

rev'd 9/27/09

**CITY OF NEW YORK
DEPARTMENT OF TRANSPORTATION
OPERATIONS DIVISION
BUREAU OF STREET LIGHTING**

**DESIGN CRITERIA
FOR LIGHTING OF ROADWAYS AND BRIDGES
OVER ROADWAYS, WATERWAYS & RAILROADS**

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LIGHTING CRITERIA

.1. Roadways, Main Crossings and Approaches

1.1. Lighting Criterion

1.1.1. Roadways

1.1.1.1.	Average Maintained Illuminance (E_{avg})	
	Major Roadways	12 to 17 Lux
	Collector Roadways	8 to 12 Lux
	Local Roadways	6 to 9 Lux
1.1.1.2.	Illuminance Uniformity (E_{avg}/E_{min})	
	Major Roadways	3:1
	Collector Roadways	4:1
	Local Roadways	6:1
1.1.1.3.	Veiling Luminance Ratio (L_{vmax}/L_{avg})	
	Major Roadway	0.3
	Collector & Local Roadways	0.4
1.1.1.4.	Total Depreciation (Loss) Factor	
	High Pressure Sodium	0.58
	Metal Halide	0.50
	Iceatron (Flu.)	0.65

1.1.2. Intersections

1.1.2.1.	Average Maintained Illuminance (E_{avg})	
	Major/Major	24 to 34 Lux
	Major/Collector	20 to 29 Lux
	Major/Local	18 to 26 Lux
	Collector/Collector	16 to 24 Lux
	Collector/Local	14 to 20 Lux
	Local/Local	12 to 18 Lux
1.1.2.2.	Illuminance Uniformity (E_{avg}/E_{min})	
	Major/Major, Major/Collector, Major/Local	3:1
	Collector/Collector, Collector/Local, Local/Local	4:1

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1.1.3. Walkways and Bikeways

1.1.3.1.	Average Maintained Illuminance (Eavg)	5 to 10 Lux
1.1.3.2.	Illuminance Uniformity (Eavg/Emin)	4:1

1.2 Luminaires

1.2.1. Type

Standard	Cobra head – 100W, 150W and 250W HPS
Special	Post top & Offset styles – 100W to 400W HPS
Decorative	Tear drop styles – 150W, 250W HPS & MH

1.2.2. Initial Lumens

100W HPS	9,600 Lumens
150W HPS	16,000 Lumens
250W HPS	27,500 Lumens
400W HPS	50,000 Lumens
175W MH	12,000 Lumens
250W MH	20,000 Lumens

1.2.3. Mounting Height

Standard (Cobra head)	30 ft.
Special (varied parameters)	13 ft. to 30 ft.
Decorative	15 ft. to 28 ft.

1.2.4. Photometric Reference

100W & 150W Cobra head	Crouse Hinds, Test # 765026 American Electric Test # 33538
250W & 400W Cobra head	Crouse Hinds, Test # 763715 American Electric Test # 33467
250W & 400W Offset	Cooper Test # Or14xx Holophane Test # 50380
250W Tear Drop	Holophane Test # ITL44090 Sentry Test # LTL04025 Magni Flood Test # LTL03634
100W & 150W CPW Acorn	Sentry Test # 8450 & 8451
100W & 150W Type 2085	Sentry Test # 6886
250W GCP	Magni Flood Test # LTL05735
250W 34 th St.	Sentry Test # LTL04777

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1.3. Lampposts

1.3.1. Standard

Steel, Octagonal	12 ft. to 50 ft. shaft with or w/o base and with 2 ft., 4 ft., 6 ft., 8 ft. or 12 ft. arms
Aluminum, Spun	15 ft. to 40 ft. shaft with or w/o frangible base and with 2 ft., 4 ft., 8 ft., 12 ft. or 15 ft. arms

1.3.2. Special/Decorative

Flatbush Avenue	33 ft. steel pole with decorative 8 ft. single or twin arms and octagonal base. 31 ft. MH.
Grand Central	25 ft. fluted steel pole with 4 ft. twin arms and octagonal base. 27 ft. luminaire MH.
Type F	25 ft. decorative Cast Iron pole with 3 ft. single or twin arms. 23 ft. luminaire MH.
Type M	28 ft. decorative Cast Iron pole with 10 ft. single or twin arms. 26 ft. luminaire MH.
5 th Avenue	27 ft. decorative Cast Iron pole with twin 3 ft. arms. 25 ft. luminaire mounting height.
BC (Bishops Crook)	26 ft. decorative Cast Iron pole with single 3 ft. bishop crook arm. 23 ft. luminaire MH
CPW (Central Park West)	27 ft. decorative Cast Iron pole with 8 ft. single or twin arms. 25 ft. Luminaire MH
14 th Street	25 ft. steel pole with high looped extension arm and transformer base. 34 ft. MH
Type B-12	12 ft. decorative Cast Iron pole with top mounted luminaire. 13 ft. luminaire MH
Lyre	27 ft. decorative Cast Iron pole with top mounted bracket and luminaire. 28 ft. MH

2. Pedestrian Bridges

2.1. Lighting Criterion

2.1.1. Average Maintained Illuminance (Eave)	= 4 Lux for Overpasses = 8 Lux for Stairs
2.1.2. Illuminance Uniformity (Eave:Emin)	= 4:1 to 6:1
2.1.3. Total Depreciation (Loss) Factor	= 0.58

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2.2. Luminaires

- 2.2.1. Type: Cobrahead, 100W HPS
- 2.2.2. Initial Lumens: 9,600
- 2.2.3. Mounting Height 13 ft. (for 2 ft. arm) to 16 ft. (for 4 ft. arm)
- 2.2.4. Photometric Reference American Electric, Test #33538
Crouse-Hinds, Test #765026

2.3. Lampposts

- 2.3.1. Type: 14 ft. steel shaft with 2 ft. or 4 ft. steel arm with
or without ladder rest

3. Underpasses (Nighttime)

3.1. Lighting Criterion

- 3.1.1. Average Maintained Illuminance (Eave): 30 - 50 Lux
- 3.1.2. Illuminance Uniformity (Eave:Emin): 3:1 to 4:1
- 3.1.3. Total Depreciation (Loss) Factor 0.58

3.2. Luminaire

- 3.2.1. Type Surface (wall) mounted: 100W and 250W HPS
Pendant (ceiling) mounted: 150W HPS
- 3.2.2. Initial Lumens 9,600 for 100W, 16,000 for 150W, 27,500 for 250W
- 3.2.3. Mounting Height Determined by structure
- 3.2.4. Photometric Reference
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|---------------|------------------------------|
| 100W and 250W | ABS Test # K-2067 |
| 150W Pendant | Sentry Test # 28173 |
| 150W and 250W | Magni Flood Test # LTL 00742 |
| 100W | Magni Flood Test # LTL 02945 |
| 150W Wallpack | Exceline Test # 323150L |
| 250W Wallpack | Exceline Test # 55325L |

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4. SIGNS

4.1. Lighting Criterion

4.1.1. Illumination Level	200 - 400 Lux Average Maintained
4.1.2. Depreciation Factor	0.50
4.1.3. Uniformity Ratio	6:1 Maximum to Minimum Ratio 2.0 Illumination Gradient

4.2 Luminaire

4.2.1. Type	175W Metal Halide (Bottom Mounted)
4.2.2. Initial Lumens	12,200 - 14,000
4.2.3. Mounting	

Set down: 12 in. for all signs
Set back: 4 ft. for signs less than 12 ft. high
Set back: 5 ft. for signs over 12 ft. high

4.2.4. Photometric Reference

Holophane, Sign-Vue, Test # 40903
American Electric, Sign Light, Test # 45421
Magni Flood Refractor Lens Test # LTL03809