



# An Outdoor Lighting Ordinance Recommendation for Cecil County Maryland



Prepared by the Cecil County Outdoor Lighting Working Group  
June 20, 2011

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# Outdoor Lighting Ordinance, Cecil County Maryland

## Preface

The recent Comprehensive Plan process and the resulting zoning ordinance and subdivision regulations failed to address outdoor lighting issues in a comprehensive way. After some discussion, the Cecil County Planning Commission authorized a sub-committee working group to study the possibility of an outdoor lighting ordinance to address this shortcoming in what is becoming a growing trend toward community lighting standards as common planning practice. Some lighting standards are already included in parts of the existing Cecil County Zoning Ordinance, mostly for commercial use, but there is no comprehensive policy or ordinance for lighting, comparable to similar standards for landscaping.

The working group held three meetings over three months (meeting notes are attached as appendix 3) to discuss the policy issues and the aspects of outdoor lighting. We assembled various points of view, and gathered expertise from other sources and then drafted the proposed recommendation below.

Our working group invitees included:

*Kennard Wiggins, Cecil County Planning Commission,*

*Eileen Butler, Naturalist*

*Linda Tipton, Delmarva Power representative*

*Tony DiGiacomo, Cecil County Planner, Office of Planning and Zoning*

*George Kaplan, Astronomer*

*Laura Mayse, Executive Director, Cecil County Chamber of Commerce*

*Ellen Mercurio, Landscape architect with expertise in outdoor lighting engineering*

*Dan Whitehurst, Clark Turner Development*

In the working group deliberations, we set forth some general principles. We wanted a document that was as simple as possible, easy for the layman to grasp, and which offered clear goals. We were cognizant of economic issues, and sought a policy which would minimize expense to the County, the taxpayers, and to those impacted by any new change in standards. Our intent is to start a process, which would begin to improve the quality of life for our County citizens, in small, simple, inexpensive steps.

We avoided making specific and detailed technical recommendations. The working group envisions those technical standards being established by a County government panel with planning and engineering staff augmented by selected outside expertise based upon the precedents set in other jurisdictions. The most likely format would be specific standards based upon land use zoning categories. There is ample existing

literature which is cited at appendix 2, as well as sample ordinances from other jurisdictions.

## Introduction

Outdoor night lighting is an important aspect of a community's safety, livability, and personality. As lighting technology has evolved and become more efficient, there has been a trend toward more and brighter night lighting. Starting about 50 years ago, most jurisdictions moved toward replacing public outdoor incandescent lighting with mercury vapor and high-pressure sodium lighting, which provide much more light output per watt of electricity used. The trend continues with metal halide lamps, and we can expect continued improvements in lighting efficiency. Mostly, this has been regarded as a good thing, a benefit of better technology.

Yet as communities have grown, there has been an increasing recognition that not all the effects of "turning night into day" are favorable. For one thing, unwanted light often overflows onto properties whose owners may not appreciate it; light trespass is a property rights issue. Second, simply flooding an area with light may not increase safety or security as much as commonly thought, because of glare from poorly designed fixtures and the high contrast between lighted and unlighted areas. Third, for people who choose to live in rural areas, a dark night sky full of stars may be part of their expectations and memory, and the increasing brightness of the night sky due to growth in artificial night lighting may be regarded as the loss of a precious natural resource. Fourth, studies have shown that excessive night lighting can disturb the natural cycles of plants, animals, and insects. Finally, light that is going into places where it is unneeded or unwanted is simply wasted energy. In 2001, the Maryland General Assembly commissioned a task force to study lighting efficiency and light pollution in Maryland and their report<sup>1</sup> considers all these issues in detail.

The Cecil County Zoning Ordinance recognizes that night lighting is something that needs to be regulated. In a number of sections covering commercial properties, we have the requirement that "Exterior lighting shall be so shaded, shielded, or directed that the light intensity or brightness shall not adversely affect adjoining properties or shine into residential structures," or similar language. For Neighborhood Essential Services (Section 159), Residential Parking (Section 274), Business/Industrial Parking (Section 275), and Major Site Plans (Section 291 and Appendix A), there is a requirement that a lighting plan be approved by the Office of Planning and Zoning. But there is no guidance provided in the ordinance on what should be included in such plans, what minimum or maximum lighting levels are appropriate for various uses, or what brightness level "adversely affects adjoining properties" (OPZ has used the criterion of 1 footcandle or less at the property line, which is equivalent to the light of ten full moons directly overhead, or bright twilight).

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<sup>1</sup> "Task Force to Study Lighting Efficiency and Light Pollution in Maryland", March 2002 report available at <http://www.msa.md.gov/megafile/msa/speccol/sc5300/sc5339/000113/000000/000008/unrestricted/20030006e.pdf>

The subcommittee believes that Cecil County should join other local jurisdictions in enacting a lighting ordinance to regulate new and replacement outdoor lighting. We believe that such an ordinance is an essential tool in helping to maintain the rural character of the county (one of the goals of the county's Comprehensive Plan) as we grow. The requirements of a lighting ordinance would generally be cost-neutral to developers, because good lighting does not cost any more than bad lighting, and in fact well designed lighting can reduce future energy costs. The outdoor lighting design industry is used to working within the restrictions of lighting ordinances. Computer-generated lighting models, which make reliable quantitative predictions of ground-level illumination levels across a property, are widely used. Many of the better recent designs for lighted outdoor areas would already meet the requirements of such an ordinance or could be easily adjusted to do so.

We recognize, however, that many of the largest commercial areas in Cecil County are located within the borders of the eight independent towns. For effective control over night lighting, the towns would also have to enact similar ordinances. We believe that the county should take the lead in outdoor lighting regulation and should encourage the town governments to follow suit; certainly the language of a county ordinance could be used as a model by the towns, and county action in this area would serve as a positive example to be followed.

In 2009, the Maryland General Assembly established twelve planning visions for the state, the first of which states that "A high quality of life is achieved through universal stewardship of the land, water, and air, resulting in sustainable communities and protection of the environment." The subcommittee believes that a lighting ordinance would be an important part of such stewardship in Cecil County.

## **Purpose**

The Cecil County Comprehensive Plan recognizes that it is beneficial and desirable to maintain the rural character of the county. Establishing a lighting ordinance will help to insure the benefits of outdoor lighting, while maintaining public safety and encouraging energy efficiency. Poorly designed outdoor lighting reduces privacy, disrupts the enjoyment of the nighttime sky, has an adverse impact on safety by producing unnecessary glare, wastes energy, results in increased costs, and disturbs biological processes in the natural environment.

The purpose of this Ordinance is to maintain and/or improve the rural character of the County, and to insure the ability to view the night sky, through the establishment of regulations and a process for review of exterior lighting. Specifically, it is the intent of this Ordinance to encourage lighting practices and systems that will permit reasonable uses of outdoor lighting for nighttime safety, utility, security, and enjoyment while preserving the ambiance of the night; minimize glare and obtrusive light by limiting outdoor lighting that is misdirected, excessive, or unnecessary; conserve energy and

resources to the greatest extent possible; and help protect the natural environment from the damaging effects of night lighting.

Further, the ordinance shall take into consideration a system of measurement that can be reviewed and understood by a layman and easily prepared by and in concert with design professionals outside the lighting industry; provide a list of checks and balances to allow easy transition from one reviewer to the next; and require lighting controls that benefit the community and wildlife without economic hardship to the end user. Both minimum standards as well as maximum standards will be utilized and consideration will be given to limit the area that certain kinds of outdoor lighting fixtures can illuminate.

It has become common practice for local governments to exercise regulatory control over outdoor lighting. It is the working group's desire for Cecil County to lead by example for the rural character of the County includes eight Towns as well, and it is the hope that the Towns within the County will follow suit and develop similar standards.

## Recommendation

***Our working group recommendation is that Cecil County adopts a comprehensive outdoor lighting ordinance that would establish minimum and maximum illumination standards based on land use category, which would be in harmony with the goals of the County Comprehensive Plan. The standards would be consistent with public safety, environmental impact, personal privacy, and efficient energy use. The specific standards would be established by a County government panel with planning and engineering staff, augmented by selected outside expertise, based upon the precedents set in other jurisdictions.***

The County panel should execute a transparent process that offers the various stakeholders an opportunity to provide input in the development of the ordinance. These might include, but not be limited to: lighting and design engineers, landscape architects, business and commercial interests, residential developers, naturalists, astronomers, land use planners, and other interested parties.

Our general recommendations on what that ordinance might contain are:

- Lighting zones would be established: Designated geographic areas of the county in which certain lighting restrictions are in effect. Lighting zones may be set up to be coincident with land-use zoning, or established as independent overlay zones. Generally, rural and residential areas will have greater restrictions than urban and commercial areas.
- Existing lighting infrastructure would be “grandfathered”, even if non-compliant with the new standards until replacement (or some significant percentage), change of property use, or possibly some set date in the future. The specifics would be developed by the County government outdoor lighting panel we discussed in the preface. Our intent was to begin a process that we envision might take decades before total implementation, mostly through new construction, and replacement of obsolescent facilities.
- This ordinance would require new building/development plans to include a photometric grid map of the lighting plan for the project that would conform to standards set by the county.
- The lighting standards would apply to several important control elements that dictate minimum and maximum variables, illustrated below

We recommend that the Cecil County Outdoor Lighting Ordinance consider the following as a basis for establishing standards:

There are two fundamental of standards of measurement, which are the result of two basic variables. The variables are *fixture type* and *mounting height*. The key metrics are *maximum footcandles* and *perimeter footcandles*.



**Fixture Type** – Light fixtures (luminaries) can be shielded or partially shielded to direct light to appropriate spaces or to cut off illumination where desired. The fixture type helps to direct light directionally and may help prevent light trespass. Light trespass can be reduced by selecting light fixtures which limit the amount of light emitted more than 80 degrees above the nadir (10 degrees below the horizon). A properly designed fixture can insure light is only directed below the horizontal, which means less light is wasted through directing it outwards and upwards. Shielding offers the greatest return for the least cost in terms of lighting efficiency.

**Mounting Height** –Generally speaking, the higher the mounting height, the greater the area illuminated underneath, but at the expense of brighter lamps, and less control of unwanted glare and illumination for neighboring properties. Higher mounts create more

uneven lighting with “hot spots” and can be seen for greater distances. They are also generally more expensive to build and to maintain. Lower mounting heights are less impacted by wind loads and storm damage and distribute light more evenly over an area.

**Maximum Footcandles** – a measurement of the luminosity of a fixture on the surface directly beneath the light source. Footcandles (fc) = Total Lumens(LM) in Square Feet. Based upon end use, the County would establish a minimum and maximum footcandle luminosity standard.

**Perimeter Footcandles** – a measurement of the luminosity of a lighting fixture at the perimeter of a property. Usually it should be zero in the buffer zone within the property boundary if light trespass is to be avoided. (The present County standard is one footcandle). It should be noted that even though one may be outside the perimeter lighting “footprint” of a light source, one might still face the glare of a fixture mounted at a lofty height, or one that has an unshielded fixture.

## **Implementation**

Establish a County government panel to draft a specific outdoor lighting ordinance. The panel would include planning and engineering staff, augmented by selected outside expertise. The purpose of this Ordinance is to maintain and/or improve the rural character of the County, and to insure the ability to view the night sky, through the establishment of regulations and a process for review of exterior lighting. Specifically, it is the intent of this Ordinance to encourage lighting practices and systems that will permit reasonable uses of outdoor lighting for nighttime safety, utility, security, and enjoyment while preserving the ambiance of the night; minimize glare and obtrusive light by limiting outdoor lighting that is misdirected, excessive, or unnecessary; conserve energy and resources to the greatest extent possible; and help protect the natural environment from the damaging effects of night lighting.

## **Educating the Public**

Presumably any change in ordinance would be accompanied by a public comment period that would include hearings and/or briefings providing an opportunity to educate and inform as well as to listen to citizen concerns. Our working Group recommends an educational element in any change to the County ordinance. Linda Tipton, our Delmarva Power representative on the working group suggested including information in the monthly Delmarva statements. The County website might offer a page that discusses and illuminates the issue of outdoor lighting. Some of our working group members would be happy volunteer to speak on behalf of this ordinance at public venues as required.

## **Enforcement**

Our committee assumes the enforcement of this ordinance would be little different than already exists for landscaping requirements, to use a common example. The developer would be required to provide a lighting plan in the form of a photometric grid-map as part of their proposal. The final approval would be recorded and would be included as part of the site inspection process. Measuring footcandle strength at the maximum and perimeter locations would be a very simple matter requiring only a simple light meter, although this part of the inspection would necessarily have to be performed at night.

### **Exceptions:**

**Street lighting:** Streetlights, illuminated information signs on roads, and other publicly owned safety lighting may be placed in a special category and regulated differently than other types of lighting.

**Temporary lighting:** Allowed lighting that does not conform to the provisions of the ordinance but which is temporary in nature. Examples might include the lighting of sports venues, carnivals, outdoor celebrations, or construction projects; and holiday lighting. An ordinance might limit the amount of time (in hours per day, days per month, and number of months) that such lighting is allowed.

## Appendix 1 Glossary

**Advertising sign design:** Restrictions on size, background color, source and intensity of illumination, and/or hours of illumination.

**Ambient light:** The general overall level of lighting in an area.

**Curfews:** A defined period during the night when certain types of lighting must be reduced or extinguished. For example, an ordinance might prohibit upward-directed advertising illumination from 10 p.m. to 4 a.m., or require that parking lot lighting be turned off or reduced in intensity after one hour past close of business. For safety or security purposes, non-conforming but motion-activated lighting might be allowed during the curfew hours.

**Fences and bufferyards:** Fences and bufferyards can provide physical barriers to unwanted light under some circumstances, and may be a useful lighting management tool.

**Footcandle** – a measurement of the luminosity of a fixture that falls on a given location. Footcandles (fc) = Total Lumens(lm) in Square Feet. The unit is defined as the amount of illumination the inside surface of a 1-foot radius sphere would be receiving if there were a uniform point source of one candela in the exact center of the sphere. Alternatively, it can be defined as the illuminance on a 1-square foot surface of which there is a uniformly distributed flux of one lumen. This can be thought of as the amount of light that actually falls on a given surface. The foot-candle is equal to one lumen per square foot. In the lighting industry, footcandles are a common unit of measurement used to calculate adequate lighting levels of workspaces in buildings or outdoor spaces.

**Fully shielded (full cutoff) luminaire:** A luminaire emitting no light above the horizontal plane.

**Glare:** Light from a source (such as a lamp) that directly enters the eye and hides detail or fainter objects in the direction of the source and blinding light.

**Grandfathering:** Allowing existing lighting to remain in place, even though not in compliance with the ordinance, until replacement, change of property use or ownership, or some set date in the future. Full compliance with all aspects of the ordinance might be required only for new or replacement lighting.

**Height:** Vertical distance of a luminaire above the ground. In general, since higher lighting fixtures disperse light to a wider area and have a greater potential for light trespass, the maximum height of fixtures may be regulated.

**Lamp type:** Refers to the specific physics of the light-emitting device (bulb) in a lighting fixture, e.g., incandescent, halogen, fluorescent, LED, gas discharge tubes (“neon”), high- and low-pressure sodium, mercury vapor, metal halide, etc. Certain types of lamps may be required or restricted in certain zones.

**Landscape lighting:** Luminaries mounted in or at grade (but not more than 3 feet above grade) and used solely for landscape rather than any area lighting.

**Light clutter** refers to excessive groupings of lights. Groupings of lights may generate confusion, distract from obstacles (including those that they may be intended to illuminate), and potentially cause accidents. Clutter is particularly noticeable on roads where the street lights are badly designed, or where brightly lit advertising surrounds the roadways. Depending on the motives of the person or organization that installed the lights, their placement and design can even be intended to distract drivers, and can contribute to accidents.

**Light pollution** is a broad term that refers to multiple problems, all of which are caused by inefficient, unappealing, or (arguably) unnecessary use of artificial light. Specific categories of light pollution include light trespass, over-illumination, glare, light clutter, and skyglow. A single offending light source often falls into more than one of these categories.

**Light trespass** occurs when unwanted light enters one's property, for instance, by shining over a neighbor's fence. A common light trespass problem occurs when a strong light enters the window of one's home from the outside, causing problems such as sleep deprivation or the blocking of an evening view.

**Lighting Zones:** The following are suggested criteria for the appropriate wording of proposed lighting zones<sup>2</sup>.

***LZ0: No ambient lighting***

*Areas where the natural environment will be seriously and adversely affected by lighting. Impacts include disturbing the biological cycles of flora and fauna and/or detracting from human enjoyment and appreciation of the natural environment. Human activity is subordinate in importance to nature. The vision of human residents and users is adapted to total darkness, and they expect to see little or no lighting. When not needed, lighting should be extinguished. Examples: Parks and Natural Wildlife areas*

***LZ1: Low ambient lighting***

*Areas where lighting might adversely affect flora and fauna or disturb the character of the area. The vision of human residents and users is adapted to low light levels. Lighting may be used for safety, security and/or convenience but it is not*

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<sup>2</sup> International Dark Sky Association

*necessarily uniform or continuous. After curfew, most lighting should be extinguished or reduced as activity levels decline. Examples: suburban and rural residential areas.*

**LZ2: Moderate ambient lighting**

*Areas of human activity where the vision of human residents and users is adapted to moderate light levels. Lighting may typically be used for safety, security and/or convenience but it is not necessarily uniform or continuous. After curfew, lighting may be extinguished or reduced as activity levels decline. Examples: urban residential areas*

**LZ3: Moderately high ambient lighting**

*Areas of human activity where the vision of human residents and users is adapted to moderately high light levels. Lighting is generally desired for safety, security and/or convenience and it is often uniform and/or continuous. After curfew, lighting may be extinguished or reduced in most areas as activity levels decline. Example: urban business areas, Main Street*

**LZ4: High ambient lighting**

*Areas of human activity where the vision of human residents and users is adapted to high light levels. Lighting is generally considered necessary for safety, security and/or convenience and it is mostly uniform and/or continuous. After curfew, lighting may be extinguished or reduced in some areas as activity levels decline. Example: urban commercial use areas, along major arteries*

**Lumen** (symbol: **lm**) is the measure of the power of light perceived by the human eye.

**Luminaires** (light fixtures) have different patterns of light dispersal, and certain dispersal patterns may be required or restricted for certain uses. For example, “full cutoff”, or “fully shielded” fixtures, which do not project any light above the horizontal plane, may be required for parking lots or service stations. The BUG classification system (Backlight, Uplight, and Glare) might be the basis for selection of fixtures for certain uses (“Luminaire Classification System for Outdoor Luminaires”, TM-15-07, Illuminating Engineering Society).

**Luminous intensity:** The intensity of light falling on a horizontal surface (luminous power per unit area), measured in lux (lumens per square meter) or footcandles (lumens per square foot). The luminous intensity may be regulated at various parts of a property. For example, a minimum and maximum number of foot-candles might be set for parking areas and a maximum number of foot-candles allowed at the property border. Allowed intensity might vary by surface type and reflectance.

**Obtrusive light:** Spill light that causes glare, annoyance, discomfort, or loss of visual ability. Light Pollution.

**Over-illumination** is the excessive use of light. Specifically within the United States, over-illumination is responsible for approximately two million barrels of oil per day in energy wasted. Energy audit data demonstrates that about 30 to 60 percent of energy consumed in lighting is unneeded or gratuitous.<sup>3</sup>

**Restrictions on directed light:** Restrictions on spot or flood lights, especially those used to illuminate advertising signs, or for decorative effect, in terms of allowed directions, intensity, and light spillover. Also, wording to prevent compliant fixtures from being mounted at an angle such that light reaches into unintended quadrants.

**Skyglow** refers to the "glow" effect that can be seen over populated areas. It is the combination of all light reflected from what it has illuminated escaping up into the sky and from *all* of the badly directed light in that area that also escapes into the sky, being scattered (redirected) by the atmosphere back toward the ground.

**Spill light:** Light from a lighting installation that falls outside of the boundaries of the property on which it is located. Usually results in obtrusive light.

**Street lighting:** Streetlights, illuminated directional signs on roads, and other publicly owned safety lighting may be placed in a special category and regulated differently than other types of lighting.

**Temporary and holiday lighting:** Allowed lighting that does not conform to the provisions of the ordinance but which will not be used for more than a specified number of weeks or months.

**Total site lumens:** The sum of all installed lamp lumens on a property. Instead of regulating the luminous intensity on a property, an ordinance might restrict the total site lumens, as a function of area to be illuminated and type of activity.

**Variances:** A defined procedure for allowing non-conforming uses in special circumstances. Such variances may be allowed where a literal application of the ordinance would result in practical difficulty or unnecessary hardship, and the relief granted would be in accordance with the spirit and intent of the ordinance.

**Waivers:** The Planning Commission or the Board of Appeals may grant waivers or variances as appropriate if the applicant presents a reasonable basis for his request.

**Watts** are a measure of the amount of electricity used by a lamp; different kinds of lamps produce different numbers of lumens per watt, depending on their efficiency. For example, a 75-watt incandescent bulb, or a 20-watt compact fluorescent bulb, both

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<sup>3</sup> Lumina Technologies, Santa Rosa, California, *Survey of 156 California commercial buildings energy use*, August, 1996

produce about 1200 lumens of light. The intensity of light illuminating a flat surface is measured in **lux** (lumens per square meter) or **footcandles** (lumens per square foot). 1 lux = 10.76 footcandles.

## Appendix 2

### Reference sources for more information:

2002 task force report on lighting in Maryland commissioned by the General Assembly.  
<http://www.msa.md.gov/megafile/msa/speccol/sc5300/sc5339/000113/000000/000008/unrestricted/20030006e.pdf> .

Lighting Ordinance Guidelines published by the International Dark Sky Association, including many examples from other jurisdictions.  
[http://www.darksky.org/index.php?option=com\\_content&view=article&id=608](http://www.darksky.org/index.php?option=com_content&view=article&id=608)

The definitive guide for lighting requirements is — “*IESNA Lighting Handbook, 9th Edition, Illuminating Engineering Society of North America (IESNA)*”

Federal Energy Code (2009 International Energy Conservation Code)  
[http://www.energycodes.gov/training/pdfs/90.1-2007\\_final.pdf](http://www.energycodes.gov/training/pdfs/90.1-2007_final.pdf)

## **Appendix 3 Meeting Notes**

Meeting Notes

### **Cecil County Outdoor Lighting Working Group**

Monday 28 March, County Administration Building, Perryville Room

The Working Group meeting began at 7 PM with introductions. Those present included:

Ken Wiggins, Chair  
Tony DiGiacomo, County Planner  
Eileen Butler, Naturalist  
George Kaplan, Astronomer  
Linda Tipton, Delmarva Power  
Ellen Mercurio, Landscape Architect

Dan Whitehurst was held up at a meeting in Baltimore and was unable to attend.

The meeting began with a discussion of our purpose, to determine recommendations for the Cecil County Planning Commission regarding regulation of outdoor lighting. Some possible outcomes/considerations are, but not limited to:

*Permit reasonable uses of outdoor lighting for nighttime safety, utility, security, and enjoyment while preserving the ambiance of the night;*

*Minimize glare and obtrusive light by limiting outdoor lighting that is misdirected, excessive, or unnecessary;*

*Conserve energy and resources to the greatest extent possible;*

*Help protect the natural environment from the damaging effects of night lighting.*

We had a wide ranging discussion of these very facets. How do we balance the need for security, safety, and utility while preserving the night sky? How do we avoid light trespass on our environment and among neighboring communities? There are engineering solutions to these challenges, but they might be expensive, or intrude upon individual rights. Some key questions were posed, among them:

Tony DiGiacomo posed the question: Should we include residential and/or commercial lighting in our recommendation? For builders, or for individual homeowners as well? Are we considering legislation, regulation, guidelines, or educational efforts?

There seemed to be agreement that lighting standards are an important issue that deserves attention. It is an important part of the endangered quality of life we enjoy in the mostly still-rural county. It was equally agreed that it would be a difficult

topic to introduce without an educational element. Linda Tipton with Delmarva Power suggested that we could take advantage of the monthly newsletter that Delmarva includes with its monthly statement and will bring the necessary guidelines to our next meeting.

There are numerous varying examples of ordinances in place in other locales. Ellen Mercurio suggested we look at the relatively new New Castle DE lighting and illumination standards as a possible model. Ellen demonstrated the most illumination engineering expertise in our group. She advised that we should be familiar with the Unified Development Code document on lighting standards, which offer the engineering parameters for varying lighting configurations.

The biggest lighting challenges were recognized to be mostly commercial, and mostly in urban areas. Sign lighting was specifically mentioned by George Kaplan. The eight towns in the County are beyond the scope of this committee's purview, but there was the suggestion that the County apply lighting standards to itself, as an example to the towns. We agreed that you have to start somewhere, and leading by example might be a good start.

Eileen Butler suggested that energy efficiency was among the strongest selling points of a lighting policy. As a naturalist she also opined that managing "bugs and snakes" was an important part of a lighting and illumination plan.

Ken Wiggins suggested that our recommendations in the present political/economic environment should be relatively modest, and "doable baby steps" to introduce the topic, and raise its visibility if we are to have any hope of success. Limiting the choices of individual homeowners, or making standards retroactive would meet fierce opposition.

Ellen, offered the anecdote of landscaping in urban parking lots. The lot owners are naturally opposed, but if you can get them to agree to one tree, and get them used to the idea of a tree, then you can later negotiate more trees.

We had a wide ranging and informed discussion thanks to the talents and expertise of those at the table. We made no formal decisions, but agreed to a follow on meeting at the same location and time on Wednesday April 20.

At that meeting we will bring our contributions to the table and attempt to define the actual scope and the specific elements of our recommendation. We will provide the examples cited above, if possible in advance of the meeting. Participants are invited to bring the specific language for their particular concerns for inclusion in our recommendation.

Finally, these don't pretend to be meeting minutes in a formal sense. They are from my notes, and I may have forgotten or omitted important points, so please send me any discussion points, for the record, that I may have missed.

Ken Wiggins  
29 March, 2011

Meeting Notes

**Cecil County Outdoor Lighting Working Group**

Wednesday April 20, 2011 County Administration Building, Perryville Room

The Working Group meeting began at 7PM. Those present included

Ken Wiggins  
Tony DiGiacomo  
Eileen Butler  
Ellen Mercurio  
George Kaplan

Our objective at this meeting was to reach proximate consensus on a recommendation for the Planning Commission and to assign specific tasks towards writing a draft. We agreed that a County ordinance would be useful and beneficial towards our previously stated purposes of providing safety, security, utility while minimizing glare, trespass, environmental and energy impacts. (See meeting notes 28 March).

Eileen Butler led off our discussion of the scope of our recommendation. We discussed various possibilities such as by zoning district, or possibly by overlay districts. We agreed that our recommendation would be County-wide including both County and town (advisories) as well as both residential and commercial sites. Like noise or pollution, illumination often knows few bounds. Eileen will draft a recommendation purpose statement of our goals and objectives, and will flesh out the need and the benefits of a lighting standard.

We had the benefit of numerous sample codes from other jurisdictions, including the Maryland State code that applies only to its own facilities, the Unified Delaware Code that includes lighting and illumination standards, as well as the Delaware DOT design guidelines, a Tucson Arizona model, an International Dark Sky model code, Pennsylvania township codes from York, East Hempfield, Treduffrin, and Manheim.

Following their example we intend to recommend both minimum standards as well as maximum standards. Ellen Mercurio led a discussion of the metrics of illumination and made a compelling case that it be measured by Foot-candles, a universally acknowledged yardstick for measuring light by area in square feet. This yardstick can be easily measured by laymen and county staff without extensive training allowing ease of design and enforcement. Ellen will write a draft for our recommendation that will clarify and define the measurement of illumination and how it can be designed and enforced.

A footcandle can vary by the power of the light source, its height above ground, the fixture type and its shielding, timing, and other variables. There are also often exceptions such as holiday and sports venues that may impact a comprehensive lighting

policy. George Kaplan has volunteered to take the lead on writing a draft discussion of these variables and considerations.

In proceeding further, the report we prepare will be our committee report. Our task is to make it the Planning Commission report if we want it to resolve into a future ordinance. When and if, the Planning Commission agrees to recommend implementation to the County Commissioners it will become *their* report. If we want to see an ordinance, someday, the County Commissioners will have to take ownership and it will be their law. So you can see our process is a long and arduous task. Committee consensus seems to be that our recommendation should be simple, offer clear benefits, minimal economic impacts, geared to future tense (not retroactive), and easy to understand.

We'll have to address questions such as "Who determines the standard". In discussion, we resolved to provide examples, and some broad ideas, but to save specific standards for a future technical committee that would include professional designing professionals, engineers, planners, and which might also include representation from the towns. There are plenty of models out there from other jurisdictions that would offer guidance to this panel of experts.

Although it wasn't really discussed at this meeting, there is recognition that there is an educational element to our plan and Linda Tipton from Delmarva Power has offered to provide information on how we could communicate this to the public during a future enactment of such an ordinance. Linda was unable to attend but renewed her offer via e-mail.

It was recognized that we need broader representation on our enthusiastic little committee, as we lack representation from the business and housing interests. We hope to seek additional members to address this concern.

Our next meeting will be Monday May 23, with an alternate date of Wednesday June 1, at the County Building at 7 PM, Perryville Room.

Ken Wiggins, April 21, 2011

Meeting Notes

**Cecil County Outdoor Lighting Working Group**

Monday May 23, 2011 County Administration Building, Perryville Room

The Working Group meeting began at 7PM. Those present included

Ken Wiggins  
Tony DiGiacomo  
Eileen Butler  
Ellen Mercurio  
George Kaplan

As planned, this was our third and final meeting. I am very grateful to the committee members who gave their time and expertise to this project. Hopefully, we won't need any more meetings, but I intend to keep you on the hook just a while longer, as we finalize our recommendation into a final document.

Prior to this meeting, various parts of a draft ordinance were assembled. These included a purpose statement drafted by Eileen Butler, a glossary of elements produced by George Kaplan, and suggested primary controls contributed by Ellen Mercurio.

The committee as a whole went through these draft documents suggesting mostly minor edits, and suggested further elements that would "round out" our recommendation document offering better clarity and more depth.

Ken felt the need for a preface or introduction to describe our process, explain the context of our effort within the new comprehensive plan, and to offer a concise recommendation.

Ellen suggested we include a sample lighting plan. The terminology is semi-technical, and anything that makes it easy to understand for laymen would make our document stronger. A lighting plan is a visual that is relatively easy to grasp, along with an illustration Ellen provided showing the basic control elements. Ellen will forward a generic photometric grid and legend to include in our package.

Another point of clarification is the need for a comparative tool that would help to describe the difference between say one, and ten footcandles of outdoor lighting on a dark night. What is the minimum safe standard for pedestrians, what is the maximum the environment can reasonably sustain? What are the appropriate levels in-between? We will research and include a chart that will illuminate these questions.

Our draft recommendation will not attempt to specify precise levels of outdoor lighting, but we will provide examples and suggest that a comparative matrix be constructed for similar zoning areas in other locales as a basis of comparison. It is likely that the standards ultimately set will be tied to the zoning classification of the area to which it will be applied. We'll offer a suggestion that the details of the specifics should be compiled by a panel of County lighting, electrical and engineering experts augmented by citizen advisors with expertise in environmental, landscaping, and construction matters.

Finally, it was suggested that we should include an implementation element, for our recommendation, as well as a brief discussion of enforcement issues. It would address educational issues in terms of informing the public and those most affected by a new ordinance. We'd want to offer citations for any source documents we include.

The individual members of the committee will edit their individual contributions in light of the discussion and will forward amended and edited material to me. I will attempt to assemble and flesh out a draft document that will then be coordinated among our members. I'd like to complete this task in about one month if possible or by the end of June.

We elected not to schedule another meeting at this time. We felt we could continue on from this point via e-mail coordination and will hold future meetings only if needed.

Ken Wiggins, May 24, 2011