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Table 4a: Poles & Luminaires
Introduction

- **Street Light Components**
  A street light comprises three elements: 1) the base (sometimes with a “skirt” that covers the base to achieve a desired appearance), 2) the pole, and 3) the LED luminaire. Some poles can be combined with different luminaires to achieve the desired aesthetic and engineering outcomes; in other cases, the combination of pole and luminaire cannot be changed. This chapter notes the luminaires with which each pole can be paired.

- **Energy Standards**
  DOT requires the use of LED luminaires for all installations.

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**About this Chapter**
This chapter, which constitutes the current DOT Street Lighting Catalogue, outlines options for street and pedestrian lighting for New York City streets, bikeways, pedestrian bridges, pedestrian malls, plazas, and parks. Street lights currently installed on the street, but not included in this chapter, are not recommended for new projects. The street lights herein meet DOT engineering standards and technical requirements for safety and energy efficiency. Most are appropriate for use in a variety of contexts, pending DOT design review and approval.

**Selection Criteria**
DOT uses guidelines established by the Illuminating Engineering Society of North America (IES) to provide sufficient light values and uniformity in the ROW and produce a comfortable and safe street environment. In addition to lighting characteristics, the agency considers the design qualities of poles and luminaires with an eye to maintaining an aesthetically consistent and coherent streetscape within a neighborhood or corridor. Accordingly, the agency does not approve block-by-block variations in types of street lights.
0 Engineering Review
In all cases, the suitability of the street light for a particular street and lighting condition must be approved by DOT’s Street Lighting Engineering Unit (DOT Street Lighting).

Usage Categories
Street lights and components are categorized as Standard, Distinctive, or Historic. DOT maintains equipment in each of these categories, and replaces damaged street lights.

0 Standard
The current Standard street light poles are the steel Octagonal and Davit for city streets, and aluminum Round for highways, with LED luminaires as indicated. The M-2A and the S-1A signal poles are Standard for use at traffic signal locations. The M-2A pole may be used to hold a standard street light arm and luminaire. In addition to the pedestrian poles featured in this Manual, other Standard pedestrian poles suitable for use are covered in DOT Street Lighting’s Standard Drawings Book.

With DOT approval, modifications and alternate combinations of components are possible. Poles can be painted according to federal specifications in silver, black, or green. While such modifications are considered Standard, they typically require a maintenance agreement and DOT Street Lighting approval.

0 Distinctive
Street light poles, other than those that are listed as Standard or Historic, are considered Distinctive; they are installed as part of streetscape projects and other locally-funded initiatives. Unless they are in-kind replacements for damaged street lights, Distinctive lights require PDC approval. DOT is responsible for submitting Distinctive street light proposals to PDC on behalf of neighborhood associations and other groups that request the treatments. In preparation for these submittals, DOT works closely with applicants to develop consistent street lighting plans that are sensitive to local contexts. DOT maintains Distinctive street lights unless otherwise stated in a maintenance agreement.

0 Historic
Historic-style poles can only be used in LPC designated historic districts or in neighborhoods with substantial, intact historic fabric—i.e., three or more contiguous blocks. They require approval by LPC for use in historic districts and PDC approval for use in non-designated areas with substantial, intact historic fabric. The Historic street light poles are currently used with only the Teardrop and Shielded Teardrop Luminaires.

Inclusive Design
Street lights and signals at corners must be sited so that they do not obstruct pedestrian ramps, ensuring sufficient access to the sidewalk for all pedestrians, including those using mobility devices. At crossings, the height of Accessible Pedestrian Signals must be reachable by a person using a mobility device, at a preferred height of 42 inches and a maximum height of 48 inches (see 2010 ADA Standards for Accessible Design).

Resiliency
Existing foundations at traffic signal locations in certain flood-vulnerable areas are being replaced with coastal storm foundations that incorporate a square concrete pedestal raising the electrical components above some flood depths. The city’s Climate Resiliency Design Guidelines provide guidance on height. The pedestal is monolithically poured with the foundation. Raising the base of the traffic signals or street light poles reduces the chance that the electrical components of the poles will be submerged in salt water during future flooding events. Additionally, High Density Polyethylene (HDPE) conduit, a more cost-effective material that is not susceptible to corrosion from residual salt water after storm surge events, is replacing galvanized steel for all signal locations and street light locations in flood-vulnerable areas.

DOT is also testing solar-powered lighting at select locations in flood-prone areas. If these applications are successful, solar lighting could reduce the amount of time without street lighting after major flood events.
Specifications

BUG Ratings
DOT Street Lighting evaluates LED luminaries using the IES BUG (Backlight, Uplight, and Glare) rating system as part of its specifications.

<table>
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<tr>
<th>Roadways</th>
<th>Average Illuminance (fc)</th>
<th>Illuminance Uniformity</th>
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<tr>
<td>Collector*</td>
<td>1.0 – 1.2</td>
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<tr>
<td>Local**</td>
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<td>Collector/Local</td>
<td>1.5 - 2.0</td>
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<tr>
<td>Local/Local</td>
<td>1.5</td>
<td>4:1</td>
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<tr>
<th>Plazas, Under the El</th>
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<tr>
<td>Pedestrian Sidewalks</td>
<td>0.6 - 0.8</td>
<td>Up to 6:1</td>
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| Shared Bikeways                    | 0.8 - 1.0                | 4:1                    |

* DOT’s Lighting Division generally classifies avenues and boulevards as collector roadways
** DOT’s Lighting Division generally classifies cross streets as local roadways

Lighting Levels, Color, and Uniformity
DOT’s lighting-levels and uniformity guidelines are based on those established by the IES Roadway Lighting standard RP-8-14 (or more stringent where needed). DOT uses higher wattages on wide or commercial corridors and lower wattages on narrow or residential streets. DOT currently specifies 3000 Kelvin as the color temperature for all luminaires.

All street lighting designs must be approved by DOT Street Lighting Engineering Unit.

Notes and Symbols

<table>
<thead>
<tr>
<th>HDG</th>
<th>Hot Dipped Galvanized Steel</th>
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</thead>
<tbody>
<tr>
<td>IES</td>
<td>Illuminating Engineering Society of North America</td>
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<tr>
<td>IES Type</td>
<td>IES classification of lighting based on its photometric properties. Five types are relevant to the city’s street lights: I, II, III, IV, and V.</td>
</tr>
<tr>
<td>LED</td>
<td>Light-Emitting Diode</td>
</tr>
<tr>
<td>SSL</td>
<td>Standard Street Light: Standard pole (Octagonal) with LED Cobra Head luminaire. While Davit and Round poles are also standard poles, cost comparisons to the SS refer to the Octagonal.</td>
</tr>
</tbody>
</table>

W Watts

<p>| $ | Costs: Shown for each pole or luminaire as a $ symbol, representing relative costs compared to the Standard Street Light (SSL), the Octagonal Pole. A scale of one to five $ symbols is used rather than specific monetary amounts because actual costs are subject to change. |</p>
<table>
<thead>
<tr>
<th>Luminaires</th>
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<td>Octagonal Davit Round 25' / 40' Alliance (Type S) Bishops Crook City Light Flatbush Ave TBTA Type F Type M World’s Fair Ped Type B Ped Flushing Meadows Ped</td>
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<tr>
<td>Cobra Head</td>
<td>● ● ●</td>
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<tr>
<td>Teardrop</td>
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<tr>
<td>Shielded Teardrop</td>
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<td>● ● ● ● ● ● ●</td>
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<tr>
<td>Alliance</td>
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<td>City Light</td>
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<td>Riverside</td>
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<td>Battery Park</td>
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<td>2085</td>
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<tr>
<td>Flushing Meadows</td>
<td></td>
<td></td>
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<tr>
<td>LED Expressway</td>
<td></td>
<td>●</td>
</tr>
</tbody>
</table>

Table 4a identifies which combinations of poles and luminaires are permitted.
Standard Poles
Octagonal Pole

Usage: Standard

The tapered steel Octagonal pole, combined with the LED Cobra Head luminaire, constitutes a Standard Street Light (SSL).

Applications

- Streets
- Single and twin-mounting

Luminaire

**LED Cobra Head**

- Wide Roadway/Commercial Area:
  - 110W maximum LED
  - IES Type II or III
- Residential Street:
  - 78W maximum LED
  - IES Type II or III
- Pedestrian Arm:
  - 40W maximum LED
  - IES Type II or III

Material/Color

- HDG Steel/silver — black and green are also allowed but require a maintenance agreement

Cost Compared to SSL

$  

Octagonal is the Standard pole
4.1.2 Davit Pole

Davit Pole

Usage: Standard

The Davit pole is an elegant, curved alternative to the Octagonal pole that can be used in the same streetscape contexts. An aluminum version of the Davit, not covered here, is also used on highways.

Applications

Streets
Single and twin-mounting

Luminaire

LED Cobra Head
Wide Roadway/Commercial Area:
110W maximum LED
IES Type II or III

Residential Street:
78W maximum LED
IES Type II or III

Pedestrian Arm:
40W maximum LED
IES Type II or III

Material/Color

HDG Steel/silver — black and green are also allowed but require a maintenance agreement

Cost Compared to SSL

$$

Though also considered a Standard pole, the Davit is more expensive than the Octagonal
Round Pole

Usage: Standard

The tapered aluminum Round pole, combined with the LED Cobra Head luminaire, constitutes a Standard Highway Street Light. As an alternative, the 40’ Aluminum Lighting Standard is another street light option for expressways that can be installed with an LED Expressway luminaire.

Applications
For use on highways within city limits

Luminaire

**LED Cobra Head**

Highway:
110W maximum LED
IES Type II or III

Highway Ramp:
78W maximum LED
IES Type II or III

**LED Expressway**

Expressway:
150W maximum LED
IES Type III or IV

Material/Color

Aluminum/silver

Cost Compared to SSL

Round is the Standard pole for highways
Distinctive & Historic Poles
Alliance Pole (Type S)

Usage: Distinctive

The Alliance street light was originally introduced in Lower Manhattan by the Alliance for Downtown New York. This street light is a contemporary alternative to the Standard Street Light.

Applications

Commercial districts
Roadways with widths of 36 feet or more
PDC approval is required

Luminaire

Alliance (Type S)
110W maximum LED
IES Type II or III

Material/Color

HDG Steel/silver, black

Cost Compared to SSL

$$$$$$

Water Street, Manhattan
Bishops Crook Pole

Usage: Historic

The Bishops Crook was the first of a number of decorative street lights to be introduced as early as 1900 on narrow city streets. Bracket versions of the Bishops Crook were also attached to the facades of buildings. The reproduction of the Bishops Crook was introduced in 1980 at Madison Avenue and 50th Street outside the Helmsley Palace Hotel (now the New York Palace Hotel).

Applications

- Historic districts or areas with substantial, intact historic fabric
- Streets with roadway width of less than 36 feet
- Within historic districts, LPC approval is required; outside of historic districts, PDC approval is required

Luminaire

Teardrop

- 100W maximum LED
- IES Type III

Material/Color

Ductile iron pole with aluminum arm/black

Cost Compared to SSL

$$$$$
City Light Pole

**Usage: Distinctive**

In 2004, an international design competition was held to develop a signature street light for New York City. The winning entry, the City Light, was added to DOT’s lighting catalogue after extensive development and testing. This simple, elegant pole and luminaire provide less glare than other luminaires and complement both contemporary architecture and historic structures.

**Applications**

- Commercial or residential streets
- PDC approval is required

**Luminaire**

**City Light**

- Wide Roadway/Commercial Area:
  - 110W maximum LED
  - IES Type II or III
- Residential Street:
  - 78W maximum LED
  - IES Type II or III

**Material/Color**

- Aluminum/silver

**Cost Compared to SSL**

- $$$$$

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*Essex Street, Manhattan*
Flatbush Avenue Pole

Usage: Distinctive

The Flatbush Avenue pole was first installed in 1988 on Flatbush Avenue in Brooklyn. Its design is appropriate for wide streets, including those with historic character.

Applications
- Commercial and wide residential streets
- Single, or twin-mounting on center medians
- Streets with roadway width of 36 feet or more
- PDC approval is required

Luminaire

LED Cobra Head
- 110W maximum LED
- IES Type II or III

Teardrop and Shielded Teardrop
- 150W maximum LED
- IES Type III

Material/Color
- Fabricated steel pole/black, silver, green

Cost Compared to SSL
- $$$

Pole with Teardrop luminaire: Flatbush Avenue, Brooklyn
TBTA Pole

Usage: Distinctive

The TBTA (Triboro Bridge and Tunnel Authority) pole was introduced in the 1950s for mid-twentieth-century bridge construction projects such as the Robert F. Kennedy Bridge (formerly the Triboro Bridge). The TBTA pole replaced wooden lampposts that lit parkways during the 1920s and ‘30s. The Teardrop and Shielded Teardrop luminaires combine with the TBTA pole to produce a historic quality.

Applications

Street Light Pole:
- Commercial and wide residential streets
- Single or twin-mounting
- Streets with roadway width of 36 feet or more

Pedestrian Pole:
- Parks, plazas, and esplanades

PDC approval is required

Luminaire

LED Cobra Head

Wide Roadway/Commercial Area:
- 110W maximum LED
- IES Type II or III

Residential Street:
- 78W maximum LED
- IES Type II or III

Teardrop and Shielded Teardrop (historic districts only)

Commercial Area:
- 150W maximum LED
- IES Type III

Residential Street:
- 100W maximum LED
- IES Type III

Material/Color

HDG steel/black, silver, green

Cost Compared to SSL

$$$$$$
Type F Pole

Usage: Historic

The Type F pole, originally known as the Reverse Scroll Bracket, was developed in 1913 and installed on narrow streets downtown on Seventh Avenue. Bracket versions of the Reverse Scroll were also attached to the facades of buildings. The reproduction of the Reverse Scroll was introduced in the late twentieth century as the Type F pole.

Applications

- Selected historic districts
- Streets with roadway width of less than 36 feet
- Single or twin-mounting
- Within historic districts, LPC approval is required; outside of historic districts, PDC approval is required

Luminaire

- Teardrop
- 100 W maximum LED
- IES Type III

Material/Color

- Ductile iron pole/black

Cost Compared to SSL

$$$$$
4.2.7 Type M Pole

Type M Pole

Usage: Historic

The Type M pole, originally known as the Mast-Arm post, was introduced in 1908 for wide streets at corners on Broadway north of Columbus Circle and on Seventh Avenue north of Central Park. Bracket versions of the Mast-Arm were also attached to the facades of buildings. The reproduction of the Mast-Arm was introduced in the late twentieth century as the Type M pole.

Applications

Selected historic districts

Streets with roadway width of 36 feet or more

Single or twin-mounting

Within historic districts, LPC approval is required; outside of historic districts, PDC approval is required

Luminaire

Teardrop
150 W maximum LED
IES Type III

Material/Color

Ductile iron pole/black

Cost Compared to SSL

$$$$$$

Atlantic Avenue, Brooklyn
World’s Fair Pedestrian Pole

Usage: Distinctive

The World’s Fair pedestrian light was first installed in 1964 during the World’s Fair held in Flushing Meadows Park in Queens. The pole is now installed in many city parks, in plazas, and along pedestrian malls and bikeways.

Applications

Parks, plazas, and esplanades
PDC approval is required

Luminaire

2085
76W maximum LED
IES Type III or V

Material/Color

Steel/black, silver

Cost Compared to SSL

$
Type B Pedestrian Pole

Usage: Distinctive

The Type B pedestrian light was originally introduced in 1911 by designer Henry Bacon for the Central Park Mall and later installed in other city parks. The current version of the Type B pole was developed in the late twentieth century and offers a more traditional design for pedestrian areas such as parks and plazas.

Applications

- Parks, plazas, esplanades, and pedestrian bridges
- Not suitable for use on roadways, except under elevated structures
- PDC approval is required

Luminaire

- Riverside Park, Battery Park, Central Park, and 2085
- 76W maximum LED
- IES Type III or V

Material/Color

- Ductile iron pole/black

Cost Compared to SSL

$$
Flushing Meadows Pedestrian Pole

Usage: Distinctive

The Flushing Meadows pedestrian light was first installed in 2004 by Parks in Canarsie Park in Brooklyn. The pole is now installed in many city parks and plazas.

Applications

- Parks, plazas, esplanades, and pedestrian bridges
- Not suitable for use on roadways, except under elevated structures
- Consider aluminum pole in high salt environments
- PDC approval is required

Luminaire

- Flushing Meadows
- 70W maximum LED
- IES Type III or V

Material/Color

- HDG Steel or Aluminum/black, silver

Cost Compared to SSL

$$
4.3 Signal Poles
Type M-2A Signal Pole

Usage: Standard

Introduced in 1964 as the M-2, the octagonal M-2A traffic signal pole is Standard for use at all traffic signal locations. A 5-foot mast-arm extension can be used to bring the signal farther out over the roadway, if necessary.

With a 7-foot shaft extension, the M-2A can be used to hold a standard street light arm and a luminaire. It can also be made to resemble nearby Distinctive poles.

Applications

Holds signals and/or signs
Single- or double-mounting

Two M-2A poles per intersection, diagonally opposite from each other

Sometimes mounted on a concrete coastal storm foundation to provide necessary clearance or avoid moisture in the base

If a luminaire is necessary, shaft extension provides required clearance from signal

5-foot mast-arm extension holds signal farther out over the roadway, if necessary

Accessible Pedestrian Signals (APS) must be included when a traffic signal with a pedestrian signal is newly installed or fully replaced (includes pole, foundation, conduit, and signal equipment) or relocated

Luminaire

LED Cobra Head (Standard)
Teardrop (Historic)

Material/Color

HDG Steel/silver, black, green
Alliance Signal Pole
(Type S)

Usage: Distinctive

The Alliance street lights were introduced in the Lower Manhattan financial district by the Alliance for Downtown New York. The signal pole can be used as a contemporary alternative to the standard M-2A signal pole only in conjunction with nearby Alliance street lights.

Applications

Intersections

Accessible Pedestrian Signals (APS) must be included when a traffic signal with a pedestrian signal is newly installed or fully replaced (includes pole, foundation, conduit, and signal equipment) or relocated

Luminaire

**Alliance (Type S)**

110W maximum LED

IES Type II or III

Material/Color

HDG steel/silver, black
4.3.3 Type S-1A Signal Pole

**Type S-1A Signal Pole**

*Usage: Standard*

Introduced as the S-1 in 1965, the round S-1A signal pole holds pedestrian signals at corners where an M-2A signal pole or a light pole is not necessary. It also holds traffic signals on medians and traffic islands.

**Applications**

- Holds pedestrian and/or traffic signals
- Accessible Pedestrian Signals (APS) must be included when a traffic signal with a pedestrian signal is newly installed or fully replaced (includes pole, foundation, conduit, and signal equipment) or relocated

**Luminaire**

- This pole does not hold a luminaire

**Material/Color**

- HDG Steel/silver, black, green