

Grand Canyon

2016 - 2017 IDA Report

National Park Service
U.S. Department of the Interior

Grand Canyon National Park



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PARK PROVISIONAL STATUS

In June 2016, Grand Canyon National Park (GRCA) was named a provisional International Dark-Sky (IDA) Park. To become provisional, significant effort was taken by GRCA to inventory and create a GIS database of the approximately 5000 light fixtures that reside in the park. Lighting Guidelines were also drafted to give guidance to the many entities who will be conducting the retrofits. Currently, of those 5000 light fixtures, roughly one third are IDA compliant. The park has until 2019 to retrofit two-thirds of its lights. Once the retrofits are completed and GRCA obtains full compliance, GRCA will become the most light-heavy park yet to achieve IDA compliance.

LIGHTING

GRCA's Lighting Guidelines have been completed and are currently on the desk of the superintendent to review and sign. This marks a major milestone. From here, we will be able to distribute the document to concessionaires and other non-NPS entities inside the park that will use the guidelines to understand retrofitting, the different lighting zones within the park, and to ultimately begin their own retrofits.

In 2017, between the NPS and concessionaires, 35 exterior light fixtures at and around the South Rim Visitor Center have

been replaced as well as 84 fixtures at Albright Training Center Dormitory and 173 fixtures at the Paiute Circle Apartment Buildings.

Currently we are completing compliance and testing for three large phases of retrofitting:

- Phase 1 will include approximately 270 exterior fixtures of all exterior lighting at Rim buildings and landscape from Verkamp's Visitor Center on the east to the Bright Angel Trailhead on the West. It includes the Hopi House and El Tovar Hotel, both north and south sides of Kachina, Thunderbird and Bright Angel Lodges, Lookout Studio, Kolb Studio, and retrofit of all existing Rim Trail lighting between the El Tovar and Bright Angel Trailhead. Of the 270 fixtures, up to 21 will be new pathway bollards where no lights currently exist; approximately 86 will be replaced with new fixtures; approximately 140 will be re-lamped with dark sky compliant LED lamps; and, approximately 23 fixtures will be removed.
- Phase 2 is focusing on 168 exterior fixtures on 46 residential homes along Havasupai Street. Of those, approximately 146 will be replaced with new fixtures; 18 are shielded and are compliant, but will be re-lamped with dark sky compliant LED lamps; (3) cobra head style street lights will be fitted with Cul-de- Sac Shields to diffuse the

brightness; and, one fixture will be removed.

- Phase 3 is focusing on replacing ~100 residential fixtures for multifamily housing south of the Backcountry Office.

SKY QUALITY

Sky Quality Measurements (SQM) are collected at least bi-annually along the South Rim and in Tusayan. There was not a significant change in measurements from 2015 to 2017.

In addition to SQM data, the park is currently in conversations and is pursuing a permanently mounted DSLR sky monitor. With our current activity in retrofitting the village along with emerging external threats, the need to collect higher quality time-series data is becoming more relevant.

FUNDING

GRCA's level of development and vast number of light fixtures poses unique challenges in not just the complexity of planning for, tracking, and executing retrofits, but also in figuring out ways to pay for the retrofits. This project would not be possible without the generous support of the Grand Canyon Association (GCA) and the individual donors for providing the majority of the funding for the program. As part of GCA's Grand Vision Campaign which is focused on the Grand Canyon 2019 Centennial the association is hoping to raise \$750,000 for the program. In addition, we have submitted an application to the Applied Helium Act for an additional \$100,000 to support retrofit costs.

OUTREACH

Our 2017 Dark Sky Party was once again a success. On the South Rim, 30 to 51 telescopes were set up each of the 8 nights, with an average of 1,403 visitors attending each night (1,709 on the peak night). We had a total nighttime attendance of over 11,000 over the 8 days! In concurrence with the telescope viewings, our night sky theater presentation reached its capacity of 230 every night. Additionally, three nightly Constellation Tours averaged 54 participants. We had 98 volunteer astronomers participate having almost 70,000 astronomer-to-visitor contacts! That's eyeballs to eyepieces.

On the North Rim, there were over 12,000 astronomer-to-visitor contacts provided by 13 volunteer astronomers. Each night a formal evening program was given with an average of 115 visitors in attendance per night.



Photo 1: Visitors look into displays full of meteorite samples. Photograph provided by Kevin Legore.

MEDIA COVERAGE

Significant media coverage occurred when the park received its provisional status in June 2016. News outlets covering the event included: the Smithsonian, Toronto Star, the AZ Central as part of USA Today, KNAU as part of NPR, AZ Daily Sun, Space.com, and the Lonely Planet Travel News.