

## CHAPTER 23

### ANTENNAS

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**01-23-1: PURPOSE:** The purpose of this Chapter is to establish predicable and balanced regulations for the siting and screening of wireless communications equipment, including technology associated with amateur radio service, satellite dishes, personal wireless service, radio or television transmitting antennas, public safety communication, and public utility microwave equipment, in order to accommodate the growth of wireless communication systems within the City while protecting the public against any adverse impacts on the City's aesthetic resources and the public welfare. The provisions of this Chapter are intended to maximize the use of existing towers, structures, buildings, and collocations to accommodate new wireless telecommunication antennas in order to minimize the number of towers needed to serve the community.

**01-23-2: GENERAL STANDARDS:** The following standards shall apply to all cellular telephone, public utility, microwave, radio and television broadcast transmitting, radio and television receiving, satellite dish and short-wave radio transmitting and receiving antennas:

- A. All obsolete and unused antennas shall be removed by the property owner within twelve (12) months of cessation of operation at the site, unless an exemption is granted by issuance of an administrative permit.
- B. All antennas shall be in compliance with all City building and electrical code requirements and as applicable shall require related permits.

- C. Structural design, mounting and installation of the antenna shall be in compliance with manufacturer's specifications, and as may be necessary as determined by the Zoning Administrator and Building Official, shall be verified and approved by a structural engineer.
- D. When applicable, written authorization for antenna erection shall be provided by the property owner.
- E. No advertising message shall be affixed to the antenna structure or tower.
- F. The height of the antenna shall be the minimum necessary to function satisfactorily, as verified by an engineer or other qualified professional.
- G. Antennas shall not be artificially illuminated unless required by law or by a governmental agency to protect the public's health and safety.
- H. When applicable, proposals to erect new antennas shall be accompanied by any required Federal, State, or local agency licenses or permits.
- I. If a new tower is to be constructed, it shall be designed structurally, electrically, and in all respects, to accommodate both the applicant's antennas and comparable antennas for at least one additional use, including, but not limited to, other cellular communication companies, local police, fire and ambulance companies. Towers must be designed to allow for future rearrangement of antennas upon the tower and to accept antennas mounted at varying heights.
- J. Towers under two hundred feet (200') in height shall be painted a non-contrasting color consistent with the surrounding area such as: blue, gray, brown, or silver, or have a galvanized or oxidized finish to reduce visual impact.
- K. Provide documentation or studies utilized to determine the necessary location and height of the antenna.
- L. In addition to the information required elsewhere in this Article, development applications for towers, excluding amateur radio towers, shall include the following supplemental information:
  - 1. A letter of intent committing the tower owner and their successors to allow the shared use of the tower if an additional use agrees in writing to meet reasonable terms and conditions for shared use.
  - 2. A copy of the relevant portions of a signed lease which requires the applicant to remove the tower and associated facilities when they are abandoned, unused or become hazardous shall be submitted to the City.

**01-23-3: TOWER DESIGN:** General wireless communication towers shall be of a monopole design unless the City Council determines that an alternative design requested by the applicant would better blend into the surrounding environment. This provision does not apply to amateur radio towers or commercial and public radio or television towers.

**01-23-4: CO-LOCATION REQUIREMENT:** Except for amateur radio towers, a proposal for a new tower shall not be approved unless the Zoning Administrator finds that the antennas cannot be accommodated on an existing or approved tower, building, or structure within one mile search radius ~~C/2~~ mile search radius for towers under 100 feet in height) of the proposed tower due to one or more of the following reasons:

- A. The planned equipment would exceed the structural capacity of the existing or approved tower, building, or structure as documented by a structural engineer, and the existing or approved tower cannot be reinforced, modified, or replaced to accommodate planned or equivalent equipment at a reasonable cost.
- B. The planned equipment would cause interference materially impacting the usability of other existing or planned equipment at the tower or building as documented by a qualified engineer and interference cannot be prevented at a reasonable cost.
- C. Existing or approved towers, buildings, or structures within the search radius cannot accommodate the planned equipment at a height necessary to function reasonably as documented by a qualified engineer.
- D. Other unforeseen reasons that make it unfeasible to locate the antennas upon an existing or approved tower or structure.
- E. Existing or approved towers, buildings, or other structures do not exist in the service area, or do not meet the needs of the user. Documentation shall be provided at the time of application clearly demonstrating why existing structures do not meet the needs of the users.
- F. The applicant shall demonstrate in writing that a good faith effort to collocate on existing towers or structures was made, but an agreement could not be reached.

**01-23-5: SETBACKS:** All towers shall comply with each of the minimum setback requirements:

- A. Towers shall meet the principal structure setbacks of the base zoning district with the exception of industrial zoning districts, where the tower may encroach into the rear setback area, provided that the rear property line abuts another industrial use and zoning district and the tower does not encroach upon any easements.

- B. Setback requirements for all personal wireless service or commercial and public radio and television transmitting antennas, public safety communication antennas, and public utility towers, may be reduced or its location in relation to a public street modified at the discretion of the City Council, to allow the integration of the structure into an existing or proposed structure, such as a light standard, power line support device, or similar structure.

**01-23-6: ACCESSORY AND SECONDARY USE ANTENNAS:** The following standards shall apply to all accessory and secondary use antennas including radio and television receiving antennas, satellite dishes, TVROs two meters (2 m) or less in diameter, short-wave radio dispatching antennas, or those necessary for the operation of electronic equipment including radio receivers, ham radio transmitters and television receivers.

- A. Single satellite TVROs accessory to a residential use shall not exceed one meter (1 m) in diameter except as provided for by Section 01-23-8 of this Chapter.
- B. Accessory and secondary use antennas used for federally licensed amateur radio stations or for the amateur radio service shall be regulated by Section 0123-7 of this Chapter.
- C. Accessory or secondary use antennas shall not be erected in any required yard (except a rear yard) or within public or private utility and drainage easements, or buffer yard, and shall be set back a minimum of ten feet (10') from all lot lines.
- D. Guy wires or guy wire anchors shall not be erected within public or private utility and drainage easements, and shall be set back a minimum of five feet (5') from all lot lines.
- E. Accessory or secondary use antennas and necessary support structures or towers, whether freestanding or mounted on another structure, may extend a maximum of fifteen feet (15') above the normal height restriction for the affected zoning district.
- F. The installation of more than one support structure per property shall require the approval of an interim use permit.

**01-23-7: AMATEUR RADIO SERVICE:** The following standards shall apply to all accessory use antennas and towers used in the amateur radio service:

- A. **Exempt Provisions:** Antennas and support structures for federally licensed amateur radio stations and used in the amateur radio service shall be exempt

from the requirement of subsections 01-23-2.F, 01-23-2.1 and 01-23-2.K of this Chapter. All other provisions of Section 01-23-2 of this Chapter shall apply.

- B. **Installation Requirements:** Antennas and towers used in the amateur radio service shall be installed in accordance with the instructions furnished by the manufacture of the antenna or tower. Because of the experimental nature of the amateur radio service, antennas mounted on such towers may be modified or changed at any time so long as the published allowable load on the tower is not exceeded and the structure of the tower remains in accordance with the manufacturer's specifications.
- C. **Location:**
1. Amateur radio service antennas and towers shall not be erected in any required yard (except a rear yard) or within a public or private utility and drainage easement, and shall be set back a minimum of ten feet (10') from all lot lines.
  2. Guy wires or guy wire anchors shall not be erected within public or private utility and drainage easements or required buffer yard, and shall be set back a minimum of five feet (5') from all lot lines.
- D. **Tower Design:**
1. Height:
    - a. Except as provided for in Section 01-23-7.D.1.b of this Article, antennas and towers used in the amateur radio service may extend a maximum of two (2) times the maximum height restriction for the specific zoning district when in use. When not in use, such equipment shall be restricted to a height not greater than the height of the principal structure or thirty five feet (35'), whichever is higher.
    - b. Vertical pole antennas not exceeding three inches (3") in diameter that are utilized in the amateur radio service may extend to a maximum height of forty five feet (45').
  2. Fail Points: Amateur radio towers shall have fail points so as to assure that the structure will collapse on the subject site and not extend to and jeopardize life or adjacent property.
- E. **More Than One Tower:** The installation of more than one tower or support structure per property shall require approval of an interim use permit, subject to the provisions of Chapter 6 of this Article.

**01-23-8: SATELLITE DISHES:**

- A. **Agricultural/Rural or Residential District Standards:** Single satellite dish TVROs greater than one meter (1 m) in diameter may be allowed as an interim use within the residential zoning districts of the City and shall comply with the following standards:
1. All accessory and secondary use provisions of Section 01-23-6 of this Chapter are satisfactorily met.
  2. The lot on which the satellite dish antenna is located shall be of sufficient size to assure that an obstruction-free receive window can be maintained within the limits of the property ownership.
  3. Except where the satellite dish is screened by a structure exceeding the antenna height, landscape buffering and screening shall be maintained on all sides of the satellite dish antenna in a manner in which growth of the landscape elements will not interfere with the receive window.
  4. The interim use permit performance standards of Chapter 6 of this Article are considered and determined to be satisfied.
- B. **Commercial District Standards:** Satellite dish antennas within commercial districts of the City shall be limited to those listed as permitted accessory and secondary uses in the applicable zoning district subject to the provisions of Sections 11-30-11 of this Chapter.
- C. **Industrial District Standards:** Commercial, private and public satellite dish transmitting or receiving antennas in excess of two meters (2 m) may be allowed as a conditional use within industrial districts of the City and shall comply with the following standards:
1. All accessory and secondary use provisions of Sections 01-23-6 of this Chapter are satisfactorily met.
  2. The lot on which the satellite dish antenna is located shall be of sufficient size to assure that an obstruction-free transmit-receive window or windows can be maintained within the limits of the property ownership.
  3. Except where the antenna is screened by a structure exceeding the antenna height, landscape buffering and screening shall be maintained on all sides of the satellite dish antenna in a manner in which growth of the landscape elements will not interfere with the transmit-receive window.
  4. The conditional use permit performance standards of Chapter 5 of this Article are considered and determined to be satisfied.

**01-23-9: PERSONAL WIRELESS SERVICE ANTENNAS:**

**A. Residential District Standards:**

1. Antennas Located Upon A Public Or Quasi-Public Structure Or Existing Tower:  
Personal wireless service antennas located upon public structures or existing towers shall require the processing of an administrative permit and shall comply with the following standards:
  - a. The applicant shall demonstrate by providing a coverage/interference analysis and capacity analysis prepared by a qualified engineer that location of the antennas as proposed is necessary to meet the frequency reuse and spacing needs of the personal wireless service system and to provide adequate wireless coverage and capacity to areas which cannot be adequately served by locating the antennas in a less restrictive district.
  - b. Transmitting, receiving and switching equipment shall be housed within an existing structure whenever possible. If a new equipment building is necessary for transmitting, receiving and switching equipment, it shall be situated in the rear yard of the principal use and shall be screened from view by landscaping where appropriate.
  - c. An administrative permit is issued in compliance with the provisions of Chapter 8 of this Article and the following standards:
    - (1) Antennas mounted on public structures shall not extend more than fifteen feet (15') above the structural height of the structure to which they are attached.
    - (2) Roof-mounted antennas shall not extend more than ten feet (10') above the roof, and shall be set back at least the height of the antenna structure from the roof edge.
    - (3) Wall or facade-mounted antennas may not exceed more than five feet (5') above the cornice line and must be constructed of a material or color which matches the exterior of the building.
    - (4) Antennas may be mounted to quasi-public structures that are allowed to exceed the maximum height requirements of the base district pursuant to Section 01-17-3 of this Article. The location of antennas on such structures may not exceed the height of the structure and must be architecturally compatible in form and color.

2. Antennas Not Located Upon A Public Structure Or Existing Tower:

Personal wireless service antenna not located upon a public or quasipublic structure or existing tower shall require the processing of a conditional use permit and shall comply with the following standards:

- a. The applicant shall demonstrate by providing a coverage/interference analysis and capacity analysis prepared by a qualified engineer that location of the antennas as proposed is necessary to meet the frequency reuse and spacing needs of the wireless system and to provide adequate portable coverage and capacity to areas which cannot be adequately served by locating the antennas in a less restrictive district.
- b. If no existing structure which meets the height requirements for the antennas is available for mounting purposes, the antennas may be mounted on a single ground-mounted pole provided that:
  - (1) The pole does not exceed seventy five feet (75') in height, except as may be allowed by approval of an interim use permit.
  - (2) The setback of the pole from the nearest residential property line is not less than the height of the antenna. Exceptions to such setback may be granted if a qualified engineer specifies in writing that any collapse of the pole will occur within a lesser distance under all foreseeable circumstances.
- c. Transmitting, receiving and switching equipment shall be housed within an existing structure whenever possible. If a new equipment building is necessary for transmitting, receiving and switching equipment, it shall be situated in the rear yard of the principal use and shall be screened from view by landscaping where appropriate.
- d. At the discretion of the City, a security fence not greater than eight feet (8') in height with a maximum opacity of fifty percent (50%) shall be provided around the support structure.
- e. The interim use permit provisions of Chapter 6 of this Article are considered and determined to be satisfied.

B. **Commercial District Standards:**

1. Antennas Located Upon An Existing Structure Or Tower: Personal wireless service antennas located upon an existing structure or collocated on an existing structure shall require the processing of an administrative permit.



- a. Transmitting, receiving and switching equipment shall be housed within an existing structure whenever possible. If a new equipment building is necessary for transmitting, receiving and switching equipment, it shall be situated in the rear yard of the principal use and shall be screened from view by landscaping where appropriate.
  - b. An administrative permit is issued in compliance with the provisions of Chapter 8 of this Article and the following standards:
    - (1) Antennas mounted on public structures shall not extend more than fifteen feet (15') above the structural height of the structure to which they are attached.
    - (2) Roof-mounted antennas shall not extend more than ten feet (10') above the roof, and shall be setback at least the height of the antenna structure from the roof edge.
    - (3) Wall or facade-mounted antennas may not exceed more than five feet (5') above the cornice line and must be constructed of a material or color which matches the exterior of the building.
    - (4) Antennas may be mounted to quasi-public structures that are allowed to exceed the maximum height requirements of the base district pursuant to Section 01-17-3 of this Article. The location of antennas on such structures may not exceed the height of the structure and must be architecturally compatible in form and color.
2. Antennas Not Located Upon An Existing Structure Or Existing Tower:  
Personal wireless antennas not located upon an existing structure shall require the processing of a conditional use permit and shall comply with the following standards:
- a. The applicant shall demonstrate by providing a coverage/ interference analysis and capacity analysis prepared by a qualified engineer that location of the antennas as proposed is necessary to meet the frequency reuse and spacing needs of the cellular system and to provide adequate portable cellular telephone coverage and capacity to areas which cannot be adequately served by locating the antennas in a less restrictive district.
  - b. If no existing structure which meets the height requirements for the antennas is available for mounting purposes, the antennas may be mounted on a monopole tower provided that:

- (1) The pole does not exceed seventy five feet (75') in height, except as may be allowed by approval of an interim use permit.
- (2) The setback of the pole from the nearest residential property line is not less than the height of the antenna. Exceptions to such setback may be granted if a qualified engineer specifies in writing that any collapse of the pole will occur within a lesser distance under all foreseeable circumstances.
- c. Transmitting, receiving and switching equipment shall be housed within an existing structure whenever possible. If a new equipment building is necessary for transmitting, receiving and switching equipment, it shall be situated in the rear yard of the principal use and shall be screened from view by landscaping where appropriate.
- d. At the discretion of the Zoning Administrator, a security fence not greater than eight feet (8') in height with a maximum opacity of fifty percent (50%) shall be provided around the support structure.
- e. The conditional use permit provisions of Chapter 5 of this Article are considered and determined to be satisfied.

**C. Industrial District Standards:**

- 1. Antennas Located Upon An Existing Structure Or Existing Tower: Personal wireless service antennas located upon an existing structure or collocated on an existing tower shall require the processing of an administrative permit and shall comply with the following standards:
  - a. An administrative permit is issued in compliance with the provisions of Chapter 8 of this Article and the following standards:
    - (1) Antennas mounted on public structures shall not extend more than fifteen feet (15') above the structural height of the structure to which they are attached.
    - (2) Roof-mounted antennas shall not extend more than ten feet (10') above the roof, and shall be set back at least the height of the antenna structure from the roof edge.
    - (3) Wall or facade-mounted antennas may not exceed more than five feet (5') above the cornice line and must be constructed of a material or color which matches the exterior of the building.

- (4) Antennas may be mounted to quasi-public structures that are allowed to exceed the maximum height requirements of the base district pursuant to Section 01-17-3 of this Article. The location of antennas on such structures may not exceed the height of the structure and must be architecturally compatible in form and color.
- 2. Antennas Not Located Upon An Existing Structure Or Existing Tower:  
Personal wireless service antennas not located upon a public structure or tower shall require the processing of an administrative permit and shall comply with the following standards:
  - a. If there is no existing structure which meets the height requirements for mounting the antennas, the antennas may be mounted upon a monopole tower not exceeding one hundred fifty feet (150') in height. The tower shall be located on a parcel having a setback equal to the height of the tower measured between the base of the pole or tower located nearest the property line and said property line, unless a qualified engineer specifies in writing that the collapse of the pole or tower will occur within a lesser distance under all foreseeable circumstances.
  - b. An administrative permit is issued in compliance with the provisions of Chapter 8 of this Article.

**01-23-10: TEMPORARY MOBILE TOWERS:** Personal wireless service antennas in all commercial, industrial and public/institutional districts, located upon a temporary mobile tower used on an interim basis, shall require the processing of an administrative permit and shall comply with the following standards:

- A. Temporary mobile towers are exempt from permanent tower structure design and collocation standards contained in Sections 01-23-3 and 01-23-4 of this Chapter.
- B. The termination date of the permit shall not exceed one hundred twenty (120) days. Temporary mobile towers located on a site longer than one hundred twenty (120) days shall require the processing of an interim use permit as provided in Chapter 6 of this Article.
- C. Guyed towers are prohibited.
- D. Mobile units shall have a minimum tower design wind load of eighty (80) miles per hour, or be setback from all structures a distance equal to the height of the tower.

- E. All towers shall be protected against unauthorized climbing.
- F. The height of the tower shall not exceed ninety feet (90'), except as may be allowed by approval of an interim use permit.
- G. Temporary towers shall be prohibited in residential zoning districts.

**01-23-12: COMMERCIAL AND PUBLIC RADIO AND TELEVISION TRANSMITTING ANTENNAS, PUBLIC SAFETY COMMUNICATION ANTENNAS, AND PUBLIC UTILITY MICROWAVE ANTENNAS:** Commercial and public radio and television transmitting and public utility microwave antennas shall comply with the following standards:

- A. Such antennas shall be considered an allowed interim use within the industrial districts and shall be subject to the regulations and requirements of Chapter 6 of this Article.
- B. The antennas, transmitting towers, or array of towers shall be located on a continuous parcel having a setback equal to the height of the antenna, transmitting tower, or array of towers measured between the base of the antenna or tower located nearest a property line and said property line, unless a qualified structural engineer specifies in writing that the collapse of any antenna or tower will occur within a lesser distance under all foreseeable circumstances.
- C. Unless the antenna is mounted on an existing structure, at the discretion of the City, a fence not greater than eight feet (8') in height with a maximum opacity of fifty percent (50%) shall be provided around the support structure and other equipment.
- D. Towers in excess of one hundred fifty feet (150') may be of a lattice design.

**01-23-12: TELECOMMUNICATIONS RIGHTS-OF-WAY USERS:**

- A. **Purpose:** The purpose of this Section is to establish predictable and balanced regulations for the siting and placement of telecommunication facilities, including wireless equipment within public rights of way under the jurisdiction of the City. The City holds the rights of way within its geographical boundaries as an asset in trust for its citizens. The City strives to keep its rights of way in a state of good repair and free from unnecessary encumbrances. The uncontrolled and unregulated placement of telecommunication equipment in the right of way may cause obstruction to pedestrian and vehicular traffic; thereby endangering the public health and safety. This Section establishes the minimum requirements for locating telecommunication facilities within the City's public rights of way in a manner that does not jeopardize the public health, safety and general welfare.

B. **Administrative Permit Required:** The placement of any telecommunication equipment in the public right of way shall require an administrative permit subject to the provisions of Chapter 8 of this Article and shall be processed according to the following:

1. Prior to the installation of any telecommunication equipment, the owner of such service shall file with the City, maps, site plans and other pertinent information as deemed necessary by the Zoning Administrator for review of the proposed project.
2. All wireless communication poles, antennas, radio receivers, and transmitters shall comply with the following standards:
  - a. Antennas and radio transmitter and receiver devices shall be permitted on all electrical transmission towers, and on utility and light poles that do not exceed sixty feet (60') in height.
  - b. The replacement or extension of a utility or light pole shall be permitted provided the pole or extension does not exceed sixty feet (60') in height.
  - c. Antennas and radio transmitter and receiver devices shall not extend horizontally more than twenty four inches (24") from the pole.
  - d. An application to locate wireless antennas and equipment in the right of way shall not be approved unless the applicant demonstrates that the antennas cannot be accommodated on an existing tower, building, or structure located outside of a public right of way within a one-half (1/2) mile search radius, subject to the criteria and standards provided in Section 01-23-2 of this Chapter.
  - e. Wireless antennas and equipment located in the right of way abutting residentially zoned property shall be prohibited, unless the applicant demonstrates by providing a coverage or capacity analysis prepared by a professional engineer that location of the antennas as proposed is necessary to meet the frequency reuse and spacing needs of the wireless system and to provide adequate coverage and capacity to areas which cannot be adequately served by locating the antennas in the right of way abutting a less restrictive zoning district.
  - f. Radio transmitters and receivers attached to an existing utility pole or light standard shall be exempt from Section B.2.c and B.2.a of this subsection provided the following conditions are met:

- (1) Transmitter and receiver devices do not exceed two (2) cubic feet.
- (2) Transmitter and receiver devices do not extend more than eighteen inches (18") from the pole or any existing attachments to the pole.
- (3) Any antennas do not extend more than twenty four inches (24") from the equipment.
- (4) There is no ground-mounted equipment or structures.
- g. All ground-mounted accessory equipment shall be set back at least fifty feet (50') from the nearest principal residential structure.
- h. All ground-mounted equipment shall not exceed five feet (5') in height or twenty (20) square feet in size, and shall be located as far as possible, but at least five feet (5') from the road surface.
- I. In addition to receiving the necessary permits and approvals, the City may require the applicant to enter into an encroachment agreement.

3. Upon determining compliance with the provisions of this Code and Comprehensive Plan, the Zoning Administrator shall issue an administrative permit for the installation and operation of any structure or equipment.

4. The Zoning Administrator may deny a permit or attach conditions to the permit approval to protect the public health, safety and welfare, to prevent interference with the safety and convenience of ordinary travel over the right of way, or when necessary to protect the right of way and its users. The Zoning Administrator may consider one or more of the following factors:

- a. The extent to which right-of-way space where the permit is sought is available.
- b. The competing demands for the particular space in the right of way.
- c. The availability of other locations in the right of way or in other rights of way for the equipment of the permit application.

- d. The preservation of the right of way for uses that, due to their physical nature, do not have the option of locating on private property.
  - e. The applicability of ordinances or other regulations of the right of way that affect location of equipment in the right of way.
- 5. The decision to either grant or deny a permit may be appealed In accordance with the rules set forth in Chapter 3 of this Article.
  - 6. The permittee shall notify the Zoning Administrator upon completion of the work specified in the permit.

C. **Conditional Use Permit Required:** The following require a conditional use permit based upon procedures set forth in and regulated by Chapter 5 of this Article.

- 1. Poles and towers used exclusively for the placement of wireless antennas, provided the pole or tower complies with the standards and criteria set forth in this Chapter.
- 2. Ground-mounted equipment that exceeds the size limit specified In Section 01-23-12.B.2 of this Article.