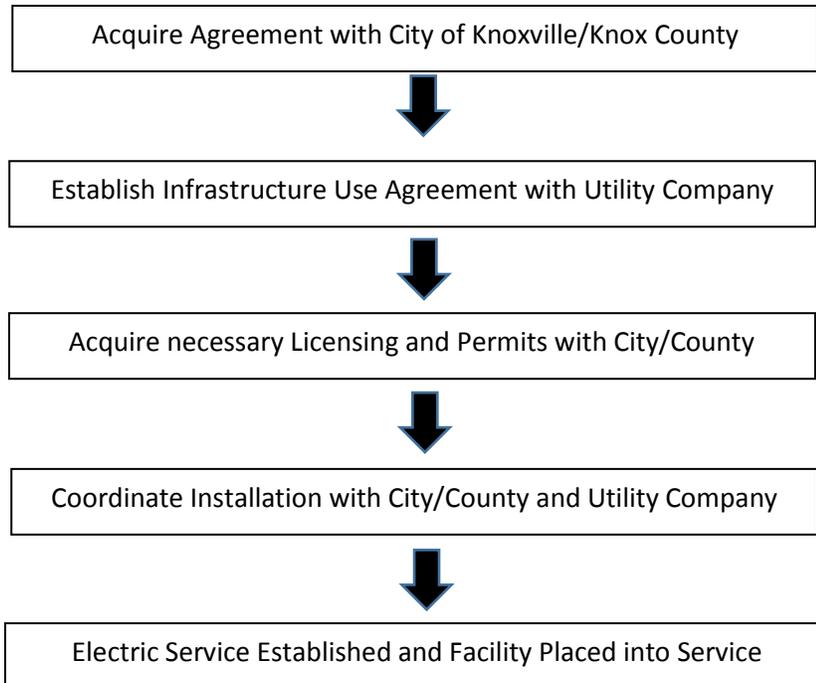


City/County Design Guidelines for Wireless Communication Facility in the Right of Way

Part 1. Application Process Flow Chart



Part 2. Purpose and Goals

The purpose of these guidelines is to establish general standards for wireless communication facility providers to work in the City/County right of way. In addition to the standards set forth in these guidelines, applications must follow all applicable City, County, and Utility Board standards. The guidelines address federal and state laws for the siting, construction, installation, collocation, modification, operation, and removal of wireless communications facilities in the right of way. The goals are to:

- A. Provide standards for the siting, construction, installation, collocation, modification, operation, and removal of wireless communications facilities in the City/County's right of way and charges to be uniformly applied to all applicants.
- B. Establish basic criteria for applications to site wireless communications facilities in the right of way and provide clear guidance to applicants.
- C. Ensure that wireless communications facilities will conform to all applicable health and safety regulations and will blend into their environment to the greatest extent possible.

- D. Enhance the ability of wireless communications carriers to deploy wireless infrastructure quickly, effectively, and efficiently so that residents, businesses, and visitors benefit from ubiquitous and robust wireless service availability.
- E. Preserve the character of neighborhoods, corridors, and districts.
- F. Comply with, and not conflict with or preempt, all applicable state and federal laws.

Part 3. Categories of Applications

Every application to locate Wireless Communication Facility in the right of way shall be classified by the following types:

- A. Minor modification that:
 - a. Involves collocation, removal or replacement of transmission equipment on an existing wireless tower, utility pole or base station.
 - b. Does not substantially change the physical dimension (width, height, and depth) of the existing wireless tower, pole-mounted equipment or base station.
- B. Major modification that:
 - a. Involves collocation, removal or replacement of transmission equipment on an existing wireless tower or base station; and
 - b. Substantially changes the physical dimension (width, height, and depth) of the existing wireless tower or base station or does not qualify for approval pursuant to 47 U.S.C. § 1455(a) for any lawful reason.
- C. New transmission equipment on an existing or new tower or utility pole:
 - a. Siting new transmission equipment on a Potential Support Structure in the right of way that does not already support transmission equipment; or
 - b. Siting a new wireless communication facility on a new tower or other support structure in the right of way.

Part 4. Minor Modifications

Minor modifications are additions or changes to previously approved facilities and covered under 47 U.S.C. § 1455(a), which mandates approval for certain applications that do not propose a substantial change to the underlying facility. Federal regulations provide specific definitions and criteria for approval or denial. The provisions in this section are intended to assist applicants and application reviewers to determine whether an application qualifies for approval as a minor modification.

Section 1. Approval and Denials

- A. **Criteria for Approval.** Approve an application for a minor modification when it finds that the proposed project:
 - a. involves collocation, removal or replacement of transmission equipment on an existing wireless tower or base station; and
 - b. does not substantially change the physical dimensions of the existing wireless tower or base station.

- B. **Criteria for Denial.** Notwithstanding any other provisions in these Guidelines, and consistent with all applicable federal laws and regulations, the application may be denied for a minor modification when it finds that the proposed project:
 - a. does not satisfy the criteria for approval;
 - b. violates any legally enforceable standard or permit condition reasonably related to public health and safety; or
 - c. involves the replacement of the entire support structure, triggering other parts of the guidelines.

Part 5. Major Modifications

Section 1. General Design and Construction Standards

Promote cleanly organized and streamlined facilities using the smallest and least intrusive 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 this section. In the event that any other law, regulation or code requires any more restrictive structural design and/or construction requirements, the most restrictive requirement will control.

- A. **Collocation.** Collocations between two separate wireless service providers on the same support structure is encouraged whenever feasible and safe.
- B. **Antennas on Existing or Replaced Utility Poles.** The antenna(s) associated with installation on existing or replaced utility poles must be located within the communication zone and have concealed cable connections, antenna mount and other hardware. The maximum dimensions for panel style antennas shall be 30" high and 12" wide. The maximum dimensions for canister style antennas shall be 30" high and 16" in diameter.
- C. **Antennas on New Stand Alone Poles without Power or other Utility Lines.** The antenna(s) associated with installation on new poles that are not replacing utility poles may have antennas located on top of the pole, provided there are no electrical lines located on the poles. These antennas must have concealed cable connections, antenna mount and other hardware. The maximum dimension shall be 48" high and 18" wide.
- D. **Equipment Mounting on Existing or Replaced Utility Poles.** All pole-mounted equipment must be installed as flush to the pole as possible, using stainless steel banding straps. Through-bolting or use of lag bolts is prohibited. All pole mounted equipment shall be located as close together and if possible on the same side of the pole. Standard color for all equipment shall be grey, but other colors may be required when installing on a decorative pole.
- E. **Pole-Mounted Equipment Cages or Equipment Shrouds.** When pole-mounted equipment is either permitted or required, all equipment other than the antenna(s), electric meter and disconnect switch must be concealed within an equipment cage. Equipment cages may not extend more than 24

inches from the face of the pole. The equipment cage must be non-reflective and be colored grey or to match the existing pole. Equipment cages should be mounted flush to the pole. All pole-mounted equipment must be installed as flush to the pole as possible. Any standoff mount for the equipment cage may not exceed 4 inches.

- F. **Undergrounded Equipment Vaults.** Pole-mounted equipment in self-contained cages is permitted, but equipment in an environmentally controlled underground vault may be required in some areas.
- G. **Ground-Mounted Equipment.** New ground-mounted equipment is not permitted, unless the applicant shows clear and convincing evidence that the equipment cannot be feasibly installed as a pole-mounted installation, in an environmentally controlled underground vault, or within an existing street feature (such as a bus stop shelter) for a valid technical reason. Increased costs alone shall be presumed to be insufficient. In the event that ground-mounted equipment is used, the applicant must conform to the following requirements:
 - 1) **Self-Contained Cabinet or Shroud.** The equipment shroud or cabinet must contain all the equipment associated with the facility other than the antenna. All cables and conduits associated with the equipment must be concealed from view, routed directly through the tapered metal pole (with the exception of Utility Board power poles) and undergrounded between the pole and the ground-mounted cabinet.
 - 2) **Concealment.** The Ground-Mounted Equipment shall incorporate concealment elements into the proposed design. Concealment may include, but shall not be limited to, public art displayed on the cabinet, strategic placement in less obtrusive locations and placement within existing or replacement street furniture.
 - 3) **Ambient Noise Suppression.** The applicant is required to incorporate ambient noise suppression measures and/or required to place the equipment in locations less likely to impact adjacent residences or businesses to ensure compliance with all applicable noise regulations.
- H. **Utility Lines.** Service lines must be undergrounded whenever feasible to avoid additional overhead lines. For metal towers, undergrounded cables and wires must transition directly into the pole base without any external junction box.
- I. **Electric Meter.** Each wireless communication facility must be individually metered. Multiple operators on a shared pole must have their own meter. Site operators shall use the smallest and least intrusive electric meter available. Whenever permitted by the electric service provider, the electric meter base should be painted to match the pole.
- J. **Telephone/Fiber Optic Utilities.** Cabinets for telephone and/or fiber optic utilities may not extend more than 10 inches from the face of the pole, and must be painted, wrapped or otherwise colored to match the pole.

Microwave or other wireless backhaul is discouraged when it would involve a separate and unconcealed antenna.

- K. **Spools and Coils.** To reduce clutter and deter vandalism, excess fiber optic or coaxial cables for wireless communication facilities shall not be spooled, coiled or otherwise stored on the pole except within the approved enclosure such as a cage or cabinet.
- L. **Underground Conduit.** All underground conduit placed behind the curb face and underneath the sidewalk must be SCH 80 PVC encased in concrete. All underground conduit must be Rigid Conduit when placed: (1) underneath driveway aprons, (2) within tree wells or (3) in front of the curb face and beneath the street.
- M. **Above-Ground Conduit.** On wood poles, all above-ground wires, cables and connections shall be encased in the smallest section or smallest diameter PVC channel, conduit, u-guard, or shroud feasible, with a maximum dimension of 4" diameter, and painted to match the pole.
- N. **Ground Rods.** All ground rods shall be 1 inch in diameter and 10 feet in length made from copper-clad steel (high strength) as required in ASTM A325. If attaching to existing utility poles, wireless communication facilities shall be bonded (connected) to the existing pole ground.
- O. **Lights.** Unless otherwise required for compliance with FAA or FCC regulations, the facility shall not include any permanently installed lights. Any lights associated with the electronic equipment shall be appropriately shielded from public view. The provisions in this subsection shall not be interpreted to prohibit installations on streetlights or the installation of luminaires on new poles when required.
- P. **Generally Applicable Health and Safety Regulations.** All facilities shall be designed, constructed, operated and maintained in compliance with all generally applicable health and safety regulations, including without limitation all applicable regulations for human exposure to RF emissions.

Section 2. General Location Criteria

- A. **Collocation Preference.** Whenever an applicant proposes to place a new wireless facility within 250 feet from an existing wireless facility, whether on a new pole or an existing potential support structure, the applicant must either collocate with the existing facility or demonstrate with clear and convincing evidence that a collocation is either not technically feasible or space on the existing facility is not potentially available.
- B. **General Limitation on New Poles.** The guidelines strongly discourage more than one new pole per 500'.
- C. **Alignment with Other Poles.** The centerline of any new pole must be aligned with the centerlines of existing poles on the same sidewalk segment, but only if the new pole height does not conflict with overhead power utility lines and facilities.

- D. **Setbacks for Visibility and Access.** Any new tower and/or equipment and other improvements associated with a new tower or an existing pole must be setback from intersections, alleyways and driveways and placed in locations where it will not obstruct motorists' sightlines or pedestrian access. In general, no obstruction will occur when a new tower and/or equipment is setback at least (i) 50 feet from any intersection; (ii) six (6) feet from any driveway cut or alleyway entrance or exit; or (iii) six (6) feet from any permanent object or existing lawfully-permitted encroachment in the public right-of-way, including without limitation bicycle racks, traffic signs and signals, street trees, open tree wells, benches or other street furniture, streetlights, door swings, gate swings or sidewalk café enclosures. An additional setback for a specific pole may be required when presumptively acceptable setback would nevertheless obstruct motorists' sightlines or pedestrian access.
- E. **Obstructions.** Any new tower and/or equipment and other improvements associated with a new tower or an existing pole must not obstruct any: (i) worker access to any above-ground or underground infrastructure for traffic control, streetlight or public transportation, including without limitation any curb control sign, parking meter, vehicular traffic sign or signal, pedestrian traffic sign or signal, barricade reflectors; (ii) access to any public transportation vehicles, shelters, street furniture or other improvements at any public transportation stop (including, without limitation, bus stops, streetcar stops, and bike share stations); (iii) worker access to above-ground or underground infrastructure owned or operated by any public or private utility agency; (iv) fire hydrant access; (v) 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 (vi) access to any fire escape.
- F. **Historic or Architecturally Significant Structures.** Any new tower and/or equipment and other improvements associated with a new tower or an existing pole may not be placed directly in front of any historic or architecturally significant structures in prominent locations. Applicant must comply with federal rules regarding historic structures and require a section 106 study on all applicable node locations.

Section 3. New and Replacement Towers

- A. **General Restrictions on New Wood Towers.** In all locations, the City/County reserves the right to require a metal tower rather than a wood tower based on the built and/or natural environmental character of the proposed site location. Wood towers should not be permitted in the following areas:
 - 1) Downtown;
 - 2) Form based code districts;
 - 3) Areas where plans call for underground utilities or not using wood poles; or
 - 4) Scenic highways and corridors

- B. **Overall Height.** The heights of towers shall be consistent with other poles in the vicinity, the built environment, the neighborhood character, the overall site appearance and the purposes in these Guidelines. If a compatible height cannot be clearly determined then a maximum tower of 36' above ground level shall be used (including all appurtenance). The zoning district height limit shall not be determinative.
- C. **Tower Diameter.** Tower diameter shall be consistent with the surrounding poles. The applicant shall consider other poles in vicinity, the built environment, the neighborhood character, the overall site appearance and the purposes in these Guidelines.
- D. **Wood Tower Footings and Foundations.** All new wood towers must be direct buried to a depth determined, stamped, sealed and signed by a professional engineer licensed and registered by the State of Tennessee, and subject to review and approval.
- E. **Tapered Metal Tower Footings and Foundations.** All new tapered metal towers must be supported with a reinforced concrete pier designed, stamped, sealed and signed by a professional engineer licensed and registered by the State of Tennessee, and subject to review and approval.
- F. **Tapered Metal Pole Material.** All tapered metal poles must be constructed from hot-dip galvanized steel or other corrosion-resistant material and finished in accordance with these Guidelines to avoid rust stains on adjacent sidewalks, buildings or other improvements.
- G. **Lighting; Banners.** The applicant may be required to install functional streetlights and/or banner brackets if technically feasible when it is determined that such additions will enhance the overall appearance and usefulness of the proposed facility.
- H. **Signage.** Signage and labeling on towers and equipment should be limited only to what is required by FCC and OSHA. In addition, site node information (pole address, node identification number, and emergency contact information) may be included.
- I. **Damage of Equipment.** Upon notification, the wireless communication facility provider must rectify any aesthetic damage to their equipment within 30 days. Any damage that concerns safety must be addressed immediately.

Section 4. Installations on Existing Poles and Other Potential Support Structures

- A. **General.** The Guidelines encourage applicants to consider existing poles and other potential support structures prior to any new pole to reduce congestion in the public right-of-way. All generally applicable design, construction and location standards will be considered when reviewing applications for new facilities installed on existing poles or other potential support structures in the public right-of-way.
- B. **Privately-Owned Structures.** For a privately-owned structure in the public right-of-way onto which an applicant proposes to attach a wireless communications facility, if the owner of the structure requires more

restrictive standards than those contained in these Guidelines, the more restrictive standards shall control. If any portion of a privately-owned structure is on private property, the applicant must first obtain all applicable zoning and building permits prior to submittal.

- C. **City/County-Owned Structures.** The City/County, in its proprietary capacity, retains sole and absolute discretion over whether and on what terms it may allow wireless facilities on its poles and other facilities in the public right-of-way notwithstanding conflicting design provisions set forth in these Guidelines. Applicants may not submit any applications in connection with City/County-owned poles or other facilities without a valid and fully executed agreement to use the specific pole or other facility. The City/County shall not authorize any attachments to City/County-owned infrastructure that negatively impacts the structural integrity of the support structure.
 - 1) **Independent Power Source.** A Wireless Communications Facility on a City/County-owned Potential Support Structure may not use the same power source that provides power for the original purpose of the Potential Support Structure.
 - 2) **City/County-Owned Traffic Control Signal Poles.** The City/County prohibits wireless facilities (and all other non-traffic control facilities) on City/County-owned traffic control signal poles.

Section 5. Additional Design and Construction Standards for Major Modifications

In addition to all applicable General Design and Construction Standards, all major modifications to eligible facilities are to comply with the following requirements:

- A. **Coordination with Original Facility Design.** The applicant must design the proposed installation in a manner that mimics the design and any concealment elements of the existing facility. To the extent feasible, new facilities should utilize capacity in existing equipment cages or cabinets and existing conduits or risers.
- B. **Antennas.** The guidelines discourage side-mounted antennas that overhang the roadway, but may permit side-mounted antennas that overhang the sidewalk provided that the antenna complies with all applicable setbacks and vertical clearance requirements.
- C. **Structural Integrity.** Any additional equipment must not negatively impact the structural integrity of the support structure and must comply with all applicable local, state and federal codes and regulations.

Part 6. Minor Technical Exceptions

In some circumstances strict compliance with these Guidelines may result in undesirable aesthetic outcomes, and minor deviations may be granted when the need for such deviation arises from circumstances outside the applicant's control. For example, if an applicant proposes to construct a standard configuration facility in an office district, but required a pole with a slightly wider base due to poor foundation conditions, the City/County may grant a technical exception rather than subjecting an otherwise preferred design to a standard review. In contrast, if an applicant proposed a 50-foot tall

standard configuration facility in an office district because it desired additional service area, the City/County would apply standard review because the need for additional height arises from the applicant's preferences. This section describes the required findings for a minor technical exception.

Required Findings. The City/County may, in its sole discretion, grant a minor technical exception from strict compliance with the design and location guidelines when:

- A. the applicant has requested an exception in writing;
- B. the proposed facility would normally qualify for minor review but for the need for a minor technical exception;
- C. the need for the exception arises from an external factor outside the applicant's control that impacts public health, safety or welfare, including without limitation soil compaction, existing congestion or clutter within the right-of-way or other location-specific phenomenon;
- D. the proposed deviation from the applicable requirement is less than 10% larger than the generally applicable standard; and
- E. the granting of a minor technical exception would not create any obvious hazard or unreasonable obstruction in the public right-of-way.

Part 7. General Definitions

The following words and phrases used in these guidelines shall have the meanings ascribed to them, regardless of whether or not the words and phrases are capitalized.

Antenna - means any apparatus designed for the purpose of the transmission and/or reception of radio frequency ("RF") radiation, to be operated or operating from a fixed location to facilitate wireless communications services including but not limited to the transmission of writings, signs, signals, data, images, pictures, and sounds of all kinds.

Applicant - means any entity that submits an application to the City/County to site, install, construct, collocate, modify, and/or operate a Wireless Communications Facility in the right of way.

Base Station - means the same as defined by the FCC in 47 C.F.R. § 1.40001(b)(1), as may be amended and interpreted by the FCC and any other authority with competent jurisdiction, which defines that term as follows:

A structure or equipment at a fixed location that enables FCC-licensed or authorized wireless communications between user equipment and a communications network. The term does not encompass a Tower as defined in 47 C.F.R. § 1.40001(b)(9) or any equipment associated with a Tower.

1. The term includes, but is not limited to, equipment associated with wireless communications services such as private, broadcast, and public safety services, as well as unlicensed wireless services and fixed wireless services such as microwave backhaul.
2. The term includes, but is not limited to, radio transceivers, antennas, coaxial or fiber-optic cable, regular and backup power supplies, and comparable equipment, regardless of technological configuration (including Distributed Antenna Systems and small-cell networks).

3. The term includes any structure other than a Tower that, at the time the relevant application is filed with the State or local government under this section, supports or houses equipment described in paragraphs (b)(1)(i) through (ii) of this section that has been reviewed and approved under the applicable zoning or siting process, or under another State or local regulatory review process, even if the structure was not built for the sole or primary purpose of providing such support.
4. The term does not include any structure that, at the time the relevant application is filed with the State or local government under this section, does not support or house equipment described in paragraphs (b)(1)(i)–(ii) of this section.

As an illustration and not a limitation, the FCC’s definition refers to any structure that actually supports wireless equipment even though it was not originally intended for that purpose. Examples include, but are not limited to, wireless facilities mounted on utility poles and other structures in the right of way, light standards, or traffic signals when such structure is approved by the City/County as an appropriate support for wireless transmission equipment. An existing structure without wireless equipment replaced with a new one designed to bear the additional weight from wireless equipment constitutes a base station.

Bonded - The electrical interconnection of conductive parts, designed to maintain a common electrical potential.

Collocation - means the mounting or installation of a Wireless Communications Facility on an existing Eligible Support Structure or Potential Support Structure for the purpose of transmitting and/or receiving radio frequency signals for communications purposes, as more specifically defined by the FCC in 47 C.F.R. § 1.40001(b)(2), as may be amended or superseded.

Eligible Support Structure - means the same as defined by the FCC in 47 C.F.R. § 1.40001(b)(4), as may be amended, which defines that term as “[a]ny tower or base station as defined in this section, provided that it is existing at the time the relevant application is filed with the State or local government under this section.”

Historic or Architecturally Significant Structures - means structures listed or eligible for listing on the National Register of Historic Places either individually or as a contributing historic structure within a National Register District, or is a contributing property located within in a local historic overlay district (H-1) or neighborhood conservation overlay district (NC-1)

Potential Support Structure - means an existing building or structure, other than a Tower as defined in this section, that may be transformed into a base station through the mounting or installation of an antenna or transmission equipment after that City/County approves it as a support structure and the applicant installs transmission equipment pursuant to such approval; Potential Support Structures include but are not limited to buildings, steeples, water towers, utility poles, light poles, City/County-owned structures in the right of way, and outdoor advertising signs.

Right of Way - means real property for or devoted to (1) public transportation purposes; or (2) the placement of the City/County’s utility easements, local power company’s easements and other traditional uses along a transportation route, whether by dedication, prescription, or otherwise, as well as the spaces

above and below. In addition to the foregoing, the definition of right of way includes, without limitation, public highways, streets, avenues, alleys, sidewalks, bridges, aqueducts, and viaducts within the City/County.

Substantial Change - means the same as defined by the FCC in 47 C.F.R. § 1.40001(b)(7), as may be amended, and as applicable to facilities in the public right-of-way, which defines that term as a collocation or modification that:

- a. increases the overall height more than 10% or 10 feet (whichever is greater);
- b. increases the width more than 6 feet from the edge of the wireless tower or base station;
- c. involves the installation of any new equipment cabinets on the ground when there are no existing ground-mounted equipment cabinets;
- d. involves the installation of any new ground-mounted equipment cabinets that are ten percent (10%) larger in height or volume than any existing ground-mounted equipment cabinets;
- e. involves excavation or deployment of equipment outside the area in proximity to the structure and other transmission equipment already deployed on the ground;
- f. would defeat the existing concealment elements of the support structure as determined by the Department;
- g. violates a prior condition of approval, provided however that the collocation need not comply with any prior condition of approval related to height, width, equipment cabinets or excavation that is inconsistent with the thresholds for a substantial change; or
- h. any change that significantly alters the appearance of the pole.

Note: For clarity, the definition includes only the definition of a substantial change as it applies to facilities in the public right-of-way. The thresholds for a substantial change outlined above are disjunctive. The failure to meet any one or more of the applicable thresholds means that a substantial change would occur. The thresholds for height increases are cumulative limits. For sites with horizontally separated deployments, the cumulative limit is measured from the originally-permitted support structure without regard to any increases in size due to wireless equipment not included in the original design. For sites with vertically separated deployments, the cumulative limit is measured from the permitted site dimensions as they existed on February 22, 2012, the date that Congress passed Section 6409(a) of the Middle Class Tax Relief and Job Creation Act.

Tower - means any above ground structure used to support any FCC-licensed or authorized antennas and their associated facilities, that are constructed for wireless communications services including, but not limited to, private, broadcast, and public safety services, as well as unlicensed wireless services and fixed wireless services such as microwave backhaul, and the associated site, as more specifically defined by the FCC in 47 C.F.R. § 1.40001(b)(9), as may be amended or superseded.

Other Associated Equipment - means any equipment that facilitates transmission of any FCC licensed or authorized wireless communications service, including but not limited to radio transceivers, and other relevant equipment associated with and necessary to their operation, including coaxial or fiber-optic cable, and regular and backup power supply, as more specifically defined by the FCC in 47 C.F.R. § 1.40001(b)(8). This definition includes equipment in any technological configuration associated with any FCC authorized wireless transmission, licensed or unlicensed, commercial mobile, private mobile, fixed wireless microwave backhaul, and fixed broadband.

Wireless Communications Facility - means any unstaffed installation for the transmission and/or reception of radio frequency signals for wireless communications services, typically consisting of a tower or base station, transmission equipment, equipment cabinets, and all materials or techniques used to conceal the installation.