

New Mexico Night Sky Protection Act (NSPA)

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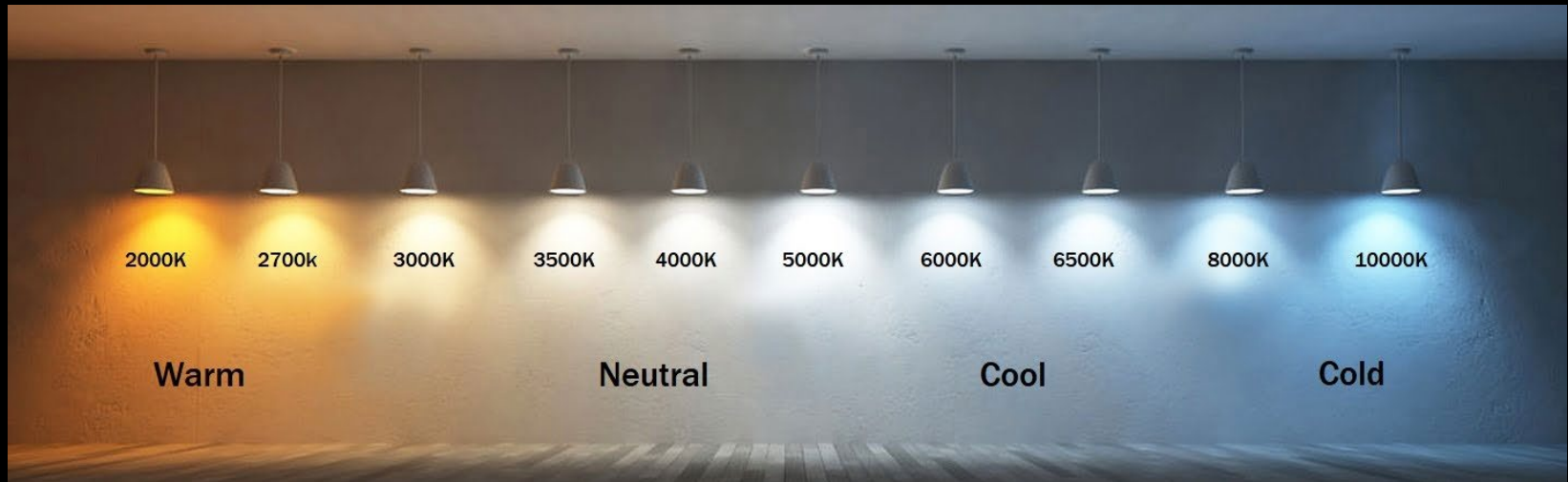
Sky Glow



Glare



Light Trespass



Color Temperatures for lighting. Units expressed as Kelvins.



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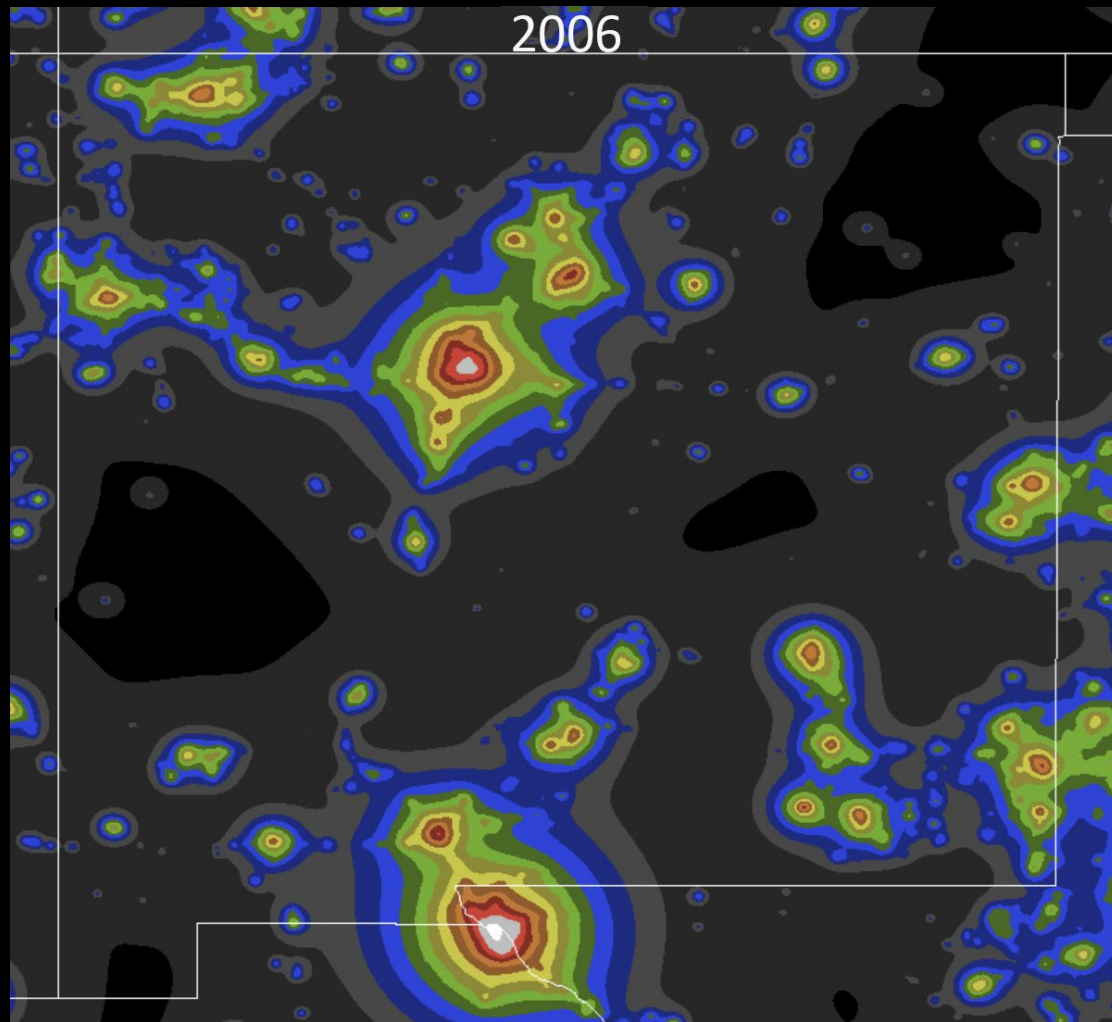
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- Chapter formed in June 2023
 - *become the leading force for protecting New Mexico's existing Dark Sky places and for eliminating light pollution throughout the state.*
 - *develop professional credibility with government, industry, and the public as the authoritative voice for outstanding, protective, and safe outdoor lighting policies.*
 - *bring the experience, expertise, and resources of DarkSky International to enhance and enrich our state-wide work.*

December 2023 Stakeholder meeting Socorro, NM

Dark Sky International
NM Dept. of Tourism/New Mexico True
New Mexico Skies
Audubon, White Sands Missile Range/DoD
New Mexico BioPark
Xerces Society
Dark Sky Land Rt 60 corridor
Astronomical Lyceum
BLM
State Land Office
Chevron Oil
Santa Fe Conservation Trust
Magdalena Astronomical Society
NM Tech, Magdalena Ridge Observatory
USAF/Starfire Optical Range
Illumination Engineering Society
Illumination Engineering Society
National Park Service
New Mexico Wilderness Alliance

- Ruskin Hartley, Executive Director, Tucson, AZ
- Cody Johnson, ABQ
- Grady Owens, tech, Mayhill, NM
- Trish Cutler Alamogordo, NM
- Anna Walker, ABQ
- Kaitlin Haase, ABQ
- C. de Maria, M. La Grave, Magdalena, NM
- John Briggs, curator, Magdalena, NM
- Eamon Brennan, Rio Puerco field office, ABQ
- Brian McLoughlin, Santa Fe, NM
- Zandra Fleming, Permian Basin
- Brian Jensen, Santa Fe, NM
- Antoine Ribaut, Datil, NM
- Dr. Eileen Ryan, Socorro, NM
- Robert Johnson, Kirtland AFB, Albuquerque
- Brian Liebel, Florida
- Billy Tubbs, President ABQ chapter
- Bandelier and Carlsbad Caverns
- Bjorn Fredrickson, Conservation Director

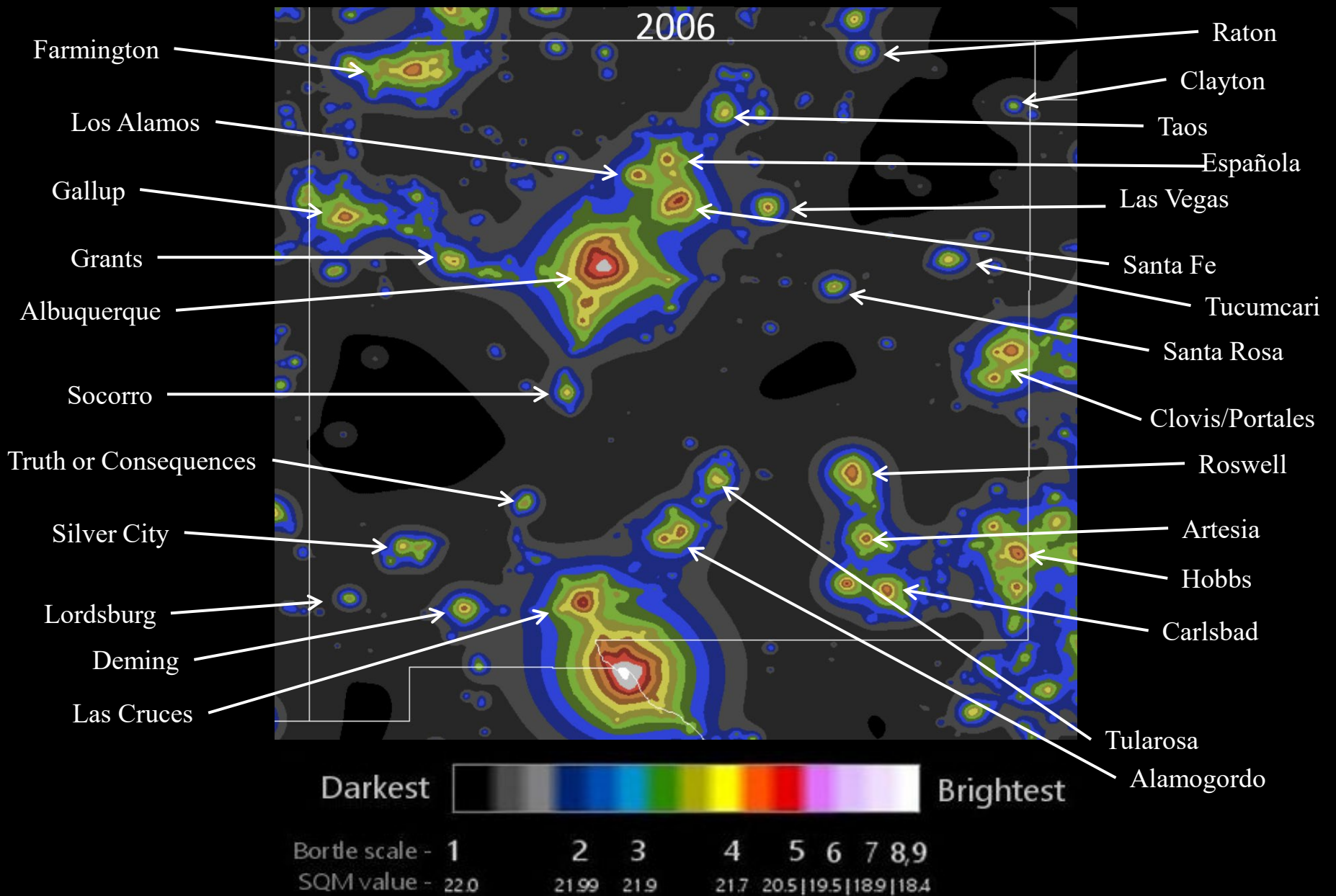


Darkest



Brightest

Bortle scale -	1	2	3	4	5	6	7	8,9
SQM value -	22.0	21.99	21.9	21.7	20.5	19.5	18.9	18.4



Proposed Improvements to the New Mexico Night Sky Protection Act

74-12.1. Short title

Amend the title to be the Responsible Outdoor Lighting and Night Sky Protection Act.

In addition to protecting the night sky, best practices in lighting improve safety, decrease energy usage, save money, and have less adverse health and ecological effects. The title should reflect that there is value in responsible lighting beyond that of protecting the night sky.

74-12-2. Purpose

A. Expand the purpose to recognize additional benefits beyond astronomy.

Benefits of responsible lighting are much broader than astronomy: they encompass cultural heritage, safety, human health, wildlife, energy and cost savings, and positive economic impact.

Proposed Improvements to the New Mexico Night Sky Protection Act

74-12-2. Purpose (continued)

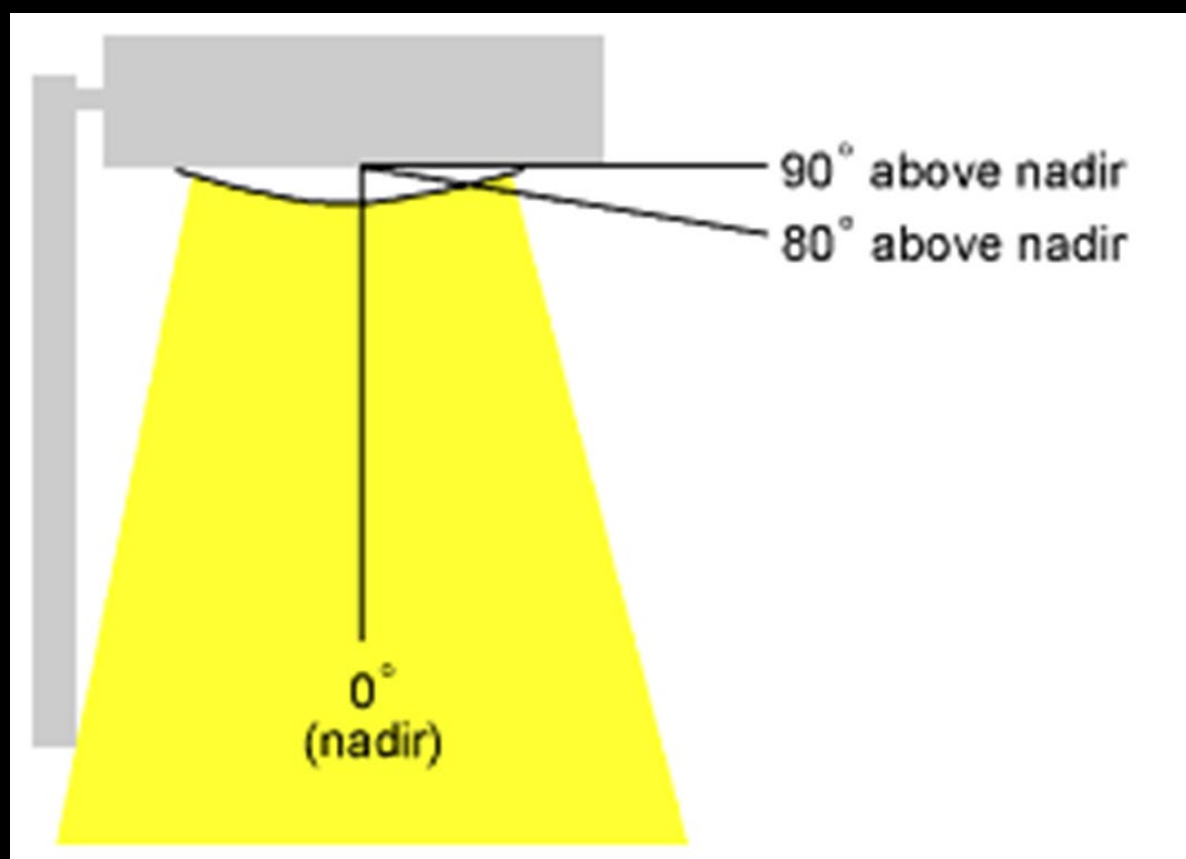
B. Add five principles of responsible lighting: 1) Light should have a clear purpose; 2) Light should be directed onto areas only where it is needed; 3) Light should be no brighter than necessary; 4) Light should only be used when it is useful; 5) Use warmer color lights where possible.

DarkSky International and the Illuminating Engineering Society have jointly released these basic principles of responsible lighting that ensure safety while minimizing impact on neighbors and the night sky.

74-12-3. Definitions

A. Amend the definition of shielded light fixture to limit the amount of light delivered from any light source above 80 degrees from nadir to 5% of the total light output of the fixture.

DarkSky International now recommends that light be restricted to below 10 degrees from horizontal to prevent light trespass and to significantly reduce light extending to unwanted areas.



Proposed Improvements to the New Mexico Night Sky Protection Act

74-12-3. Definitions (continued)

B. Add definition for light trespass: artificial light sources emitting light into adjacent properties or public right-of-way.

The term Light Trespass is now recognized to be an important principle that has an impact on safety, environmental issues, and light pollution.

74-12-4. Shielding of outdoor light fixtures

A. Modify to: Any light source that is mounted above 4 feet shall be fully shielded to prevent light trespass or glare, with the exception of temporary holiday or festoon lighting. Shielded lights must be installed and maintained in accordance with manufacturer's specifications and instructions for use.

This revision takes into account changes in lighting technology since the original NSPA, and is more specific with regard to exceptions. It explicitly notes that fixtures must be installed per specification in order to achieve the requirement.

Proposed Improvements to the New Mexico Night Sky Protection Act

74-12-4. Shielding of outdoor light fixtures (continued)

B. Light fixtures lower than 4 feet and less than 1,000 lumens shall not be directed towards the sky or public right-of-way and shall not result in light trespass or glare.

With the almost universal change to LED lights, watts is no longer an appropriate unit for specifying brightness, since LEDs are far more efficient at providing visible light than the older technology. The amount of light should be specified in units of luminous flux (lumens) rather than by inappropriate units of energy (watts), which can vary with lighting technology.

Proposed Improvements to the New Mexico Night Sky Protection Act

74-12-5. Nonconforming light fixtures

Remove existing exemption if light is extinguished after 11:00 pm

Impact of poor lighting applies to all times of night, not just after 11:00pm. In fact, it may be more important to use responsible lighting when people are awake and more likely to be affected.

74-12-6. Use of Mercury Vapor lighting fixtures

Change title to 'Light Source' and modify as follows: Outdoor fixtures shall be Solid-State (e.g., LED) and capable of turning on, off, and dimming down to 25% of full output.

Solid state lighting, which includes the currently predominant LED, is energy efficient and has the capability to be dimmed.

Proposed Improvements to the New Mexico Night Sky Protection Act

74-12-7. Exemptions

A. Modify exemption for advertisement signs to apply to “roadway navigation and safety signs” instead of “advertisement signs.”

Advertisement signs can be lit from above and achieve the same functionality.

B. With respect to subparagraph (4), regarding worker safety at farms, ranches, dairies, feedlots or industrial, mining or oil and gas facilities: maintain current exemptions for legally installed lighting in existing facilities but stipulate that all new construction starting after January 1, 2027 adhere to provisions of the Responsible Outdoor Lighting and Night Sky Protection Act except where federal law requires otherwise.

Lighting industry suggests that responsible lighting can be installed at comparable cost and shorter ROI so long as it is planned before construction. Responsible lighting is as safe or safer than older lighting; this gives industry time to make adjustments prior to mandating this change for new installations.

Proposed Improvements to the New Mexico Night Sky Protection Act

74-12-7. Exemptions (continued)

C. Add expiration date for exemptions for legally installed lighting in existing facilities to be ten years from passage of revised NSPA or when existing lighting needs to be replaced, whichever comes sooner.

Existing lighting has a finite lifetime and should be replaced by responsible lighting when replacement is needed. The energy efficiency and short ROI may justify replacing existing lighting at an earlier time!



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