Municipal

Guidelines for Lighting

In the Right-of-Way

Recommendations

Prepared by

Susan Harder
and
Tom Horn (Resource Conservation Manager)
for
East Hampton, NY

In consultation with Leo Smith, Member, IESNA Roadway Lighting Committee

April 2008

Report to Municipal Officials

Guidelines and specifications for public lighting equipment located in the right-of-way are contained herein, along with recommendations for departmental reports.

Municipalities provide night lighting for a number of reasons: for pedestrian walkways; vehicle safety at locations where roadway conditions warrant lighting, i.e. high vehicle volume and/or speeds, or a high ratio of night to day accidents; and in business districts to establish a corridor of light to achieve a lit environment. In many municipalities streetlights were installed which do not meet these warrants and do not improve nighttime vision or safety: and there are areas without streetlighting that meet recommended warrants with no lighting. There have rarely been local town wide reviews of streetlighting installations, except to reconcile utility charges and the number of streetlights being serviced. With the increased urgency to conserve and use electricity wisely, both for financial and environmental reasons, it is timely to re-evaluate the municipal lighting which is located in the right-of-way.

This report outlines a Guidelines and Specifications for the two systems of municipally funded lighting in the right-of-way: (1) public utility pole mounted cobrahead type fixtures which are primarily intended to aid vehicle navigation on the roadways with incidental crosswalk lighting and; (2) decorative or "historic" fixtures mounted on installed poles primarily intended for pedestrian safety on or near roadways in central business districts.

Findings:

1. There is currently no policy nor a process of review for the installation of streetlighting, nor a process to evaluate the effectiveness of municipal streetlighting. Some streetlights have been mounted on utility poles in response to a car accident, regardless of whether lighting was an issue; or in response to a single homeowner or business owner's request for more lighting.

2. Most streetlights have been installed without meeting an established policy and many were installed under the auspices of the local utility, without municipal review. Utilities have installed streetlights routinely when extending electric service to new subdivisions.

2. Light fixtures located in the right-of-way are usually owned and maintained by the municipality with a per pole tariff established by and paid to utilities; and which are activated by a dusk-to-dawn light sensor mounted on each fixture. Some municipalities pay a tariff to the utility for the use of the pole as well as for the equipment and maintenance costs.

3. Utility poles are positioned and spaced in order to carry the length and weight of utility wires and are not optimally located in order to illuminate roadways or crosswalks. (Note: public utility poles located in the right-of-way are sometimes used to mount dusk-to-dawn floodlights leased from a utility to illuminate commercial property. Oftentimes these commercial floodlights violate local codes and have not received Planning Department review.)

4. Most of the local municipally maintained roads do not meet NY State's Warrants for Roadway Lighting, which are dependent on the total number of vehicles and the day to night ratio for accidents. Streetlights throughout Suffolk County, for example, are considered an "amenity" and are installed at the sole discretion of, and cost to each municipality.

5. The State DOT has criteria and a process of review for the infrastructure within the right-of-way which applies to new pole installations. However, NY State DOT has denied applications for streetlighting near areas of scenic and natural resources on state roadways.

6. Municipalities are not required by law to light roadways under their jurisdiction. Liability can, however, ensue when streetlights are not maintained; but not when removed under an established guideline for streetlighting.

7. It is a consequence of streetlighting that private properties will unavoidably experience "light trespass" which can result in nuisance complaints. Residents will continue to become more aware of the detriments to the health of the environment at night and to their own health from light entering their homes. It is therefore incumbent on the municipality to use streetlighting equipment judiciously and to follow guidelines and policies set by the Municipality.

8. Application forms can be made available to the public to apply to the municipality for installation and removal of streetlights in order for the municipality to properly evaluate placement, wattage, utility, and costs associated with streetlighting. Citizen input is a consideration concerning streetlighting near their homes. A sample application is contained herein for public input which can be reviewed prior to installation, re-location, or removal of streetlights. While citizen input is valuable, it is solely at the discretion of the Municipality whether a streetlight will provide a public benefit. Installation can be conditional on approval by the Planning Director and in the case of adjacent Nature Preserve, the Natural Resources Department.

6. Streetlighting maintenance, if not provided by the utility, can be handled through various departments, from Engineering, to Public Works, or the Parks Department's electrician, with a few exceptions. A handful could be maintained by an outside contractor for the high power utility pole mounted streetlights. There are different assignments concerning the responsibility for independent pole mounted fixtures within "Lighting District" as to maintenance, electrical charges, installation, repair, and re-lamping.

7. The various municipal departments which handle streetlights, while charged with installing and maintaining streetlighting, are not involved in establishing or conforming to criteria for streetlights.

8. Planning Departments normally review site plan approvals for commercial developments and issues permits for roadway lighting within residential subdivisions. Planning may best be able to review streetlighting applications for contemplated installation and removals, based on appropriateness and need. Streetlighting guidelines need to include specific criteria which must be met prior to installation as well as a process for review.

9. A cost/benefit analysis of the existing system of streetlights can provide a framework for consistency: some streetlights were installed when the primary purpose of the lighting was to illuminate areas for pedestrian safety, not traffic. It may be safer and more cost effective to install independent post top fixtures. Sidewalks requiring lighting will need to meet the light level specifications for walkways outlined in IESNA Recommended Practices, RP 33, Exterior Environments, using appropriate fixtures mounted on dedicated poles to optimally light those walkways. However, the installation of dedicated light poles may pose a right-of-way hazard; and when located on state funded roadways, permission needs to be obtained from the state DOT.

10. Factoring in the contribution of headlights for traffic safety needs to be taken into account in lighting designs as well as ambient light available for walkways. Since some communities experience seasonal changes for nighttime lighting, some lights may not serve a useful purpose after certain hours and can be extinguished through new technologies. A "Part Night" sensor is cost effective and useful for areas that are deserted or less traveled after midnight. An adjustment of utility tariffs for the utility pole mounted streetlights when timer devices can be applied to turn off lighting during hours of low use should be sought; but lack of tariff adjustment is not reason enough to leave streetlights operating dusk-to-dawn.

11. Alternative methods for roadway safety are available and should be considered prior to the installation of streetlights, e.g. reflectors, embedded crosswalk markers, signage, etc.

12. Roadway safety will be increased when bright glare from adjacent light sources, resulting in disabling and distracting the drivers' eyes, is shielded to conform to the Municipality's local lighting codes. A process needs to be in place so that the police can report private property glare issues to Code Enforcement or the Building Inspector for remediation.

13. Locations that would benefit from streetlighting (independent poles or utility pole mounted) exist in the municipality and can be identified through the Application process. Independently placed light poles will be appropriate in certain Business Districts as the crisscrossing of wires in front of homes and across roadways are removed for beautification and safety (access to buildings by fire equipment) purposes.

An inventory of existing streetlights would benefit the municipality in many ways. Upon review, municipalities often find a discrepancy between the utility charges and the number of existing fixtures. Reconciliation will likely result in savings. Utilities may conduct a preliminary inventory to check discrepancies, if asked.

Outdated and excessive streetlights need to be inventoried, identified and, as feasible, replaced, re-located, or removed. In the majority of locations, professional specifications for cobrahead streetlights list wattages between 50 – 100. [Note: Wattages listed are for commercial grade High Intensity Discharge fixtures. HID fixtures contain ballast and light output is almost ten times as bright as comparable equivalents for household bulbs.] In many locations within a municipality, there may be 250 watt streetlights, wasting energy and causing visual adaptation and light trespass problems.

Increased "skyglow" will result from unnecessary or excessive light reflecting off moisture and particulate, creating an artificial canopy overhead obscuring the beauty of the night sky. There are professional recommendations for light levels that are adequate for safety and which will reduce "skyglow". The maximum necessary for vision is listed in the Specifications, Tables I and II.

A report prepared by the Police Department about locations which are prone to accidents at night would be useful, coupled with information concerning the reasons for the accidents to ascertain if lighting the roadway would help reduce the rate. In that report, the following factors need to be ruled out: glare from adjacent properties, driver fatigue or disability, excessive speed, or problems with the headlights on the accident vehicle.

In Conclusion:

Consistency, energy conservation, preservation of community standards and respect for private property are all good reasons to establish guidelines for lighting in the right-of-way. Municipal streetlighting guidelines would also set an important precedent for other municipalities in the region as they examine their streetlighting to conserve resources and conform to community standards for lighting. Executing guidelines for the municipality's streetlights will result in safer roadways, conservation of energy, less expenditure of public funds, consistency of design, less impact on the environment and private property.

It is recommended that the municipal CFO implement Guidelines and Specifications for lighting in the right of way, and to request certain reports and surveys in order to use streetlight technology effectively for safety. These Guidelines do not need to be legislated unless specifications for roadway lighting are in conflict with the zoning code.

Municipal Guide

Guidelines and Specifications for

Municipal Lighting within the Right-of-Way

Guidelines and Specifications for Lighting within the Right-of-Way

Chapters

I. Guidelines for Municipal Lighting Located in the Right-of-way

There are primarily two systems of municipal lighting within the right-of-way: cobrahead type fixtures attached to public utility poles which may incidentally light sidewalks and crosswalks; and independently installed post top mounted fixtures of various designs (usually decorative) which are used for public sidewalks and for areas where cars are parked on the streets in commercial zones.

The placement of streetlights on utility poles may not be optimal for streetlighting: utility poles were placed based on the weight of the wires to distribute electricity and other utilities, nor were these poles originally intended or engineered to mount or power streetlights.

The primary purpose of streetlighting is to aid visibility for a safe vehicle environment while conserving energy and municipal resources. The benefit of roadway lighting needs to be balanced and weighed against the benefit of using resources in other areas, or through other means for the safety of the traveling public.

Due diligence needs to be performed when evaluating roadway lighting applications and a determination made as to whether the purpose of the lighting could be achieve through other means with an eye toward conserving energy and minimizing glare, sky glow, and light trespass. Among the options is a reduction in the posted speed limit or installed reflectorized roadway markers, lines, warning, or signs. It is also incumbent upon the municipality to reduce the intrusive effects of lighting to protect other interests of the municipality.

Most municipally maintained roads do not meet state warrants for roadway lighting, i.e. there are not enough vehicles on the road; speed limits are below 60 mph; and the ratio of night to day accidents is inadequate. It is entirely up to each municipality to decide the criteria for streetlighting and to choose the equipment to be used.

Guidelines for the Installation of New and Replacement Streetlights in the Right-of-way:

1. Light level specifications for fixtures located in the right-of-way are based on professional recommendations and are listed in Table I (utility pole mounted) and II (installed pole mounted).
2. There are state requirements for infrastructure engineering which must be met prior to installing light poles in the right-of-way.
3. Many Lighting Codes specify the exclusive use of Full Cutoff or Fully Shielded light fixtures. Whenever possible, IES Certified Full Cutoff fixtures are preferred because they emit less light in the glare zone. Unless another light source (bulb) is more energy efficient, high pressure sodium bulbs should be used and disposed of properly to avoid mercury contamination.
4. The primary purpose of street lighting should not include illumination of private property regardless of the ancillary benefits that may be derived from existing publicly funded streetlighting. Where an existing streetlight on a utility pole no longer satisfies these Guidelines or is not cost effective in providing sufficient public safety, or if a more effective solution is installed, removal of the equipment may be appropriate.
5. Utility pole mounted streetlights, due to their height and proximity, will illuminate private property beyond the roadway. At the request of a neighbor adjacent to a utility pole streetlight, shielding can be installed on the streetlight to mitigate nuisance lighting.

6. Utility poles are located in order to carry the weight and length of utility wires. Often they are not located for optimal street illumination. Independent poles may be installed for optimal spacing where a "continuous system" is necessary for safety.

7. The network of roads in residential zones, in most cases, does not warrant streetlighting since vehicle headlights will adequately illuminate the roadway at speed limits at or below 30 mph. Because of the effects of intrusive lighting by streetlights onto private property, installation of utility pole streetlights should be based on the best evidence of usefulness and subject to review and public input before and after installation. It should be noted that individual streetlights on utility poles can create disability adaptation problems for drivers when adjusting optically from a bright area to a darker one.

8. There may be terrain and design issues for certain locations which may be aided by other, more effective means than streetlighting, including lowering speeds, marking turns with reflective barriers, signs, road signals, and other mechanical or design methods which can be explored prior to installing, or in place of streetlights.

9. In commercial areas, contributions of adjacent lighting needs to be taken into account from private property lighting, sign lights, and parking lot lighting to further conserve energy and provide uniformity for better visibility when designing streetlighting.

10. Aesthetics, while a consideration, should not justify the installation of municipally funded street lights, nor will streetlighting by itself prevent criminal activity. In fact, lit areas may encourage loitering and vandalism, especially in areas not constantly monitored. Additional poles in the right-of-way can pose a hard structure hazard to drivers, which needs to be factored into decisions about adding poles for lights.

11. The industrial areas in a municipality are primarily used during daylight hours and can be identified as such and evaluated in order to use roadway lighting when needed. The presumption in these areas is that there is less night traffic and a lack of pedestrians during the weekends.

12."Part Night" shut off sensors can be utilized in some instances to conserve energy, public funding, and to lower green house gas emissions. "Part Night" sensors can be installed when the conditions for the lighting do not exist in the middle of the night. The cost of these sensors is the same as for the "dusk to dawn" sensors.

13. Public parks usually do not require streetlights on adjacent roadways. Situations can be evaluated if the park property is specifically and consistently designated for scheduled use at night and if the off-road parking (on a separate lighting system) is insufficient to handle the vehicle load, thus reducing "stop and go" traffic, pedestrians crossing the road, or pedestrians using shoulders as a walkway. Again, shut-off sensors can be applied to these streetlights to avoid all-night lighting when the parks are closed.

14. Open spaces and other undeveloped areas such as nature preserves and waterways should avoid streetlight placements due to environmental impacts. When special events are occasionally scheduled for some of these areas, lighting can be provided for those occasions on a temporary basis, which will be less intrusive and more economical.

15. Sometimes the areas described above are in close proximity to each other and are considered mixed usage areas. A conservative lighting plan in regard to roadway lighting should be the first choice unless a well-articulated rationale demands lighting for the roadways.

16. If a streetlight has served a useful purpose for which it was not intended, other means shall be cost effectively sought and substituted.

17. Police and other municipal employees who drive at night should be encouraged to report potential roadside glare issues interfering with driving conditions in the municipality to Code Enforcement for remediation.

II. Guidelines for Installation and Maintenance of lighting in the Right-of-way

1. The lamp (light bulb) for streetlight fixtures needs to be properly chosen and sized on the premise that light which is excessive to the task is wasted light along with wasted municipal funding. Power plant emissions and contributions to global warming are also reasons not to exceed established recommendations. (Note: For every 100 watts of electricity used per year, over 580 lbs of CO2 is released, along with 7 lbs of SO2, 4 lbs of NOx, and 4 oz of toxic Mercury. Even with "green energy" purchasing, the energy consumed is generated in nearby fossil fuel burning power plants. These emissions are driven by prevailing winds and air and water quality suffer from the pollution.)

2. Lamp bulbs with longer life, less maintenance, and less impact on sky glow are preferred. Current lamping technology indicates that high pressure sodium (HPS) light bulbs are more energy efficient and require less maintenance than other light sources for streetlights since they are commonly utilized for long periods of time every night. HPS has the added advantage because it provides better visibility at night than other light sources (e.g. metal halide) and contributes less to sky glow. In instances where a fuller spectrum of light is desired for decorative streetlight purposes, compact fluorescent (not greater than 2300 Kelvin) can be used, but sparingly and not within three miles of a professional astronomical observatory due to the Rayleigh Scatter effect. The same will be true of induction lamps when they become cost effective.

3. As technology improves, the ratio of energy input to light output (wattage to lumens) decreases, therefore the best measurement to apply to streetlight specifications is the amount of light measured on the ground ("illuminance") in footcandles. Photometric reports are available from the manufacturers and can be evaluated with a computer program prior to selection and installation to determine the appropriate lamping, location, light pattern, height, and fixture style to meet recommendations. Specifications for the current inventory of fixtures and appropriate lamping are listed in Table I and II.

4. Streetlights use HID (high intensity discharge) light bulbs which all contain mercury. All bulbs should be handled carefully and recycled to reclaim the mercury and not deposited into landfill bins.

5. All streetlight fixtures shall be IES independently certified "Full Cutoff" designed (ascertained by an IES report) so that no light is emitted above the horizontal and less than 10% of the light output emitted in the glare zone, within 10 degrees below horizontal, or, if none available, Fully Shielded type fixtures. Fixtures of similar design are preferred for consistency, while attending to the special concerns of individual districts within the municipality. During installation, a leveling device needs to be employed to ascertain that the face of the fixture is level with the ground and that no light is emitted above the fixture.

6. Individual utility pole mounted fixtures shall be lamped not to exceed those values listed in Table I.

7. When a continuous roadway or sidewalk lighting design is executed, the light levels shall not exceed those listed in Table II, or which are outlined in Illuminating Engineering

Society of North America's Recommended Practices, RP 8 for Roadways, RP 33 for Walkways, nor beyond levels which are permitted by the Planning Department. Uniformity ratios shall not exceed recommendations to insure Small Target Visibility (STV). See IV for independent pole installations.

8. Internal refractors in light fixtures can produce different shapes of light on the ground. The correct spread of light should be tailored to the location and checked post-installation. These shapes are referred to as I, II, III, IV distributions, and range from a square shape, to a long thin shape, to a forward throw rectangle. See Photometric Diagrams, V.

9. A complete inventory of existing streetlights with a schedule for replacement and removal will allow for a gradual retrofit of changing fixtures and wattages to conform to the Municipality's streetlighting guidelines. There are out-date fixtures, excessive wattages, unnecessary, redundant, or misplaced streetlights, and streetlights which can be retrofitted with middle of the night shut off sensors where there is reduced benefit in the late hours of the night. All streetlights which have been installed without meeting a specific need for traffic safety shall be removed after a review process. New and replacement lighting shall meet the new Guidelines and Specifications.

10. Some streetlights were installed as part of a commercial site plan approval. While these may or may not be paid for and maintained by individual property owners, they will need to be updated per the local Lighting Law with respect to lamp, wattage, shut off controls, and fixture design. Assistance shall be sought by the Planning Department to assure compliance with light levels, fixture design, and consistency for easier maintenance by municipality personnel.

11. Prior to installing or repairing streetlights, an evaluation and determination needs to be made to assure that the purpose of the lighting installation or replacement cannot be achieved by an alternate installation of reflectorized roadway markers, painted reflective lines, warnings or information signs, or other passive means. Notification for the installation, re-location, and removal needs to be executed, to include adjacent property owners.

12. Several varieties of inexpensive "House Side" retrofit shields are available. On cobrahead fixtures, there are two types of shields: a wrap around the back of the fixture or as a "skirt", specified in III; and for post top fixtures, an opaque shield can be added on the "house side" which is available from most manufacturers. These should be installed when requested and when the fixtures are adjacent to a Nature Preserve. It is also practical, when the wattage is correct, to replace the "sag" lens under the cobrahead with a flat piece of glass which is available locally. Sometimes repeated applications of a heat resistant black paint can be applied to streetlights to good effect.

III. Specifications for Utility Pole Mounted Fixtures

1. Unless another light source is found to be more efficient with less impact on the environment, lamp bulbs shall be high pressure sodium (HPS).

2. Illuminance shall not exceed the specifications in the Table below, and in no cases shall exceed 4 footcandles in commercial zones and 3 footcandles in residential zones, measured directly below the fixture per the photometric report supplied by the manufacturer based on a mounting height of approximately 27 feet.

3. Post installation, the illuminance shall be measured and the fixture head leveled.

4. House side shields shall be attached upon request or when the utility pole abuts a residential property, Municipality Nature Preserve or public waterway.

5. Specifier shall determine the pattern of light that is best for the location: Type I, II, III, IV, depending on the shape of the area to be lit and the direction of the fixture arm. (See V.)

6. IES Certified "Full Cutoff" fixtures (0% light emitted above the fixture and less than 10% emitted in the glare zone, between 90-80 degrees below horizontal) or, if not available, Fully Shielded shall be utilized (see exception in IV. for post tops).

7. Dusk activated sensors are available in two versions: Dusk-to-Dawn; and Part-Night. Part Night shall be used where traffic and pedestrian volume do not warrant all night lighting.

Table I

Illuminance Guidelines for Utility Pole Mounted Fixtures shall not exceed:

Pole location	Two Lane Roadway	Four Lane Roadway
I. No intersection or cross walk within 75 feet of pole	**(50 watts) 4000 lumens**	**(70 watts) 6000 lumens**
II. Within 75 feet of an intersection	**(70 watts) 6000 lumens**	**(100 watts) 9500 lumens**
III. Within 75 feet of a cross walk in Non-commercial zone	**(70 watts) 6000 lumens**	**(100 watts) 9500 lumens**
IV. Within 75 feet of a cross walk in Business District	**(100 watts) 9500 lumens**	**(150 watts) 15000 lumens**

"House side" shields for cobrahead fixtures:
Acuity Brands: SD-321-BZ or General Electric Part: ELSHA-M4

All light bulbs for streetlights are High Intensity Discharge and contain varying amounts of mercury. Therefore, these light bulbs should be handled carefully and recycled to reclaim mercury and should be disposed of responsibly, not disposed of in landfill bins.

IV. Specifications for Post top Fixtures

Installed poles for post top ("historic" or "decorative") lighting in the right-of-way may be appropriate in central business districts where there are pedestrians using the sidewalks and where cars are parked on the sides of the roadways. Utility poles are not spaced in order to uniformly illuminate streets or sidewalks; they were located to distribute the weight of the utility wires. Installed poles may be necessary where utility poles are not available. Poles can pose an additional roadside hazard so the installation of poles needs to be judiciously applied.

In areas for which street or walkway lighting is desired and which will be used exclusively by a specific institution or business, the costs of the design, light fixtures, infrastructure, maintenance, and electrical service may be shared. Streetlights on state highways throughout Suffolk County in NY, for example, are consider "amenity" lighting (since they do not meet the NY State Warrants for Streetlights) and are not normally funded, maintained, or installed by the State.

1. State DOT's specify infrastructure requirements that need to be met when poles are installed in the right-of-way along state roadways in the municipality.
2. Full Cutoff certified fixtures are ideally to be used for post top applications. However, some post top "decorative" fixtures (Fully Shielded) may emit reflected light from the struts which is unavoidable but acceptable, even when the light bulb is fully recessed in an opaque cap. In cases where there are homes adjacent to Fully Shielded fixtures, house side, opaque shields or other means shall be applied to these types of fixtures to avoid lighting private property.
3. High pressure sodium (HPS) light sources shall be used unless another light source is found to be more efficient while protecting the environment; however, in consultation with the Planning Department, compact fluorescent (no greater than 2300 Kelvin) may be used but not in areas that are within three miles of an astronomical observatory.
4. Since dedicated poles can be independently controlled, charges for the electricity may be adjusted to reflect Kilowatts used rather than number of poles in use.
5. A professional lighting design needs to be executed and checked by the Planning Department so that light levels and uniformity ratios conform to IESNA RP 33 for walkways in order to light areas where there are pedestrians on walkways, in crosswalks, and for conflict areas where cars are parked.

Table II

Illuminance Guidelines for Post Top Fixtures on installed Poles

Pole location	Average illuminance shall not exceed:	Maximum uniformity (min to max)
Residential Zone	**0.2 footcandles**	**Ratio 1:10**
Commercial Zone	**0.4 footcandles**	**Ratio 1:6**

House Side Shields (generally available from the manufacturers) or other devices or means shall be employed to reduce light trespass onto private property.

V. Photometric Diagrams

FIGURE 1: Classification of Light Distribution Types I – V.

The illustration below shows five basic light distribution designs for street lighting equipment.

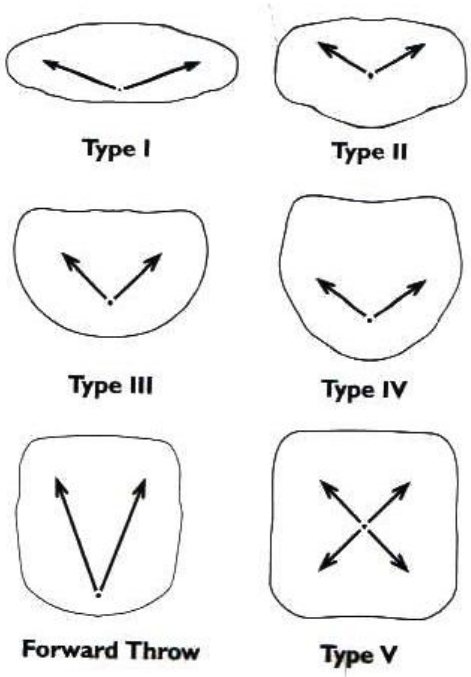
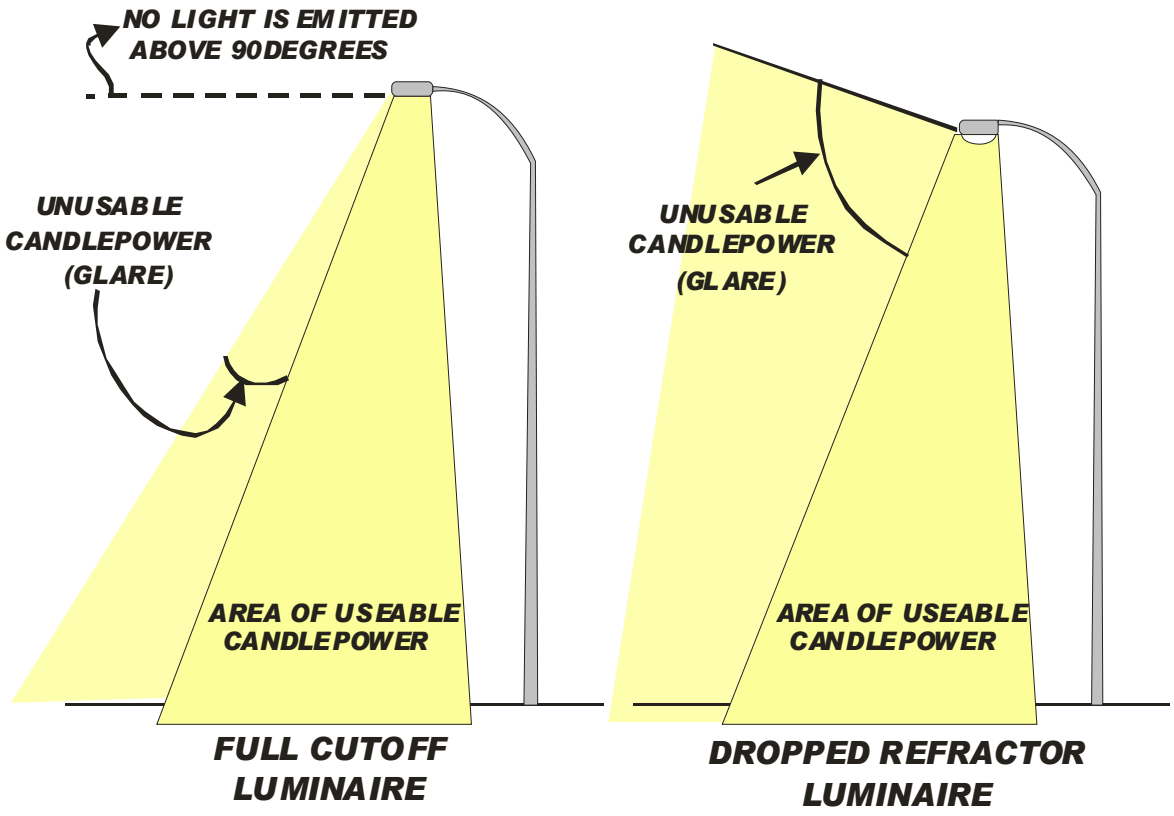


FIGURE 2: Shielded Streetlight Glare Control



VI. Application for Installation, Re-location, or Removal of a streetlight

Include the following information and answer the questions, as applicable:

Applicant's name, mailing and street address, phone number(s)

Location of the referenced streetlight(s) (if available, include utility pole number)

Location of other streetlights installed within 150 feet

An explanation for the installation, re-location, or removal of a streetlight

List adjacent (within 300 feet) property owners, including street and mailing address and current phone number for each

Letters of support for the action from affected property owners

Descriptions or drawings of any crosswalks in the vicinity and a narrative concerning the approximate volume of pedestrian use at different times of night, for example, is pedestrians commonly using the crosswalks during specific times or events?

Description of contributions from adjacent lighting within 300 feet, if applicable

What adverse roadway conditions exist that would be mitigated by lighting?

Is the lighting primarily needed for pedestrian or vehicle safety?

Have alternatives to streetlighting (e.g. reflectors, signs, re-configuration of traffic, lowering of speed limits) been examined which would serve the same purpose?

In what way will the lighting prevent accidents? Have there been accidents to anyone's knowledge at this location which would have been prevented by lighting?

Indicate all residential properties located within 300 feet of the pole and if there are any obstructions which would mitigate the effects of the streetlight.

Approximate number of vehicles passing this location during summer and winter months:
Dusk to midnight : Midnight to Dawn

Known accident ratio within 150 feet of proposed streetlight: day : night

Please complete all information requested (indicate Applicant's name on each document filed) and submit to the Municipality Clerk.

The Application will be reviewed by the Planning Department.

The Municipality reserves the right to install and remove publicly funded streetlighting with or without the permission of adjacent property owners.

VII. Approval for Installation, Re-location, or Removal of Streetlight

Application File Name:

Street address of installation, indicating nearest cross street, and pole number if applicable:

Type of light fixture equipment approved, lamp type, wattage, and hours of operation:

What costs, if any will be shared?

Approval granted:

1. Municipality Supervisor

2. Director, Planning Department

3. Director, Natural Resource Department
   (If streetlight location is within 300 feet of a Nature Preserve)

4. State DOT (if applicable)

5. Municipal Police (if accident reports substantiate action)

VIII. Requested Departmental Reports

A. Inventory of all lighting located in the right of way, indicating the location, wattage, type, and whether the fixture is mounted on a utility pole or on an independent pole. If on an independent pole, indicate the height of the pole. The local Utility may provide this inventory as a service to the municipality.

B. Roadway Mapping of Accidents (likely available from police department).

I. In those locations where night time accidents have occurred or where they are prone to occur (in the investigating policeman's opinion), was the lack of streetlighting a contributing factor, ruling out:

1. Glare from adjacent properties (observed at night),
2. Driver fatigue or disability (e.g. intoxicated),
3. Excessive speed, or
4. Problems with the headlights on the accident vehicle (or other mechanical reasons for the accident).

II. And, in those locations with installed streetlighting where accidents have occurred, would the removal of the streetlight have affected the outcome (in the investigating officer's opinion).

III. In areas in which accidents have occurred at night, what is the ratio of day to night accidents?