

POSITION ANNOUNCEMENT:

FUTURE PARK LEADERS of EMERGING CHANGE

The National Park Service (NPS) is pleased to support the *Future Park Leaders of Emerging Change* (FPL) program as a pathway for exemplary students in higher education (advanced undergraduate students and graduate students) to apply their skills and ideas to park-based challenges and solutions. The Initiative offers 12-week paid internships which allow students to gain valuable work experience, explore career options, and develop leadership skills through mentorship and guidance while helping to advance NPS efforts on emerging management issues. Successful students may be eligible for non-competitive hire into federal positions for which they qualify following completion of all academic requirements.

A BLUEPRINT FOR SUSTAINABLE PARK FRIENDLY LED LIGHTING

National Park Service (NPS) Natural Sounds and Night Skies Division, Fort Collins, Colorado

INTERNSHIP PROJECT BACKGROUND

Staring at the night sky with the light band of the Milky Way streaking overhead is a quintessential experience for many national park visitors. Astronomy based evening programs are among the fastest growing and most popular activities offered at national parks. However, light from park facilities and the cumulative glow of nearby towns and distant cities causes light pollution that substantially diminishes views of the night sky. Outdoor lighting is also a major driver of climate change, contributing up to 6% of overall global warming. Light pollution from outdoor lighting is pervasive, with widespread impacts to many park resources and values including: wildlife, night skies, cultural resources, wilderness character, and visitor enjoyment. Protecting night skies in national parks is critical for meeting our obligation under the Organic Act to protect national park resources and values for the enjoyment of future generations. The NPS Night Skies Program is a leader in understanding and reducing light pollution. As part of the Natural Sounds and Night Skies Division, our team of scientists, engineers, policy experts, and communications staff use science-based stewardship, educational outreach, and cooperative partnerships to assess, protect, and restore night skies in parks and communities nationwide. Throughout the national park system, outdoor lighting systems often are outdated, inefficient and in need of updating. Outdoor lighting is typically replaced when “the bulb goes out”; without much forethought or comprehensive planning. This blueprint will help parks transition out of that model into a new business model that leverages economies of scale and recognizes appropriate trade offs in efficiency for mission driven objectives while advancing the conservation of national park resources and values and the development of engineered solutions/technologies to help the park service meet its conservation obligations.

INTERNSHIP PROJECT DESCRIPTION

The main audience for this work will be internal. However, since the framework for this process builds on work and tools produced by the Department of Energy, the Climate Group, and many cities/municipalities in the U.S. that have made similar transitions, there will be external audiences as well. Further, since we are a Washington Headquarters office, it is likely that this work will be used to inform policy development and guidance regarding sustainable outdoor lighting and the preservation of dark night skies, and influence decision making and management actions at the park and system level as we seek to transition NPS to smarter, more current, mission driven, outdoor lighting infrastructure.

The blueprint/strategy/report will address both energy and LED lighting infrastructure considerations and include a blueprint for implementation (checklists, templates, etc.) along with timelines and recommendations for demonstration/feasibility projects at parks with a high likelihood of success (intern will identify metrics for success) that can be implemented at the park level. Specifically, the report will identify:

- the benefits and challenges of connected smart LED lighting for reducing light pollution and meeting NPS management objectives;
- options for parks wanting to transition to outdoor LED lighting in a thoughtful comprehensive way (i.e., not just replacing light bulbs as they go out),
- a step by step process to guide parks system-wide in the transition to an outdoor lighting infrastructure;
- how adaptive technologies such as timers, dimmers and motion detectors can further reduce impacts and improve efficiency and cost savings.

Specific tasks include:

- Conduct research via literature reviews, interviews, outreach and traditional research methods on outdoor lighting and connected outdoor LED lighting infrastructure
- Analyze, synthesize, and organize data in a logical, organized format
- Draft a blueprint strategy to transition individual parks and the park system to more park friendly LED lighting infrastructure that meets NPS objectives for night skies, wildlife, wilderness, cultural resources and visitor enjoyment and is energy efficiency.
- Develop and give a Power Point/Webinar presentation to NSNSD, parks and other stakeholders on the final product.

Products/Deliverables

1. Synthesis of data conducted regarding various aspects of outdoor LED lighting, connected networks and adaptive LED technologies that would be appropriate for park purposes,
2. A paper that discusses benefits, costs, and challenges/obstacles for parks that want to switch to outdoor LED lighting systems including connected smart systems,
3. A blue print or description of a process and the steps it would take for parks to transition to smart, connected LED outdoor lighting infrastructure, along with recommendations for a system wide approach
4. A presentation at the end that walks NSNSD and other interested stakeholders through the research results, the paper and the process developed.

QUALIFICATIONS

Graduate student preferably close to graduation

- Ability to work independently in a professional setting (mature, poised, self confident, etc.)
- Interest in natural resources, public policy, sustainability, energy efficiency and innovative technologies
- Ability to organize, synthesize, analyze and manage large data sets and different types of information
- Good writing skills
- Ability to present information visually and orally in a useful, easy to understand manner using various technologies
- Ability to come up to speed on new topics and grasp new concepts quickly
- Basic understanding of NPS natural resource stewardship (chapter 4 NPS Management Policies)
- Knowledge of LED technologies and adaptive technologies
- Knowledge of outdoor lighting design, principals and planning, landscape design/construction
- Willing to learn and become familiar with park facilities and maintenance operations and how energy infrastructure affects outdoor lighting options

LEADERSHIP DEVELOPMENT

The supervisor (division chief and staff) will mentor and work with the intern to guide research and research methodologies consistent with NPS requirements. NSNSD staff routinely employ and advise graduate students and post docs and therefore, are quite adept in both mentoring and evaluation of students. The intern will be introduced to various project management options and guided through appropriate behavior for stakeholder engagement. The intern will also be given subject matter training which, along with the project requirements, will facilitate the development of real-world problem solving skills and the ability to think critically and develop new approaches for addressing outdoor lighting issues in parks (old, inefficient lighting). In carrying out the tasks necessary to complete this project, the intern will communicate with industry and agency experts with many opportunities to not only develop, but also employ various leadership qualities.

DATES OF POSITION

This project is 12 weeks in length and somewhat flexible between Mid May and September 1, 2019.

COMPENSATION

This initiative supports one student at \$16/hour for 12 weeks, or 480 hours.

HOUSING

A housing subsidy is available for the student to obtain temporary housing in Fort Collins. The intern will be responsible for finding housing. Fort Collins is a college town and therefore, shared housing is available throughout Ft. Collins including both apartments and group houses. Dorm rooms on campus are also available. The city is amazing – beautiful, clean, and easy to get around (walking, bike, public transportation, or your own vehicle) with little crime, a river running through it, and easy fast access to white water rafting, hiking, cycling (great trail system for mountain biking and road biking), and pretty much any outdoor activity you can think of. Fort Collins lies along the front range which is the foothills

to the Rockies and it is known for its exemplary natural areas, outstanding music scene, and great weather (sunny and dry most of the time).

WORK ENVIRONMENT

The Natural Sounds and Night Skies division is a Washington DC headquarters office within the Natural Resource Stewardship and Science directorate, most of which is located in Colorado. The work will primarily be done in our offices located at 1201 Oakridge Dr, working alongside the division's top experts. However, given the proximity of Rocky Mountain National Park and the NPS Intermountain Regional Office in Denver, a few site visits will be planned as well. Our building is a smoke free three-story building situated in south Fort Collins.

CONTACT INFORMATION

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