



**CITY OF MISSOURI CITY
WIRELESS SERVICES DESIGN
MANUAL**

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Adopted: August 2017

1.01 GENERAL

A. This Wireless Services Design Manual (WSDM) has been adopted to protect the health, safety, and welfare of the public and to provide technical criteria and details necessary for permittees and right-of-way users seeking to install and construct network nodes, node support poles, and transport facilities in the City's right of way.

B. This WSDM applies to all wireless service providers and network providers as defined by V.T.C.A. Local Government Code ch. 284, and their agents.

C. Permittees and right-of-way users shall comply with the Missouri City Code, including, but not limited to, Chapter 46, Infrastructure Standards, the city design manual, and this WSDM for the placement of facilities in the City's right-of-way.

D. To the extent of any conflict between Chapter 46, Infrastructure Standards, the city design manual, and this WSDM, this WSDM shall prevail. To the extent of any conflict between this WSDM and V.T.C.A. Local Government Code ch. 284, V.T.C.A. Local Government Code ch. 284 shall prevail.

1.02 REFERENCES

All projects that are required to conform to this WSDM shall comply with all applicable federal, state, and local laws, including, but not limited to, City ordinances. All construction plans and supporting documentation shall conform to the requirements of the standards set forth herein and all applicable federal, state, and local laws. Relevant related laws include, but are not limited to, the following:

- A. City of Missouri City:
 - 1. Infrastructure Standards, Chapter 46, City Code
 - 2. Article X, Network Nodes, Node Support Poles, and Related Facilities, Chapter 46, City Code
 - 3. Buildings and Building Regulations, Chapter 14, City Code
 - 4. Chapter 12, City Design Manual

- B. State:
 - 1. V.T.C.A. Local Government Code ch. 284

1.03 DEFINITIONS

For the purposes of this WSDM, except as set forth herein, the words and phrases set forth in Article X, Chapter 46, of the City Code and the city design manual, including, Section 12.02, shall apply. The following words and phrases shall have the meanings respectively ascribed to them by this section.

Chapter 284 means V.T.C.A. Local Government Code ch. 284.

Highway right-of-way means right-of-way adjacent to a state or federal highway.

Street includes only the paved portion and sub-grade of the right-of-way used for vehicular travel, being the area between the inside of the curb to the inside of the opposite curb, or the area between the two parallel edges of the paved roadway for vehicular travel where there is no curb. A "street" is generally part of, but smaller in width than the width of the entire right-of-way, while a right-of-way may include sidewalks and utility easements, a "street" does not. A "street" does not include the curb or the sidewalk, if either are present at the time of a permit application or if added later.

Underground requirement area means an area where poles, overhead wires, and associated overhead or above ground structures have been removed and buried or have been approved for burial underground pursuant to City ordinances, zoning regulations, state law, private deed restrictions, or other public or private restrictions, that prohibit installing aboveground structures in a right-of-way.

1.04 LOCATION RESTRICTIONS FOR NETWORK NODES, NODE SUPPORT POLES, TRANSPORT FACILITIES, AND RELATED GROUND EQUIPMENT

A network provider shall locate network nodes, node support poles, transport facilities and related equipment as follows:

- A. *Residential Developments.* A network provider is prohibited from installing a node support pole in a right-of-way without the City's written consent if the right-of-way is adjacent to a street or thoroughfare that is:
1. Not more than 50 feet wide of paved street surface; and
 2. Adjacent to a residential development or undeveloped land that is designated for residential use by zoning or deed restrictions.

- B. *Municipal Parks.* A network provider is prohibited from installing a node support pole in a right-of-way in a municipal park without the City's written consent.
- C. *Private Restrictions.* A network provider shall install a network node or node support pole in a right-of-way described in subdivision 1.04.A or 1.04.B in accordance with applicable private deed restrictions and other private restrictions.
- D. *Service Poles.* A person shall enter into an agreement with the City before collocating network nodes on service poles.
- E. *Historic Districts.* A network provider shall obtain advance written approval from the City before collocating new network nodes or installing node support poles in a historic district.
- F. *Design Districts.* A network provider shall obtain advance written approval from the City before collocating new network nodes or installing node support poles in a design district with decorative poles.
- G. *Undergrounding Requirements.* A network provider shall comply with undergrounding requirements, including municipal ordinances, zoning regulations, state law, private deed restrictions, and other public or private restrictions, that prohibit installing aboveground structures in a right-of-way without first obtaining zoning or land use approval.
 - 1. The City may designate areas from time to time as underground requirement areas and may convert areas of overhead utilities to underground areas, as may be allowed by law.
 - 2. Pursuant to Sections 4.08 and 12.06.E of the city design manual, the following areas are designated as underground requirement areas:
 - a. Right-of-ways of curb and gutter streets; and
 - b. With respect to new utility lines, right-of-ways along front property lines.
 - 3. *Liberal construction.* Designations shall be liberally construed. Additional areas may be designated at any time.

1.05 LOCATION PREFERENCES FOR NETWORK NODES, NODE SUPPORT POLES, TRANSPORT FACILITIES AND RELATED EQUIPMENT

- A. The following locations are the City's preferred locations, with subdivision 1 being the most preferred location and subdivision 3 being the least of

the preferred locations, for network nodes, node support poles, transport facilities and related ground equipment:

1. Areas zoned to allow I industrial uses and BP business park uses, as such uses are described in the City's zoning regulations, if not adjacent to a municipal park, residential development, historic district, or design district;
 2. Highway rights-of-way areas not adjacent to a municipal park, residential development, historic district or design district; and
 3. Areas zoned to allow LC-2 local retail, LC-3 retail, and LC-4 retail uses, as such uses are described in the City's zoning regulations, if not adjacent to a municipal park, residential development, historic district or design district.
- B. The following locations, with subdivision 1 being the most preferred location and subdivision 3 being the least of the preferred locations, are the City's preferred locations for network node attachments to existing facilities, new node support poles and related ground equipment:
1. Existing telephone or electrical lines between existing utility poles; provided that, micro network nodes shall only be lashed on existing telephone or electrical lines between existing utility poles (electric poles or telephones poles) with notice to the pole owner as required by the Federal Pole Attachment Act, and not placed on utility poles, node support poles or service poles;
 2. Existing utility poles (electric poles or telephones poles);
 3. Service poles, provided that such poles:
 - (i) Are non-decorative street lights with a height of more than 20 feet; or
 - (ii) Are traffic signals with a height of more than 20 feet if such installation will not interfere with the integrity of the facility and will not interfere with the safety of the public.
- C. The following locations, with subdivision 4 being the least preferred location and subdivision 1 being the most preferred of the least preferred locations, are the City's least preferred locations for network nodes, node support poles, transport facilities and related equipment:
1. *Municipal Parks:* In a municipal park or adjacent to a street or thoroughfare that is adjacent to a municipal park;

2. *Historic Districts*: In an area designated by the City as a historic district;
 3. *Design Districts*: In an area designated by the City as a design district; and
 4. *Residential Developments*: In or adjacent to a street or thoroughfare that is adjacent to a residential development or undeveloped land that is designated for residential use by zoning or deed restrictions.
- D. The following locations, with subdivision 4 being the least preferred location and subdivision 1 being the most preferred of the least preferred locations, are the least preferred locations for network nodes network node attachments to existing facilities, new node support poles and related ground equipment:
1. Ground equipment;
 2. New node support poles;
 3. Municipal service poles not described in subsection 1.05.B.3 of the WSDM; and
 4. Street signage.

1.06 GUIDELINES FOR THE PLACEMENT OF WIRELESS FACILITIES

A network provider shall construct and maintain network nodes, node support poles, ground equipment, and related equipment in accordance with the following regulations:

- A. *General requirements*. A network provider shall construct and maintain network nodes and node support poles in a manner that does not:
1. Obstruct, impede, or hinder the usual travel or public safety on a right-of-way;
 2. Obstruct the legal use of a public right-of-way by other utility providers;
 3. Violate applicable codes;
 4. Violate or conflict with Chapter 46 of the city code, including the city design manual;

5. Violate the federal Americans with Disabilities Act of 1990 (42 U.S.C. Section 12101 et seq.); or
 6. Interfere with City safety communication networks.
- B. *Interference.* Wireless facilities shall be installed in a manner that does not cause interference with public safety radio infrastructure or signals. Network nodes are prohibited on the City's public safety radio infrastructure.
- C. *State and Federal Rights-of-way permit.* A network provider shall provide evidence of a permit from the state or federal government if the project lies within a highway right-of-way.
- D. *Height and Distance Limitations.* Except as provided herein, a network provider shall not construct, modify, or maintain a network node or node support pole that exceeds the height or distance requirements set forth in Chapter 284. A network provider may construct, modify, or maintain a network node or node support pole that exceeds the height or distance requirements set forth in Chapter 284, provided that the City approves the construction, modification, or maintenance, subject to all applicable zoning and land use regulations and applicable codes, in writing.
- E. *Size and Height Requirements.* A network provider shall comply with the size and height requirements set forth in Chapter 284.
- F. *Network Node Facilities Placement.*
1. *Right-of-Way.* Network node facilities, node support poles and related ground equipment shall be placed, as much as possible, within two (2) feet of the outer edge of the right-of-way line to minimize any obstruction, impediment, or hindrance to travel or safety in a right-of-way.
 2. *Height above ground.* Network node attachments to a pole must be installed at least eight (8) feet above the ground, and if a network node attachment is projecting toward the street, the attachment shall be installed no less than sixteen (16) feet above the ground.
 3. *General Protrusions.* A protrusion from the outer circumference of the structures shall not be more than two (2) feet from the:
 - a. Existing structure or pole; or
 - b. Node support pole.

4. Network Nodes per Pole. Multiple network nodes may be installed on any one pole.
5. Antennas.
 - a. Each antenna that does not have exposed elements and is attached to an existing structure or pole shall:
 - i. Be located inside of an enclosure of not more than six cubic feet in volume;
 - ii. Consist of a height not exceeding three feet above the existing structure or pole; and
 - iii. Not protrude from the outer circumference of the existing structure or pole by more than two feet.
 - b. If an antenna has exposed elements and is attached to an existing structure or pole, the antenna and all of the antenna's exposed elements shall:
 - i. Fit within an imaginary enclosure of not more than six cubic feet;
 - ii. Consist of a height not exceeding three feet above the existing pole or structure; and
 - iii. Not protrude from the outer circumference of the existing structure or pole by more than two feet.
6. Size of attachments. The cumulative size of other wireless equipment associated with a network node attached to an existing structure or pole shall not be more than 28 cubic feet in volume and shall not protrude from the outer circumference of the existing structure or pole by more than two feet.
7. Equipment Cabinets. An equipment cabinet installed as part of a network node shall not exceed a height of three feet six inches from grade.
8. Enclosures.
 - a. Ground based enclosures, separate from the pole, shall consist of a height not exceeding three feet six inches from grade, wider than three feet six inches, or deeper than three feet six inches.
 - b. Pole-mounted enclosures shall not be taller than five feet.

G. *New Node Support Poles.*

1. Spacing. New node support poles shall be spaced apart from existing utility poles or node support poles in accordance with Section 12.06 of the city design manual.
2. Visibility. New node support poles shall be installed to allow visibility in accordance with Section 11.11 of the city design manual.
3. Height. A replacement node support pole shall not exceed the lesser of:
 - a. 10 feet in height above the tallest existing utility pole located within 500 linear feet of the new pole in the same public right-of-way; or
 - b. 55 feet above ground level.
4. Equipment. Equipment attached to new node support poles shall not protrude from the outer edge of the node support pole by more than two feet.

H. *Ground Equipment.*

1. Near street corners and intersections. Ground equipment shall be minimal and maintained in the least intrusive manner. To minimize any obstruction, impediment, or hindrance to travel or public safety in a right-of-way, ground equipment shall not be installed within 250 feet of a street corner or a street intersection.
2. Near Municipal Parks. A network provider shall not install ground equipment in a right-of-way that is within a municipal park or within 250 feet of the boundary line of a municipal park, unless approved in writing by the Director of Public Works.

I. *Municipal Service Poles.*

1. Agreement required. Installations on a pole shall be in accordance with an agreement with the City.
2. Required industry standard pole load analysis. Installations on all service poles shall have an industry standard pole load analysis completed and submitted to the City with each permit application indicating whether the service pole to which the network node is to be attached will safely support the load.

3. Height of attachments. All attachments on all service poles shall be at least eight (8) feet above grade, and, if a network node attachment is projecting toward the street, the attachment shall be installed no less than sixteen (16) feet above the ground.
4. Installations on Traffic Signals. An installation on a traffic signal structure shall not interfere with the integrity of the structure. An installation of a network node facility on a traffic signal structure shall:
 - a. Be encased in a separate conduit than the traffic light electronics;
 - b. Have a separate electric power connection than the traffic signal structure; and
 - c. Have a separate access point than the traffic signal structure.
5. Installations on Street Signage. An installation on a street sign shall not interfere with the integrity of the street sign. An installation of a network node facility on a street sign structure that has electrics shall:
 - a. Be encased in a separate conduit than any City signage electronics;
 - b. Have a separate electric power connection than the signage structure; and
 - c. Have a separate access point than the signage structure.

J. *Utility Poles.*

1. Equipment attached to a utility pole must be installed in accordance with the National Electrical Safety Code, subject to applicable codes, and the utility pole owner's construction standards.
2. A replacement utility pole shall not exceed the lesser of:
 - a. 10 feet in height above the tallest existing utility pole located within 500 linear feet of the new pole in the same public right-of-way; or
 - b. 55 feet above ground level.

1.07 GENERAL AESTHETIC REQUIREMENTS FOR WIRELESS FACILITIES

Network providers and wireless service providers shall comply with the following requirements:

1. **Concealment.** Network nodes, node support poles, and related equipment located in design districts with decorative poles and in historic districts shall be concealed.
2. **Colors.** Network nodes, node support poles, and related equipment located in design districts with decorative poles and in historic districts shall consist of one or more of the following colors, provided that such colors blend into the environment in which the network node, node support pole, or related equipment is placed: beige, black, bronze, brown, buff, cream, forest green, gray, olive, sage, sand, or tan.
3. **Private Restrictions.** Network nodes, node support poles, and related equipment located in residential developments shall be installed in accordance with applicable private deed restrictions and other private restrictions.

1.08 ELECTRICAL SUPPLY FOR WIRELESS FACILITIES

- A. A network provider shall obtain any required electrical power service to the network node, network node facilities, node support poles and ground equipment. The City shall not be liable to the network provider for any stoppages or shortages of electrical power furnished to the network node, network node facilities, node support poles or ground equipment, including without limitation, stoppages or shortages caused by any act, omission, or requirement of the utility serving the structure or the act or omission of any other tenant or network provider of the structure, or for any other cause.
- B. A network provider shall not install, allow, use, or facilitate the presence or use of generators or back-up generators in the right-of-way.

1.09 GENERAL PROVISIONS FOR WIRELESS FACILITIES

- A. **Signage.** Pursuant to Section 46.102 of the City Code, a network provider shall post its name, location identifying information, and emergency telephone number in an area on the cabinet of the network node facility that is visible to the public. Signage required under this section shall not

exceed 4" x 6," unless otherwise required by law or the Director of Public Works.