CITY OF ELIZABETH CITY
STREET LIGHTING GUIDE

INTRODUCTION

The purpose of this document is to establish guidelines for effectively lighting the public streets under the control of the City of Elizabeth City. Street lighting is integral to the health of a community. Proper street lighting not only serves the needs of the motoring public but also contributes to the livability of the public along the streets. Enhanced lighting can signal more community investment, pride, and cohesiveness, which also can discourage crime. Street lighting also contributes to personal safety and security, as well as comfort and welcome of pedestrians along the streets. Improved street lighting can make a community feel safer. They allow safer operation of vehicles at night, reduce accidents, and assist traffic flow. Better light can also promote the nighttime operation of businesses and increase pedestrian street use after dark, all of which leads to a more active, enhanced neighborhood. Street lighting influences the public's choice of transportation, i.e., driving, walking, and riding a bicycle or fare-based transportation (i.e. bus, taxicab, shuttle, etc.). Care should be taken to balance the needs for cars, trucks, buses, pedestrians, and bicyclists.

Street lighting considerations involve a variety of engineering design issues. These may include issues such as wattage, color of light, shielding of light, fugitive light, energy efficiencies, mounting heights, and more. Because of ongoing research in the field of lighting, street lighting and outdoor lighting plans should be reviewed and updated on a regular basis.

The street lighting requirements contained herein shall apply to new installations. Existing street lighting shall be evaluated and improvements made according to these guidelines as time permits and funds are made available.

STREET CLASSIFICATION

The appropriate classification for each street under the control of the City of Elizabeth City should be determined by the role each street plays as part of the entire traffic system. The criteria for determining street classification should include the following:

1. Average daily traffic volume
2. Non-automobile use (e.g. trucks, buses, bicycle, pedestrian, etc.)
3. Posted speed limit
4. Spacing of connecting streets
5. Length of streets
6. Number of traffic lanes
7. Points of access (driveways) per mile
8. Proximity to public or community building (e.g. school, fire station, city hall, community center, etc.)
9. Visibility (e.g. curves, hills, visual obstructions)

For the purpose of these guidelines the streets are divided into five (5) categories:

Major Thoroughfare

Usually four lanes, these streets carry the highest volume of traffic. They are principle routes for through-traffic flow. Partial access control is maintained to limit access to intersections with other roads. Right-of-way is usually 70 to 120 feet and above.

Minor Thoroughfare

These streets supply as the main arteries for intra-city mobility. These routes connect the Major Thoroughfares or principle areas of traffic generation such as downtown, shopping centers, airports, etc. Minor Thoroughfares are usually the main routes leaving the city. They may be two-lane, two-lane with a turn lane, or four-lane. Right-of-way is usually 45 to 70 feet.

Collector

These streets are found in multi-family residential, commercial, and industrial areas. Collectors usually have slightly wider right of ways than Sub-collectors and may have provisions for on-street parking, sidewalks, planting strips, etc. Collector streets may be used for truck or bus traffic and usually connect Minor Thoroughfares. Right-of-way is usually 30 to 60 feet.

Sub-collector

Sub-collectors are found only in single family residential neighborhoods. The right-of-way is usually narrower than Collector Streets and provides access to private property by means of a large number of driveways. Sub-collectors carry a

low to moderate traffic volume at low posted speed limits and discourage through traffic. Right-of-way is usually 20 to 60 feet.

Local Residential/Cul-de-sac/Marginal Access

Local Residential/Cul-de-sac/Marginal Access streets are for direct access to private property which may be residential, commercial, or industrial. This classification is made up of the largest amount of total street mileage, but carries the smallest proportion of the traffic volume. Local Residential/Cul-de-sac/Marginal Access streets are usually two-lane with the narrowest right-of-way and pavement width.

Street classifications for the City of Elizabeth City are illustrated in the Pasquotank County-Elizabeth City Comprehensive Transportation Plan adopted March 2016.

STREET LIGHTING

Fixtures

The standard street lighting fixture shall be a cobra head style, length of arm as required, 250 watt, 120/240 volt, high-pressure sodium (HPS), IES Distribution Type III, photoelectric cell operated switch, full cutoff optics, and a minimum of 26,000 initial lumens. Nonstandard fixtures may be selected by the City for special applications, or lighting designs that are required to meet the criteria as set forth by IES RP-8-00.

Spacing

The spacing of fixtures shall be as follows:

Roadway Type	Spacing Allocation
Major Thoroughfare	To be determined by ANSI/IESNA RP·8-00
Minor Thoroughfare	100-200 ft.
Collector	100-200 ft.
Sub Collector	100-250 ft.
Local Residential/Cul-de-sac/ Marginal Access	100-250 ft.

Spacing may be accomplished by staggered or single side layout.

Street Lighting Design Table

Road Type	Pedestrian Conflict Area	Average Luminance $L_{avg.}$ (cd/m^2)	Luminance Uniformity $L_{avg.}$ to $L_{min.}$ Max. Allowed	Luminance Uniformity $L_{max.}$ to $L_{min.}$ Max. Allowed	Veiling Luminance Ratio L_v to $L_{avg.}$ Max. Allowed
Major Thoroughfare	High	1.0	3 to 1	5 to 1	0.3 to 1
	Medium	0.8	3 to 1	5 to 1	0.3 to 1
	Low	0.6	3.5 to 1	6 to 1	0.3 to 1
Minor Thoroughfare	High	1.2	3 to 1	5 to 1	0.3 to 1
	Medium	0.9	3 to 1	5 to 1	0.3 to 1
	Low	0.6	3.5 to 1	6 to 1	0.3 to 1
Collector and Sub Collector	High	0.8	3 to 1	5 to 1	0.4 to 1
	Medium	0.6	3.5 to 1	6 to 1	0.4 to 1
	Low	0.4	4 to 1	8 to 1	0.4 to 1
Local Residential/Cul-de-Sac/ Marginal Access	High	0.6	6 to 1	10 to 1	0.4 to 1
	Medium	0.5	6 to 1	10 to 1	0.4 to 1
	Low	0.3	6 to 1	10 to 1	0.4 to 1

Note: This table was taken from the Illuminating Engineering Society of North America RP-8-00 American National Standard Practice for Roadway Lighting. Road types been modified to match the City's classifications as listed within the 2016 Comprehensive Transportation Plan.

Mounting Height

The fixture mounting height shall be a minimum of 23 feet and a maximum of 35 feet from grade.

Voltage Drop

All street lighting electrical circuits of 120/240 volts shall be limited to 5% voltage drop.

General

Street lighting should be placed at all intersections and at other high-volume pedestrian areas. Where sidewalks exist on only one side of the street, street lighting should be placed on that side, if possible, to provide illumination for pedestrians. A street light should be placed on each cul-de-sac, at the point where the tangent meets the circular outside of the cul-de-sac.

On streets with sidewalk and a high volume of pedestrian traffic, the addition of lower pedestrian-oriented type street lights should be considered. Examples of these areas would be in the vicinity of shopping centers, theaters, downtown district, stadiums, etc.

Where the City has an existing pole line, these poles will be used for street lighting purposes whenever possible. Additional poles will be added as required. Fixtures added to a street with the City's standard lighting shall be similar in style and illumination to the existing fixtures.

Street light support shall not be placed within four (4) feet of a fire hydrant or five (5) feet of a residential driveway.

REQUEST FOR STREET LIGHTING ALTERATIONS

When a request is received for street lighting rearrangement, installation, or removal the City shall:

1. Review any existing street lighting to determine if illumination levels are presently in compliance with these guidelines; and

2. Review the street for conditions which may require special safety considerations.

Requests for street lighting alterations may require written approval by all property owners fronting the street in question.

When the installed street lighting is determined to be in compliance with these guidelines, the relocations, replacement, and retirement cost shall be paid in full by the requesting party or parties prior to the installation of any street lighting alterations.

Alleyway Lighting[1]

The following criteria will have to be met before any lighting of alleyways will proceed:

1. An active Community Watch Group will have to be established and recognized by the City Council.
2. The President or the Community Watch Designee will meet with the Electric Department Personnel and discuss where the lights can be installed.
3. The alleyways will have to be kept clear and trimmed so that the Electric Department's equipment can get into these areas and maintain the lights.
4. Only alleys that are thoroughfares will be considered due to trying to maneuver large equipment in narrow alleys.
5. After the Community Watch Designee and the Electric Department Personnel agree on the location of the lights, a contract will be signed for the appropriate number and a billing address shall also be included.
6. The cost per light is $3.91 each month and the light will be a 175-watt mercury vapor light. The Community Watch Group will be responsible for paying the rental fee of the lights.
7. Location of the lights will be economically feasible for the City to erect and maintain.
8. Lighting fees will be paid one year in advance for the total amount of the lights that are requested within the Community Watch Areas.
9. After the twelve-month period, a new contract will have to be signed and the fees paid to continue with the program.

Alley entrance lights will continue to be available under the existing City policy. However, in the event that any of the alley lights that are installed and become high maintenance because of vandalism, then these lights will be removed.

[1] The standards under this subsection are reprinted from the *City of Elizabeth City Alley Lighting Policy and Procedures*. The alleyway policy was adopted by City Council on July 11, 1994.

In the event that the Community Watch would disband and is no longer active, then all lights within that Watch Area would be removed.

DECORATIVE OR NON-STANDARD LIGHTING

The City has compiled a list of decorative or non-standard poles and fixtures that meet the town's requirements. Prior to installation, neighborhoods and/or developers may request an approved decorative or non-standard fixture and pole in lieu of the standard wood pole and fixture. If approved by the City the following shall apply:

1. All poles and fixtures installed in the neighborhood shall be compatible.
2. Lighting levels and layout must be approved by the City prior to installation.
3. All upfront engineering fees shall be paid by the developer or neighborhood prior to design work.
4. Cost difference between a standard installation (cobra head fixture on a wood pole and a decorative or non-standard pole and fixture chosen shall be paid by the developer or neighborhood. Additional underground cost for labor and materials shall also be paid by the developer or neighborhood. All cost to the developer or neighborhood shall be estimated and paid prior to any work being accomplished.
5. All conduits shall be located underground.