

OKI FIAM 2.0

Case Studies

June 16, 2026
Regional Planning Forum

Andy Meyer AICP
OKI Regional Council of Governments





What is Fiscal Impact Analysis?

Appetizers

1	Zakouski a la Russe (For Two)	1 dozen	MP
2	Oysters Mornay	1/2 dozen	MP
3	Oysters Mornay	1 dozen	MP
4	Escargots a la Bourguignonne	1/2 dozen	MP
5	Escargots a la Bourguignonne	1/2 dozen	MP
6	Caviar with Eggs		MP
7	Blinis Caviar		MP
8	Blinis Salmon		MP
9	Smoked Salmon		MP
10	Smoked Ham		MP
11	Stuffed Mushrooms with Smetana		MP
12	Chicken Liver with Caper Sauce		MP
13	Shrimp Cocktail		MP
14	Egg Millionaire		MP

Soups

15	Borshch	MP
16	Fish Solianka	MP
17	Onion Soup	MP
18	Meat Solianka	MP
19	Chicken Consomme with Egg	MP
20	Fresh Mushroom	
21	Fresh Oyster	
22	Cream of Sweet Corn	

Components of Fiscal Impact Analysis

Revenues

- Property Tax
- Payroll / Income Tax
- Sales & Hotel Tax
- Charges for Service
- Fees, Fines, and Forfeitures
- Intergovernmental and Miscellaneous

Costs of Service

- Public Safety
- Infrastructure
- Public Health & Welfare
- Community Development
- Parks And Recreation
- General Government

Methods of Fiscal Impact Analysis

- Average Cost Method

AVG  =   X New  = FI

- Marginal cost method

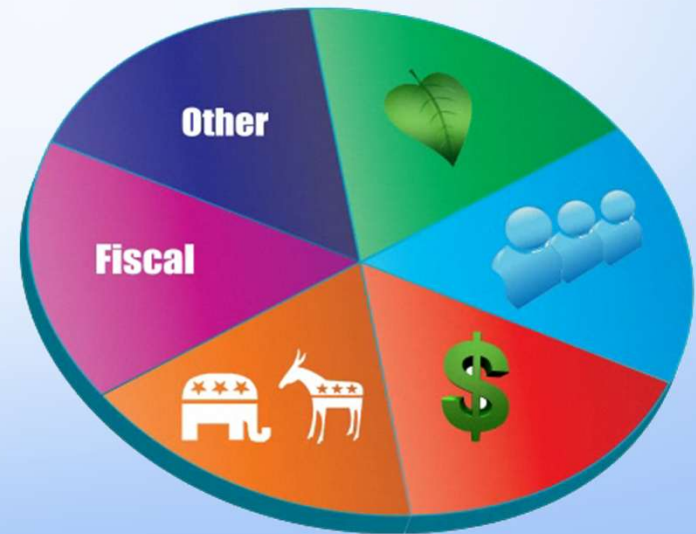


Why do Fiscal Impact Analysis?

- Land use planning exercise
- Study the impact of an unfamiliar land use
- Establishing a TIF district
- Evaluating impact fees
- Determine the fiscal impact of a proposed development

Not to be the sole source for making land use decisions

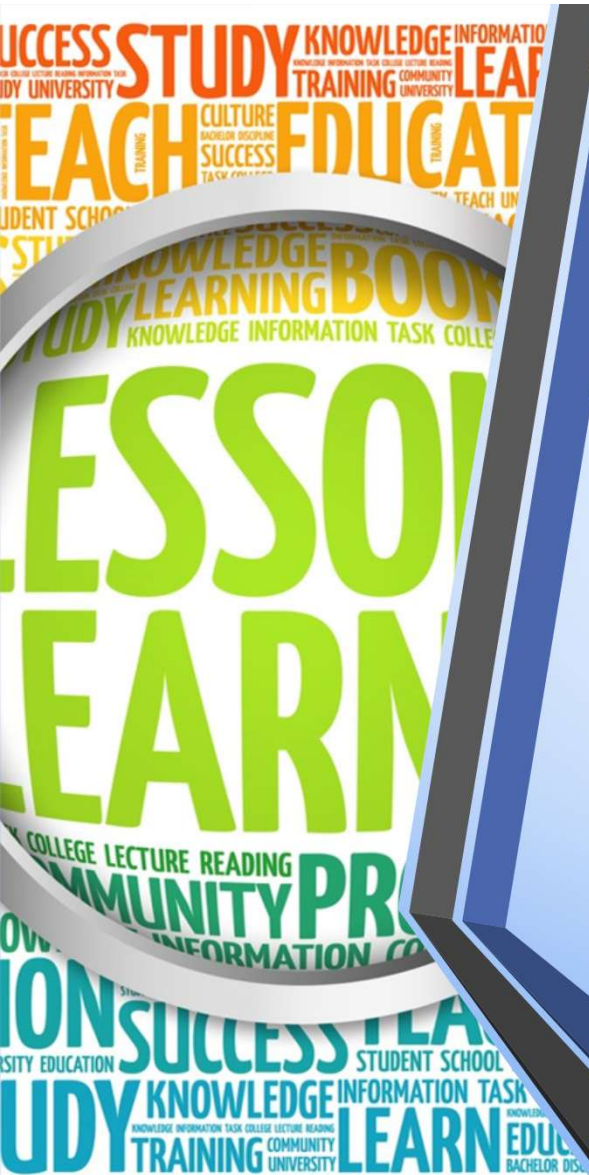
**Land use decisions
are complex and
involve multiple
factors**





The Strategic Regional Policy Plan recommends a FIAM to:

- Help guide land use policy decisions
- Allow for an integration of land use and budget considerations
- Bring a realistic sense of the costs of growth into the public discussion
- Gain an understanding of the likely demands for services and capital facility impacts



Lessons Learned

- FIAM is a scenario planning tool
- Best applied when creating plans
- Flexibility to add additional land uses
- Needs to be offered as a service
- Streamlined community set up

FIAM 2.0 Overview

- Excel-based model
- Compare multiple scenarios
- Community data pre-loaded
- Delivered as a free service





FIAM 2.0

Case Studies



Application of the FIAM

Case Study/Background

- Oxford purchased 47 acres of residentially zoned land in 2008
- The land sat vacant since that time, as demand for additional housing choices has grown
- The City has had difficulty in selling the land because of the purchase price



Application of the FIAM

Case Study/Background (cont.)

- City staff conducted a design charrette for the property as part of its annual WTPD event
- The charrette resulted in 5 different development scenarios
- City staff reached out to OKI for assistance in comparing the fiscal impact of the scenarios



Groups spend their morning brainstorming and recording ideas for the site.

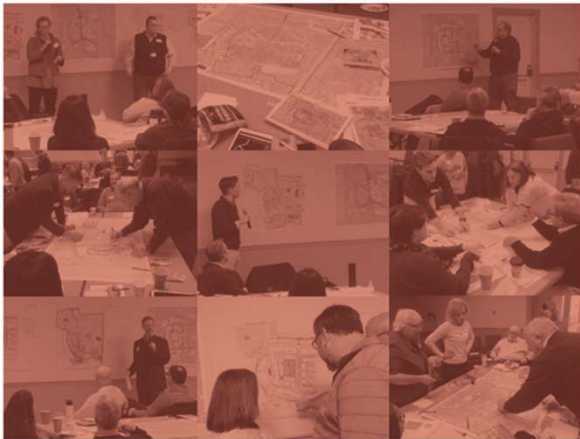


Group D members Vicki Cheng, David Prytherch, and Shana Rosenberg work on adding color and finishing touches to their plan.

Application of the FIAM



WESTERN KNOLLS DESIGN CHARRETTE

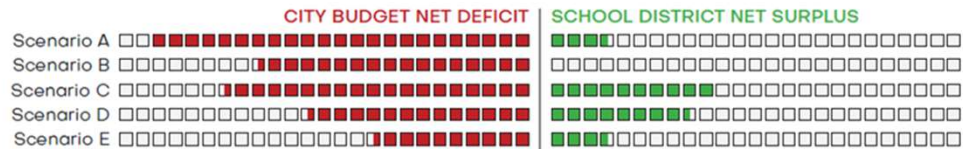


- Attached Units (e.g. Condos) | Structures containing approx 3-5 dwelling units, each accessed from the exterior
- Multi-Family Residential | Structures usually containing more than 5 dwelling units, with shared interior access
- Commercial/Mixed Use | Structures containing a mix of commercial, residential, or specialized uses

FINANCIAL IMPACTS

Following the event, staff engaged planners at the OKI Regional Council of Governments to run each of the five produced scenarios through their agency's Fiscal Impact Analysis Model (FIAM). The model estimates the real life impacts of development on a community, including tax revenue and service expenditures, based on a series of assumptions/averages generated from researching a large sample of communities in the region. Each scenario returned a negative net impact on City finances. This is not unexpected due to the scenarios consisting primarily of residential uses, which tend to incur more expenses than revenue produced. However, it is important to note that new residential development can create other positive financial impacts for the community, such as increased spending power at local businesses and housing supply relief to drive down costs. Although beyond the scope of this report, these impacts could be assessed at a later point in time once anticipated incomes are determined.

FISCAL IMPACT COMPARISON



Application of the FIAM

Next Steps



- The property was advertised at a market rate, using the completed publication, including FIAM
- One proposal was received for 10 of the 47 Acres, for 50 affordable senior housing units and a new senior center
- The City is currently in negotiations for a purchase agreement of 10 acres
- The City hopes that the development is funded and built, spurring additional housing to meet demands and activate the area

Springdale Office to Residential

Case Study/Background



- Developer-proposed conversion of office to MFR and townhomes.
- City wanted to know relative fiscal impact of MFR vs townhomes
- 12 acre site

Springdale Office to Residential

Unit Counts for Springdale Scenarios

Land Use	Scenario A	Scenario B	Scenario C
Multi-Family	132	0	396
Townhomes	97	146	0

Springdale Office to Residential

Springdale Scenario Results

LOCAL GOVT NET ESTIMATED IMPACT

	Scenario_A	Scenario_B	Scenario_C
Net Revenues	\$172,920	\$111,581	\$296,376
Net Expenditures	\$570,203	\$372,428	\$967,352
Net Impact	(\$397,283)	(\$260,847)	(\$670,976)

Springdale Office to Residential

Springdale Scenario Results

SCHOOL NET ESTIMATED IMPACT

	Scenario_A	Scenario_B	Scenario_C
Net Revenues	\$615,317	\$365,824	\$1,117,003
Net Expenditures	\$881,014	\$622,621	\$1,402,066
Net Impact	(\$265,698)	(\$256,797)	(\$285,063)

Springdale Office to Residential



Conclusions

- Residential typically has negative fiscal impact
- Tax rates have a large effect on results
- Sometimes other priorities outweigh fiscal impact

Cincinnati CBD Parking Lot Study

Case Study/Background

- City looking to strongly promote development on surface parking lots in CBD
- Looking for FIAM to make a financial argument to promote development
- Four Scenarios: 80/20 and 50/50 office to residential. Max density and typical density for each.



Cincinnati CBD Parking Lot Study

Cincinnati CBD Parking Development Scenarios

Land Use	50/50 Max	80/20 Max	50/50	80/20
Parking (existing)	71.5 ac	71.5 ac	71.5 ac	71.5 ac
Office	4.4M sf	11M sf	2.2M sf	5.5M sf
MFR	18,190 units	11,807 units	9,095 units	5,903 units
Retail / Hotel	3M sf	3M sf	3M sf	3M sf

Cincinnati CBD Parking Lot Study

Cincinnati Scenario Results

LOCAL GOVT NET ESTIMATED IMPACT

	50/50 Max	80/20 Max	50/50	80/20	Existing Parking
Revenues	\$73,415,555	\$79,122,870	\$42,476,919	\$45,330,176	\$1,359,851
Costs	\$78,693,122	\$70,818,589	\$43,335,229	\$39,359,405	\$931,805
Net Impact	(\$5,277,567)	\$8,304,281	(\$858,310)	\$5,970,771	\$428,046

Cincinnati CBD Parking Lot Study

Conclusions

- Land in CBD is valuable regardless of use
- Estimated Costs in FIAM are tied to people and activity
- People tied to primary use (office, retail, residential); not to parking





In Summary

- Fiscal impact is different for each community based on wide range of factors
- Important, but should be used strategically
- It gets complicated fast



Questions?

Andy Meyer AICP

OKI Regional Council of Governments

ameyer@oki.org



A long-exposure photograph of a night sky. The sky is filled with numerous star trails, some forming concentric circles around a central point, indicating the Earth's rotation. In the foreground, the silhouette of a house with a porch and several windows is visible against the dark sky. The overall scene is dark, with the light from the stars creating a sense of movement and depth.

Dark Sky Ohio
asks the

OKI Regional Council of Governments

To please help support Dark Skies
....

Because we are all under one sky

THANK-YOU for this opportunity to speak!



Caesar Creek State Park
Meteor Shower Camp-out

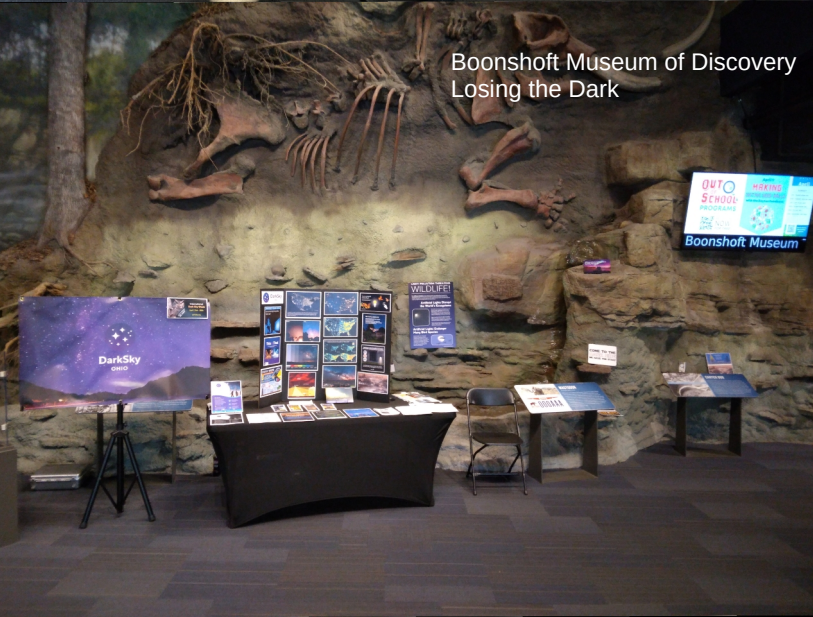


DARK SKY OHIO

- Not lobbyists
- Not sellers/suppliers
- Not regulators

JUST ADVOCATES

Volunteers trying to protect
the natural night sky –
each for our own reasons



Boonshoft Museum of Discovery
Losing the Dark



Wagner Subaru
Outdoor Experience at
5 Rivers MetroParks



John Bryan State Park
Star Gaze

Outreach Events - Tables & Tents

- Wagner Subaru Outdoor Experience with 5-Rivers MetroParks
- Cincinnati Observatory - Scope Out/Touch a Meteor
- Eco-Fest
- Kettering Tree-Love
- Boonshoft Museum of Discovery
- Wingfoot State Park Firefly Festival
- Caesar Creek State Park Meteor Shower Camp-out
- Scouts, Recreation Centers and other youth oriented organizations
- Miami Valley Astronomical Society General Meetings and Public Stargazes (>24/year)



Education – Business & Industry

- Lighting Symposium
- Sustainability Luncheon

Education across multiple fronts

- Lighting Ordinances/Proclamations
- Letters to the Editor
- DSO Virtual Newsletter
- DSO Website
- DSO Signs for Homeowners

Collaboration with other like minded, common cause organizations





DARK SKY FRIENDLY

THIS HOME PROUDLY PROTECTS THE NIGHT

Yard signs seem to
work for political
campaigns

Here is a non-
political yard sign for
a Dark Sky
campaign

Light Polluted Sky

Starry Sky



UNACCEPTABLE



VERY BAD



BAD



BETTER
FULLY SHIELDED



BEST
OFF or MOTION SENSITIVE

Please consider turning off
yard lights after 11:00pm

Learn more at Darksky.org and MVAS.org



Design Credit:
Dr.Gary Cook

WHY?

Some of you may remember
when the Cuyahoga river
caught fire ... many times



... and no one really cared,
the pollution often seen as an
acceptable sign of industrial
progress and might

Now, our night sky is on fire!
Does anyone care?

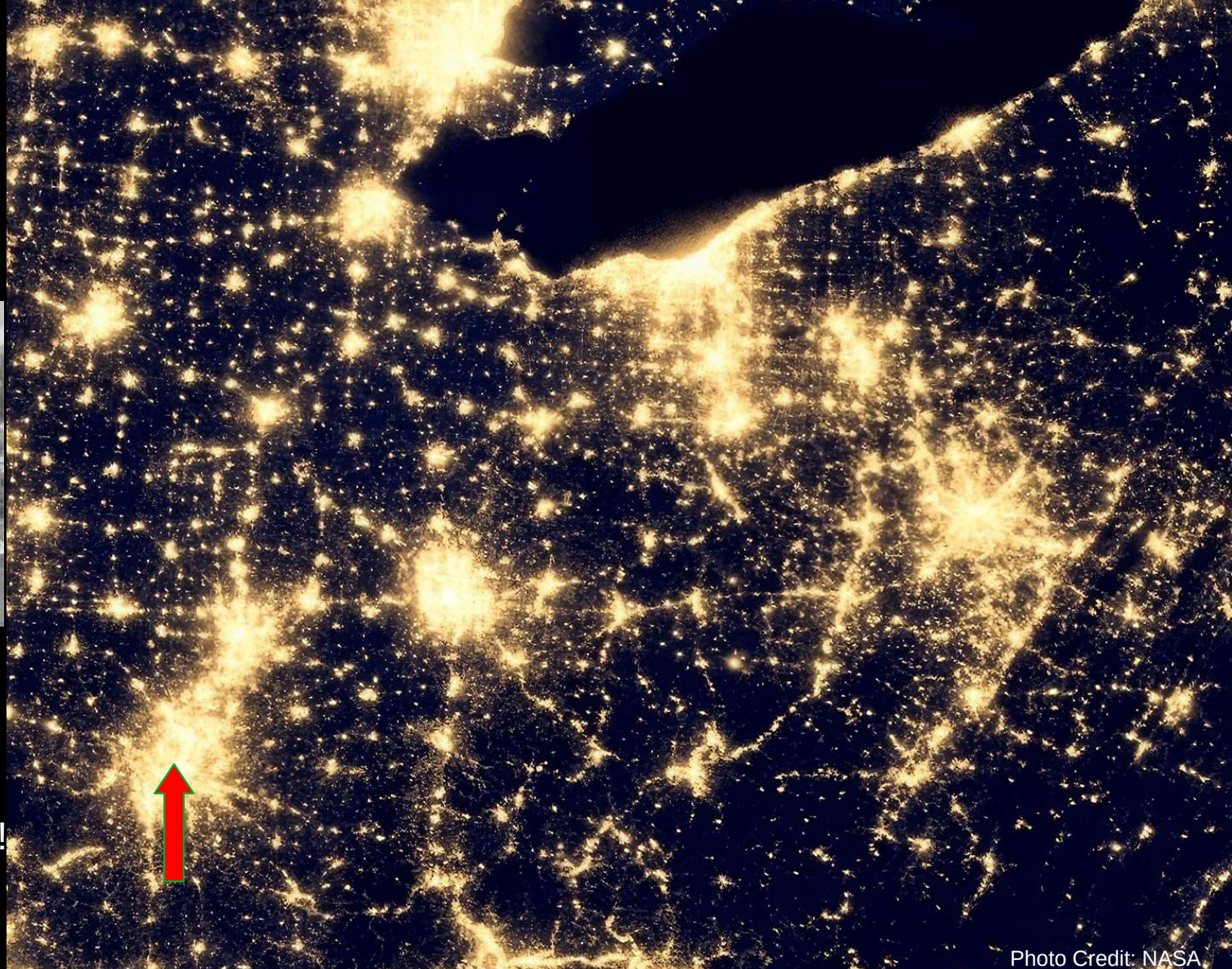


Photo Credit: NASA

(unnecessary and excessive)

Artificial Light **IS** a pollutant

All of us are familiar with air pollution, water pollution, and land pollution.

Components of light pollution include:

Glare — excessive brightness causing visual discomfort

Sky glow — brightening of the night sky over inhabited areas

Light trespass — light falling where it is not intended or needed

Clutter — bright, confusing, and excessive groupings of light sources



Glare

Light pollution is the human-made alteration of outdoor light levels from those occurring naturally

Light pollution disrupts **wildlife**

Adversely impacts **human health**

Wastes **money and energy**

Contributes to **climate change**

Blocks **our view of the universe**



Light pollution harms wildlife and ecosystems

Earth's predictable rhythm of day and night is encoded in the DNA of all plants and animals (**including humans**) which WE have radically disrupted by lighting up the night

This cycle of light and dark governs life-sustaining behaviors such as reproduction, sleep, nourishment, and protection from predators

- Artificial light at night has negative and sometimes deadly effects on amphibians, birds, mammals, insects, and plants

- Radically altered nighttime environment

- Drastic change for nocturnal animals

- Predators use light to hunt and prey species use darkness as cover

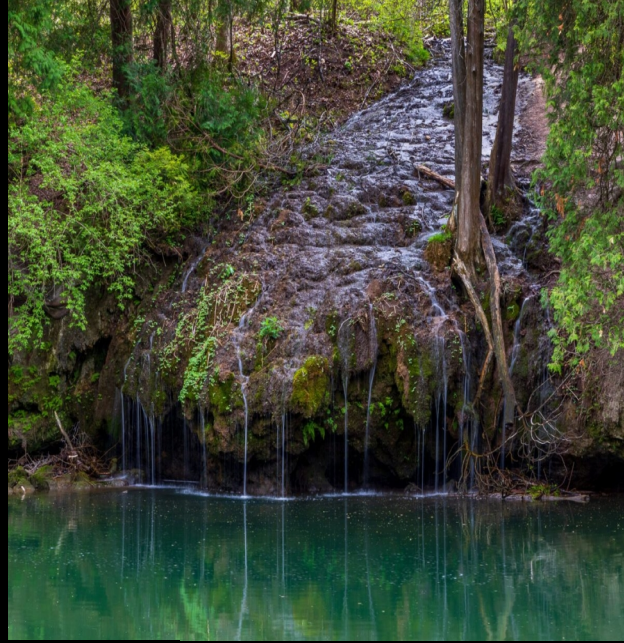
- Near cities, cloudy skies are now 100-1000 times brighter than they were 200 years ago



Light pollution harms wildlife and ecosystems

Artificial lights impacts wetland habitats; home to amphibians such as frogs and toads, whose nighttime croaking is part of the breeding ritual

Artificial lights disrupt this nocturnal activity, interfering with reproduction and reducing populations



Did light pollution drive off the Loveland Frogman?

Sea Turtles - Well known negative impact of artificial light on the hatchlings

Clown Fish (remember Finding Nemo) reproduction cycle tied to the lunar cycle

Coral Reef reproduction cycle tied to the full moon



Exposure to artificial light at night harms your health

Proliferation of artificial light at night means most of us no longer experience truly dark nights

Exposure to artificial light at night negatively affects human health, including increased risk for:

Sleep disorders: *American Medical Association*, "... white LED lamps have five times greater impact on circadian sleep rhythms than conventional street lamps. ... brighter residential nighttime lighting is associated with reduced sleep times, dissatisfaction with sleep quality, excessive sleepiness, impaired daytime functioning and obesity."

Depression

Obesity

Diabetes

Heart disease

Cancer

Alzheimers: a 2023 paper by eight physicians and researchers published in *GeroScience* (the journal of the American Aging Association)
"... research underlining the complexity of the correlation between light pollution and Alzheimer's disease"



Exposure to artificial light at night harms your health

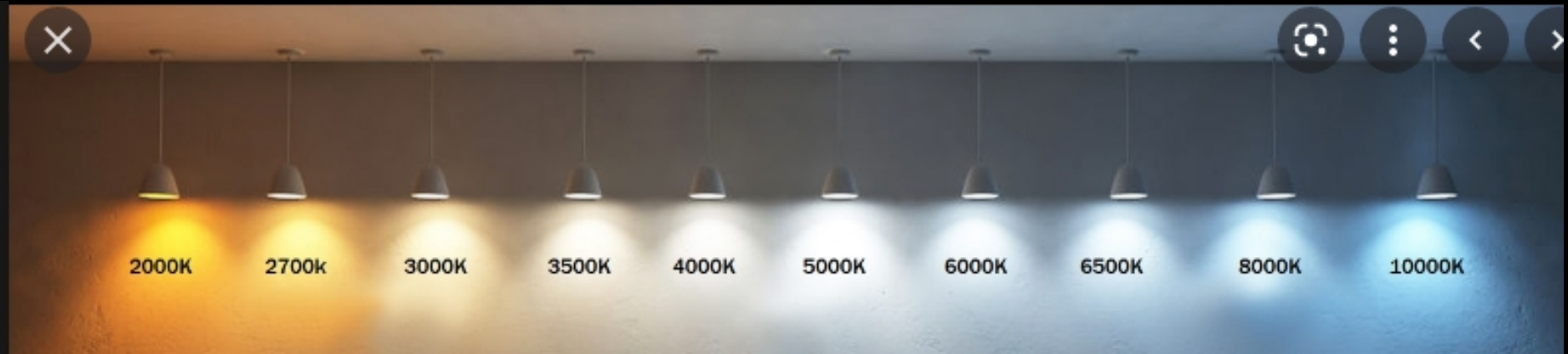
[American Medical Association](#), "... white LED lamps have five times greater impact on circadian sleep rhythms than conventional street lamps. brighter residential nighttime lighting is associated with reduced sleep times, dissatisfaction with sleep quality, excessive sleepiness, impaired daytime functioning and obesity."

[a 2023 paper by eight physicians and researchers published in GeroScience](#) (the journal of the American Aging Association) "... an increasing amount of research underlines the complexity of the correlation between light pollution and Alzheimer's disease; ... additional studies ...are required for a better understanding of this relationship."

Circadian rhythm and melatonin

Most life adheres to a circadian rhythm — a sleep-wake pattern governed by the natural day/night cycle – artificial light at night disrupts this cycle

- For humans this cycle is largely influenced by photo-receptors in the eye that are more sensitive to blue wavelengths of light
- It's critical to experience outdoor lighting during the day and minimize the amount of this light entering their eyes at night to maintain a good circadian cycle
- **Nighttime exposure to artificial light also suppresses melatonin production**
- **Melatonin has antioxidant properties, induces sleep, boosts the immune system, lowers cholesterol, helps thyroid, pancreas, ovaries, testes, adrenal gland function**



Light pollution wastes energy (\$) & contributes to climate change

Excessive lighting levels & light shining when & where not needed is environmentally wasteful

- US outdoor lighting uses ~120 terawatt-hours of energy/yr (mostly streets/parking lots)
 - Conservatively, more than 30% of all outdoor lighting in the US alone is wasted
 - \$Billion (2019) and 21 million tons of CO₂ per year! (carbon offset – plant 875 million trees/yr)
- Environmental responsibility requires energy efficiency and conservation
- Quality outdoor lighting could cut energy use by 60 to 70 percent, save \$B, cut CO₂
- Outdoor lighting: fully shielded, light directed down
- Shielded fixtures provide ground level illumination with less energy and cost than unshielded fixtures
- Indoor lighting, i.e. empty office buildings at night, should be turned off, preventing leakage into the night sky
- But you ask, what about



Outdoor lighting at night doesn't do what you think it does to reduce crime and increase safety

No clear scientific evidence that increased outdoor lighting deters crimes

Yes, it may make us feel safer, but it has not been shown to make us safer

Provides a perception of safety (security)



The truth is bad outdoor lighting can decrease safety by making victims and property easier to see

A [Chicago Alley Lighting Project](#) showed a correlation between brightly lit alleyways and increased crime

Most property crime occurs in the light of the day

Vandalism and graffiti actually thrive on night lighting

A dark sky does not necessarily mean a dark ground

Smart lighting that directs light where it is needed creates a balance between safety and starlight

We can have good visibility
without increased brightness



A 2015 study published in the [Journal of Epidemiology and Community Health](#) found that streetlights don't prevent accidents or crime, but do cost a lot of money. The researchers looked at data on road traffic collisions and crime in 62 local authorities in England and Wales and found that lighting had no effect, whether authorities had turned them off completely, dimmed them, turned them off at certain hours, or substituted low-power LED lamps.

According to the study, “[W]hen risks are carefully considered, local authorities can safely reduce street lighting, saving both costs and energy ... without necessarily impacting negatively upon road traffic collisions and crime.”

According to a 2011 study of London street lighting and crime, there is no good evidence that increased lighting reduces total crime.” A [1997 National Institute of Justice study](#) concluded, “We can have very little confidence that improved lighting prevents crime.”



Glare from outdoor lighting is often a safety hazard

Glare from poorly shielded outdoor lighting harms your health and puts your safety at risk

- Reduces contrast which decreases vision acuity
- This limits our ability to see potential dangers at night
- Aging eyes are especially affected

Reduce glare by using shielded fixtures and dimming the light levels to only what is required

- Often, outdoor light fixtures produce more light than is necessary
- Dimming them to more appropriate levels reduces glare and saves energy

“Discomfort and disability from intense, blue-rich LED lighting can decrease visual acuity and safety, resulting in concerns and creating a road hazard”

(2016 report from the American Medical Association Council on Science and Public Health)

Brighter does not mean safer

According to a [2012 report of the American Medical Association](#), “Glare from nighttime lighting can create hazards ranging from discomfort to frank visual disability.”

Outdoor lighting is intended to enhance safety and security at night, but too much lighting can actually have the opposite effect. Visibility should always be the goal. Glare from bright, unshielded lights actually decreases safety because it shines into our eyes and constricts our pupils. This can not only be blinding, it also makes it more difficult for our eyes to adjust to low-light conditions.

Australian researchers in 2019 [found compelling correlations between light levels and unsafe places](#). In an analysis of more than 80 unsafe “hotspots” identified by women in Melbourne, the research found that brightly overlit spaces does not correlate with young women’s perceptions of urban safety.

Bright, poorly directed and shielded lights create glare and deep shadows



Shielding the lights reduces the glare and reveals what lurks in the deep shadows

Before



After



Frank Brown Park in Panama City Beach, Florida

Dark Sky Compliant Soccer Pitches



FIFA



NON Dark Sky Compliant Data Centers



Under One Sky - same night, same event, same time, different results/impact with locations < 25 miles apart



Five Lighting Principles for Responsible Outdoor Lighting



DarkSky



Illuminating
ENGINEERING SOCIETY

Responsible outdoor lighting is

1 Useful

Use light only if it is needed

All light should have a clear purpose. Consider how the use of light will impact the area, including wildlife and their habitats.



2 Targeted

Direct light so it falls only where it is needed

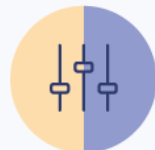
Use shielding and careful aiming to target the direction of the light beam so that it points downward and does not spill beyond where it is needed.



3 Low Level

Light should be no brighter than necessary

Use the lowest light level required. Be mindful of surface conditions, as some surfaces may reflect more light into the night sky than intended.



4 Controlled

Use light only when it is needed

Use controls such as timers or motion detectors to ensure that light is available when it is needed, dimmed when possible, and turned off when not needed.



5 Warm-colored

Use warmer color lights where possible

Limit the amount of shorter wavelength (blue-violet) light to the least amount needed.



Dark Sky Approved Luminaires offer objective, third-party certification for light fixtures

- Virtually **eliminate direct uplight**
- Incorporate **dimming** controls
- **Warmer color temperatures**
- **Reduce** reflected light

Providing beautiful, functional lighting while substantially reducing light pollution

What can be done about light pollution?

Following [responsible lighting practices](#), passing dark sky friendly legislation, and advancing scientific research in this field are just some of the ways light pollution can be solved



Why should we preserve the natural night sky?

The natural night sky inspires

The night-time environment is a precious natural resource for all life on Earth, but the glow of uncontrolled outdoor lighting has hidden the stars and changed our perception of the night

Unlike a mountain, a river, a valley which require a journey to visit, the night sky comes to you every night, everywhere on earth

Before writing, agriculture, cities, every human being looked up at the same night sky and tried to read it --- the first shared book

Until recently, our ancestors experienced a sky brimming with stars — a night sky that inspired science, religion, philosophy, art, and literature

For the first time in human existence, the night sky is being erased by light

The natural night sky is our common and universal heritage, yet it's rapidly becoming unknown to the newest generation

The natural night sky inspires

Experiencing the night sky provides perspective and inspiration, and leads us to reflect on our humanity and place in the universe

- Have you ever considered that our out-sized egos stem from not realizing our insignificance in the greater universe?

The history of scientific discovery and even human curiosity itself is indebted to the natural night sky

- Without the natural night sky we could not have:
 - Navigated the globe
 - Walked on the Moon
 - Learned of our expanding universe
 - Discovered that humans are made of stardust



“For my part I know
nothing with any certainty,
but the sight of the stars
makes me dream.”

– Vincent van Gogh



The natural night sky inspires



Photo Credit:
ET Phone Home
Dr.Gary Cook



The natural night sky inspires



The natural night sky inspires

Fort Ancient Earthworks and Nature Preserve (UNESCO World Heritage Site) – Maximum Northern Moon Rise on it's 18.6 year cycle – Identified by the Hopewell Cultural over two thousand years ago



... around the world our ancestors needed & understood the night sky, the Polynesians navigated the Pacific, the Australian aborigines made pictures of the voids in the Milky Way, the Mayan's tracked Venus , the Egyptians aligned the pyramids with Orion's Belt ...

The natural night sky inspires

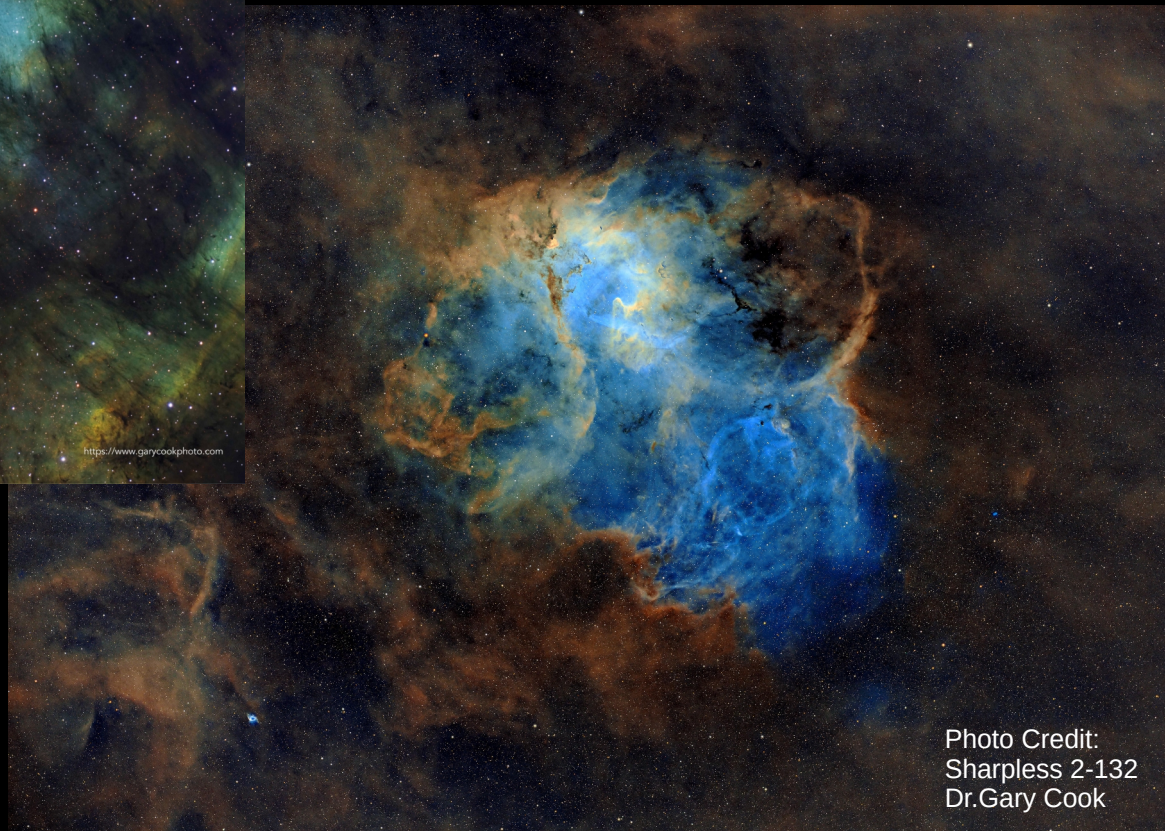


Photo Credit:
Sharpless 2-132
Dr. Gary Cook

The natural night sky inspires



Photo Credit:
Ben Riedmiller



Photo Credit:
Elephant Arch
Dr. Gary Cook

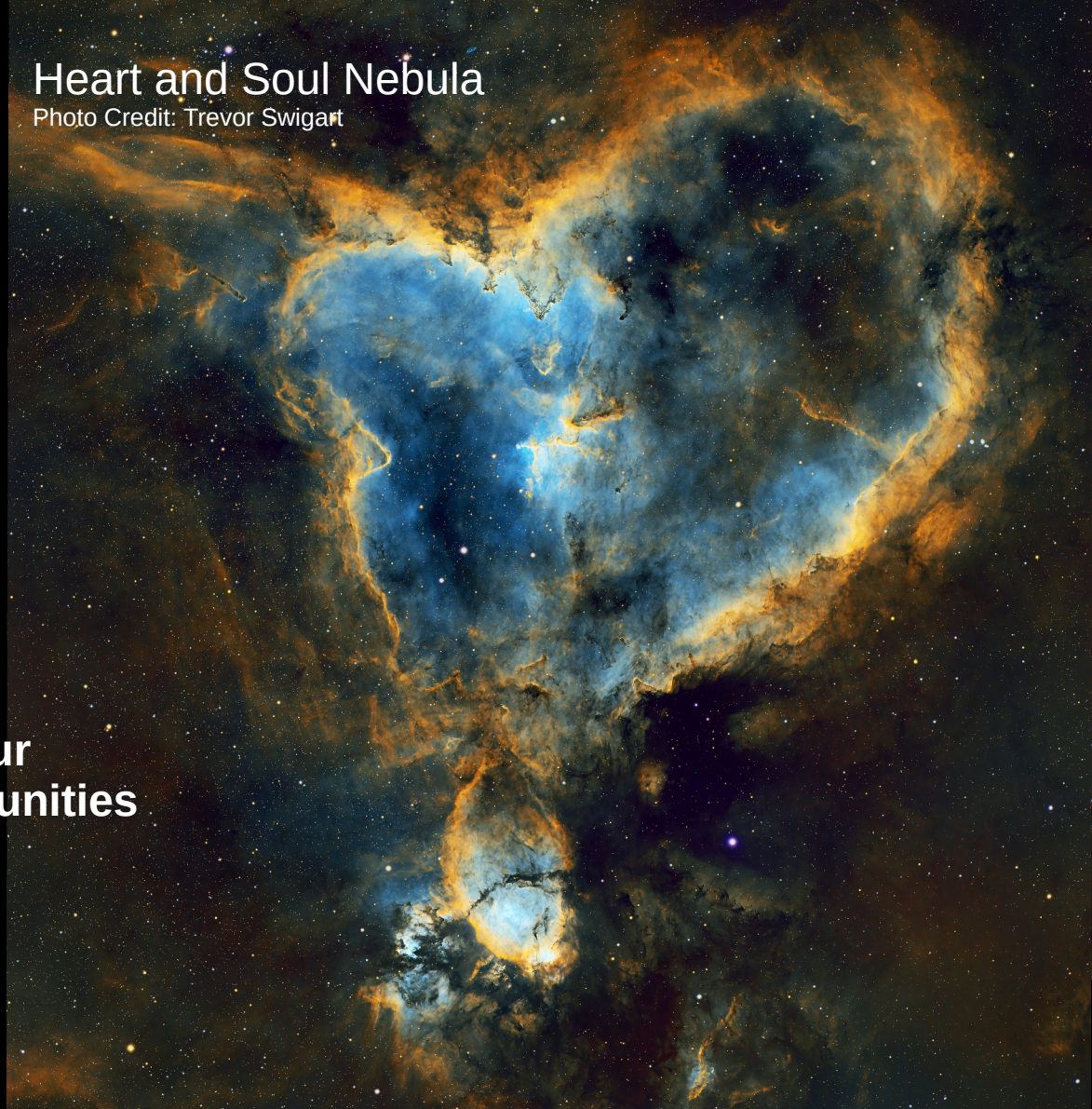
Heart and Soul Nebula

Photo Credit: Trevor Swigart

**Experience the awe
the natural night sky inspires**

Help put out the fire!

**Adopt Dark Sky principals for lighting our
residences, businesses, roads, & communities**



International Commission on Illumination

<https://cie.co.at/>

Illuminating Engineering Society – Lighting for Exterior Environments

<https://standards.globalspec.com/std/9887592/IES%20RP-33>

Codes and Statutes

<https://darksky.org/what-we-do/advancing-responsible-outdoor-lighting/darksky-recognized-codes-and-statutes/>

Guidance for Homeowners Associations

<https://darksky.org/resources/guides-and-how-tos/homeowners-associations/>

Values Centered Outdoor Lighting

<https://darksky.org/resources/guides-and-how-tos/values-centered-outdoor-lighting/>

Understanding Lighting Zones

<https://darksky.org/resources/guides-and-how-tos/lighting-zones/>

Dark Sky Approved Luminaires

https://darksky.org/what-we-do/darksky-approved/darksky-approved-luminaires-program/luminaires/#/quick_search

Just a
smattering of
links to resources
available at
[DarkSky.Org](https://darksky.org/)

Carpe Noctem



Elevator Pitch

Dark skies are quickly vanishing due to the rapid growth of light pollution—disrupting critical wildlife habitat, compromising the safety of our communities, and erasing our view of the stars. Our window to act is closing fast.

Personal Code

I do not have the right to trespass onto your property. Why do my outdoor lights?

