



## Department of Public Works and Environmental Services

# Technical Bulletin

**Subject: Tysons Design Guidance and Criteria for Non-Standard Streetlights Along Public Right-of-Way**

**Date: May 5, 2014 No.: 14-07**

Summary: Streetlight standards in the Public Facilities Manual (PFM) apply to public roadways and regulate standard and non-standard lighting. Lighting design pursuant to the recommendations in the Tysons Corner Urban Design Guidelines typically apply to the non-standard lighting regulations in Section 7-1005 of the PFM. In order to provide safe, efficient lighting levels for public roadways and adjacent pedestrian corridors and to streamline the non-standard streetlight review, this bulletin provides guidance and criteria for lighting that is recommended in the Urban Design Guidelines. The guidance focuses on translating roadway functional classifications in Tysons transportation documents to the Illuminating Engineering Society of North America (IESNA) roadway classifications and clarifying how to prepare an overall streetlight plan that implements a rezoning application. The criteria include design expectations for pole and fixture placement and photometric calculations.

Effective Date: Immediately.

Policy: The following table links the roadway classifications of the September 13, 2011, Fairfax-Virginia Department of Transportation (VDOT) Tysons Design Standards to IESNA Standard Practice for Roadway Lighting roadway classifications.

<b>Recommended Functional Classification</b>	<b>Tysons Corner Comprehensive Plan Functional Classification</b>	<b>VDOT/Federal Highway Functional Classification</b>	<b>Number of Through Lanes (not including parallel parking and bike lanes)</b>	<b>IESNA Functional Classification</b>
Low Speed Boulevard	Boulevard	Principal Arterial	4 - 8	Major
Avenue	Avenue	Minor Arterial or Collector	4 - 6	Collector
Collector	Collector	Collector or Local	2 - 4	Collector or Local (see note below)
Local Street	Local Street	Local	2	Local

Table Note: Design engineers should use best judgment and consult with county streetlight engineers to determine Collector or Local classification.

Streetlight standards apply to streetlights along public streets. While service streets are also listed in the Tysons Corner Urban Design Guidelines, because they are usually private streets, lights along such streets would not be subject to these guidelines and criteria. The outdoor lighting standards in Article 14 of the Zoning Ordinance are applicable to all streets and property that are not located in VDOT right-of-way.

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**Guidance on scope of overall streetlight plans**

Per PFM 7-1005.4, the first site plan submitted pursuant to an approved concept development plan (CDP) must include an overall lighting plan for the CDP area. Because many of the proposed developments in Tysons cover a large land area, providing a comprehensive lighting plan over the entire site may not be practical. For that reason, staff offers the following guidance for site plan applications (applicants are encouraged to include this analysis with Final Development Plans.).

Lighting plans will include quantified lighting levels and layouts that account for the site plan area and the CDP area:

- Demonstrate that the site plan area's lighting is viable. First, show how proposed on-site lights and existing off-site lighting and street geometry conditions perform. Second, for the future plan – areas not expected to redevelop should be shown with existing street geometry, areas expected to redevelop in the near future (defined as areas that are included in another active or approved CDP or similar) should show ultimate street geometry. Streets that are entirely new streets should show ultimate street geometry even if they are not expected to redevelop in the near future.
- Demonstrate that the CDP area's lighting is viable. Show proposed on-site lights and future lights for those areas within CDP area (but off-site from site plan) and those adjacent areas that are expected to redevelop in the near future. Show existing lighting and street geometry for areas that are not expected to redevelop in the near future. Applicants with larger CDP areas may submit lighting plans for sections of development that account for the site plan area and 300 feet surrounding the site plan area.

**Design Criteria**

1. Approved non-standard streetlights and pedestrian lights will be Selux Arc or AAL Flex Light Emitting Diode (LED) fixtures per the Tysons Corner Urban Design Guidelines. Streetlights are to be full cutoff fixture, directed downward to maximize roadway lighting. The temperature of the fixture, measured in Kelvin (K), should also be specified, with the design preference of 4000K.
2. Other fixture types besides Selux Arc and AAL Flex may be used if they are shown as part of an approved rezoning plan and shown on an approved overall street light plan (described above), prior to subdivision or site plan approval.
3. Lighting computations and photometrics shall be provided to Department of Public Works and Environmental Services (DPWES) showing that the proposed non-standard lighting system meets the current IESNA Standard Practice for Roadway Lighting (ANSI/IESNA RP-8-00 or latest version) and conforms to the guidelines of the International Dark-Sky Association (IDA) concerning glare and light trespass.
4. Mounting heights are to be 30', 35' or 40' for either major, collector, or local roads and spaced as necessary to provide the required lighting, where height remains consistent

along the road. Subject to approval by the director and design criterion 2, other mounting heights may be considered.

5. Luminaire head will be designed and located 2' in front of the face of curb of the roadway.
6. Lighting Loss Factor will be 0.85.
7. Illuminance will be based on High pedestrian Conflict Areas as follows:
  - Major Road = 1.7 foot candle (fc) and 3:1 Uniformity Ratio
  - Collector Road = 1.2 fc and 4:1 Uniformity Ratio
  - Local Road = 0.9 fc and 6:1 Uniformity Ratio
8. Pedestrian lighting will be designed separately from roadway lighting as follows:
  - LED pedestrian lighting luminaire may be attached to the back side of the roadway lighting at a 15' or 20' mounting height, with additional freestanding pedestrian lighting of 15' or 20' mounting height added as needed between the roadway lighting. Consistent pedestrian light mounting height along a given street is encouraged.
  - Pedestrian lighting to achieve 1.0 fc at the surface of the sidewalk.
9. Intersection roadway lighting should not include more than one roadway fixture per pole.
10. VDOT requirements and maintenance requirements in PFM 7-1005.3 and 7.1005.5 apply. Maintenance agreements for streetlights will be required in conjunction with those approved site plans that dedicate the public streets on which the streetlights are located. Applicants desiring to install streetlights on a street that will be dedicated as a public street in the future will be required to upgrade those streetlights as needed to public street standards prior to the County accepting the street dedication.
11. DPWES accepts standard lighting design that uses High Pressure Sodium fixtures along Routes 7 and 123. DPWES also accepts the GE Evolve LED Roadway Lighting scalable cobrahead as a standard light for collector and local roads in Tysons (provided that overall streetscape designs conform to Tysons Urban Design guidelines and related proffers for site plans or public improvement plans that are subject to approved rezoning cases).

If you have any questions, please contact Leo Ratchford, Utilities Design & Construction Division, at **703-324-2367, TTY 711**.

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