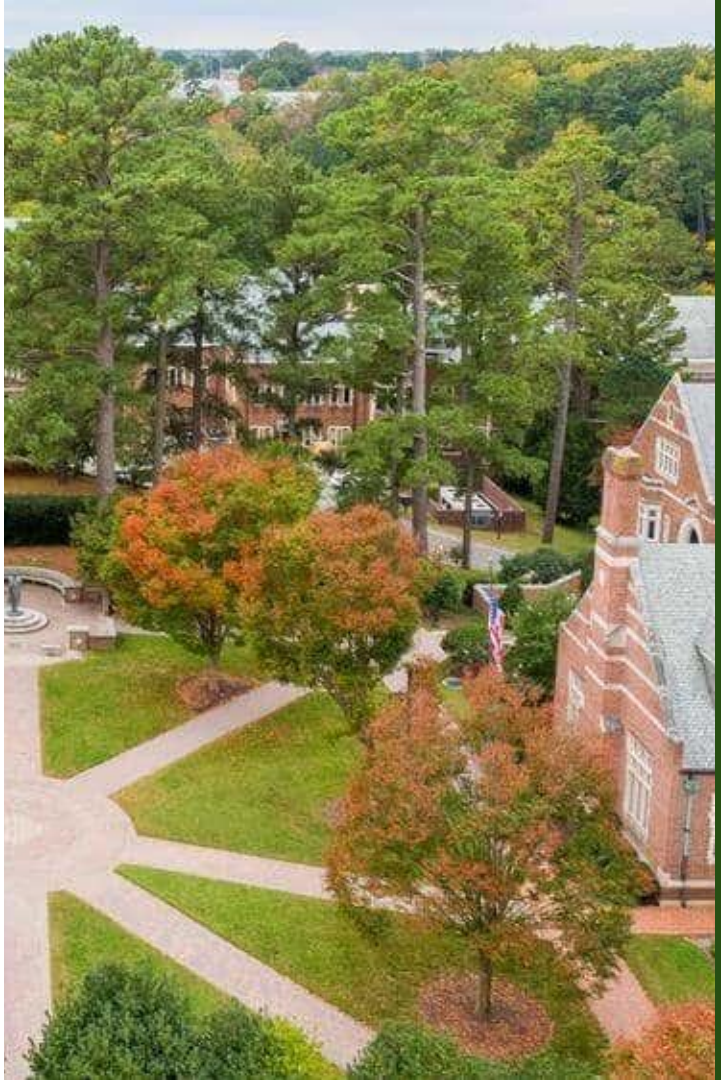
Goal 3 of the UR Sustainability Plan

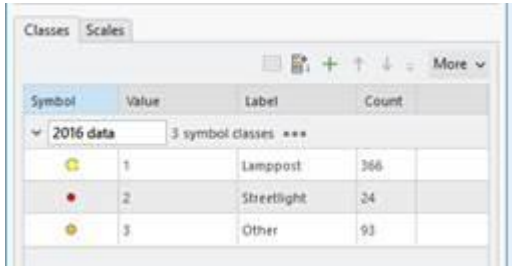
The Imperial Bulb II Solar Post Light

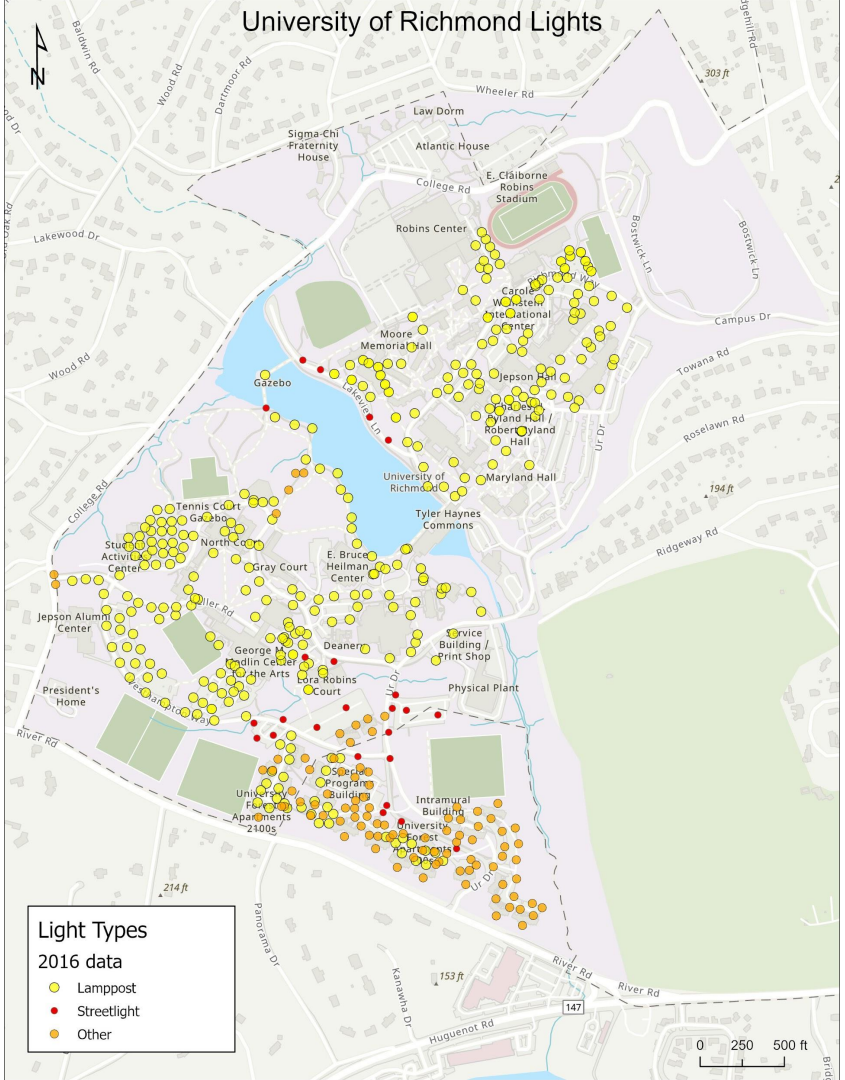
GAMA SONIC®
SOLAR LIGHTING

The Victorian Bulb Solar Light with Motion Sensor

Environmental Impact




Classes
Scales
More
Symbol
Value
Label
Count
2016 data
3 symbol classes
1
Lamppost
366
2
Streetlight
24
3
Other
93


University of Richmond Lights
N
Light Types
2016 data
Lamppost
Streetlight
Other
0
250
500 ft
Sigma Chi Fraternity House
Law Dorm
Atlantic House
E. Claiborne Robins Stadium
Robins Center
Moore Memorial Hall
Gazebo
Jepson Hall
Maryland Hall
University of Richmond
Tyler Haynes Commons
Tennis Court Gazebo
North Court
Gray Court
E. Bruce Heilman Center
Jepson Alumni Center
Deaner
Service Building / Print Shop
Lora Robins Court
Physical Plant
President's Home
George M. Modlin Center for the Arts
Special Programs Building
Intramural Building
Lakewood Dr
Wood Rd
College Rd
Wheeler Rd
Campus Dr
Towana Rd
Roselawn Rd
Ridgeway Rd
River Rd
Huguenot Rd
Bostwick Ln
Ur Dr
Panorama Dr
Kanawha Dr
303 ft
214 ft
194 ft
153 ft
147

Fossil Fuels Emission Reduction

.96 kWh

Per streetlight per day

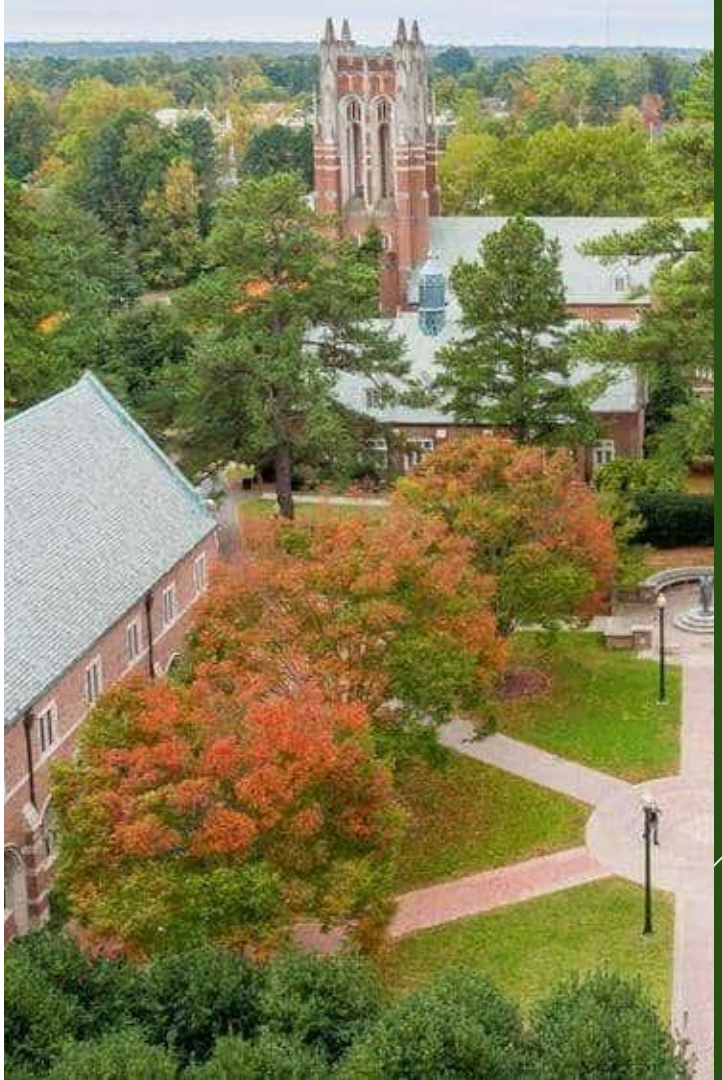
351.36 kWh

Per day for all streetlights on campus

128,246.4 kWh

Per year to light campus

Implementation



Assess Feasibility

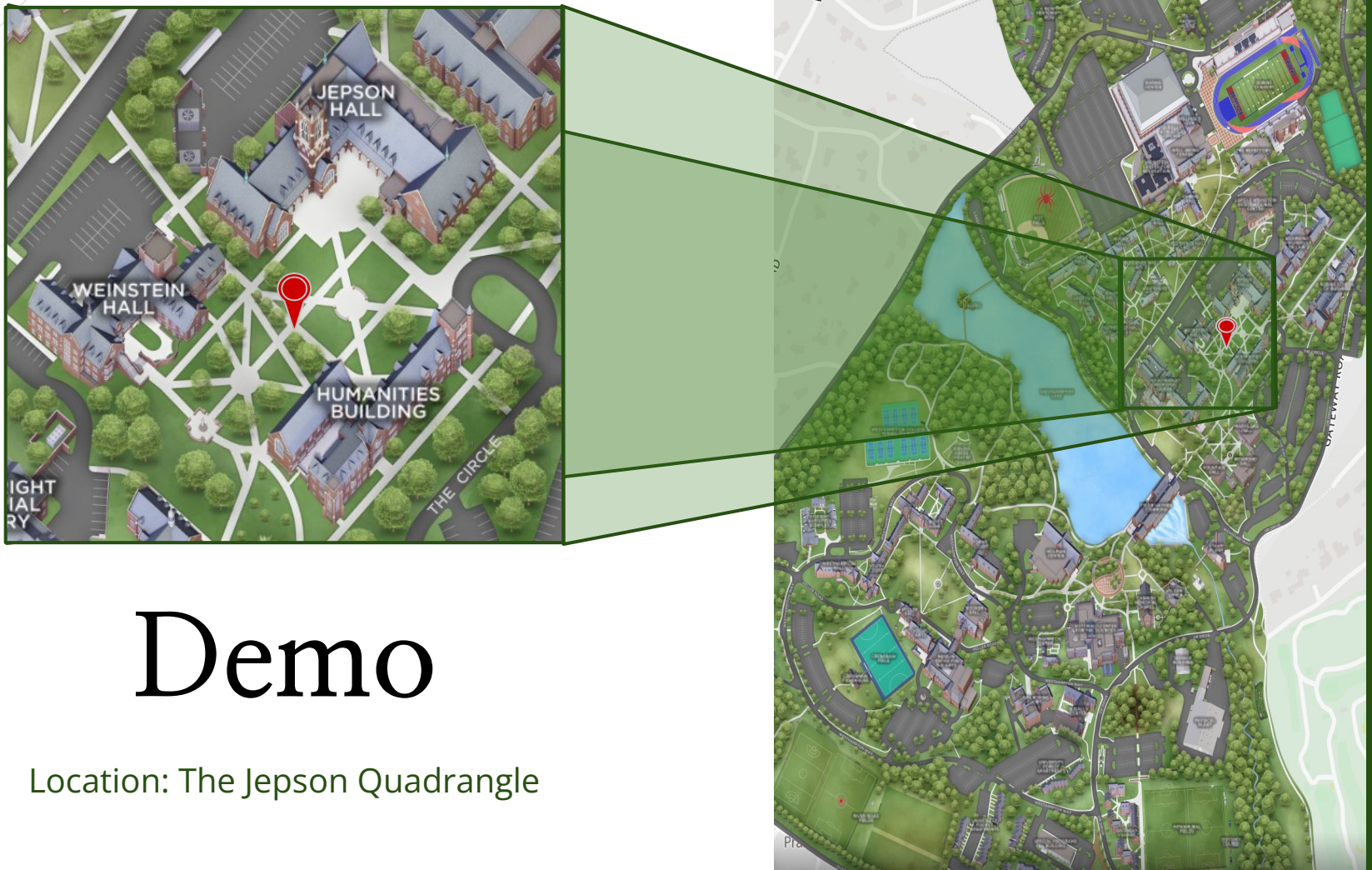
Consult UR facilities department & potential funding opportunities

Create Demo

Troubleshoot any obstacles

Transition to Solar

Transition all of UR's lamp posts to solar power



Demo

Location: The Jepson Quadrangle

1 hour per lamp → 8 hour total for demo

Maintenance

Basic Upkeep

Weather Deterioration & Rust Resistant

Three-Year (1,000 Charges) Lifespan

Ten-Year Lifespan

Lighting Alternatives

Hybrid Lamp Post Technology

Integrated Lighting System

Non-renewable Energy

"A Gama Sonic typical Commercial Solar LED Post Light will require **approx. 2.5 hours** of sunlight **to power the light through a full 12-hour night**, and a 4-hour charge is enough for 2-full nights." - Gama Sonic

Budget

Current Total Electricity Cost

128,246.4 kWh

Street Light Energy Usage Per Year

$0.08

Cost per kWh

$10,259

Energy Cost per Year for Street Lights

Cost of Solar Street Lights

366

Street Light Count

$209.99

Material Cost per Light

$100

Installation Cost per light

$79,419.44

Total Cost of all Street Lamps after 30% Tax Credit

The Plan in Action

A Culture of Sustainability at the University of RIchmond

The Demo

Lamp Posts

Total Cost

Material Cost, Installation Cost, and Tax Credit

Payback Time

Cost Savings per year

Thank you

Information on Solar Powered Lamp Posts and Bad Weather

The Imperial Bulb II Solar Post Light

The Victorian Bulb Solar Light with Motion Sensor