6 Lighting

Street Lights

Street Lights

Street lights provide general illumination for all street users. However, due to the expense of light fixtures and associated infrastructure, most street lighting is utilitarian in nature, with luminaries mounted high on the pole in a way that achieves more coverage per light (i.e., at 20 feet or higher), and lights are typically scaled and oriented to the Roadway Zone. This approach accomplishes the task of lighting the street with fewer fixtures, but does not contribute to an overall urban design that supports a pedestrian scale and comfort of the non-driving street users.

Appropriate street lighting facilitates safe movement of traffic and provides a sense of safety and security for pedestrians. When used effectively, lighting can do much more. Good streetscape lighting lends character to a street, and by highlighting salient features, can provide a sense of place and civic pride. Downtown street lighting should complement the context and land use of the street, as well as account for existing lighting levels, nighttime design compositions, and aesthetics.

The goal of these street lighting recommendations is to provide safe, even lighting while reducing energy consumption and costs, light trespass (unwanted light), and dark sky pollution. These standards recommend only the use of LEDs, which require less energy and maintenance and are designed to minimize light trespass and light pollution. LEDs can also enhance visibility, with better color rendering (i.e., colors appear more natural) and a more even spread of light, eliminating the unintended over lighting of a street.

Street lights should:

- Facilitate safe movement of pedestrians, bicyclists, and motor vehicles
- Create an environment that feels safe and secure for pedestrians
- Improve the legibility of streets, intersections, ramps, transit stops, critical nodes, and activity zones
- Reveal squares, public spaces, and special districts to encourage nighttime use
- Enhance the character of the streetscape by using fixtures that are in keeping with the image of the City and the unique look of specially designated districts
- Use state-of-the art technology when appropriate to provide effective, energy efficient lighting that minimizes light trespass and is dark sky compliant

Criteria and Considerations

- Utilize a paired alignment of light poles across a street, which provides a formal look that reinforces the direction of travel.
- As LED technology develops, future consideration should be given to providing network control to allow for color control as a way to highlight locations during emergencies.

Existing Lighting—Pole & Luminaire Type

A detailed map of each of these assemblies and images of the lighting fixtures can be found in "Street Lighting" on page 27.

Metal Pole

Domus 50

Philips Renaissance

Lake St. Fixture

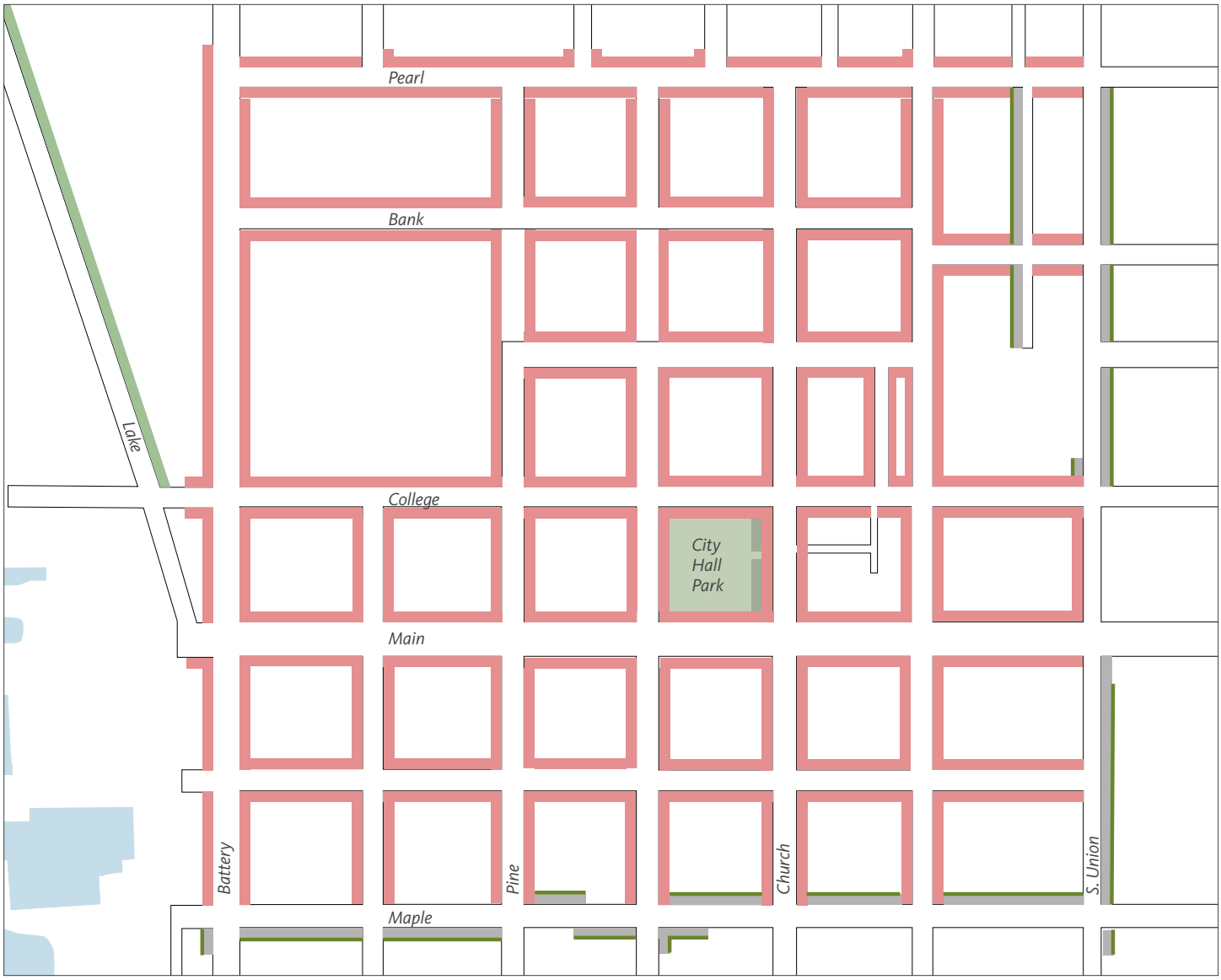
Wood or Fiberglass Pole

Cobra Head LED

Cobra Head HPS

Overhead Power

Proposed Lighting—Pole & Luminaire Type



Metal Pole

Domus 50

Philips Renaissance

Lake St. Fixture

Wood or Fiberglass Pole

Cobra Head LED

Cobra Head HPS

Overhead Power

Lighting Strategy for Great Streets

The following fixtures and strategies are recommended for downtown Burlington's Decorative Lighting District in order to meet the street lighting goals articulated in this section.

STANDARD LIGHTING ASSEMBLY

The Great Streets lighting recommendations utilize a combination of elements from the existing standards for downtown's decorative lighting district and the Park's standards, reconfiguring them into a new standard lighting assembly. See the diagram on *page 251*.

Pole: A new 5" dia. straight steel pole. See *"Pole" on page 263.*

Base: Utilize Parks Department standard base style, in a 2-piece clamshell model. The 2-piece clamshell base allows for easy replacement without needing to disturb/remove other elements on the pole. Compared to other elements on the pole, the base is the most susceptible to corrosion/damage from salt, plows/cars, and dogs relieving themselves against the pole. For these reasons the base should be viewed as sacrificial and an element that can be replaced as necessary. See *"Base" on page 263.*

Base Material:
- Fiberglass/Fiberglass composite urethane (preferred as it is lightweight and durable)
- Cast Iron (optional)
- Cast aluminum (optional)

Arm: Utilize standard nominal 4' long straight arm. Single or double arm assembly depending on width of ROW and lighting criteria. See *"Arms/Brackets" on page 264.*

Luminaire: Utilize BED standard Philips Renaissance—teardrop luminaire with skirt.

Luminare Mounting Height: 18' AFG (15' minimum above finished street surface)

Color Temperature: 3000 K (warmer white)

Distribution: Luminaire shall be Type IV distribution, and 0–10V dimmable.

Wattage: 24–55 depending on layout type. *"Pole Layout & Spacing" on page 252.*

Finish for all pole elements and luminaire: Powder coat—River Texture Black

Features at selected light poles:
- Provide weatherproof, light sensing receptacle on the pole (10' AFG) to allow for seasonal lighting on the pole.
- Provide arms and straps for mounting banners and seasonal decorations (bottom arm 8' AFG).
- These features may be included on all light poles throughout the decorative district, but should be prioritized on streets that make up the pinwheel. See *"Reframing the "Center" of Downtown" on page 8.*

Banners: Provide arms and straps for mounting banners and seasonal decorations (bottom arm 8' AFG). Light poles should be able to withstand 90–100 MPH winds with a 1.3 gust factor. Any appendages to the pole such as banners need to be factored into the wind loading calculations performed by the structural engineer or pole manufacturer. See *"Banner Arm & Bracket" on page 266.*

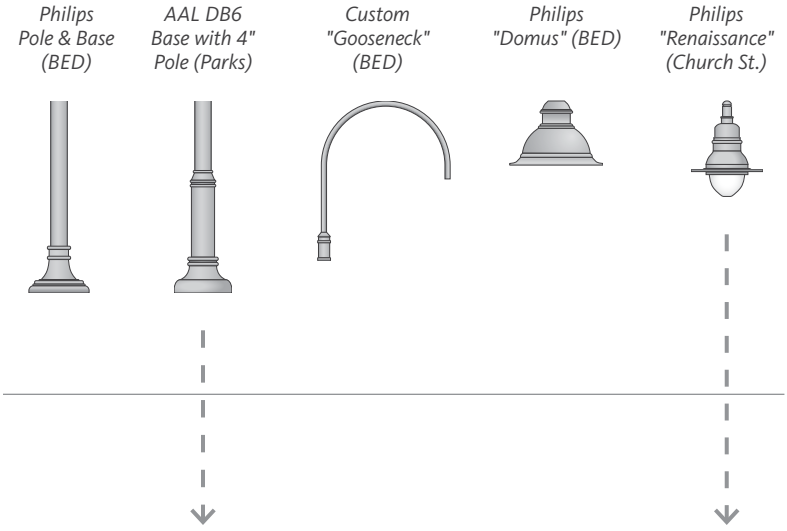
Implementation: The City's Municipal Development Plan recommends that lighting assemblies should be upgraded to decorative poles and fixtures when a lighting system has been placed underground; however, there is not a long-term plan to do so Citywide. Furthermore, BED Street Lighting Policy indicates that the increased cost for equipment and maintenance associated with decorative fixtures and banners must be paid in advance by the City. Undergrounding and upgrading lighting systems is incredibly costly, and until significant reconstruction of some or all of these streets occurs, it is likely that existing lighting assemblies and aerial utility systems are likely to remain in place for some time. For these scenarios, two recommendations are provided:

- In conditions where there are existing utility poles with high pressure sodium cobraheads that will remain in-place, the cobrahead shall be replaced with BED's LED standard cobrahead as in interim condition. When the new light pole standard and spacing is implemented, the existing luminaires on the utility poles shall be removed.
- BED may work with manufacturers of the City's decorative lighting elements to explore whether a retrofit may be available to enable decorative arms and fixtures to be used on wooden poles where aerial utilities still exist.

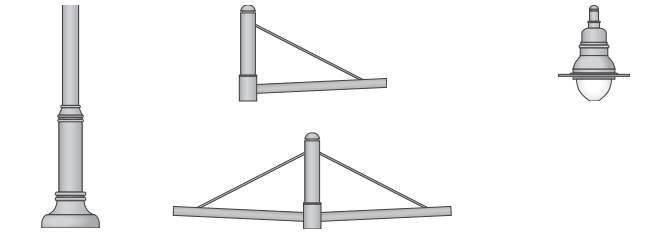
There are many streets which have recently been upgraded to the existing decorative standard for downtown—including a custom arm and Domus fixture. It is not recommended that these street lights be replaced immediately. Instead, the recommended assembly should be implemented in the following way:

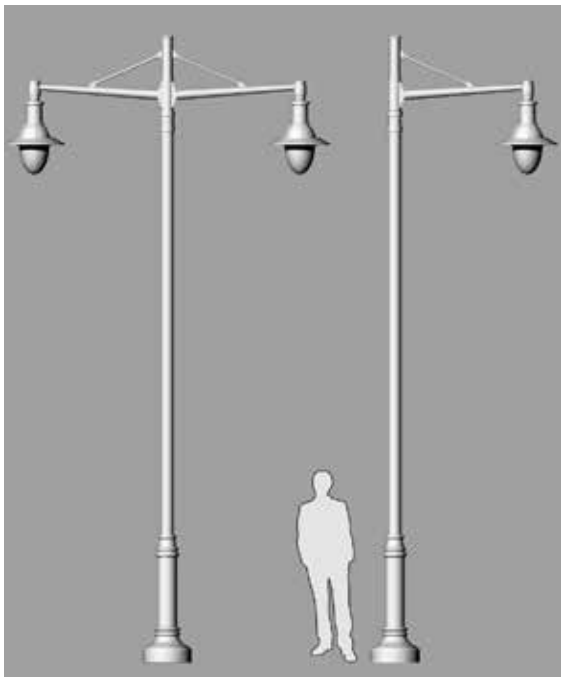
- Gateway Streets should be the first priority, especially when a street is to be reconstructed.
- When a significant street redesign/reconstruction takes place, or when a significant private development is taking place on adjacent private property within the Downtown or Waterfront TIF Districts.
- As other existing assemblies and fixtures reach the end of their useful life.

Existing Elements

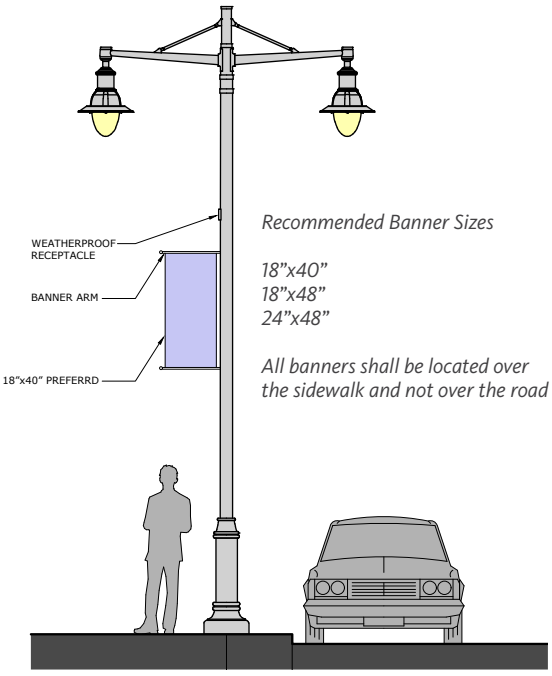


Proposed Elements





Recommended Great Streets lighting assemblies, single and double arm configuration options based on street width and lighting criteria.



Pole recommendation

POLE LAYOUT & SPACING

Layout

Light poles should be oriented in a soldier (opposite) pattern, which lends itself to a "boulevard" effect, with a light pole landing on each corner of an intersection.

Spacing

See corresponding pole and arm assembly diagrams at right, and the typical pole layout digram for example spacing and classification on the following page. For general guidelines regarding the location of street light poles relative to other elements within the public ROW, see *"Element Siting & Considerations" on page 112*.

Type A

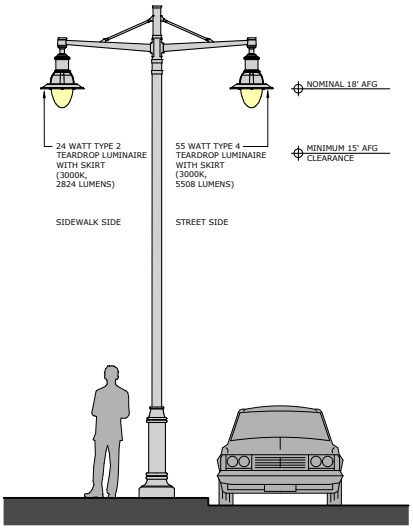
- Recommended for use on streets with 18' or wider Pedestrian Zones, and on streets that meet the IESNA recommended thresholds for "Major" streets with "High" pedestrian conflict.
- Double arm/luminaire
- Pole-to-Pole Spacing: 95' preferred
- Setback from Curb: 2'-6" preferred
- 24-watt luminaire sidewalk side; 55-watt luminaire street side

Type B

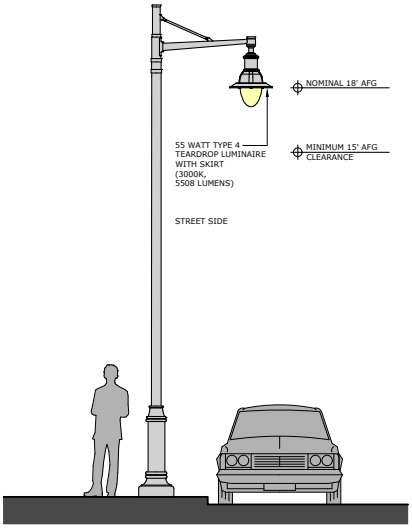
- Recommended for use on streets with less than 18' Pedestrian Zones, and on streets that meet the IESNA recommended thresholds for "Major" or "Collector" streets with "Medium" pedestrian conflict.
- Single arm/luminaire
- Pole-to-Pole Spacing: 85' preferred
- Setback from Curb: 2'-6" preferred
- 55-watt luminaire street side

Type C

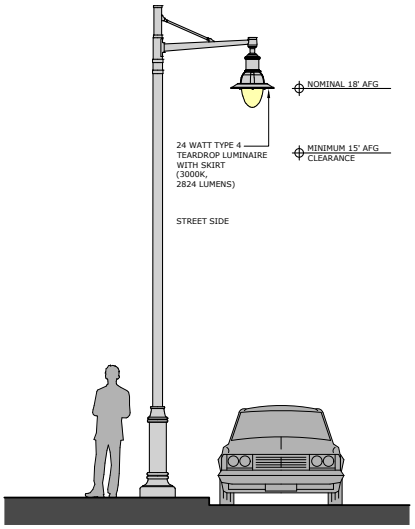
- Recommended for use on Minimum Commercial and Downtown Residential Street Types, and on streets that meet the IESNA recommended thresholds for "Local" streets with "Low" pedestrian conflict.
- Single arm/luminaire
- Pole-to-Pole Spacing: 80' preferred
- Setback from Curb: 2'-6" preferred
- 24-watt luminaire street side



Type A

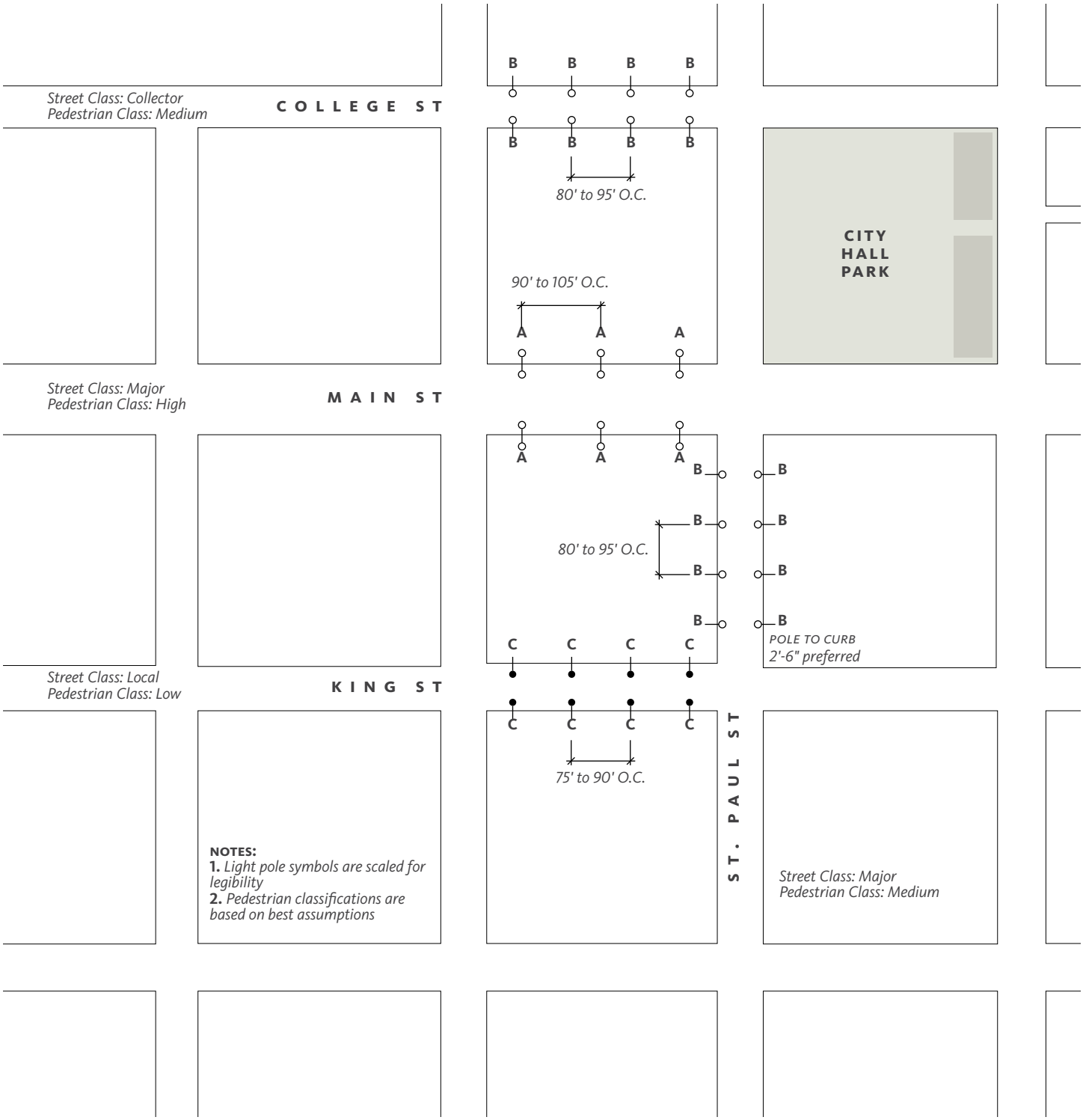


Type B



Type C

Typical Pole Layout

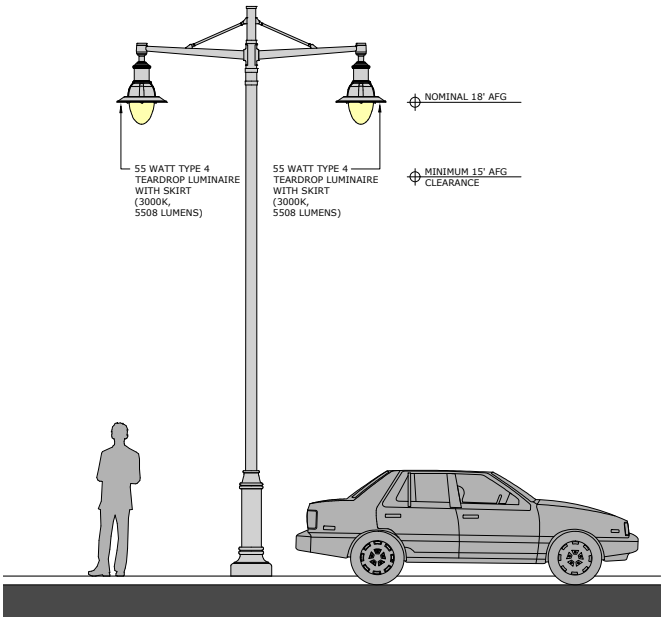


Preferred pole layout and spacing on streets with various dimensions and classifications per the IESNA recommendations. See details on page 232 for the classification of all streets in the Great Streets standards area. Actual layout may vary slightly due to unique street considerations.

Lighting at Mid-Block Crossings & Intersections

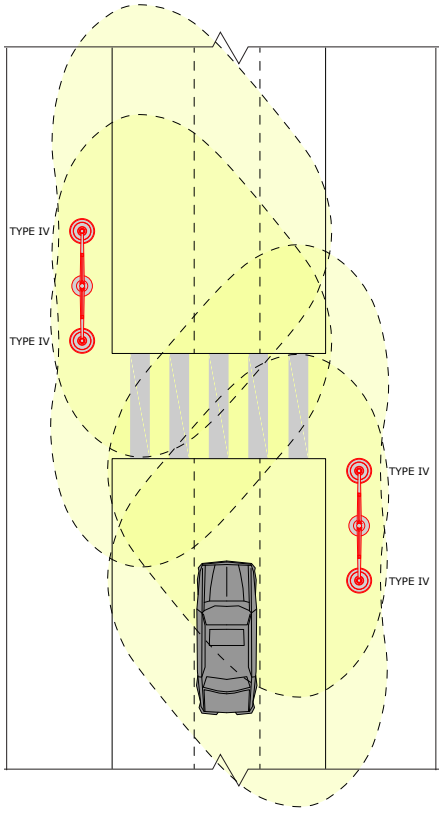
Type D

- Recommended for use on mid-block crossings and intersections.
- Double arm/luminaire, rotated 90 degrees from standard layout, as to be parallel with curb.
- Mid-Block Crossing: staggered placement on opposite sides of crosswalk.
- Setback from Curb: 2'-6" preferred
- 55-watt luminaire, with standard 90 degree adaptor per spec on *page 265.*

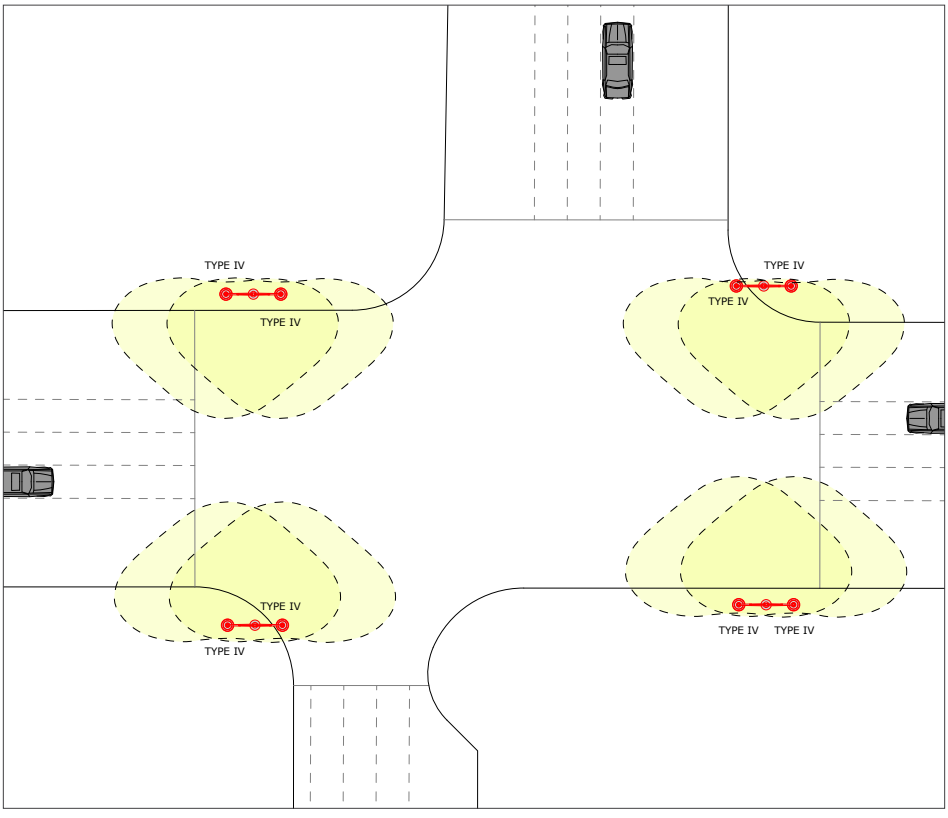


Type D pole configuration for mid-block crossings and intersections

Lighting at Mid-Block Crossings



Lighting at Intersections



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Lighting Criteria

A critical component of any family of lighting design recommendations is the identification of appropriate lighting performance criteria.

It's important to note the difference between light level (illuminance, or light falling on a surface) and luminance (which can be simply defined as light reflected from a surface or seen directly, as when viewing a luminaire). Per IES-8-2014, horizontal illuminance may be used for the design along curved sections and streets where luminance can be hard to calculate.

Illuminance levels can be expressed in a range, with the low value as the minimum light level recommended for a given area. It is critical to avoid excessive illuminance, as this can impact the comfort and legibility of streets.

Uniformity is typically expressed by means of a maximum- or average-to-minimum light level ratio, in order to reduce contrast and mitigate areas of excessive illuminance and to avoid areas of excessive darkness.

References

Lighting recommendations in this chapter are made in accordance with the following references:

- IESNA RP-8 (2014 and 2000 versions) Roadway Lighting
- IESNA RP-33-14, Lighting for Exterior Environments
- IESNA Lighting Handbook 10th edition
- Burlington Electric Department (BED) Street Lighting Policy
- International Dark-Sky Association Model Lighting Ordinance
- Burlington Electric Department (BED) standard light poles/fixtures
- Burlington Parks Department (BPRW) standard light poles/fixtures

Roadways

Street Classification	Pedestrian Conflict	IESNA RP-08-2014/2000 [Roadway Lighting]			
		IES rec. Avg. Luminance (cd/sq.m)	IES rec. Avg. Illuminance (fc)	DGA recommended Avg. Illuminance (fc)	Uniformity ratio
Major	High	1.2 cd/sq.m	1.7 fc	1.7 - 2.1 fc	3:1
	Medium	0.9 cd/sq.m	1.3 fc	1.3 - 1.6 fc	3:1
	Low	0.6 cd/sq.m	0.9 fc	0.9 - 1.1 fc	3.5:1
Collector	High	0.8 cd/sq.m	1.2 fc	1.2 - 1.5 fc	3:1
	Medium	0.6 cd/sq.m	0.9 fc	0.9 - 1.1 fc	3:1
	Low	0.4 cd/sq.m	0.6 fc	0.6 - 0.8 fc	3.5:1
Local	High	0.6 cd/sq.m	0.9 fc	0.9 - 1.1 fc	3:1
	Medium	0.5 cd/sq.m	0.7 fc	0.7 - 0.9 fc	3:1
	Low	0.3 cd/sq.m	0.4 fc	0.4 - 0.5 fc	3.5:1

Intersections

Pedestrian Classification	Major/ Major	Major/ Collector	Major/ Local	Collector/ Collector	Collector/ Local	Local/ Local
High	3.4 fc	2.9 fc	2.6 fc	2.4 fc	2.1 fc	1.8 fc
Medium	2.6 fc	2.2 fc	2. fc	1.8 fc	1.6 fc	1.4 fc
Low	1.8 fc	1.5 fc	1.3 fc	1.2 fc	1.0 fc	0.8 fc

Pedestrian areas and Bikeways

Pedestrian walkways	HIGH		MEDIUM	LOW		
	Vehicle + Pedestrian	Pedestrian only	Pedestrian	Pedestrian		
				Rural	Low Residential	Med. Residential
E_{avg}	2.0 fc	1.0 fc	0.5 fc	0.2 fc	0.3 fc	0.4 fc
Vertical @ 5' AFG	1.0 fc	0.5 fc	0.2 fc	0.6 fc	0.8 fc	0.1 fc
E_{avg} / E_{min}	4.0:1	4.0:1	4.0:1	10.0:1	6.0:1	4.0:1

IESNA recommended lighting levels for roadways, intersections, and pedestrian and bike ways based on classification and opportunity for conflict.

Figure 6: *Street Classifications for purposes of determining IESNA recommended roadway lighting levels based on street classifications provided by DPW.*

LIGHTING QUALITY

Within areas utilizing decorative lighting, the selection of lighting equipment usually focuses on its daytime appearance; however, lighting quality is about the performance and appropriateness of lighting systems at dusk and at night. These lighting recommendations not only consider the daytime appearance of the assemblies, but also the nighttime enhancement of landscape and architectural elements, the provision of safety and perceived security, the minimization of stray light, color rendition of people and streetscape features, and site context.

A visual hierarchy, created by the apparent brightness, sense of spaciousness, and the lighting equipment itself, provides interest, defines activity, and clarifies circulation. Lighting should be layered to provide appropriate intensity and distribution based on the density and types of users. Consideration of views and vistas, whether intimate or from a distance, is important, as is creating logical transitions from one area to another to ensure uniformity sufficient to maintain perceived security. Points of interest, such as park entrances and significant streetscape features, should be brightly lit during nighttime open hours to advise and guide pedestrians.

Vertical illuminance is particularly important along walkways and bikeways for facial recognition. At kiosks and in comfort stations, vertical illuminance is essential for readability of posted materials and to provide for safety and security.

Safety and security are the most important considerations, as identified by the City's utilization of the IESNA lighting recommendations as BED's lighting standard. People often associate brighter areas with higher degrees of safety, but far more often it is lighting quality, rather than quantity, that determines when and how people feel secure. Good color rendition, appropriate light distribution (uniformity), and adequate vertical illuminance, such that faces can be easily discerned and context defined, contribute significantly to perceived security.

LIGHT SOURCES

Light sources should be evaluated with regard to color rendition, color temperature, lamp life, lamp mortality, efficacy (as expressed in lumens per watt), and commercial availability. From the point of view of visual impact, two important concerns are correlated color temperature (CCT) and color rendering index (CRI). CCT is measured in Kelvin, and is defined as the color appearance of a white LED and indicate the apparent "warmth" or "coolness" of the white light. Typically "warm" white is 2700 K to 3000 K and "cool white" is 4000 K to 6500 K. CRI is a measure of a light source's ability to show colors accurately as compared to a familiar reference source such as incandescent light or daylight. The higher the CRI, the better the color rendering ability. As a point of reference, a 2700 K incandescent light source has a CRI of 100.

In the interest of promoting a positive visual impression of spaces and surfaces, light sources with relatively high CRIs are strongly recommended. With respect to color temperature, light sources with CCTs below 3000 K tend to favor warmer surface colors, while CCTs of 4000 K and above favor a cooler color palette.

Use good color rendering sources that afford a distinctive streetscape identity. All lighting approaches shall be based upon the use of LED. Standardization utilizing the below attributes and technologies are suggested:

- LEDs shall be 3000 K with a minimum CRI of 80, a minimum efficacy of 100 LPW and a minimum module life of 100,000 at 70 percent of light output (L70), with a minimum five-year warranty. Driver to have a minimum 60,000 hour average rated life. LED array and driver to be field-replaceable by the managing entity.
- Correlated Color Temperature (CCT) shall be 3000 K.
- Color Rendering Index (CRI) shall be 80 CRI versus 70 CRI for better color rendering, enabling better visual acuity.
- All LED manufacturers will be required to provide a letter of commitment to maintain LED equivalence (permitting design wattage to drop) for a minimum of ten years.
- TCLP-compliant where applicable
- Dimmable

LUMINAIRE SELECTION & DESIGN PARAMETERS

Of the range of luminaires available to perform any given lighting task, total luminaire efficiency and ease of maintenance should be given a high priority. From a maintenance standpoint, the number of luminaire types should be minimized in order to simplify the inventory of lamps, drivers and accessories. In general, all luminaires should comply with the following criteria:

- All luminaires and their requisite electrical components should be UL listed.
- All lighting equipment should comply with all applicable local and national codes and ordinances including NFPA and ANSI.
- All roadway and pedestrian general area fixtures should adhere to recommended BUG rating for LZ3, and be Type IV distribution. See *Figure 7* and *Figure 8, page 258*.
- All exterior luminaires should have a minimum ingress protection (IP) rating of 65.
- All non-decorative luminaires should be well shielded, and offer reduced brightness at high viewing angles to control unnecessary glare.

- Wherever in reach of the public, fixtures should be vandal resistant.
- Fixtures should offer tool-free access whenever possible.

TECHNIQUES

Locate lighting equipment for maximum effectiveness. The lighting should be designed to provide adequate illuminance on sidewalks, on roads, and at intersections. Uniformity and vertical illuminance—light on faces and vertical surfaces—should be considered and yet be prevented from causing high-angle glare or unwanted upward light.

Lighting can provide for a sense of lit destination, providing for long and intermediate vistas that aid navigation throughout Great Streets. Lighting can also be proposed to encourage positive uses, such as nighttime events or at strategic seating areas. This improvement can be realized in several ways:

- Provide lighting at sidewalks and streets. Light poles should be located strategically to avoid trees and enhance a “boulevard effect.”
- Light artwork, structures, and unique features along streets. Lit storefronts and porches at residences improve vertical illuminance. Once key items throughout Great Streets are lit, these can serve as visual landmarks or destinations, encouraging foot traffic and aiding in way finding.
- Outlets at selected trees such as on Main Street and at City Hall Park can power tree "glitter lighting" for seasonal events.

ADAPTIVE LIGHTING CONTROL (DIMMING) (PILOT)

Lighting control is essential to address daylight contribution and to mind energy usage. At minimum, each light pole should have an integral photocell to automatically energize the fixture at dusk and de-energize at dawn.

As an additional energy saving measure, dimming controls allow for energy savings during periods of inactivity. IES RP-08-14 describes an approach called "Adaptive Lighting" where local jurisdictions can vary street and pedestrian classifications based on differences in vehicle traffic volumes throughout the night. For example, at 1 am, when there is reduced street and foot traffic, the fixtures can dim to a certain percentage instead of running at full output, while still meeting the recommended light levels for the lower street and pedestrian classification.

The advancement of outdoor wireless controls allows for dimming, luminaire status (fixture monitoring), and data collection from a light pole without the need to additional conduit or wiring. See *Figure 9, page 259*.

Luminaires shall be installed that allow for adaptive lighting control technology to be utilized. Adaptive control should be piloted on streets where it is installed to collect data and determine the appropriateness of alternative light levels during identified time periods. Before adaptive lighting control is implemented, BED and DPW must provide an updated street classification for the streets on which adaptive control will be used which identifies the street classification during the hours desired for alternative light levels. This should be based on collection of traffic and pedestrian counts during desired time for alternative light levels. In all instances, safe minimum light levels must be provided for all areas accessible to the public at night.

BUG Rating IES TM-15-11					
	Lighting Zone 0	**Lighting Zone 1**	**Lighting Zone 2**	**Lighting Zone 3**	**Lighting Zone 4**
Allowed Backlight Rating					
Greater than 2 mounting heights from property line	B1	B3	B4	B5	B5
1 to less than 2 mounting heights from property line and ideally oriented	B1	B2	B3	B4	B4
0.5 to 1 mounting heights from property line and ideally oriented	B0	B1	B2	B3	B3
Less than 0.5 mounting height to property line and properly oriented	B0	B0	B0	B1	B2
Allowed Uplight Rating					
	U0	U1	U2	U3	U4
Allowed Uplight Rating					
Non-building mounted luminaires	G0	G1	G2	G3	G4

Figure 7: *BUG Rating chart*

Figure 8: *Lighting Distribution Types*

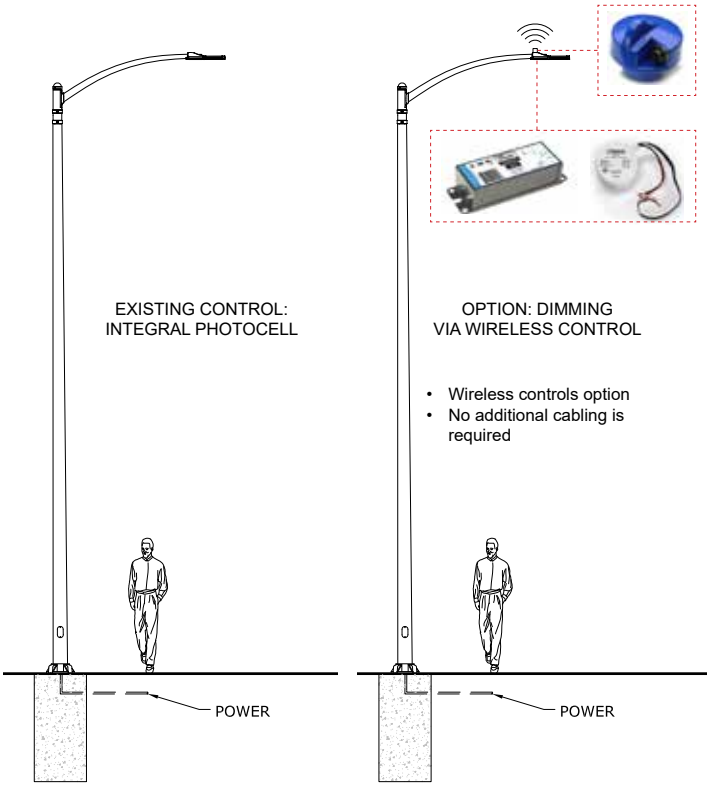


Figure 9: *Lighting Controls*

Lamp Type	Minimum Efficacy (Lumens/ Watt)	Min. Color Rendering Index	Color Temp. (Degree Kelvin)	Lamp Life (Rated Hours)	Comments
HID					
Metal Halide (coated)	80-110	65-85	3200K-3700K ±(1200°K shift)	15,000 - 20,000	Not recommended
Metal Halide (clear)	80-110	65	4000K ±(1200°K shift)	15,000 - 20,000	Not recommended
Metal Halide Pulse Start (Elite)	100-120	85-90	3000K-4300K ±(150°K shift)	15000 - 20,000+	Not recommended
Metal Halide Ceramic	90-93	85-90	3000K-4200K (±75°K shift)	30,000	Not recommended
High Pressure sodium (standard)	100	22	2200K	24,000 40,000	Not recommended
INDUCTION					
ICETRON	80	80	3500K-4100K	100,000	Not recommended
LED					
LED (White)	100-120	80	3000K-4000K	70,000 - 100,000	Recommended

Figure 10: *Lamp Technology comparison chart*

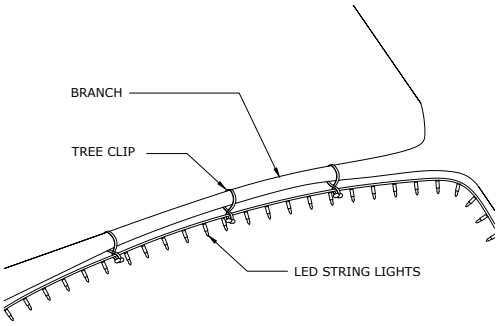
Optional Seasonal Elements

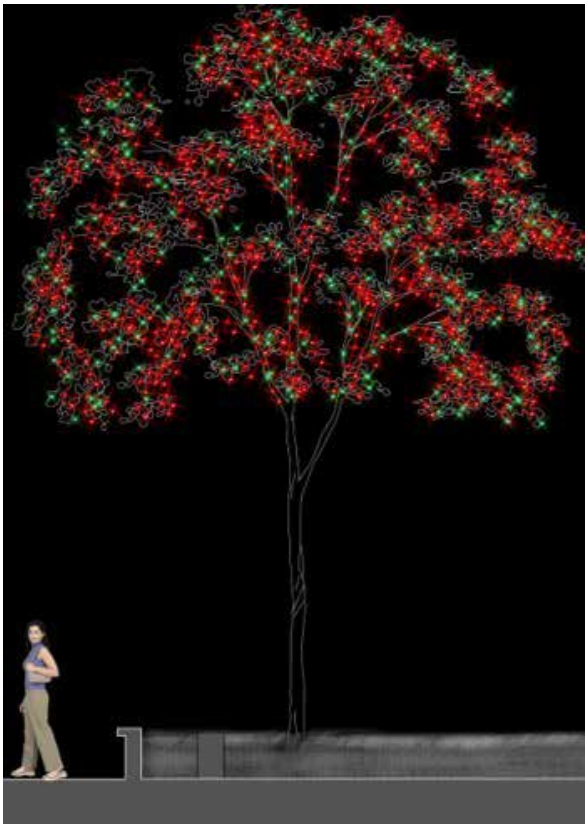
TREE LIGHTING

On selected trees, such as along the streets that comprise the Pinwheel, provide GFCI outlets for seasonal LED "glitter" string lights. While poles should accommodate outlets for decorative lighting, the provision of a separate meter or a tariff for use of power should be determined by contract with BED at the time of a project installation.

- Single-color lights are preferred
- String lights should be wrapped around the tree
- Metal clips attached to trees are not recommended

To prevent harming the tree or impeding its growth, the installation of string lights can line the tree branches rather than wrapping around branches.

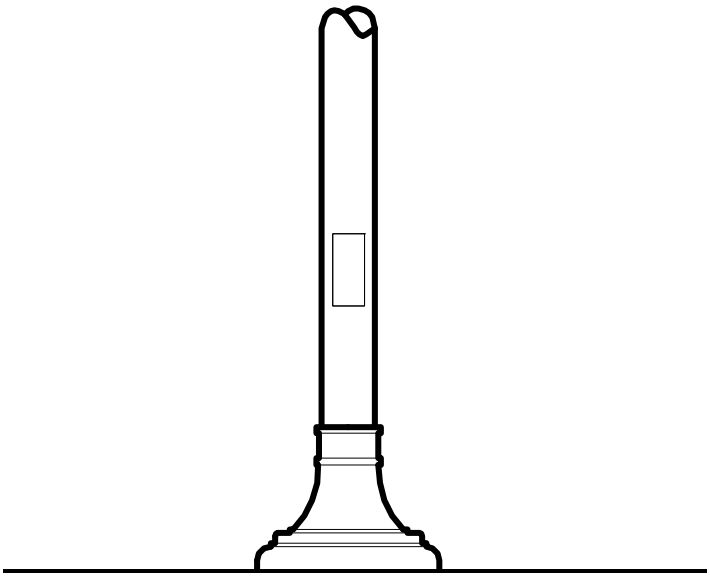




Lighting Elements

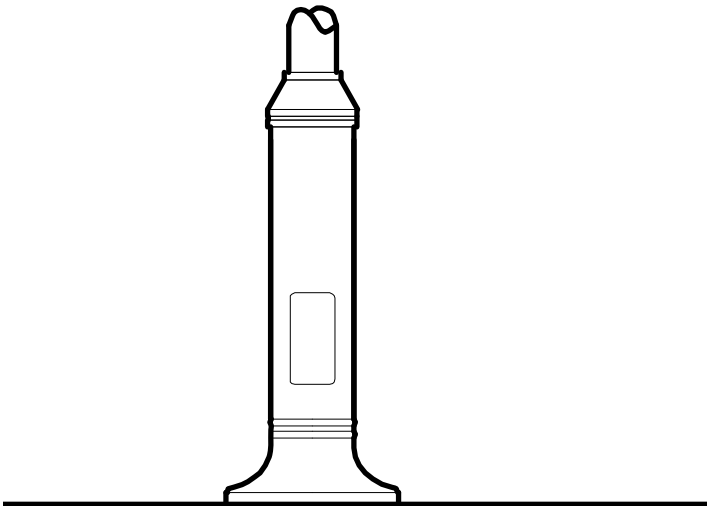
Decorative Lighting Assembly

POLE



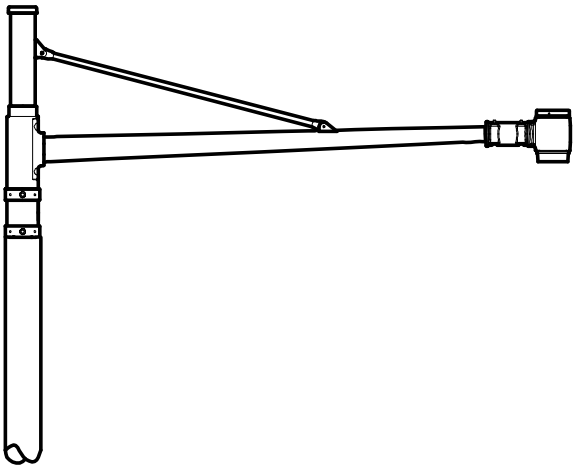
Description:	20' height, 5" diameter straight pole typical, except at signalized intersections
Manufacturers:	Philips Valmont Union Metal Hapco AAL Spring City
Model:	Lumec (Philips)
Finish:	Powder coat—River Texture Black
Notes:	Banner arms and outlets for electricity optional. See ref. dwg. **Center City Steel Shaft Post** in *Appendix section A-6*

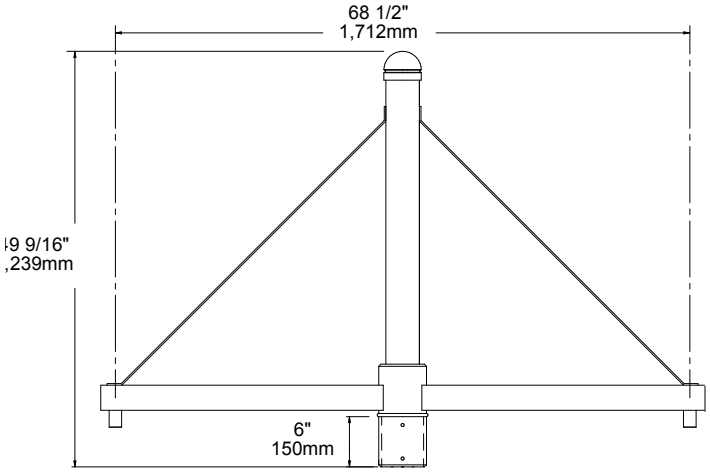
BASE



Description:	Clamshell Cover (Parks Dept. Standard)
Manufacturers:	AAL Sentry Spring City
Model:	DB10 Cover (AAL)
Finish:	Powder coat—River Texture Black
Footing Detail:	See ref. dwg. **VTrans Standard T-133 Light Pole Foundation Details** in *Appendix section A-6*

ARMS/BRACKETS

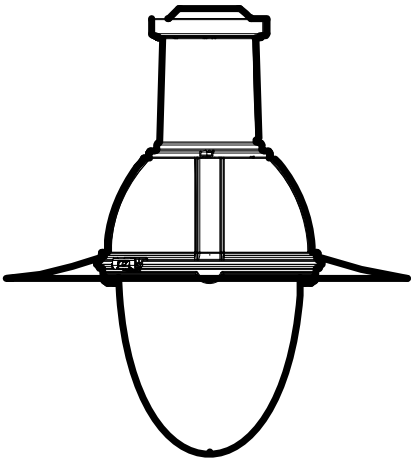




Description:	Single-sided arm
Dimension	Nominal 4' long straight arm
Manufacturers:	Philips Lumec PC4 AAL SLA17(5) (5" pole) Spring City
Finish:	Powder coat—River Texture Black

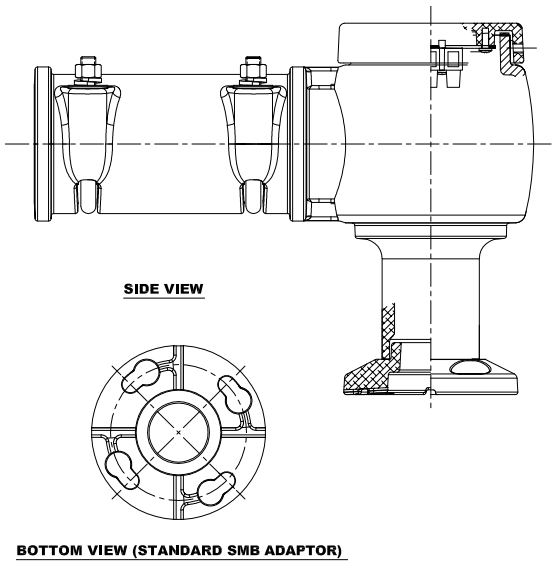
Description:	Double-sided arm
Dimension	Nominal 4' long straight arms
Manufacturers:	Philips Lumec PC4-2 AAL SLA17(5)-2 (5" pole) Spring City
Finish:	Powder coat—River Texture Black

LUMINAIRE



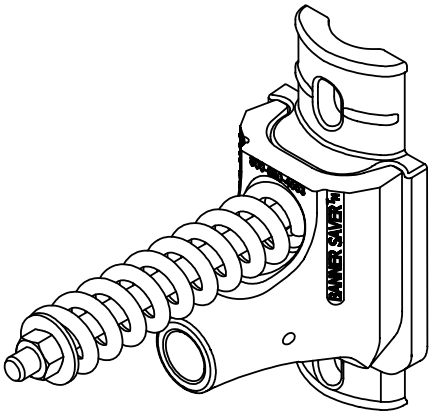
Description	Teardrop luminaire with skirt
Manufacturer/Model	Philips "Renaissance" RNS20 Spring City "Columbia"
Fixture Finish:	Powder coat—River Texture Black
Color Temperature	3000K (warm white)
Color Rendition	80 CRI
Efficacy (Lumens per Watt)	100 lumens per watt
Lamp Life (Years)	100,000 hours
Distribution Type	Type IV (roadway zone) Type II (pedestrian zone)
BUG Rating	B1-U2-G1
Notes	To comply with IES/IDA Model Lighting Ordinance, must meet B3-U3-G3 or better. Must have integral photocell for light sensing. Option incorporation of device for dimming via wireless control based on LZ3 of the BUG Rating Chart (*Figure 7, page 258*) For specifications see ref. doc in *Appendix section A-7*

LUMINAIRE ADAPTOR



Description	Standard adapter to rotate recommended luminare by 90 degrees increment.
Manufacturer/Model	Philips Adaptor for RNS20-30 Small Renaissance LED
Notes	See ref. docs in *Appendix section A-7*

Banner Arm & Bracket



Description	Banner Arm
Manufacturer/Model	Britten
Fixture Details	Steel pipe with cast aluminum ornamentation Powder coat—River Texture Gloss Black
Notes	See ref. dwg. **Spring City—Banner Arm** in *Appendix section A-6*

Description	Banner Saver
Manufacturer/Model	Britten
Fixture Details	Black, Cast Aluminum
Size	Small
Notes	For installation of banner arms on existing decorative poles in downtown when not being upgraded to Great Streets Standards. See ref. dwg. **Britten Banner Saver** in *Appendix section A-6*

Standard Lighting Assembly

LAMP

Description:	Cobrahead LED
Manufacturer:	Philips
Model:	RoadView RVS
Dimensions:	21.38"L x 15.38"W x 2.38"–4.66"H
Weight:	23–26 lbs.
Color Temperature:	Nominal 3000K CCT
Finish:	Gray