

Memorandum

Department of Public Works



TO: Michael O. Geisel, P.E.
City Administrator

FROM: James A. Eckrich, PWD / CE *JAE*
Justin Wyse, Director of Planning *JW*

DATE: May 7, 2020

RE: Streetlighting Policy and Lighting Standards

As directed by the Planning and Public Works Committee, we have reviewed and recommended changes to the existing Streetlight Policy. The recommended changes include a provision which allows subdivisions to add, delete, or modify streetlights, with approval of the Trustees and a percentage of the area residents. The draft Streetlighting Policy, as well as the existing Policy, are attached for your review.

In addition to the Streetlighting Policy, we have also thoroughly reviewed the section of the City of Chesterfield Municipal Code regarding Lighting Standards (Section 31-04-03). As discussed previously, the existing code contains archaic requirements related to former lighting methods, and no allowance for current lighting methods, including solar and LED technology. Additionally, we found the existing Lighting Standards to be cumbersome and unclear. Accordingly, we have removed the outdated sub-sections of the Lighting Standards, consolidated requirements in a more logical fashion, and updated references covering solar and LED technology.

The Director of Public Works and the Director of Planning both recommend approval of the draft Streetlighting Policy and the proposed Lighting Standards. We will provide a brief presentation on these documents at the Planning and Public Works Committee meeting, and will be able to answer questions at that time.

Action Recommended

The Planning and Public Works Committee of City Council should consider the recommended changes to the Streetlight Policy and the Municipal Code. If the PPW Committee concurs with Staff's recommendation it should positively recommend the attached Streetlight Policy to the full City Council. Additionally, it should direct that an ordinance be drafted and forwarded to the Planning Commission in order to incorporate the Code changes related to Lighting Standards. Note that all Code changes within the UDC require a Public Hearing prior to formal consideration by City Council.

Please forward to PPW for review and direction.

1 | Page

Michael O. Geisel 2020/5/8

**CITY OF CHESTERFIELD
POLICY STATEMENT**

PUBLIC WORKS		NO.	36
SUBJECT	Streetlighting	INDEX	PW
DATE ISSUED	10/7/1991 (as PH&S #7)	DATE REVISED	TBD

POLICY

Subdivision Streetlights

Streetlights within subdivisions are required as part of development, as detailed in the City of Chesterfield Municipal Code. These streetlights are to be funded and maintained by the subdivision. This includes the lighting of City, County, or State roadways immediately adjacent to the subdivision, when such lighting does not otherwise exist.

Should a resident desire an additional streetlight, the removal of a streetlight, or the modification of a streetlight, the resident must first contact the appropriate subdivision Trustees. If the Trustees support the streetlighting request, they must poll residents within the general area of the request. Streetlighting requests can be forwarded to the City Engineer if there is support of 75% of residents in the general area, and 90% support of residents within 300 feet of the proposed lighting addition, deletion, or modification.

The City Engineer will coordinate review of the streetlighting request, which shall include the Police Department and the Planning Department. If there are no objections to the streetlighting request, the request can be approved by the City Engineer. If the City Staff opposes the lighting request for any reason, the request shall be forwarded to the Planning and Public Works Committee of City Council, who shall make a recommendation to the full City Council, where a final decision shall be made.

When reviewing a streetlighting request, the City will take into consideration all streetlighting within the subdivision. Proposals to add or modify streetlights which would create inconsistent lighting and appearance may not be approved without a plan to address the remaining lights in the future. The City will not approve requests to remove streetlights at intersections or at a cul-de-sac.

Commercial Streetlights

Additions, deletions, or modifications to streetlighting within a commercial development or outside a residential subdivision must be submitted to the Planning Director. Such requests will be reviewed as detailed within City Code.

Sec. 04-03. LIGHTING STANDARDS

A. Purpose.

1. The purpose of this Section is to provide minimum standards for effective, economical, and attractive outdoor lighting. It is the intent of this Section to:
 - a.) Discourage excessive lighting, to minimize glare and light trespass protecting neighbors from the consequences of stray light.
 - b.) Create a safe environment in hours of darkness.
 - c.) Regulate the type of light fixtures, lamps and standards.

B. Applicability.

1. These regulations shall apply to all outdoor lighting including residential, and all jurisdictions, including public, private, and municipal, except as provided elsewhere in this Article.
2. Single-family residential lots shall be exempted from this section of code; however, nothing in this section shall be construed to exempt single-family lots from complying with Chapter 20: Nuisances.
3. All required lighting installations must be regularly maintained (cleaned, repaired, etc.), such that they always provide acceptable luminance levels and glare control.

C. Architectural Specialty Lighting Package Submittals.

1. The purpose of an architectural specialty lighting package is to provide comprehensive, complementary and unified architectural specialty lighting throughout a single development or contiguous lots under common ownership. If an architectural specialty lighting package exists for a multi-lot development or subdivision, then individual lots within that subdivision or development may not submit their own, separate architectural specialty lighting package. In addition, developments of a certain size, quality, or mix of uses may require special architectural specialty lighting consideration. Therefore, in order to encourage superior design, quality and character, comprehensive architectural specialty lighting packages allow for specialized review of architectural specialty lighting and flexibility from standard site lighting requirements. An architectural specialty lighting package is not required for traditional architectural accent lighting applications or for residential applications, as determined by the Director of Planning. Seasonal holiday displays are exempt from the architectural specialty lighting package regulations.

2. Architectural specialty lighting should highlight and accentuate traditional building detailing and architectural features.
3. The color temperature of architectural specialty lighting should underscore the building materials and character.
4. When non-traditional lighting color is requested, changes in color shall be limited to one change within any 24 hour time period. Modifications to this standard shall require a two-thirds vote of the Planning Commission.
5. Precise lighting applications should highlight distinctive architectural features.
6. All proposed light fixtures should be permanently mounted.
7. Architectural specialty lighting should be unobtrusive in intensity and should not turn a building into an attention-getting device or blanket signage.
8. Architectural specialty lighting shall not interfere with or obscure the public's capacity to receive information, or cause visual confusion by interfering with pedestrian or vehicular traffic. Architectural specialty lighting shall conform to the character of the community, enhance the visual harmony of development, and preserve the public health, convenience, welfare and/or safety within the City of Chesterfield by maintaining the high aesthetic quality of the community.
9. When an architectural specialty lighting package is requested for a proposed or existing development, the criteria for site lighting, as provided for in this Article, may no longer be applicable in its entirety or portions thereof. The reason for the requested modification is to provide for flexible architectural accent lighting criteria that promotes superior design, and is tailored to a specific development which may vary from general ordinance provisions.
10. Consideration of flexibility in architectural specialty lighting criteria is based on a number of review factors including, but not limited to, the physical impact of the proposed architectural specialty lighting package, the quality of the proposed architectural specialty lighting package, and mitigation of unfavorable conditions such as excessive lighting, light spillover, height, and other related conditions and potentially negative impacts. However, in no instance shall architectural specialty lighting applications result in light trespass at the property line.
11. When an architectural specialty lighting package is requested for a development, the following shall be submitted to the Department:
 - a.) A narrative detailing the reasoning for the architectural specialty lighting package request and why it will enhance the proposed

development above what would be permitted through the City of Chesterfield UDC. The narrative shall address how the proposed architectural specialty lighting is architecturally integrated with the building style, materials, and color.

- b.) The narrative shall include a description of the location, illumination level, color, dimensions, mounting height, construction material, hours of use, nature (static, shifting, flashing, blinking, animation, graphics, light patterns, etc.), frequency and duration of lighting shifts/changes, brightness, and type of all proposed architectural accent lighting fixtures.
 - c.) Detailed, high-resolution, color elevations drawn to scale of all structures containing proposed architectural specialty lighting fixtures.
 - d.) Night view perspectives or renderings.
 - e.) Photographs of all existing architectural specialty lighting fixtures.
 - f.) Lighting plans indicating the location of all standards and fixtures and the proposed type of illuminating devices, fixtures, lamps, supports, reflectors, and other devices as well as three-dimensional photometric elevations denoting foot-candle levels on all impacted building elevations and adjacent ground areas.
 - g.) A cut sheet will be required for each proposed fixture and associated shielding.
 - h.) Where shielding is not provided in conjunction with the proposed light fixture, information indicating that no light trespass or sky glow will result from the requested fixture is required.
 - i.) Photographs of similar installations or building applications.
 - j.) Photographs of adjacent properties.
 - k.) Other information as required by the City of Chesterfield.
12. Upon review by staff and after receiving recommendation from the ARB, architectural specialty lighting packages shall be submitted to the Planning Commission for review and consideration.
- D. Site Lighting. Site lighting shall be designed to provide the minimum lighting necessary to ensure adequate vision and comfort in parking areas, and to not cause glare or direct illumination onto adjacent properties or streets. The Director of Planning shall approve exterior light fixtures and usage after submittal of items as delineated in sub-section G demonstrate compliance with the standards set forth in this section.

1. All exterior lighting shall be unobtrusive, harmonious with the local area, and constructed or located so that only the intended area is illuminated and off-site glare is fully controlled.
2. Exterior site lighting shall be fully-shielded, cut-off optics, flat-lens enclosed luminaires.
3. The mounting height of all light standards shall not exceed twenty (20) feet.
4. Exterior building lighting shall be architecturally integrated with the building style, material, and color. The color of exterior lamps shall be consistent with that on surrounding buildings.
5. All accent lighting, including Light-Emitting Diodes (LED), and lighting used for signage shall be subject to the approval of the Department.
6. To achieve uniformity of light distribution and reduce light pollution, glare, and spill-over, all outdoor lighting for non-security purposes shall meet the foot-candle standards set forth in Table 2 below:

Table 2: Foot-Candle Standards

Location	Avg. Maintained Foot-candles	Uniformity Ratio (avg: min)
Walkways and bikeways	0.5	5:1
Building entrances and exits	5.0	n/a
Material storage areas:		
Active	8.0	n/a
Inactive	1.0	n/a

7. Parking area lighting shall be designed and installed so as to achieve the illumination levels set forth in Table 3 below. Lighting shall be maintained so as to achieve not less than 80% of the minimum illumination level set forth by the following Table 3.
8. The facades of buildings facing I-64/US 40 should utilize accent lighting, as opposed to flood lighting. All lighting shall be mounted at a maximum height of 30 feet.
9. The Director of Planning may permit lighting arrangements exceeding the maximum initial level set forth in Table 3 below to allow lighting designs which substantially exceed the required minimum and average illumination levels. Any plan exceeding the levels below should be accompanied by a statement from a qualified lighting designer providing industry standards and information substantiating the requests.

Table 3: Illumination standards in foot-candles for structures and their parking areas:

	Residential	Commercial	Other
Minimum initial level at any point on the parking area.	0.07	0.5	0.3
Maximum initial level five (5) feet from the base of a light standard.	3.0	8.0	5.0

* For the purpose of this subsection, "commercial" refers to parking areas for any land use, regardless of zoning designation, in which goods or services are offered to the general public on the premises.

E. **Street Lighting.** Streetlights shall be required in residential and nonresidential subdivisions in accordance with the criteria set forth in this Section of the UDC. This includes public streets, private streets, and roadway easements. The lighting source may be electric, gas, or solar. The Director of Planning shall approve street lighting after submittal of items as delineated in sub-section G demonstrate compliance with the standards set forth in this section.

1. **Streetlighting Plan.** All streetlighting shall be reviewed and approved by the Planning Department, including location, spacing, height, and assembly details. Assembly details shall include illumination levels, lamping, fixtures, enclosure, mast arm, pole, photo cell, and any other devices. The developer shall submit for review and approval such number of copies as requested by the Department of the approved preliminary plat indicating the location of light standards and all assembly details. All light standards shall meet the following requirements:

- a.) Residential light standards shall be not less than sixteen (16) feet above grade. Non-residential light standards shall be not less than twenty two (22) feet above grade.
- b.) Streetlights shall adhere to the Footcandle Standards contained within Table 4.

Table 4: Foot-Candle Standards

Location	Avg. Maintained Foot-candles	Uniformity Ratio (avg: min)
Roadways, local residential	0.4	6:1
Roadways, local, commercial	0.9	6:1
Walkways and bikeways	0.5	5:1

- c.) Lumen output and Illumination level shall adhere to standards contained within ANSI / IENSA RP 8-14 Roadway Lighting.
- d.) Streetlights shall be placed at each street intersection within a subdivision, on street frontage between intersections (in

accordance with Table 5 or 6), at each intersection of a street with a pedestrian way, at each circular turnaround (cul-de-sac), and in compliance with all provisions and regulations contained within this section.

- (1) Exception: In a large-lot subdivision or a subdivision in the NU Non-Urban District utilizing the density development procedure, a streetlight shall be required only at each intersection of a private or public roadway with an existing or proposed public or private street.
- e.) Streetlights shall be placed along any existing adjacent State, County, or City roadway which does not contain sufficient existing lighting, as determined by the Department.
- f.) Lighting shall be designed and maintained to avoid unnecessary illumination of residential interiors. Streetlighting shall be unobtrusive and not create any light nuisance or glare.
- g.) Any gas or electric facilities supplying illumination to streetlights shall be buried a minimum of eighteen (18) inches below grade. All gas or electric piping and wiring to illumination sources shall be contained within the light standards or pole structure.
- h.) Light standards shall generally not be located within three feet of the street pavement. Where sidewalks are required, streetlight standards shall be located equally between the sidewalk and street pavement. Variations to this section may be approved by the City Engineer.
- i.) The developer shall submit to the Department a maintenance agreement, a trust indenture, or other similar instrument setting for the person, corporation, trustees, or other agencies responsible for the assessment necessary for the operation and the maintenance of the lighting system within the subdivision, including any subdivision lights located on adjacent State, County, or City roadways.
- j.) To achieve uniformity, Streetlighting Plans shall utilize the same light fixture, standard, and luminaire throughout the development. Exceptions may be approved by the Director of Planning with justification.
- k.) All lighting shall be installed and maintained in accordance with the approved lighting plan, unless modifications are approved by the Department in accordance with City Policy.
- l.) Light criteria for residential subdivisions shall comply with Table 5.

Table 5: Distance Requirement for Residential Subdivision Light Standards

Type of District/Street	Maximum Distance Permitted between Light Standards
Cul-de-sac and loop streets not in special procedure districts	325 feet
Local streets	325 feet
Collector streets	250 feet
Arterial streets not in special procedure districts	200 feet
Arterial streets in R-1, R-1A, R-2, E ½, E-1, E-2, PEU, or PUD	250 feet
Cul-de-sac and loop streets in "R-1" Residence District	400 feet
Cul-de-sac and loop streets in R-1A, R-2, E-1, E-2, E-3, PEU or PUD	325 feet

- m.) Light criteria for non-residential subdivisions shall comply with Table 6.

Table 6: Distance Requirement for Non-Residential Subdivision Light Standards

Type of District/Street	Maximum Distance Permitted between Light Standards
Cul-de-sac streets, loop streets, local streets	325 feet
Collector streets	250 feet
Arterial roadways not located in "PI", "LI" or "M" District	200 feet
Collector streets in "PI", "LI" and "M" Districts	325 feet
"C-8" and/or "PC" Planned Commercial District	325 feet

F. Use Specific Criteria.

The following uses must adhere to all lighting criteria set forth in this Section of the UDC, in addition to specific requirements as detailed below. These uses include but are not limited to Recreational Facilities, Commercial Holiday Lighting, Outdoor Theatres, Medical Facilities, and Gasoline Stations.

1. Recreational Facilities. Any light source permitted by this UDC may be used for lighting or outdoor recreational facilities (public or private), such as, but not limited to, football fields, soccer fields, baseball fields, softball fields, tennis courts, and horse or show areas, provided all of the following conditions are met:
 - a.) Lighting for parking lots and other areas surrounding the playing field, court, or track shall comply with these lighting standards.
 - b.) All fixtures used for evening lighting shall be fully shielded. To the extent that it is not feasible to use fully-shielded fixtures then

lighting shall be designed and provided with sharp cut-off capability, so as to minimize any light nuisance, spill-light, and glare.

- c.) Illumination of the playing field, court, or track shall not be permitted after 10:30 p.m., except to conclude a scheduled event that was already in progress.

2. Holiday Lighting. Residential and commercial holiday lighting is permissible from November 15 to January 25.

- a.) Commercial holiday flashing lights are prohibited.
- b.) Commercial holiday lights are encouraged to be turned off after the close of business.

3. Outdoor Theatres.

- a.) Lighting will be installed in such a manner that it will not create a driving hazard on abutting streets and it will not cause direct illumination, nuisance, or glare on abutting property.
- b.) All lamp source types shall meet the guidelines of the IESNA or the National Building Code requirements.
- c.) A lighting plan shall be submitted for review before the City of Chesterfield Planning Commission and adhere to all the requirements set forth in Section 04-03.H. of this Article.
- d.) Marquee lighting shall not spill over into adjacent or surrounding property.
- e.) A marquee structure may be permitted which may have signage thereon. Such marquee may project over a private sidewalk or drive-way but not over a public right-of-way. Such marquee structures shall be permanently attached to the principal building, and be located no closer than five (5) feet from the edge of curve or edge of pavement.
- f.) Lighting standards must adhere to the illuminances levels set forth by the IESNA as described in Table 7 below.

Table 7. Recommended Illuminances and Theatre Advertising Sign Luminances in Various Locations.

Type of Area in Which Theatre is Located	Range of Ambient Horizontal Illuminances, lx (fc)	Recommended Sign Luminance, cd/m ²
City Center	50-100 (5-10)	500-1200
Shopping Mall	20-70 (2-7)	400-700
Residential	10-50 (2-5)	300-500
Under Marquee	200-500 (20-50)	2000-5000

4. Lighting of Gasoline Station Aprons and Canopies.

- a.) Lighting levels on gasoline station aprons and under canopies shall be adequate to facilitate the activities taking place in such locations as well as to provide a safe, secure environment.
- b.) All lighting illumination levels and fixtures shall comply with the provisions of the City of Chesterfield Lighting Standards.
- c.) All lamp source types and illuminance levels shall meet the guidelines of the IESNA.
- d.) Areas on the apron away from the gasoline pump islands used for parking or vehicle storage shall be illuminated in accordance with the requirements for parking areas set forth in Section 04-03.D. of this Article. If no gasoline pumps are provided, the entire apron shall be treated as a parking area.
- e.) Areas around the pump islands and under canopies shall be illuminated so that the minimum horizontal illuminance at grade level is no more than 5.5 foot-candles. The ratio of average to minimum illuminance shall be no greater than 4:1. This yields an average illumination level of no more than 22.0 foot-candles.
- f.) Light fixtures mounted on canopies shall be recessed so that the lens cover is recessed or flush with the bottom surface of the canopy and/or shielded by the fixture or the edge of the canopy so that light is restrained to no more than 85 degrees beyond the vertical plane.

G. Submittal Requirements.

Submission Contents. The Applicant for any site development plan, site development concept plan and site development section plan shall also submit a lighting plan that shall comply with this UDC. Lighting plans are approved by the City of Chesterfield. The following information shall be included in the plan:

- 1. A diagram indicating the location of all standards and fixtures and the proposed type of illuminating devices, fixtures, lamps, supports, reflectors,

and other devices as well as a photometric plan denoting foot-candle levels;

2. A description of the illuminating devices, fixtures, lamps, color of lights, supports, reflectors, and other devices;
3. A cut sheet will be required delineating all light standards and fixtures.

H. Prohibitions.

1. The operation of searchlights for advertising purposes is prohibited.
2. The use of laser source light or any similar high intensity light for outdoor advertising, when projected above the horizontal, is prohibited.
3. With the following exceptions, all lamp source types are acceptable provided they are installed in equipment which meets the Illuminating Engineers Society's requirements:
 - a.) The use of mercury vapor lamps and low pressure sodium lamps is discouraged.
 - b.) Fluorescent lamps with a color rendering index greater than 70 and color temperatures between 3000°K and 4100°K are required.
4. Neon.
 - a.) Neon Prohibited. The use of visible neon tubing as a sign or for architectural element, whether located on the exterior or interior of a wall or window, if visible from the street is prohibited.
 - b.) Request for Exception: Requests for the allowance of neon as an architectural feature shall be made to the Planning Commission as an Architectural Specialty Lighting Package in accordance with subsection C.

I. Times of Operation.

1. Exterior lighting for security purposes may be on from dusk to dawn.
2. Non-security lighting, other than that used for special and infrequent occasions, shall not be on past approved hours of operation, if any, or 11:00 p.m., whichever is later.

J. Airport Lighting.

1. Airport lighting which is required for the safe and efficient movement of aircraft during flight, take off, landing, loading, unloading, servicing areas and taxiing is exempt from the provisions of this UDC. All other outdoor lighting at airports shall comply with this UDC.

2. Strobe lights on communication towers and other hazards to aerial navigation, required by the Federal Aviation Administration (FAA) during the daytime and permitted but not required at night, may not be used at night. Other lights used at night on such structures shall not be brighter than the minimum required by the FAA.

K. Exemptions.

1. "Grandfathered" Existing Fixtures. All other outdoor light fixtures lawfully installed prior to and operable on the effective date of this UDC are exempt from all requirements of it unless:
 - a.) It involves removing or replacing existing light fixtures with light fixtures that will increase the foot-candle level above the originally approved level or changes the shielding of the fixture from what was originally approved; or
 - b.) Fossil fuel light is used.
2. Fixture Design Exemptions. The Planning Commission may approve decorative light fixtures as an alternative to shielded fixtures when it can be proven that there will be no off-site glare light trespass in excess of .5 foot-candle and the proposed fixtures will improve the appearance of the site.
 - a.) Lamp or Fixture Substitution. Should any outdoor light fixture, or the type of light source be subject to a lighting plan required by this UDC, be changed after zoning authorization or the issuance of a permit, a change request must be submitted to the City of Chesterfield for approval, together with adequate information to assure compliance with this UDC. Such submittals and approval must be received prior to substitution.
3. Temporary Exemptions. Lighting that is required for a lawful use, where compliance with this UDC would substantially impair its use, shall be considered for a temporary exemption by the Planning Commission.
 - a.) Any person may submit a written request to the Director of Planning for consideration of a temporary exemption. Temporary exemption requests shall contain:
 - (1) Specific exemption or exemptions requested.
 - (2) Type and use of outdoor light fixture involved.
 - (3) Duration of time for the requested exemption.
 - (4) Type of lamp and calculated lumens.
 - (5) Total wattage of lamp or lamps.

- (6) Proposed location on premises of the outdoor light fixtures.
- (7) Previous temporary exemption, if any.
- (8) Physical size of outdoor light fixtures and type of shielding provided.
- (9) Such other data and information as may be required by the Director of Planning.

b.) Approval Duration. If approved, temporary exemptions shall not be valid for longer than 30 days from the date of issuance. Approvals may be renewable upon the discretion of the Director of Planning and each such renewal shall not be valid for more than 30 days.

L. Appeal.

Decisions of the Director of Planning regarding the application of this Section of the UDC may be appealed to the Board of Adjustment in accordance with applicable procedures as established by the Board of Adjustment.

M. Penalty for Violation.

This Section of the UDC and the requirements thereof are exempt from the warning and summons for violation set out in Article 08 of the UDC.

Exempt

**CITY OF CHESTERFIELD
POLICY STATEMENT**

PUBLIC WORKS		NO.	36
SUBJECT	Streetlight Installation	INDEX	PW
DATE ISSUED	10/7/1991 (as PH&S #7)	DATE REVISED	5/01/2017

POLICY

Streetlights are required as part of development, as detailed in the City of Chesterfield Municipal Code. These streetlights are to be funded and maintained by the Subdivision. The City of Chesterfield will not construct, fund, or maintain streetlights unless those streetlights are specifically approved by City Council.

The City Council will consider requests for streetlights only at intersections involving a City roadway with a State roadway, a County roadway, or a City Collector or Arterial roadway. All requests shall be submitted in writing to the City Engineer, and shall include the reasoning for the request.

In considering a request for street lighting, one or more of the following criteria must be met:

1. The presence of a marked pedestrian crosswalk.
2. Close proximity to a public or private school.
3. Adjacent to large population concentrations (i.e. apartment complex, subdivision clubhouse facility, recreational facility, etc.)
4. Any quantitatively identifiable high accident location where lack of lighting has been determined to be a causative factor or contributing circumstance.
5. Any intersection not currently illuminated by a light system, the lack of which, in the opinion of the City Engineer, poses a hazard to pedestrian or vehicular traffic.

Nothing in this Policy shall be construed as preventing the City Council from approving the installation of streetlights which, in its determination, benefit the City of Chesterfield. This includes lighting along or within City property, trails, and beautification areas.

RECOMMENDED BY:

[Signature] 3/15/2017 PPW Committee 3/23/2017
Department Head / Council Committee (if applicable) / Date

APPROVED BY:

City Administrator

Date

[Signature]
City Council (if applicable)

5/4/2017
Date

Existing

City of Chesterfield, MO
Thursday, August 15, 2019

Chapter 31. Unified Development Code

Article 04. Development Requirements and Design Standards

Sec. 31-04-03. Lighting standards.

[Ord. No. 2801, § 3 (Exh. A), 6-16-2014]

A. Purpose.

1. The purpose of this Section is to provide minimum standards for effective, economical, and attractive outdoor lighting. It is the intent of this Section to:
 - (a) Discourage excessive lighting, to minimize glare and light trespass protecting neighbors from the consequences of stray light.
 - (b) Create a safe environment in hours of darkness.
 - (c) Regulate the type of light fixtures, lamps and standards.
2. The requirements of this Section shall apply to all uses, including residential, and all jurisdictions, including public, private, and municipal, except as provided elsewhere in this Article.

B. Applicability.

1. These regulations shall apply to all outdoor lighting, including, but not limited to, lighting for:
 - (a) Buildings and structures.
 - (b) Recreation areas.
 - (c) Parking lot lighting.
 - (d) Landscape lighting.
 - (e) Other outdoor lighting.
2. All required lighting installations must be regularly maintained (cleaned, repaired, etc.), such that they always provide acceptable luminance levels and glare control.

C. Architectural Specialty Lighting Package Submittals.

[Ord. No. 3001, 5-7-2018^[1]]

1. The purpose of an architectural specialty lighting package is to provide comprehensive, complementary and unified architectural specialty lighting throughout a single development or contiguous lots under common ownership. If an architectural specialty lighting package exists for a multi-lot development or subdivision, then individual lots within that subdivision or development may not submit their own, separate architectural specialty lighting package. In addition, developments of a certain size, quality, or mix of uses may require special architectural specialty lighting consideration. Therefore, in order to encourage superior design, quality and character, comprehensive architectural specialty lighting packages allow for specialized review of architectural specialty lighting and flexibility from standard site lighting requirements. An architectural specialty lighting package is not required for traditional architectural accent lighting applications or for residential applications, as determined by the Director of Planning and Development Services, either City Councilmember of the ward where the application is proposed, the Mayor, or any two (2) City Councilmembers from any ward. Seasonal holiday displays are exempt from the architectural specialty lighting package regulations.
2. Architectural specialty lighting should highlight and accentuate traditional building detailing and architectural features.
3. The color temperature of architectural specialty lighting should underscore the building materials and character.
4. When non-traditional lighting color is requested, changes in color shall be limited to one (1) change within any twenty-four (24) hour time period. Modifications to this standard shall require a two-thirds (2/3) vote of the Planning Commission.
5. Precise lighting applications should highlight distinctive architectural features.
6. All proposed light fixtures should be permanently mounted.
7. Architectural specialty lighting should be unobtrusive in intensity and should not turn a building into an attention-getting device or blanket signage.
8. Architectural specialty lighting shall not interfere with or obscure the public's capacity to receive information, or cause visual confusion by interfering with pedestrian or vehicular traffic. Architectural specialty lighting shall conform to the character of the community, enhance the visual harmony of development, and preserve the public health, convenience, welfare and/or safety within the City of Chesterfield by maintaining the high aesthetic quality of the community.
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10. Consideration of flexibility in architectural specialty lighting criteria is based on a number of review factors, including, but not limited to, the physical impact of the proposed architectural specialty lighting package, the quality of the proposed

architectural specialty lighting package, and mitigation of unfavorable conditions such as excessive lighting, light spillover, height, and other related conditions and potentially negative impacts. However, in no instance shall architectural specialty lighting applications result in light trespass at the property line.

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 - (c) Detailed, high-resolution, color elevations drawn to scale of all structures containing proposed architectural specialty lighting fixtures.
 - (d) Night view perspectives or renderings.
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 - (f) Lighting plans indicating the location of all standards and fixtures and the proposed type of illuminating devices, fixtures, lamps, supports, reflectors, and other devices as well as three-dimensional photometric elevations denoting foot-candle levels on all impacted building elevations and adjacent ground areas.
 - (g) A cut sheet will be required for each proposed fixture and associated shielding.
 - (h) Where shielding is not provided in conjunction with the proposed light fixture, information indicating that no light trespass or sky glow will result from the requested fixture is required.
 - (i) Photographs of similar installations or building applications.
 - (j) Photographs of adjacent properties.
 - (k) Other information as required by the City of Chesterfield.
12. Upon review by staff and after receiving recommendation from the ARB, architectural specialty lighting packages shall be submitted to the Planning Commission for review and consideration.

[1] *Editor's Note: At the City's direction this was added as a new Subsection (C) and the remaining Subsections were renumbered accordingly.*

D. Light fixtures and usage.

1. All outdoor light fixtures and lamp types installed and hereafter maintained shall use only shielded and/or enclosed light fixtures as specified in Table 1 below.

Table 1
Shielding and Enclosure Requirements

Fixture Lamp Type	Shielding	Enclosure
Mercury vapor ¹	Fully shielded	None
Low pressure sodium ²	Fully shielded	None
High pressure sodium	Fully shielded	None
Metal halide ³	Fully shielded	Yes
Fluorescent ⁴	Fully shielded	Yes
Quartz ⁵	Fully shielded	None
Incandescent greater than 160 watt	Fully shielded	None
Incandescent 150 watt or less	Partial shielding	None
Glass tube filled with argon, krypton	None	None

NOTES:

1. Clear mercury lamps for general illumination are discouraged. Only mercury vapor lamps that are environmentally safe, as defined (by the manufacturer) by their ability to be recycled and self-extinguish, are permitted.
 2. Except where color rendition is critical, this lamp type may be a permissible light source to minimize undesirable emission into the night sky due to its monochromatic spectral distribution.
 3. Metal halide lamps shall be installed only in enclosed luminaires.
 4. Warm white and natural lamps are required to minimize detrimental effects.
 5. For the purposes of this UDC, quartz lamps shall not be considered an incandescent light source.
2. Exterior lighting shall be fully shielded flat-lens enclosed luminaires with the following exceptions:
 - (a) For streetlight standards, see Section 31-04-03(E), Streetlighting.
 - (b) Dusk-to-dawn post-top luminaires for residential subdivisions, only provided by Ameren Missouri, are permitted.
 3. Building-mounted lighting, including both utilitarian and decorative applications, shall be limited to fully shielded, cut-off optics, flat-lens luminaires.
 4. The height of all light standards shall be reviewed by the Department.
 5. Exterior building lighting shall be architecturally integrated with the building style, material, and color. The color of exterior lamps shall be consistent with that on surrounding buildings.
 6. All accent lighting, including light emitting diodes (LED), and lighting used for signage shall be subject to the approval of the Department.

7. To achieve uniformity of light distribution and reduce light pollution, glare, and spillover, all outdoor lighting for nonsecurity purposes shall meet the footcandle standards set forth in Table 2 below:

**Table 2
Footcandle Standards**

Location	Average Maintained Footcandles	Uniformity Ratio (avg: min)
Roadways, local residential	0.4	6:1
Roadways, local commercial	0.9	6:1
Walkways and bikeways	0.5	5:1
Building entrances and exits	5.0	n/a
Material storage areas:		
Active	8.0	n/a
Inactive	1.0	n/a

- E. Parking area lighting plan. Parking lot lighting shall be designed to provide the minimum lighting necessary to ensure adequate vision and comfort in parking areas, and to not cause glare or direct illumination onto adjacent properties or streets.
 1. Parking area lighting shall be designed and installed so as to achieve the illumination levels set forth in Table 3 below. Lighting shall be maintained so as to achieve not less than eighty percent (80%) of the minimum illumination level set forth by the following Table 3.
 2. The Planning and Development Services Director may permit lighting arrangements exceeding the maximum initial level set forth in Table 3 below to allow lighting designs which substantially exceed the required minimum and average illumination levels.
 3. The source of illumination shall not be lower than ten (10) feet above grade except as approved by the Planning Commission.
 4. Parking lot lighting shall be fully shielded flat-lens enclosed luminaires.
 5. Mounting heights of lighting fixtures shall not exceed twenty (20) feet.

**Table 3
Illumination Standards in Footcandles for Structures and
Their Parking Areas**

	Residential	Commercial	Other
Minimum initial level at any point on the parking area	0.07	0.5	0.3
Maximum initial level 5 feet from the base of a light standard	3.0	8.0	5.0

NOTE:

NOTE:

For the purpose of this Subsection, "commercial" refers to parking areas for any land use, regardless of zoning designation, in which goods or services are offered to the general public on the premises.

F. **Streetlighting.** Streetlights shall be required in residential and nonresidential subdivisions in accordance with the criteria set forth in this Section of the UDC along public or private streets or roadway easements which provide access to or through any lot or driveway connecting the subdivision to a public street.

1. *Streetlighting plan submission and review for Preliminary plats.* The developer shall submit for review and approval such number of copies as requested by the Department of the approved preliminary plat indicating the location of light standards in compliance with the following:

(a) Illumination standards for streetlighting for residential developments shall comply with Table 4A:

Table 4A
Illumination Standards for Residential

Height	Not less than 16 feet above grade
Lumen output	Minimum 6,800 output
Illumination level	Not greater than 5 feet from the base of the light source shall be no greater than 3.0 footcandles.

(b) Illumination standards for streetlighting for nonresidential developments shall comply with Table 4B:

Table 4B
Illumination Standards for Nonresidential

Height	Not less than 22 feet above grade
Lumen output	Minimum 25,500 output
Illumination level	As recommended by the IESNA

(c) In a nonresidential subdivision, single-family residential subdivision or multiple-family subdivision, streetlights shall be provided at each intersection of a street within the subdivision, on street frontage between intersections, at each intersection of a street with a pedestrianway, at each circular turnaround, and within parking lot areas to comply with the provisions and regulations described herein. In a large-lot subdivision or a subdivision in the NU Non-Urban District utilizing the density development procedure, a streetlight shall be required only at each intersection of a private roadway easement with an existing or proposed public street. A streetlight shall also be provided at each intersection of a street within a subdivision in the NU Non-Urban District utilizing the density development procedure.

(d) Light criteria for residential subdivisions shall comply with Table 5.

Table 5
Distance Requirement for Residential Subdivision Light Standards

Type of District/Street	Maximum Distance Permitted Between Light Standards (feet)
Cul-de-sac and loop streets not in special procedure districts	325
Local streets	325
Collector streets	250
Arterial streets not in special procedure districts	200
Arterial streets in R-1, R-1A, R-2, E-1, E-2, E-3, PEU, or PUD District	250
Cul-de-sac and loop streets in R-1 Residence District	400
Cul-de-sac and loop streets in R-1A, R-2, E-1, E-2, E-3, PEU or PUD District	325

(e) Light criteria for nonresidential subdivisions shall comply with Table 6.

Table 6
Distance Requirement for Nonresidential Subdivision Light Standards

Type of District/Street	Maximum Distance Permitted Between Light Standards (feet)
Cul-de-sac streets, loop streets, local streets	325
Collector streets	250
Arterial roadways not located in PI, LI or M District	200
Collector streets in PI, LI and M Districts	325
C-8 and/or PC Planned Commercial District	325

2. Alternate streetlighting for nonresidential subdivisions to accomplish the above standard may be considered as provided in Section 31-04-08 of this Article.

(a) Lighting shall be designed and maintained to avoid unnecessary illumination of residential interiors.

(b) Energy source. All energy sources supplying illumination shall be buried a minimum of eighteen (18) inches below grade. All piping and wiring to illumination sources shall be contained within the light standards or pole structure.

(c)

All electric lighting shall be controlled automatically by programmed time devices, photo electric cells, or the like. Street and residential lighting shall be on from dusk to dawn.

- (d) Location. Light standards shall not be located within three (3) feet of the street pavement. Where sidewalks are required, streetlight standards shall be located between the sidewalk and street pavement. Variation to this Section may be approved by the Planning and Development Services Director.
 - (e) Maintenance and operation. The developer shall submit to the Department a maintenance agreement, a trust indenture, or other similar instrument setting forth the person, corporation, trustees, or other agency responsible for the assessment as well as the collection of the monies necessary for the operation of the lighting system within the subdivision.
 - (f) Installation. All lighting shall be installed and maintained in accordance with the approved lighting plan.
 - (g) Fixtures. Streetlighting fixtures for new developments shall be approved by the City of Chesterfield Planning Commission.
 - (1) To achieve uniformity, existing developments shall utilize the same light fixture, standard, and luminaire throughout the entire development.
 - (2) Existing commercial developments shall utilize the same fixture, standard and luminaire throughout the entire development, unless otherwise approved by the Department.
3. *Review.* Streetlighting plans are reviewed by the City of Chesterfield Planning Commission if there is a change in light fixture, standards, or luminaire.
- G. Use specific criteria. The following uses must adhere to all lighting criteria set forth in this Section of the UDC, in addition to specific requirements as detailed below. These uses include, but are not limited to, recreational facilities, commercial holiday lighting, outdoor theaters, medical facilities, and gasoline stations.
- 1. *Recreational facilities.* Any light source permitted by this UDC may be used for lighting of outdoor recreational facilities (public or private), such as, but not limited to, football fields, soccer fields, baseball fields, softball fields, tennis courts, and horse or show areas, provided that all of the following conditions are met:
 - (a) Lighting for parking lots and other areas surrounding the playing field, court, or track shall comply with these lighting standards.
 - (b) All fixtures used for evening lighting shall be fully shielded. To the extent that it is not feasible to use fully shielded fixtures, then lighting shall be designed and provided with sharp cut-off capability so as to minimize any light nuisance, spill light, and glare.
 - (c) Illumination of the playing field, court, or track shall not be permitted after 10:30 P.M., except to conclude a scheduled event that was already in progress.
 - 2. *Holiday lighting.* Residential and commercial holiday lighting is permissible from November 15 to January 25.

- (a) Commercial holiday flashing lights are prohibited.
 - (b) Commercial holiday lights are encouraged to be turned off after the close of business.
3. *Outdoor theaters.*
- (a) Lighting will be installed in such a manner that it will not create a driving hazard on abutting streets and it will not cause direct illumination, nuisance, or glare on abutting property.
 - (b) All lamp source types shall meet the guidelines of the IESNA or the National Building Code requirements.
 - (c) A lighting plan shall be submitted for review before the City of Chesterfield Planning Commission and adhere to all the requirements set forth in Section 31-04-03(H) of this Article.
 - (d) Marquee lighting shall not spill over into adjacent or surrounding property.
 - (e) A marquee structure may be permitted which may have signage thereon. Such marquee may project over a private sidewalk or driveway but not over a public right-of-way. Such marquee structures shall be permanently attached to the principal building, and be located no closer than five (5) feet from the edge of curve or edge of pavement.
 - (f) Lighting standards must adhere to the illuminances levels set forth by the IESNA as described in Table 7 below.

Table 7
Recommended Illuminances and Theater Advertising Sign Luminances
in Various Locations

Type of Area in Which Theater is Located	Range of Ambient Horizontal Illuminances [lx (fc)]	Recommended Sign Luminance (cd/m ²)
City center	50-100 (5-10)	500-1,200
Shopping mall	20-70 (2-7)	400-700
Residential	10-50 (2-5)	300-500
Under marquee	200-500 (20-50)	2,000-5,000

4. *Medical facilities.*
- (a) All exterior lighting shall be unobtrusive, harmonious with the local area, and constructed or located so that only the intended area is illuminated and off-site glare is fully controlled.
 - (b) Parking lot lighting for medical facilities shall conform to the standards set forth in Section 31-04-03(D) of this Article.
 - (c) The minimum luminance level recommended by the IESNA for hospital parking lot lighting is six-tenths (0.6) footcandle.

- (d) A lighting plan shall be submitted for review before the City of Chesterfield Planning Commission and adhere to all the requirements set forth in Section 31-04-03(H) of this Article.
 - (e) The height of all light standards shall be submitted for review before the City of Chesterfield Planning Commission.
5. Lighting of gasoline station aprons and canopies.
- (a) Lighting levels on gasoline station aprons and under canopies shall be adequate to facilitate the activities taking place in such locations as well as to provide a safe, secure environment.
 - (b) All lighting illumination levels and fixtures shall comply with the provisions of the City of Chesterfield Lighting Standards.
 - (c) All lamp source types and illuminance levels shall meet the guidelines of the IESNA.
 - (d) Areas on the apron away from the gasoline pump islands used for parking or vehicle storage shall be illuminated in accordance with the requirements for parking areas set forth in Section 31-04-03(D) of this Article. If no gasoline pumps are provided, the entire apron shall be treated as a parking area.
 - (e) Areas around the pump islands and under canopies shall be illuminated so that the minimum horizontal illuminance at grade level is no more than five and five-tenths (5.5) footcandles. The ratio of average to minimum illuminance shall be no greater than four to one (4:1). This yields an average illumination level of no more than twenty-two and zero tenths (22.0) footcandles.
 - (f) Light fixtures mounted on canopies shall be recessed so that the lens cover is recessed or flush with the bottom surface of the canopy and/or shielded by the fixture or the edge of the canopy so that light is restrained to no more than eighty-five degrees (85°) beyond the vertical plane.
- H. Planned districts and special procedure specific criteria.
- 1. All exterior lighting shall be unobtrusive, harmonious with the local area, and constructed or located so that only the intended area is illuminated and off-site glare is fully controlled.
 - 2. Parking lot lighting shall adhere to the conditions set forth in Section 31-04-03(D) of this Article.
 - 3. Advertising signs must adhere to the conditions set forth in Section 31-04-05 of this Article.
 - 4. Building-mounted lighting, including both utilitarian and decorative applications, shall be limited to fully shielded, cut-off optics, flat-lens luminaires.
 - 5. The height of all light standards shall be reviewed by the City of Chesterfield.
 - 6. Exterior building lighting shall be architecturally integrated with the building style, material, and colors, and the color of exterior lamping shall be consistent with the surrounding buildings.

7. A lighting plan shall be submitted for review before the City of Chesterfield Planning Commission and adhere to all the requirements set forth in Section 31-04-03(H) of this Article.
 8. The facades of buildings facing I-64/US 40 should utilize accent lighting, as opposed to floodlighting. All lighting should consist of metal halide with flat lenses and mounted at a maximum height of thirty (30) feet.
 9. All streetlighting located in the Urban Core of the City of Chesterfield, specifically along Chesterfield Parkway, shall be reviewed and approved by the Department.
 10. Streetlighting shall be unobtrusive and not create any light nuisance or glare.
 11. The streetlighting assembly, including, but not limited to, illumination levels, lamping, fixtures, enclosure, mast arm, pole, photo cell, and any other device shall be subject to the review and approval of the Department.
 12. The location, spacing, and height of streetlighting shall be as directed by the Department.
- I. Submittal requirements; submission contents. The applicant for any site development plan, site development concept plan and site development section plan shall also submit a lighting plan that shall comply with this UDC. Lighting plans are approved by the City of Chesterfield. The following information shall be included in the plan:
1. A diagram indicating the location of all standards and fixtures and the proposed type of illuminating devices, fixtures, lamps, supports, reflectors, and other devices as well as a photometric plan denoting footcandle levels.
 2. A description of the illuminating devices, fixtures, lamps, color of lights, supports, reflectors, and other devices.
 3. A cut sheet will be required delineating all light standards and fixtures.
- J. Prohibitions.
1. The operation of searchlights for advertising purposes is prohibited.
 2. The use of laser source light or any similar high-intensity light for outdoor advertising, when projected above the horizontal, is prohibited.
 3. With the following exceptions, all lamp source types are acceptable, provided that they are installed in equipment which meets the Illuminating Engineers Society's requirements:
 - (a) The use of mercury vapor lamps and low-pressure sodium lamps is discouraged.
 - (b) Fluorescent lamps with a color rendering index greater than seventy (70) and color temperatures between 3000°K and 4100°K are required.
 4. *Neon.*
 - (a)

Neon prohibited. The use of visible neon tubing as a sign or for architectural element, whether located on the exterior or interior of a wall or window, if visible from the street is prohibited.

- (b) Request for exception. Requests for the allowance of neon as an architectural feature shall be made to the Planning Commission, which shall review the same in accordance with the following criteria:
 - (1) A written statement from an architect explaining the intended use of the neon lighting and its relationship to the project and surrounding environment shall be submitted to the Planning Commission demonstrating that the neon will encourage, promote, or reward good architecture and/or urban planning.
 - (2) The light plan, including neon, shall be submitted for review to the Department and shall adhere to all conditions set forth in this Section of the UDC.
 - (3) In reviewing a request for such an exception, the Planning Commission shall consider safety, design and other factors deemed appropriate and shall verbally make a record relative to their specific determination.
- (c) Additionally, refer to the sign requirements in Section 31-04-05 of this Article.

K. Times of operation.

- 1. Exterior lighting for security purposes may be on from dusk to dawn.
- 2. Nonsecurity lighting, other than that used for special and infrequent occasions, shall not be on past approved hours of operation, if any, or 11:00 P.M., whichever is later.

L. Airport lighting.

- 1. Airport lighting which is required for the safe and efficient movement of aircraft during flight, take off, landing, loading, unloading, servicing areas and taxiing is exempt from the provisions of this UDC. All other outdoor lighting at airports shall comply with this UDC.
- 2. Strobe lights on communication towers and other hazards to aerial navigation, required by the Federal Aviation Administration (FAA) during the daytime and permitted but not required at night, may not be used at night. Other lights used at night on such structures shall not be brighter than the minimum required by the FAA.

M. Exemptions.

- 1. *Grandfathered existing fixtures.* All other outdoor light fixtures lawfully installed prior to and operable on the effective date of this UDC are exempt from all requirements of it unless:
 - (a) It involves removing or replacing existing light fixtures with light fixtures that will increase the footcandle level above the originally approved level or changes the shielding of the fixture from what was originally approved; or

- (b) Fossil fuel light is used.
- 2. *Fixture design exemptions.* The Planning Commission may approve decorative light fixtures as an alternative to shielded fixtures when it can be proven that there will be no off-site glare light trespass in excess of five-tenths (0.5) footcandle and the proposed fixtures will improve the appearance of the site.
 - (a) Lamp or fixture substitution. Should any outdoor light fixture, or the type of light source subject to a lighting plan required by this UDC, be changed after zoning authorization or the issuance of a permit, a change request must be submitted to the City of Chesterfield for approval, together with adequate information to assure compliance with this UDC. Such submittals and approval must be received prior to substitution.
- 3. *Temporary exemptions.* Lighting that is required for a lawful use, where compliance with this UDC would substantially impair its use, shall be considered for a temporary exemption by the Planning Commission.
 - (a) Any person may submit a written request to the Planning and Development Services Director for consideration of a temporary exemption. Temporary exemption requests shall contain:
 - (1) Specific exemption or exemptions requested.
 - (2) Type and use of outdoor light fixture involved.
 - (3) Duration of time for the requested exemption.
 - (4) Type of lamp and calculated lumens.
 - (5) Total wattage of lamp or lamps.
 - (6) Proposed location on premises of the outdoor light fixtures.
 - (7) Previous temporary exemption, if any.
 - (8) Physical size of outdoor light fixtures and type of shielding provided.
 - (9) Such other data and information as may be required by the Planning and Development Services Director.
 - (b) Approval duration. If approved, temporary exemptions shall not be valid for longer than thirty (30) days from the date of issuance. Approvals may be renewable upon the discretion of the Planning and Development Services Director, and each such renewal shall not be valid for more than thirty (30) days.
- N. Appeal. Decisions of the Planning and Development Services Director regarding the application of this Section of the UDC may be appealed to the Board of Adjustment in accordance with applicable procedures as established by the Board of Adjustment.
- O. Penalty for violation. This Section of the UDC and the requirements thereof are exempt from the warning and summons for violation set out in Article 08 of the UDC.