

Addressing Outdoor Lighting in Municipalities

Many Thanks to:

Pennsylvania Outdoor Lighting Council



Items to Discuss

- Ordinances
 - Why have one?
 - What is effective?
 - How to implement?
- Municipality's Own Facilities
 - Street/Roadway/Parking
 - Pedestrian Safety
 - Facility Exteriors
 - Recreation Facilities

Why is good outdoor lighting important

- Good outdoor lighting is a community asset
- Enhances safety and sense of security
- Provides visibility for nighttime activities
- Communicates a positive visual image of the community, and visual order



Goals of Good Outdoor Lighting

- Optimize visibility at night
- Minimize glare
- Minimize energy consumption
- Minimize light trespass
- Minimize impact on the environment

How Did We Get Here?

- Municipal codes have not kept pace with today's lighting technology, needs and practices
- Municipalities have comprehensive building codes & electrical codes, but too few have an *effective* outdoor lighting ordinance
- Costs have not been as important as they are now.

How Did We Get Here? (Cont'd)

- We have yesterday's fixtures with today's more powerful HID lamps, producing much more glare.



WHY AN ORDINANCE?

Truths

If a municipality doesn't have an effective lighting ordinance and doesn't think one is needed, they're in for a rude awakening.



Former Farm Pasture



WHY AN ORDINANCE?

“Oh, we have a good ordinance.”

Zoning Ordinance
Amended 6/1/1996

Section 1115 – Lighting shall be arranged so that it does not reflect towards any public street or residential zoning district.

WHY AN ORDINANCE?

Truths

- If a municipality doesn't have an effective lighting ordinance, they can hope for the best but better be prepared for the worst.



WHY AN ORDINANCE?

Truths

- If a municipality waits to pass an ordinance until they discover they really need it, it will be too late.



When the developer's application arrives at the municipality, the existing version of the ordinance applies.



ORDINANCE BENEFITS

A good lighting ordinance:

- Prevents excessive and under lighting
- Protects citizens, drivers, the environment and the night sky from glare and light pollution
- Sends a clear message that bad lighting will not be tolerated.

ORDINANCE BENEFITS

Prevents Nasty Surprises



What they got

What was promised



ORDINANCE BENEFITS

Continued

By requiring that developers provide complete information about proposed lighting, suitability and ordinance compliance can be fully judged up front.



ORDINANCE ELEMENTS

- Purpose, Scope and Exemptions
 - e.g., seasonal lighting
- Requirements for:
 - Fixture types, e.g., full cutoff



ORDINANCE ELEMENTS

- Requirements for:
 - Glare control, e.g., aiming, shielding, light trespass



ORDINANCE ELEMENTS

Continued

- Max. allowed mounting heights
- Shut-off hours/Security lighting
- Pole protection behind parking spaces
- Plan submission content



ORDINANCE ELEMENTS

Continued

- Dealing with post-approval substitutions
 - How to handle attempts to use non-approved equipment.
- Compliance verification/monitoring
 - Right by municipality to visit site and verify compliance with approved plans.
- Dealing with non-conforming lighting
 - How to handle existing pre-ordinance installations, grandfather or require compliance after x number of years.





GETTING STARTED

- Find a champion to shepherd process.
 - **Most important step**
- Don't start from scratch. Use a proven ordinance model, tailor to municipality's needs.

PENNSYLVANIA OUTDOOR LIGHTING COUNCIL



MODEL LIGHTING ORDINANCE

For inclusion in

ZONING ORDINANCES

This model ordinance is intended to be installed as a section of the zoning ordinance covering all zoning districts. Requirements unique to a district should be included in that district's section or in an overlay section.



GETTING STARTED

- Seek technical help where needed on lighting issues
 - POLC can provide technical assistance
 - Will proposed revisions still provide protection?
 - Would lighting zones help provide protection?

Lighting Zones

LZ0 No Light permitted

LZ1 Very low light permitted

LZ2 Low light permitted

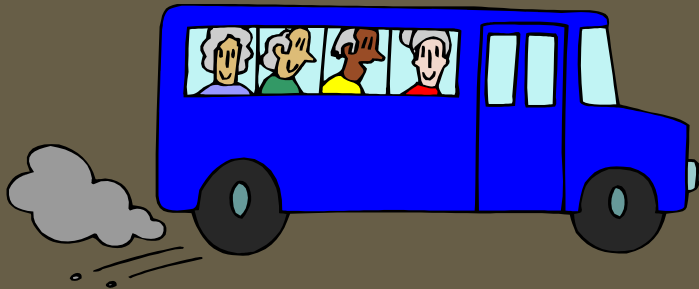
LZ3 Medium light permitted

LZ4 High light permitted

GETTING STARTED

Optional Steps to Consider

- Convene group, get buy-in. Include elected officials, planning, EAC, zoning, police, municipal engineer, citizens.
- Take field trips to find good and bad lighting examples.





WHERE TO PLACE?

Where should the lighting requirements be located for optimum accessibility and commitment to their use?

Subdivision and
Land
Development
Ordinance

?

Zoning
Ordinance

?

Stand-Alone
Ordinance

?



WHERE TO PLACE?

SALDO

In SALDO?

- Covers subdivision and land development applications but not all renovations, retrofits, building permits, construction and many small projects, e.g., gas stations, billboards.
- ZHB and Code Enforcement don't use



WHERE TO PLACE?

CONTINUED

Zoning
Ordinance

In Zoning?

- ZHB/Code Enforcement Officer know and use every day.
- Covers renovations and residential too
- Supervisors do not have jurisdiction except in Conditional Use.



WHERE TO PLACE?

CONTINUED

Stand-Alone
Lighting
Ordinance

Stand-Alone Document?

- Often gets lost, goes unused.
- Typically not kept current
- Circumvents county review and public hearing process.
- Viable option if no SALDO & ZO

WHERE TO PLACE?

CONTINUED

SALDO

Zoning
Ordinance

Best Choice

- Put parts appropriate to land development in SLDO and parts appropriate to zoning in ZO. Naturally there will be some duplication.

Second best choice

- Put in ZO and cross-reference in SLDO



WHERE TO PLACE?

CONTINUED

Where to put in the ordinance?

- Sprinkle in each zoning district section, or create a separate lighting section?
- Create a separate lighting section to cover all districts

Recommended

WHERE TO PLACE?

CONTINUED

Where to put in the ordinance?

- For very unique requirements, put in applicable zoning or overlay district section

Environmental Overlay District

1. Lighting shall not exceed 0.5 fc
2. Lighting shall be low voltage
3. Lighting shall be aimed straight down
4. All lighting shall be extinguished by 11 pm

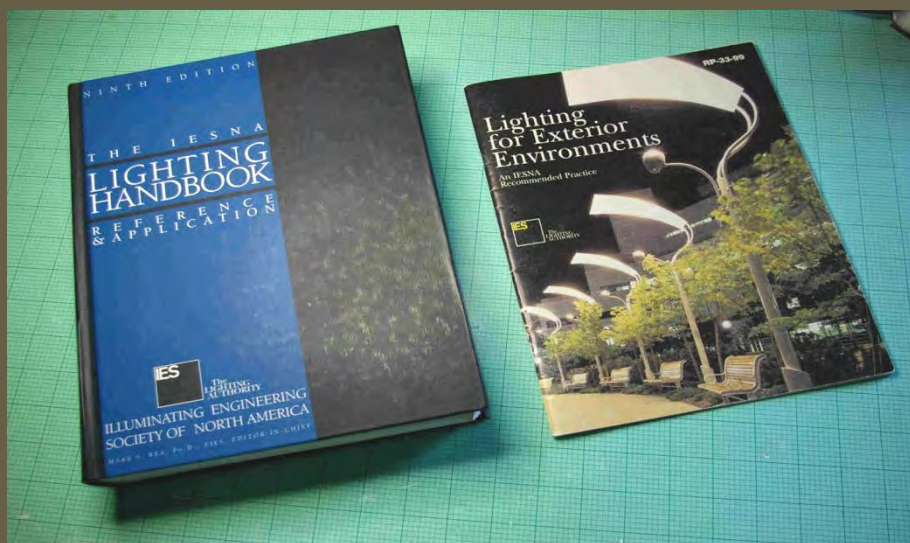
GETTING IT PASSED

- Get county review and hold public hearings
- Strive to hold the line but be prepared for compromise (half a loaf)
- Educate and convince *before* compromise
- Don't let the process die – can take up to a year.



ENFORCEMENT

- An unenforced ordinance is valueless
- Arrange for training of key players
- Have tools available, e.g., light meter and IESNA standards



ENFORCEMENT

- Seek commitment of responsible parties, e.g., code enforcement officer and municipality's engineer



ENFORCEMENT

- Reviewing Submitted Plans

Plan Review Check List

	<u>OK</u>
Illuminance Levels	✓
Fixture Design	✓
Fixture Mounting Height	✓
Pole Protection	✓
Automatic Control	✓
Shut-off Time	✓
Security Lighting	✓
Required Plan Notes	✓
Light Trespass	✓
Complete Plan Content	✓

ENFORCEMENT

- Don't Forget Building Permit Reviews

Reviewers often miss lighting details on architectural plans, with disastrous results.





ENFORCEMENT

- Developer needs to be made aware during land development that there will be charges for complete construction surveillance.
- Section 509 of the MPC provides authority for municipalities to establish a financial security agreement with the developer.

Financial Security Agreement

An agreement between the
Township of Penn and
Environmental Disaster
Developers

Suburban Shopping Center

09/28/2007

ENFORCEMENT

- Have the right talent available on the job site to monitor activities during critical phases.



ENFORCEMENT

Municipalities with a reputation for not adequately monitoring construction often become a target for developers who do not intend to follow approved plans.



ENFORCEMENT

- Undiscovered mistakes made during construction often come back to bite a municipality later on.



CONCLUSIONS



- Start the process now, don't wait for an unpleasant lighting surprise
- Assign the task to someone who cares and will see it through
- Get competent technical help
- Drive to completion
- **Use it and enforce it!**

Don't Let This Happen!



POLC Can Help Craft an Effective Lighting Ordinance



- A non-profit group of volunteers that has helped over 35 municipalities and planners create effective lighting ordinances.
- Call at 610 326-1402
- E-mail at POLCouncil@cs.com
- Visit website: www.POLCouncil.org includes: model lighting ordinances, guidance documents, information for residents, and much of what you need to get started.

Enacted Ordinances

Birmingham
East Bradford
East Coventry
East Nantmeal
East Pikeland
East Vincent
East Whiteland
London Grove
New London
North Coventry
Schuylkill
South Coventry
Upper Uwchlan
Uwchlan
Wallace
West Brandywine
Warwick

West Pikeland
Westtown
West Vincent
West Whiteland
Exeter
Maidencreek
Robeson
Union
Northampton
Plumstead
Tinicum
Limerick
Marlborough
Upper Merion
Upper Dublin
Bishop

Municipality's Own Facilities

Lead by Example -

- Street/Roadway/Parking
- Pedestrian Safety
- Facility Exteriors
- Recreation Facilities

Recommendations

- Promote the use of:
 - *Intelligent light controls*, e.g. motion sensors, timers, programmable controllers
 - *Late night turn-off* of all lighting except as needed for safety/security
 - *Fully shielded light fixtures* to minimize glare and wasted uplight [esp parks/rec]



Resources

- Visit the International Dark-Sky website at www.darksky.org for:
 - Lists of approved lighting fixtures
 - Educational materials
 - Light pollution research
 - A library of light-pollution resources
- Visit the IES website at www.iesna.org to obtain lighting technical resources
- Rensselaer Polytechnic Institute – Lighting Research Center:
<http://www.lrc.rpi.edu/researchAreas/outdoor.asp>

Resources

- Illuminating Engineering Society of North America (IESNA)
 - the recognized technical authority on illumination
 - communicate information on all aspects of good lighting practice
 - nearly 100 publications including recommended practices on a variety of applications, design guides, technical memoranda, and publications on energy management and lighting measurement
 - www.iesna.org