

Antelope International Dark Sky Community (within Oregon, USA)

Nomination Application to DarkSky International

[Do not include cover page in pagination scheme. Provide a Table of Contents following the cover page, followed by the inclusion of nomination letters from the nominator and an elected community official]

Graphic or Photo

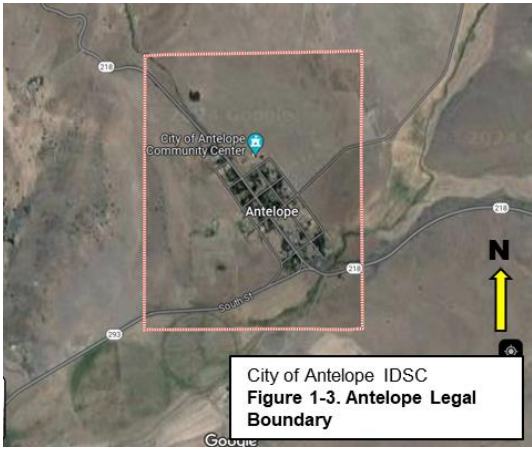
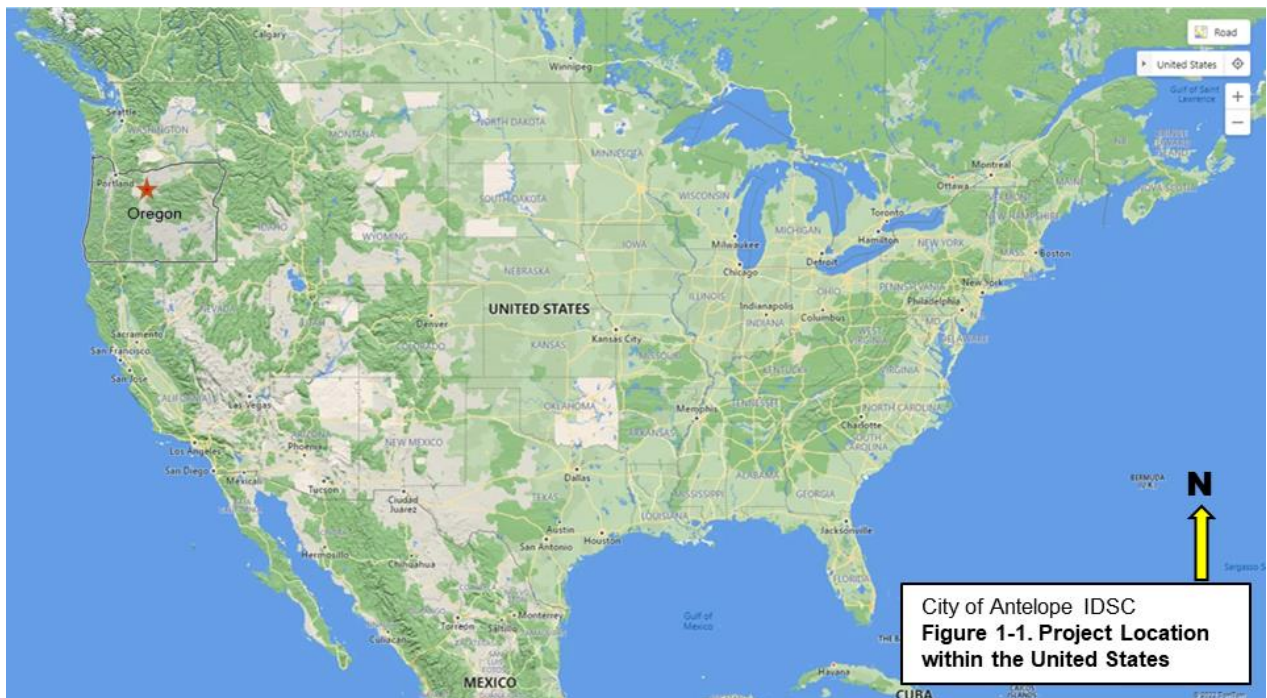
Month/Year of Submission

CHAPTER 1. PROJECT PURPOSE AND SETTING

[Use the level headers, colors, and font styles shown in this document to keep any IDSC applications submitted from Oregon fairly consistent with Travel Oregon style guidelines.]

1.1 PROJECT LOCATION

[Describe the town or city location in the context of where it is in the United States (i.e., Pacific Northwest Region), Oregon, and its exact locale. Describe the city’s legal boundaries. Provide maps showing locational context. If possible, you can add a map insert to the Oregon map that shows project location within the United States. Remember, the nomination review committee is an international audience. Not everyone who will review the application knows where Oregon is let alone where certain counties and cities are located. Describe the geographic size of the community and its host county. When using any measurement units, use both English and metric units to the extent practical. Sample maps for the City of Antelope are shown.]



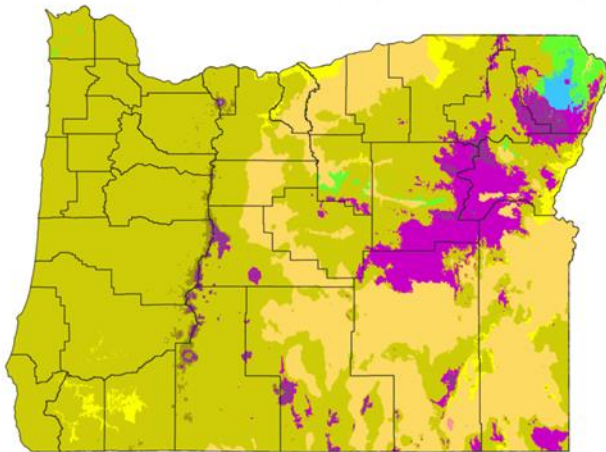
1.2 PROJECT PURPOSE

[Briefly describe the purpose for nominating the community. Some communities like Borrego Springs, California nominated its community for International Dark Sky Community (IDSC) certification because it wanted to deter folks from using outdoor lighting that would disrupt its community character. More lately, nominations for IDSC's are primarily driven by the desire to boost the local economy via dark sky tourism. Your community may have several objectives. If applicable, describe both primary and secondary objectives of the nomination.]

1.3 PHYSICAL AND NATURAL ENVIRONMENT

[Describe the physical and natural setting of the community. In other words, describe the local and regional geography. What is the geology, topography, and climate of the community and its environs? Describe the ecosystems of the area. Are there any priority habitats in the area as determined by Oregon Department of Fish and Wildlife? What types of flora and fauna might one expect to see? Use the following maps to describe and potentially illustrate the physical and natural setting: Aerial Map (available from Google Maps and Google Earth), Topographic Map (available from U.S. Geological Survey or Oregon's GIS database), Oregon Climate Types (see below map to identify type(s) in your community), Habitat Type and Composition (you can use the below map for EPA Level III ecoregions; look up Level IV as well; Oregon Habitat Types may also be found online). Whether or not you will need to include figures of these maps depends on community scale and variety of terrain, etc. Include photographs of special geologic features and flora and fauna.]

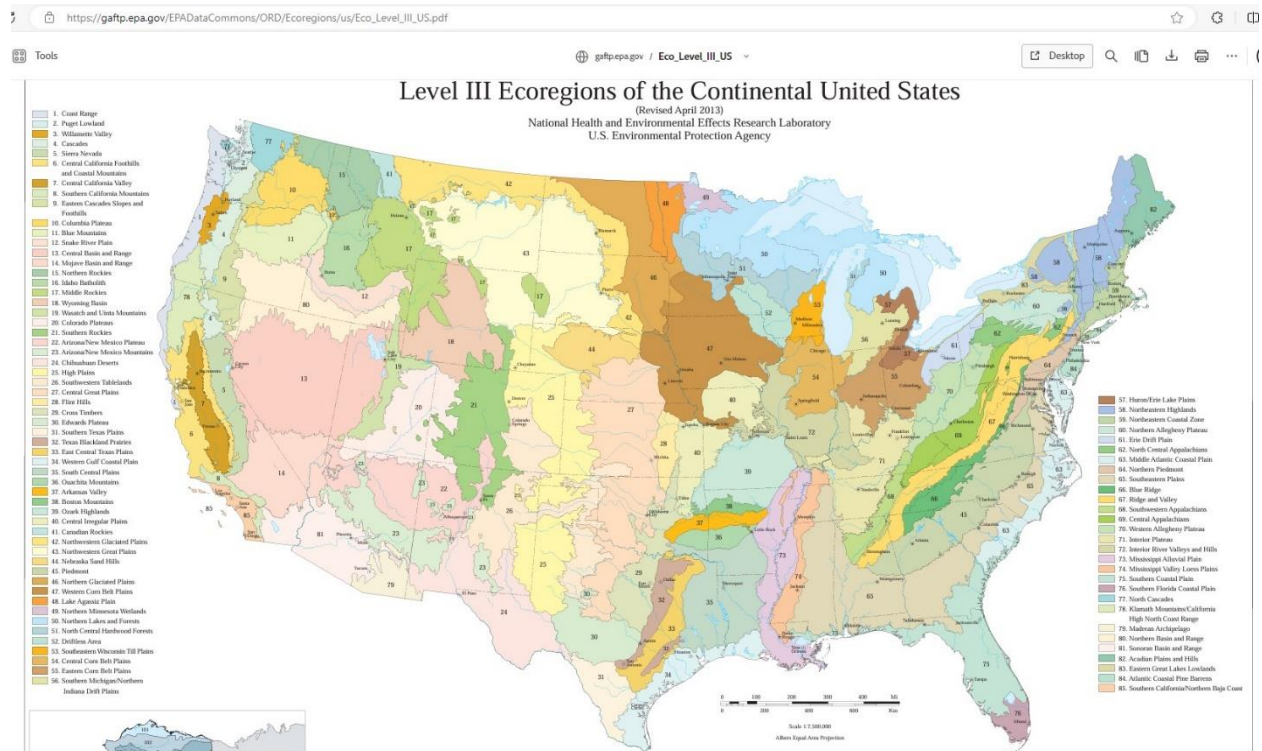
Köppen Climate Types of Oregon



Köppen Climate Type

BWk (Cold desert)	Cfb (Oceanic)
BSk (Cold semi-arid)	Dsb (Warm-summer mediterranean continental)
Csa (Hot-summer mediterranean)	Dsc (Dry-summer subarctic)
Csb (Warm-summer mediterranean)	Dfb (Warm-summer humid continental)
Csc (Cold-summer mediterranean)	Dfc (Subarctic)
Cfa (Humid subtropical)	ET (Tundra)

Data sources: 1991-2020 climate normals from PRISM Climate Group, Oregon State University, <https://prism.oregonstate.edu>; Outline map from US Census Bureau



1.4 SOCIOECONOMIC AND CULTURAL SETTING

[Describe the socioeconomic setting of the town or city. Describe land use per the city's Comprehensive Plan. Describe local and surrounding zoning. Describe the local and regional transportation system. Are the roads one lane, two lanes, more? Are the roads accessible most the year? Provide road maps if they would aid in the description. Provide demographic information such as population size, trends in population size, average age of population, percentage of senior citizens compared to statewide percentage, population density, median household income, etc. Compare demographics to statewide averages. Provide enough demographic information to give the reader an idea of the character of the community. Perhaps generate a table from the U.S. Census Bureau comparing the city or its Community Development Area to the State of Oregon. Provide photographs that give a general impression of the socioeconomic setting, including photos of the city's commercial area, any buildings greater than 50 years and 100 years, and community parks. Photos may include both active and inactive buildings, such as new developments, relic barns, old churches, old mills, etc.

Describe the cultural setting of the town or city and its surrounding area. Provide both a prehistoric and historic setting. What tribal territory does the community occupy? What type of colonists settled the area? Farmers? Ranchers? Loggers? What was the predominate industry 100 years ago versus today? Are there any historic or prehistoric landmarks nearby? *NOTE: do not map or give specific location information on any known prehistoric sites.*

1.5 RECREATION AND TOURISM

What geological, biological, cultural, or celestial features attract people to recreate within the area? Are there particular sites that are most frequented? Identify the primary types of recreation in or near the community. Recreation types include, but are not limited to, fishing, hunting, bicycling, hiking, rock climbing, winetasting, gardens, stargazing, shopping, and ghost town exploration. Is there a reasonable amount of infrastructure to

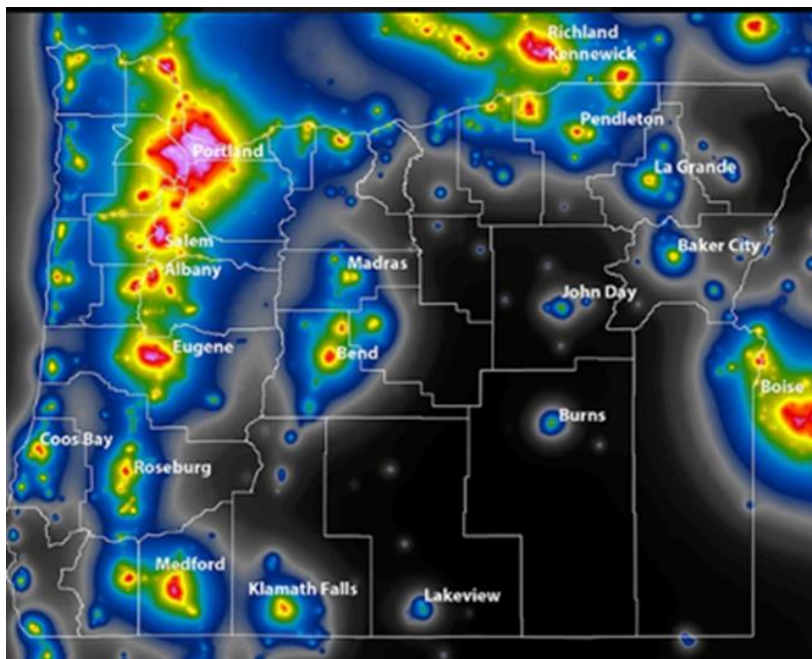
accommodate additional tourism in the area? What are the limitations? Are there guided trips to the area? Are there any museums or self-interpretive kiosks nearby? Are there designated scenic roads or byways? Are there designated scenic rivers? Provide a map showing key locations in town or nearby that provide good opportunities for stargazing and other dark sky tourism endeavors.]

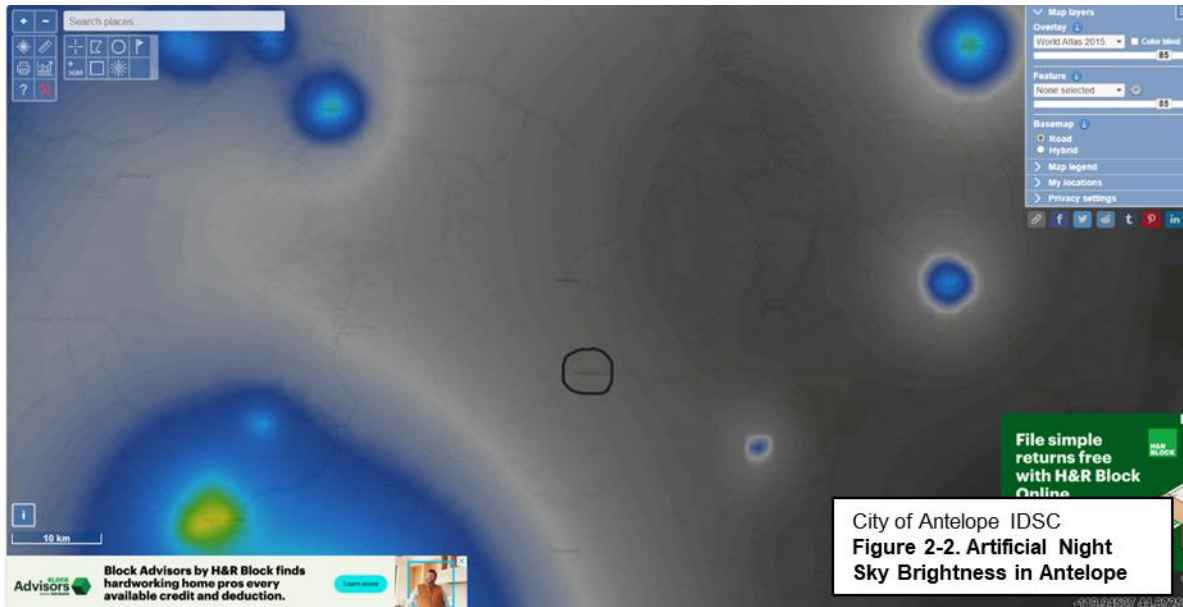
CHAPTER 2. SKY QUALITY MEASUREMENTS

[Start each chapter at the top of the page. For practical purposes, create each chapter one by one with its own pagination starting with the chapter number then the page number. For example, *Page 2-2*. This allows you to build the document with more than one author, perhaps a different author for each chapter, and it provides greater ease in editing and document production when incorporating comments by internal and DarkSky staff and committee reviewers.]

2.1 NEW WORLD ATLAS OF ARTIFICIAL NIGHT SKY BRIGHTNESS

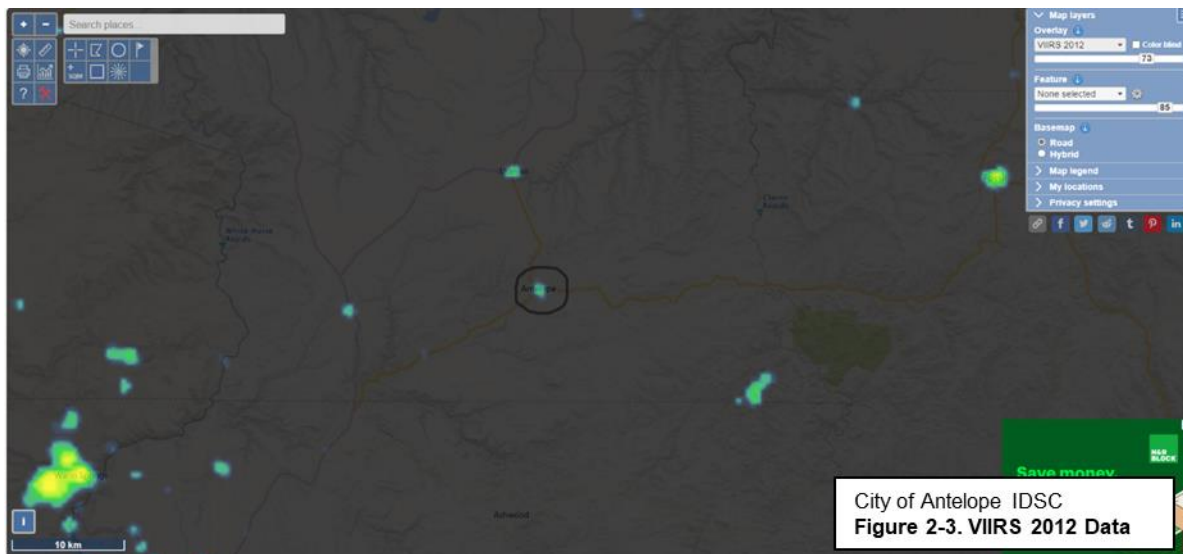
[Describe the level of night sky brightness within the community and within at least a 10-kilometer radius using the New World Atlas of Artificial Sky Brightness (Falchi, F. et al, 2016) as a reference. Identify the level of darkness by Bortle Class. Include the figure below with your site identified on it. Describe your site in comparison to neighboring communities and the state. Include a larger scale night sky brightness map such as the example for Antelope below. Where are the nearest light sources beyond your community? Which areas pose the greatest threat to the sky quality of your city? Can any light domes be seen from your city? Is the skyglow from your city visible within a 10 km radius?]

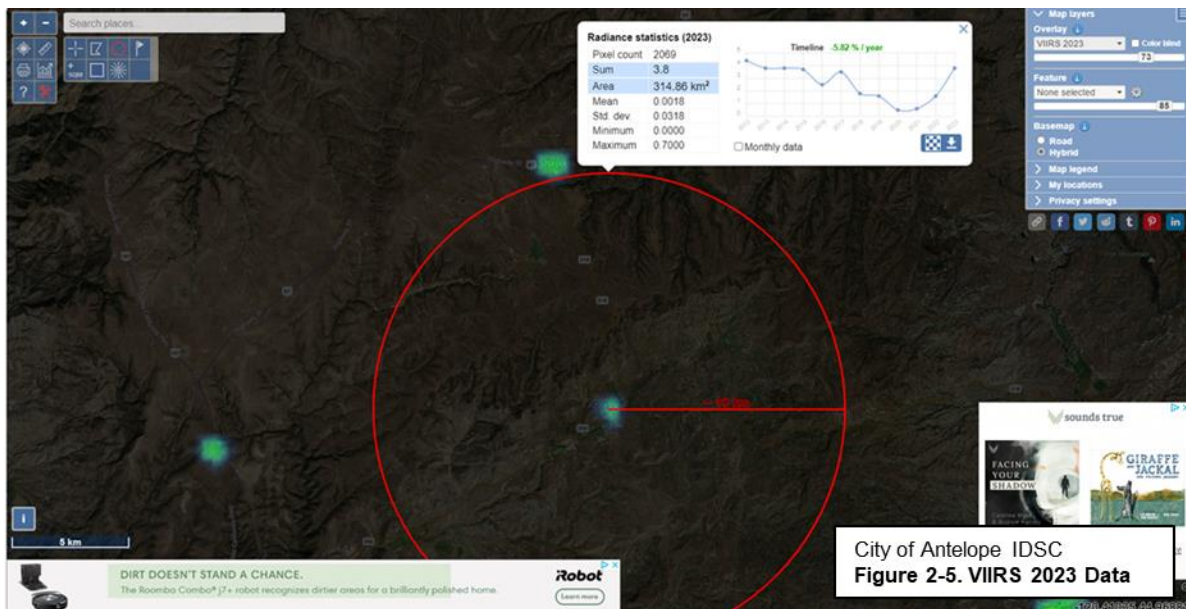
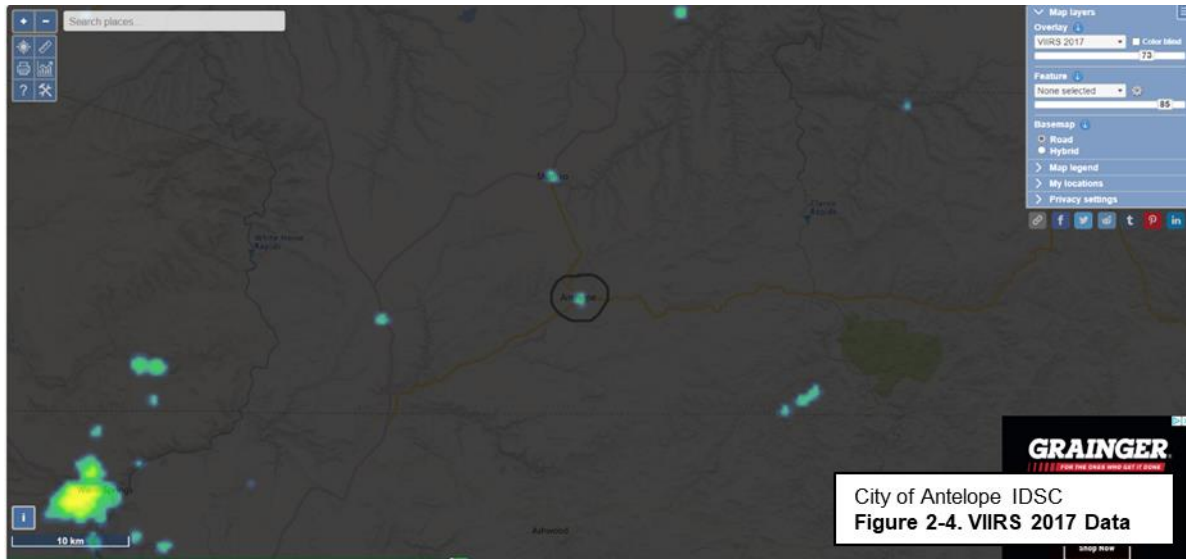




2.2 VIIRS DATA

[Consult imagery provided by the Visible Infrared Imaging Radiometer Suite (VIIRS). Provide imagery from the 2012 dataset and the most recent dataset (currently 2023). Since it's known that there was some extensive calibrating with the VIIRS Day/Night Band beginning in January 2017 and that the improved calibration results in better radiometric quality, especially for low radiance, a map of 2017 should also be included for comparison. The 2017 map should show a reduction of erroneous negative radiances, especially during the new moon. Compare and contrast the three images. Identify trends and try to show the trend analysis in the 2023 image as provided in the sample figures for Antelope.]





2.3 SQM DATA COLLECTION POINTS

[Briefly mention DarkSky Oregon’s Oregon Sky Glow Measurement Network and how a continuous sky quality meter(s) (SQM) has been set up in the community as part of that program, if applicable. If there is only one stationary SQM, indicate established monitoring locations using handheld SQMs. Monitoring should occur over a period of at least two full seasons and be expected to continue with the longevity of the certification. Include a figure showing monitoring locations and provide a brief, physical description of the monitoring location(s).]

2.4 SKY QUALITY MONITORING FINDINGS

[This section describes the results of sky quality monitoring up to the time of application. These results are best presented in tables and charts with just a brief narrative to summarize the tables and charts (e.g., box plots and histograms). Describe the results of the monitoring in relation to other monitored areas within the state.]

Are the skies above your community darker than most or brighter than most communities of a similar size? If your community is included in the Oregon Sky Glow Measurement Network, use the twice-yearly reports prepared by DarkSky Oregon to access your results.]

2.5 NIGHT SKY PHOTOGRAPHY

[Night sky landscape photography is a great tool to demonstrate the quality of your sky and is helpful in establishing trends. Some guidelines for night photography include: (1) provide specifications for each photo, such as f-stop, ISO, aperture, lens size, and camera type, (2) capture the ground and the sky in a single shot and do not use any artificial light to “paint” the image, (3) strive to mimic what the naked eye sees instead of creating images with long exposures that the eye will never see even under the darkest sky, and (4) try to include a well-recognized constellation or star cluster in the shot so one can determine sky quality by just how many stars within a particular constellation are visible from your community.]

CHAPTER 3. OUTDOOR LIGHTING INVENTORY

3.1 METHODOLOGY

[Briefly describe the methodology used to inventory lighting within the community so that it’s clear that efforts were made to inventory all the necessary lights.]

3.2 INVENTORY RESULTS

[This section describes the results of the inventory, both initially and after retrofits were made. In both narrative and via photographs, identify the variety and number of lights inventoried and evaluate the proportion of those lights that follow good lighting principles. Before and after imagery will be provided in Chapter 4, the heart of the application. Provide a figure indicating the locations of inventoried lights. Provide tables summarizing findings for both private and public lights.]

CHAPTER 4. COMMUNITY LIGHTING POLICY

4.1 SUMMARY OF LIGHTING POLICY

[Summarize the main features and provisions of the most recent outdoor lighting or dark sky ordinance or lighting policy and highlight any special features, such as those that go beyond what is required by DarkSky. Address whether there was any outdoor lighting ordinance/policy in the past, and if so, what were the steps taken to modify it and what was the impetus for doing it. Describe what type of community outreach was made to adopt the current outdoor lighting ordinance/policy. Provide any graphics from the adopted ordinance/policy or from other publications that will help with the summary. Reference the entire lighting ordinance and include the ordinance/policy in full in Appendix C. Review Pages 4-6 of the *International Dark*

Sky Community Program Guidelines (DarkSky, 2018, Updated September 2023) to be sure all minimum lighting requirements are met.]

4.2 LIGHTING IMPROVEMENT PLAN/RETROFITS

[This section describes what lighting improvements, commensurate with good lighting principles, were made in the past prior to adopting an outdoor lighting policy, what improvements were made on behalf of the nomination, and what improvements are planned in the future. This section will also describe the activities and timeline to fully implement the lighting policy in accordance with DarkSky IDSC Guidelines. Describe city-owned lighting conforming with, or committed to conforming with, the lighting policy (if the latter, a detailed plan with a timeline for completion in no more than five years needs to be included). Include before and after photos for a variety of fixture types and lighting locations. Describe the community's success in light pollution control as demonstrated by at least one of the following means: (1) examples of a number of construction projects, appropriate to the community population, and/or (2) amount of new construction and renovation activity built under the lighting policy and demonstrating its effective application. If there are considerable past and future mitigation efforts, consider dividing this section into subsections, as indicated below, to provide better organization and a more readable application.]

4.4.1 Past Mitigation Efforts

[Insert text here if applicable.]

4.4.2 Improvements Achieved Since Project Initiation

[Insert text here if applicable.]

4.4.3 Future Mitigation Efforts

[Insert text here if applicable.]

4.4.4 Lighting Policy Benchmark Plan

[Lay out a clear timetable citing actions for accomplishing the goals of the lighting policy.]

CHAPTER 5. COMMUNITY COMMITMENT THROUGH OUTREACH

[This chapter needs to demonstrate the community's commitment to dark skies and quality lighting beyond adopting an outdoor lighting policy. This chapter focuses on education and outreach both prior to certification and planned post certification].

5.1 OUTREACH PRIOR TO NOMINATION

[This section describes all the education and outreach activities performed by the community or by advocates or journalists outside the community in support of a nomination. Past community support of dark skies and quality lighting may be demonstrated by city publications, flyers, public service announcements, funding of lighting upgrades, etc. Demonstrate broad support for dark skies from a wide range of community, regional, and statewide organizations, such as chambers of commerce, local electrical utilities, DarkSky Oregon, astronomy clubs, lighting retailers, homeowners' associations, environmental non-profit organizations, Tribal

partners, and others. Depending on the extent of the past outreach conducted, you may want to subdivide the text for readability (see formatting scheme below). At a minimum, be sure to consider touching upon the topics stated in the subsections below. Also depending on the content that you have to share, you may consider tabulating activities by category.]

5.1.1 News Articles and Social Media

[Insert text here if applicable.]

5.1.2 Programming and Events

[Insert text here if applicable.]

5.1.3 Local Promotions

[Insert text here if applicable.]

5.2 Outreach Plans Post Certification

[This section describes the community’s commitment to dark skies and education moving forward post certification. Per DarkSky Guidelines, be prepared to demonstrate commitment by at least one of the following measures: (1) planning and executing at least two community dark sky awareness events per year. (This may be organized through a local astronomy club, municipality, school, etc.), (2) include dark sky awareness documents (e.g., DarkSky brochures or community-created brochures) with other community informational documents for residents and visitors, and (3) Include dark sky education in community schools and curriculum. Again, depending on the extent of content, you may consider tabularizing information or creating subsections as shown below. Whichever organization method you choose, be sure to touch upon all the categories, especially Section 5.2.3, Signage, which is an application requirement.]

5.2.1 News Articles and Social Media

[Insert text here if applicable.]

5.2.2 Programming and Events

[Insert text here if applicable.]

5.2.3 Certification Signage Plans

[Describe what type and the locations of signage (referring to a certification) the community will erect. If the community has a draft design for such a sign, include it in this section. Determine if the community would like an alternative name or not. If yes, provide a convincing argument for an alternative name. According to DarkSky’s guidelines, “the Community must erect and maintain appropriate signage indicating the International Dark Sky Community designation along a roadway entrance, along a footpath entrance if no roadway exists, a public gathering place such as a square or common, or at a municipal government center such as a city or town hall. If approved by DarkSky International, language as an alternative to “International Dark Sky Community” may appear on the signage and in Community communications regarding the IDSC status.”]

5.2.4 Outreach Handout Materials

[Insert text here if applicable.]

5.2.5 Good Neighbor Lighting Demonstration Site

[Consider establishing one or more community demonstration sites for good neighbor outdoor lighting at a commercial business, ranch, or residence. Many people don't understand just how simple it is to practice good lighting principles. A demonstration site with easy access that is referenced in outreach material is a helpful model for local residents and visitors.]

5.2.6 Promotion

[Insert text here if applicable.]

CHAPTER 6. CITATIONS AND REFERENCES

6.1 CITATIONS

[Any document specifically cited in the application belongs in this section in alphabetical order and in a format similar to the following examples:

BLM, 2023. BLM Technical Note 457, Night Sky and Dark Environments: Best Management Practices for Artificial Light at Night on BLM-Managed Lands. (100 pages).

DarkSky, 2018. *International Dark Sky Community Program Guidelines*. Updated September 2023.

IDA Oregon, 2023. *Oregon Skyglow Measurement Network, Technical Report Edition #7*. Prepared by Bill Kowalik and Mike McKeag. March 6, 2023.

Miguel-Sanchez, Alejandro, et al, 2021. "First Estimation of Global Trends in Nocturnal Power Emissions Reveals Acceleration of Light Pollution." *Remote Sensing*. August 2021. DOI:10.3390/rs13163311.]

6.2 REFERENCES

[Any document referenced, but not specifically cited in the application belongs in this section in alphabetical order and in a format similar to the following examples:

Falchi F, Cinzano P, Duriscoe D, Kyba CC, Elvidge CD, Baugh K, Portnov BA, Rybnikova NA, Furgoni R. "The new world atlas of artificial night sky brightness." *Science Advances*. 2016 Jun 1;2(6):e1600377."

Google Earth, 2024.

Harney County Planning Department. 2009. *Harney County Comprehensive Plan 2009 Appendix: Background and Planning Process History of Harney County. Formally known as the: Harney County Comprehensive Plan 2002*.

U.S. Census Bureau. 2022. "Quick Facts for Lake County, Oregon."
<https://www.census.gov/quickfacts/lakecountyoregon>]