



**ABOVE AND BEYOND. BY DESIGN.**

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# **Small Cell Aesthetic Standards**

## **City of Overland Park, Kansas**

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**Originally Published March 26, 2019**  
**Revised January 21, 2020**

\*These Aesthetic Standards have been incorporated into the Manual of Infrastructure Standards and can be found under the heading of Small Cell Aesthetic Standards.

## Small Cell Aesthetic Standards<sup>1</sup>

The following Small Cell Aesthetic Standards (the “Aesthetic Standards”) reflect the desire of the City of Overland Park (“City”) to maintain the aesthetics within the city, while allowing for an increase in the availability and quality of wireless services.

These Aesthetic Standards apply to all small cell antenna applications for placement of new small cell antennas on city-owned and non-city-owned poles in the public right-of-way, whether collocated streetlight poles, monopoles or utility poles. Applications that do not conform to these Aesthetic Standards will be denied by the City.

For small cell antenna structures installed on any pole within the public right-of-way, the intent of these Aesthetic Standards is:

1. To establish a clear, defined aesthetic standard for use throughout the City.
2. To minimize unnecessary quantities of new poles by encouraging collocation of small cell facilities.
3. To require, in situations where new poles will be placed, that equipment be placed on new, pre-designed and approved poles such that as much equipment as reasonably possible, including any wiring, can be concealed inside the pole.
4. To require, in situations where attachments will be made to existing poles, that equipment, cabling, and conduit be concealed internally or through the use of approved shrouding or camouflaging equipment.
5. To require that all electrical or control cabinets be located in a manner as to not detract from the aesthetic appeal of adjacent houses, buildings, etc. or to be located as to cause an obstruction to visibility, and be landscaped to provide necessary screening in accordance with the [Unified Development Ordinance](#).

### Section 1. Application Requirements

The City may develop new or additional permit application forms, checklists, updated or amended Aesthetic Standards, and other related materials as required to optimally meet the goals of the City, its citizens, and its leadership.

- 1.1 **Site Plans and Structural Calculations:** The applicant must submit fully-dimensioned site plans, elevation drawings and structural calculations prepared, sealed, stamped and signed by a Professional Engineer licensed and registered by the State of Kansas. Drawings must depict improvements and the proposed facility, with all proposed

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<sup>1</sup> Intended to include DAS antennas and other similar wireless communications facilities.

transmission equipment, power source, electrical service pedestal and other associated access or utility easements and setbacks.

All equipment depicted on the plans shall include:

1. Manufacturer's name and model number
2. Physical dimensions including, without limitation, height, width, depth, volume and weight with mounts and other necessary hardware, and effective projected area (EPA)
3. Technical rendering of all external components, including enclosures and all attachment hardware, including a depiction of how much external wiring will exist.

## Section 2. General Design and Construction Standards

The City desires to promote safe, cleanly organized and aesthetically acceptable facilities using the smallest and least obtrusive means available to provide wireless services to the community. All wireless facilities in the public right-of-way must comply with all applicable provisions in these Aesthetic Standards. If any other law, regulation or code requires any more restrictive structural design and/or construction requirements, the most restrictive requirement will control.

**Document Superscript Key:** The following superscript key shall be used to indicate which various type(s) of small cell installations are governed by the specific design and construction standard listed below:

**C** - applies to equipment collocated on City streetlight poles

**M** - applies to monopoles

**U** - applies to wood or steel utility poles

### 2.1. **RF Cutoff Switch**<sup>C,M,U</sup>

All facilities shall be designed, constructed, operated and maintained in compliance with all generally applicable health and safety standards, regulations, and laws, including without limitation all applicable federal regulations for human exposure to RF emissions. The small cell provider shall provide an RF cutoff switch a maximum of 10' from the finished ground surface at the pole location that is easily reached by maintenance personnel. An RF warning sign shall also be placed on the pole below the cutoff switch.

### 2.2. **Small Cell Antenna**<sup>C,M,U</sup>

The small cell antenna shall either be mounted internal to the pole, or top-mounted and concealed within a radome that also conceals the cable connections, antenna mount and other hardware. Any radome, shield or shroud shall meet the following requirements for concealing exposed cable and finish.

2.2.1. Antenna Shroud Requirements:

A screening shroud shall be provided on the underside of the small cell antenna, mounted external to the pole, to conceal cable connections from public view. The shroud shall be firmly attached and sealed to prevent birds from entering and nesting.

2.2.2. Finish Requirements:

The equipment shroud must be non-reflective and painted or color impregnated to match the color of the existing pole as close as possible.

2.3. **Electrical Meter and Cabinet Requirements**<sup>C,M</sup>

The electrical meter shall not be installed on the pole. Any necessary meter or other accessory cabinet shall be installed on the outside edges of the street, behind the sidewalk, bicycle or multi-use trail, and said cabinet shall meet all location and landscaping requirements of the City's [Unified Development Ordinance](#). (Requires screening for cabinets with an actual or projected footprint greater than 2 square feet.) The provider shall be required to maintain any required vegetative landscaping to ensure a neat appearance and to mitigate sight distance obstructions. When the installation occurs in an area where the adjacent poles are painted, the City may require that the electrical meter cabinet be painted to match the color of the poles.

2.4. **Strand Mounted Small Cell Facilities**<sup>U</sup>

Aerial fiber and power strand installations are allowed. However, coiling of excess fiber or other cables is not allowed. All lines shall be neatly trained and secured.

2.4.1. Size Requirements:

Any strand mounted cell facility shall not be larger in dimension than 24" in length, 15" in width, and 12" in height, and any exterior antenna is no longer than 11", that are strung on cables between existing utility poles, in compliance with the National Electrical Safety Code and shall be subject to the structural limitations of the utility company

2.4.2. Finish Requirements:

The equipment shroud must be non-reflective and painted or color impregnated to match the color of the existing pole, or surrounding infrastructure as close as possible.

2.5. **Pole Requirements When Located Within the Clear Zone or Center Median**<sup>C,M</sup>

Poles located within the clear zone or center median of any street shall meet the following requirements for design, material, shape, height, diameter and finish. Any collocated poles shall also meet the City standard streetlight details in regard to handhole size and location, standard bolt patterns for luminaire arm attachments, cable hooks, grounding lugs, cabling access, etc. as required to accommodate and maintain the City infrastructure.

2.5.1. Breakaway Requirements:

The following breakaway requirements shall be maintained.

2.5.1.1. Pole Requirements:

All poles within the center median of any public street or those poles located on the outside of curb lines within the established clear zone requirements, in accordance with the latest edition of the City of Overland Park Manual of Infrastructure Standards, shall be breakaway according to National Cooperative Highway Research Program (NCHRP) 350 or Manual for Assessing Safety Hardware (MASH), latest edition, using approved breakaway couplings or frangible bases. The weight of a small cell pole, including all attached equipment, shall not exceed the total weight as recommended by either the pole manufacturer or manufacturer of the breakaway device. The breakaway pole device shall not exceed 12" in height.

2.5.1.2. Cable Requirements:

When poles are required to meet breakaway requirements, all cabling within the pole shall also be required to meet breakaway requirements with appropriate "pull apart" electrical connectors so the cables do not "snag" upon impact by an errant vehicle.

2.5.2. Pole Foundation Requirements

The foundation shall remain essentially flush with the ground so that the breakaway device leaves no more than a 4" stub height above the ground, consistent with AASHTO requirements. The foundation shall be either a cast-in-place reinforced concrete foundation or screw-in foundation meeting the structural requirements of the loaded pole. All foundations shall be accompanied with a detail or shop drawing that is sealed by a Professional Engineer approving of the design.

2.5.3. Pole Design Requirements:

The pole shall be designed in accordance with the 2013 American Association of State Highway Transportation Officials (AASHTO) Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, or latest version adopted by the City.

2.5.4. Pole Material:

The poles shall be manufactured from 6063 extruded aluminum with a T6 temper.

2.5.5. Pole Shape:

The cross section of the pole shall be round and shall be fabricated in a continuous true taper from 2' from the base to the top of the shaft.

2.5.6. Pole Height:

The pole height shall be consistent with the street classification and adjacent poles. The maximum height from the finished ground surface to the top of the antenna shall not exceed the values indicated in the table below:

<b>Maximum Pole Height Requirements Based on Street Classification</b>		
Street Classification	Street Subcategory	Proposed Pole Height to Top of Antenna
Local	Single Family	30'-0"
	Apartment	40'-0" <sup>1</sup>
	Commercial	40'-0" <sup>1</sup>
	Industrial	40'-0"
Collector	Lite	40'-0" <sup>1</sup>
	Standard	40'-0" <sup>1</sup>
	Super	40'-0" <sup>1</sup>
Thoroughfare	Standard	50'-0" <sup>1</sup>
<sup>1</sup> <u>Maximum allowable height may be more restrictive based on the height of existing streetlights. If existing poles are 20' or less, the maximum allowable pole height (including antenna) is 30'.</u>		

2.5.7. Pole Diameter:

The pole diameter measured at the base of the pole shall not exceed the values indicated in the table below:

Maximum Pole Diameter Requirements Based on Proposed Pole Height to Top of Antenna	
Proposed Pole Height to Top of Antenna	Maximum Outside Diameter at Pole Base
30'-0"	8"
40'-0"	10"
50'-0"	12"

2.5.8. Pole Finish:

Aluminum poles shall have a satin ground finish unless otherwise specified. If adjacent poles are painted, the proposed pole shall be finished meeting the same color chip as the adjacent poles. Aluminum poles that are painted to match adjacent poles shall be painted with a polyester powder coat. (Refer to Section 3.3)

2.6. **Pole Requirements When Located Outside the Clear Zone or Center Median<sup>M</sup>**

It is presumed that this section will only pertain to monopoles. The poles shall meet the following requirements for design, material, shape, height, diameter and finish.

2.6.1. Pole Design Requirements:

The pole shall be designed in accordance with the 2013 American Association of State Highway Transportation Officials (AASHTO) Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, or latest version adopted by the City.

2.6.2. Breakaway Requirements:

Poles that are located on the outside curb lines beyond the clear zone boundary as established in the latest edition of the City of Overland Park Manual of Infrastructure Standards, are not required to be breakaway.

2.6.3. Pole Material:

The poles shall be manufactured from 6063 extruded aluminum with a T6 temper.

2.6.4. Pole Shape:

The cross section of the pole shall be round and may be fabricated in a continuous true taper from at least 2' from the base to the top of the shaft or straight without a taper.

2.6.5. Pole Height:

The pole height shall be consistent with the street classification and adjacent poles. The maximum height from the finished ground surface to the top of the antenna shall not exceed the values indicated in the table below:

<b>Maximum Pole Height Requirements Based on Street Classification</b>		
Street Classification	Street Subcategory	Proposed Pole Height to Top of Antenna
Local	Single Family	30'-0"
	Apartment	40'-0" <sup>1</sup>
	Commercial	40'-0" <sup>1</sup>
	Industrial	40'-0"
Collector	Lite	40'-0" <sup>1</sup>
	Standard	40'-0" <sup>1</sup>
	Super	40'-0" <sup>1</sup>
Thoroughfare	Standard	50'-0" <sup>2</sup>
<sup>1</sup> <u>Maximum allowable height may be more restrictive based on the height of existing streetlights. If existing poles are 20' or less, the maximum allowable pole height (including antenna) is 30'.</u>		

2.6.6. Pole Diameter:

The pole diameter measured at the base of the pole shall not exceed the values indicated in the table below:

<b>Maximum Pole Diameter Requirements Based on Proposed Pole Height to Top of Antenna</b>	
Proposed Pole Height to Top of Antenna	Maximum Outside Diameter at Pole Base
30'-0"	8"
40'-0"	10"
50'-0"	12"



2.6.7. Pole Finish:

Aluminum poles shall have a satin ground finish unless otherwise specified. If adjacent poles are painted, the proposed pole shall be finished meeting the same color chip as the adjacent poles. Aluminum poles that are painted to match adjacent poles shall be painted with a polyester powder coat.

2.7. **Utility Pole Requirements**<sup>U</sup>

At the approval of the local utility company, small cell equipment may be installed on wood or steel utility poles as long as they meet the clearance requirements to power lines or other requirements or regulations of the local utility.

2.7.1. Antenna and Utility Pole Height:

The maximum height from the finished ground surface to the top of the antenna mounted on a utility pole shall not exceed the greater of 10% of the existing utility pole height or 10 feet. In the event a new utility pole is being installed within an existing utility line, the height calculation shall be based upon the immediately adjoining utility poles within the utility line. (This is intended to be a one-time height increase allowance. If multiple height increases are made, they should not cumulatively exceed 10' higher than the original pole height.)

2.8. **Luminaire Arm Requirements**<sup>C</sup>

The luminaire arm(s) shall meet the following requirements for design, material, shape, length, location and finish according to the City's standard streetlighting details.

2.8.1. Design Requirements:

The luminaire arm(s) shall be designed in accordance with the 2013 American Association of State Highway Transportation Officials (AASHTO) Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, or latest version adopted by the City.

2.8.2. Luminaire Arm Material:

The luminaire arm(s) for 30' and 40' luminaire mounting heights shall be tubing/piping manufactured from 6063 aluminum tubing with a T6 temper. The luminaire arm material shall be the same as the pole material. The luminaire arm for 14' luminaire mounting heights shall be an aluminum casting as detailed by the City, that is compatible with the residential fixture mounting.

2.8.3. Luminaire Arm Shape:

The luminaire arm(s) for 30' and 40' luminaire mounting heights shall match the style and shape as the luminaire arm(s) on the existing pole that is being replaced. The style shall either be a single member arm type or truss type arm. The luminaire arm for a 14' luminaire mounting height shall be

rectangular in shape with decorative enhancements as depicted in the special details.

2.8.3.1. Single Member Arm:

The single member arm shall be tapered tubing. After tapering, the member shall be flattened to produce an elliptical cross-section with the major diameter in the vertical plane, perpendicular to the wind. The outboard end of the arm shall remain round with a 2" slipfitter for mounting the luminaire.

2.8.3.2. Truss Type Arm:

The truss type member arm assembly shall be a one piece welded assembly consisting of an upper arm and lower arm (brace) securely joined by a vertical strut and a connector or weld at the outboard end of the arm assembly. The upper arm shall be tapered. After tapering, the upper arm shall then be flattened to produce an elliptical cross-section with the major diameter in the horizontal plane, parallel to the wind. The outboard end of the upper arm shall remain round with a 2" slipfitter for mounting the luminaire. The outboard end of the lower arm (brace) shall be covered by an end cap.

2.8.3.3. 14' Pole Arm Adapter:

The luminaire arm for 14' residential poles shall be a special fabricated mounting bracket to mount the luminaire on the side of the pole instead of at the top of the pole. The design of the arm shall be based on drawing number 19-119-PR101 with bracket arm number SAL-WSB-PB which is on record at the City.

2.8.4. Luminaire Arm Length:

The length of the luminaire arm(s) for 30' and 40' luminaire mounting heights shall be the same as those on the existing pole that is being replaced. The luminaire arm length for 14' luminaire mounting heights shall be approximately 17" from the side of pole to the center of the luminaire.

2.8.5. Luminaire Arm Location:

The luminaire arm mounting location for 30' and 40' luminaire mounting heights shall match the location of the existing poles, such that the mounting height of the proposed luminaire housing matches the mounting height of the adjacent poles and luminaires.

If a collector street currently has 14' poles, any new pole meeting the requirements for antenna mounting heights may be used. The post top style luminaire shall be mounted at 14' with the special rivnut mounting hardware and decorative arm. An additional simplex luminaire arm mounting bracket shall be mounted at the top of the pole to accommodate a future 6' or 8' single

member luminaire arm for 30' mounting height. The hole in the simplex mounting bracket shall be covered with an aluminum plate and secured with screws.

The luminaire arm for 14' luminaire mounting heights shall require special rivnut mounting hardware to accommodate the decorative arm.

2.8.6. Luminaire Arm Finish:

The arm(s) for 30' and 40' luminaire mounting heights shall be finished the same color of the poles. See section 2.5.6. The arm for the 14' luminaire mounting height shall be painted black to match the luminaire housing.

2.9. **Luminaire Requirements<sup>c</sup>**

The luminaire(s) shall meet the following requirements for style and finish:

2.9.1. Luminaire Style:

The luminaire(s) for 30' and 40' mounting heights shall be LED cobrahead style and be from the City Approved Materials List which can be found from the link below.

[http://ppm.opkansas.org/wiki/index.php/Preapproved\\_Materials\\_Street\\_Lighting#LED\\_Cobrahead\\_Luminaire](http://ppm.opkansas.org/wiki/index.php/Preapproved_Materials_Street_Lighting#LED_Cobrahead_Luminaire).

The class of luminaire to be used shall be approved by the City. Existing LED cobrahead luminaire(s) shall be replaced with the same class of LED luminaire(s) that already exists on the pole that is being removed. Existing HPS cobrahead luminaire(s) shall be replaced with LED cobrahead luminaire(s) according to the table below:

<b>Luminaire Requirements Based on Existing HPS Luminaire</b>	
Existing HPS Cobrahead Luminaire Wattage	Required LED Cobrahead Class Luminaire
400 Watt	Class A
310 Watt	Class B
250 Watt	Class C
150 Watt	Class D
100 Watt	Class E

The luminaire for the 14' post top poles shall be the standard post top fixture as indicated in the Approved Materials list. It shall be equipped

with an LED lamp. All existing luminaires shall be returned to the City of Overland Park Traffic Maintenance Division.

2.9.2. Luminaire Finish:

The luminaire(s) shall have a factory applied finish that matches the same color chip as the luminaires on adjacent poles.

2.10. **Cabling Requirements**<sup>C,M</sup>

All cabling shall primarily be internal to the pole. Any exposed cabling, external to the pole, shall be minimized. No cable shall be visible at the top of the pole near the antenna. External cables powering the pole mounted radios, cutoff switches or other devices shall be limited to a total length of 24", including drip loops, slack, etc. Any cable access point on the pole shall be sealed with a manufactured product to keep birds from entering and nesting. Duct seal or putty is not an approved product.

## Section 3. General Location Criteria

Any new pole and/or equipment and other improvements associated with a new pole or an existing pole must meet the following criteria:

3.1 **Pole Location:**

3.1.1 Collocation:

The City desires and encourages collocations between limited numbers of multiple, separate wireless service providers on the same support structure whenever feasible. However, collocated poles shall not be used to replace streetlight poles the City has purchased from Evergy (formerly KCP&L).

3.1.2 General:

These general principles shall apply:

3.1.2.1 Monopoles Located in a Raised Street Median:

Monopoles, located in a raised street median, shall be placed equidistant between two existing streetlight poles and roughly centered in the median. (See Section 2.5.1 for applicable breakaway requirements.)

3.1.2.2 Monopoles Located on the Outside of Curb Line:

Monopoles, located on the outside of the curb line, shall be placed, to the extent possible, approximately equidistant between two existing streetlight poles with preference to being located on the property line between lots and no closer than 3' from the back of curb to the center of the pole. (See Section 2.5.1 for applicable breakaway requirements.)

**3.2 Not on Traffic Signal Poles:**

Small cell equipment shall not be allowed on existing or proposed traffic signal poles or existing or proposed streetlight poles that have existing or proposed traffic signal equipment mounted to them.

**3.3 Not on Decorative Poles:**

Small cell equipment shall not be allowed to collocate on decorative streetlight poles or poles that have decorative luminaires. The term “decorative” shall be applied to anything that does not conform to the City of Overland Park Streetlighting Standard Details.

**3.4 Not to Cause Obstructions:**

Any new pole and/or equipment and other improvements associated with a new pole, electrical meter cabinet or an existing pole must not obstruct:

1. Any intersection sight distances as required by the American Association of State and Highway Transportation Officials (AASHTO), latest edition adopted by the City.
2. Any above-ground or underground infrastructure for traffic control, streetlight or public transportation, including without limitation any curb control sign, vehicular traffic sign or signal, pedestrian traffic sign or signal, barricade or traffic control equipment.
3. Access to any public transportation vehicles, shelters, street furniture or other improvements at any public transportation stop (including, without limitation, bus stops, bike share stations, etc).
4. Any access to sidewalks, pedestrian facilities, etc. as outlined in the United States Access Board Public Rights of Way Access Guidelines (PROWAG).
5. Access to above-ground or underground infrastructure owned or operated by any public or private utility agency, including fire hydrants, etc.
6. Access to any doors, gates, sidewalk doors, passage doors, stoops or other ingress and egress points to any building appurtenant to the right-of-way, or access to any fire escape.

## Section 4. City Pre-Approved Pole Designs.

The City Engineer may require providers to design their pole(s) utilizing pole designs pre-approved by the City Engineer.

## Section 5. Amendment.

The requirements set forth in these Aesthetic Standards may be amended from time to time by the City Engineer at the City Engineer’s discretion. Any amendment of these Aesthetic Standards shall be published once in the official City newspaper and shall become effective upon publication.

## Section 6. Exceptions.

The City Engineer, in the City Engineer's sole discretion, may grant exceptions to these Aesthetic Standards if the City Engineer's finds the following conditions exist:

1. The Aesthetic Standards as applied to a specific set of circumstances are: (a) technically infeasible and (b) unreasonable when balanced against the interest of avoiding or remedying the intangible public harm of unsightly or out-of-character facility deployments; and
2. The applicant's proposed design and aesthetic appearance for the proposed facilities meets the spirit of these Aesthetic Standards.

## Section 7. Design and Construction Standards Manual

The Aesthetic Standards set forth herein regarding streetlight poles are meant to be read in conjunction with the City's [Design and Construction Standards Manual](#) criteria for streetlight poles and any applicable provisions in the [Unified Development Ordinance](#). These Aesthetic Standards will be amended as necessary so as to not conflict with the current version of the City's Design and Construction Standards Manual requirements regarding streetlight poles.

## Section 8. Severability.

The provisions of any part of these Aesthetic Standards are severable. If any provision or subsection, or the application of any provision or subsection to any person, entity or circumstance is held invalid, the remaining provisions, subsections and applications of such Aesthetic Standards to other persons, entities or circumstances shall not be made invalid as well. It is declared to be the intent of this section that the remaining provisions would have been adopted had such invalid provisions not been included in these Aesthetic Standards when originally adopted.