Chapter 20.58 - Wireless Communication Facilities

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20.58.010 Purpose

This chapter establishes standards for wireless communication facilities. These standards are intended to:

A. Minimize adverse aesthetic impacts of wireless communications facilities;

B. Provide clear and objective standards for the placement, design, and continuing maintenance of wireless communications facilities;

C. Allow for wireless communication providers to improve and expand their systems over time; and,

D. Encourage co-location and use of other existing structures instead of construction of new towers.

20.58.020 Definitions

A. Antenna Array. One or more wireless communication devices—including omni-directional antenna (whip), directional antenna (panel) and parabolic antenna (dish)—that are mounted to a support tower and used for the transmission or reception of radio frequency (RF) signals. For the purposes of this chapter, there are two classifications of antennas or antenna arrays:

1. **Type A.**
   a. Have aggregate square footage of less than 60 square feet.
   b. Extends up to 5 feet above the roofline or is co-located on an existing support tower.
   c. For arrays, contain less than thirteen antennas.
2. **Type B.**
   a. Have aggregate square footage of 60 square feet or more.
   b. Extends 5 feet or more above the roofline or is not co-located on an existing support tower.
   c. For arrays, contain thirteen or more antennas.

B. Central Computer Switching System. Equipment connecting a call placed by a wireless phone or device to either a conventional telephone or another wireless phone or device.

C. Co-Location. The mounting of a wireless communication facility on the same support tower as another wireless communication facility.

D. Equipment Shelter. An enclosed structure, cabinet, shed, or box to house batteries, electrical equipment, and other ancillary equipment for a wireless communication facility.

E. Guyed Tower. A monopole, lattice, or other support tower tied to the ground, another object, or surface by diagonal cables (guy wires).

F. Height. The distance measured from ground level to the highest point on the wireless communication facility. Antenna mounted on a support tower shall be considered part of the facility and shall be included in measurements to determine height.

G. Lattice Tower. A self-supporting tower with multiple legs and characterized by an open framework of lateral cross members that stabilize the tower.

H. Monopole Tower. A self-supporting tower with a single shaft of wood, steel, concrete, or other material.

I. Search Ring. A geographic area identified by the wireless communications service provider within which a wireless communication facility is needed to enhance or expand their service.

J. Stealth Wireless Communication Facility. A wireless communications facility designed to blend in with the existing physical environment, whereby support towers and antenna array cannot be easily detected. Examples include but are not limited to:

1. Antennas placed on flagpoles, water tanks, electricity transmission towers, freestanding signs, architectural features of a building or other structures; or
2. Wireless communications facilities designed to appear as other objects such as a natural feature of the environment, such as a tree or a building's architecture.

K. Support Tower. A freestanding structure, other than a building, on which antenna arrays are mounted.

L. Wireless Communications. Any personal wireless services as defined in the Federal Telecommunications Act of 1996 which includes FCC licensed commercial wireless telecommunications services including cellular, personal communications services (PCS), specialized mobile radio (SMR), enhanced specialized mobile radio (ESMR), paging, and similar services that currently exist or that may in the future be developed.

M. Wireless Communication Facility. Any facility for the transmission or reception of radio frequency (RF) signals through electromagnetic energy, including all wireless communications not exempted by Section 20.58.030, usually consisting of an equipment shelter or cabinet, a support tower and antenna array used to achieve the necessary elevation, and the transmission and reception devices or antenna.

20.58.030 Exemptions

The following facilities are exempt from the standards in this chapter:

A. Send-and-receive citizen band radio antennas operated by federally licensed amateur "ham" radio operators.

B. Industrial, scientific, and medical equipment as regulated by the FCC in 47 CFR Part 18.

C. Facilities used to broadcast television and radio signals.

D. Military and government radar antennas and associated communication towers used for navigational purposes as regulated by the FCC by Title 47 CFR Parts 97 and 95.

E. Government owned communications facilities utilized for a public purpose.

20.58.040 Development Standards

A. Airport Environs. Notwithstanding any other requirements of this chapter, wireless communication facilities shall comply with all requirements of the Merced County Airport Land Use Compatibility Plan.

B. Setbacks and Siting.

1. All equipment shelters or other on-the-ground ancillary equipment shall meet the setback requirements of the zoning district in which they are located.
2. Antenna and antenna arrays are exempt from setback requirements.
3. Support towers less than or equal to 125 percent of the height limit of the zoning district in which they are located shall meet the setback requirements of the zoning district in which they are located.
4. Support towers greater than 125 percent of the height limit of the zoning district in which they are located shall meet the setback requirements of the zoning district in which they are located or 1 foot for every 10 feet of total tower height, whichever produces the greater setback.
5. To the greatest extent possible, support towers should be placed to the rear or side of buildings.

C. Support Tower Location. All wireless communication facilities shall comply with the following location requirements:

1. **Historic Resources.** The installation of a support tower on a local, state or national historic resource is prohibited. Applications to attach an antenna or antenna array shall comply with Chapter 17.54 (Historic Preservation) of the Merced Municipal Code.
2. **Residential Zoning Districts.** The installation of a support tower within 300 feet of a residential zoning district or residential designation as shown on the land use diagram of the Merced General Plan shall require a Conditional Use Permit regardless of the review procedures set forth in Table 20.58-2 (Review Procedures for Support Towers for Wireless Communication Facilities).

D. Color. Support towers shall be provided in a color that best allows it to blend into the surroundings. Antennas shall be placed and colored to blend into the architectural detail and coloring of the host structure.

E. Display. No signs or display shall be located on a support tower or ancillary facilities except for warning and safety signage.

F. Lighting. Except as specifically required by the Federal Aviation Administration (FAA) or other applicable authority, support towers shall not be artificially lighted. In order to reduce glare, lighting for on-the-ground ancillary equipment shall be shielded from the community to the extent allowed by the FAA. Equipment shelters may use security lighting that is appropriately down-shielded to keep light within the boundaries of the site and to minimize impacts on surrounding properties.

G. Screening. All wireless communication facilities shall be screened or stealthed to the maximum extent possible and comply with the following standards:

1. **Landscaping.** Landscaping shall effectively screen views of a wireless communication facility tower site from adjacent properties and be served by an automatic underground irrigation system.

2. **Buffers**. The standard buffer shall consist of a landscaped strip at least 4 feet wide at the site perimeter, and fencing. Vegetation shall be used to cover the fence. Use of barbed wire is prohibited. Existing mature tree growth and natural landforms on the site shall be preserved to the maximum extent possible.

H. Equipment Shelters. Equipment shelters shall be:

1. Located in underground vaults; or,
2. Designed consistent with the architectural features of the buildings immediately surrounding the site locations; or,
3. Camouflaged behind an effective year-round landscape buffer.

I. Radio Frequency Radiation. Upon request to construct a wireless communications facility or to mount wireless communication antennas to an existing wireless communication facility, the applicant shall provide certification by a RF engineer, stating the RFR measurements and documenting that they meet FCC radio frequency radiation standards.

J. Interference. Wireless communication facilities shall not cause interference with public safety communication equipment.

K. Abandoned Wireless Communications Facilities.

1. Upon approval of a wireless communications facility, the City may require financial security acceptable to the City Attorney from the applicant to ensure that the facility, including the support tower, is dismantled and removed if abandoned.
2. Any wireless communication facility that is not operated for a continuous period of 6 months shall be deemed abandoned. The owner of the property and owner or lessee of the wireless communication facility shall restore the site to its pre-existing condition within 90 days of abandonment. If removal and restoration does not occur within 90 days, then the City may remove the wireless communication facility and may restore the site to its preexisting condition.

L. Maximum Support Tower Height and Height Limits. The maximum height of support towers, excluding stealth facilities, shall be as specified in Table 20.58-1 (Maximum Heights for Support Towers). The "Height Limits" for each Zoning District are also shown below for use with Table 20.58-2.

TABLE 20.58-1 MAXIMUM HEIGHTS AND HEIGHT LIMITS FOR SUPPORT TOWERS

Zoning District	Height Limit	125% of Height Limit	140% of Height Limit	Maximum Height
R-1, R-2, R-3, R-MH, R-OV, R-IV, A-G, U-T	35 feet	43.75 feet	49 feet	55 feet
R-4	40 feet	50 feet	56 feet	60 feet
C-N, C-SC	35 feet	43.75 feet	49 feet	70 feet
C-O, C-V, P-OS, P-F	40 feet	50 feet	56 feet	70 feet
C-T, C-G, B-P	40 feet	50 feet	56 feet	100 feet [1]
C-C, D-O, D-COR, D-CM, P-PK	60 feet	75 feet	84 feet	100 feet [1]
I-L , I-H	40 feet	50 feet	56 feet	150 feet [1]
P-D	As permitted by the Site Utilization Plan			

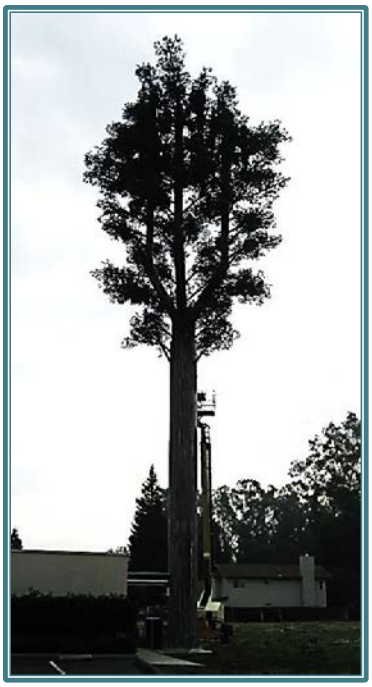
Notes:

[1] The maximum height of support towers with co-location may be increased by an additional 20 ft. as part of the permit process in Table 20.58-2.

20.58.050 Permits Required

A. Permits Required.

1. **Type A Antenna Arrays.** A proposed Type A antenna array shall be approved administratively by the Planning Division if it complies with all applicable standards in this chapter.
2. **Type B Antenna Arrays.**
   a. A proposed Type B antenna array requires the approval of a Site Plan Review Permit.
   b. Any Type B antenna or antenna array considered by the Planning Division to be a stealth facility may be approved administratively by the Planning Division if it complies with all applicable standards in this chapter.
3. **Wireless Communication Facilities with Support Towers.** Table 20.58-2 identifies permits required for wireless communication facilities with support towers. Required permits depend on the type of support tower, the height of the facility, and the zoning district in which the facility is located.



4. **Referral to Planning Commission.** The Planning Division or the Site Plan Review Committee may refer any application for a wireless communication facility for review and final decision by the Planning Commission. In such cases the proposed facility shall require Planning Commission approval of a Conditional Use Permit.

5. **State and Federal Regulations.** If any provisions of this chapter conflict with any State or Federal law, the State or Federal law shall prevail over the requirements of this Chapter. If an applicant wishes to assert their rights under the Federal "shot clock" rule pursuant to FCC Report and Order 14-153 or the State's AB 57, the applicant shall inform the City in writing of such at the time of application and meet all requirements of those regulations and this Chapter.

TABLE 20.58-2 REVIEW PROCEDURES FOR SUPPORT TOWERS FOR WIRELESS COMMUNICATION FACILITIES

	Stealth Wireless Communication Facility and Antennas		Monopole Tower and Antennas		Guyed Tower and Antennas		Lattice Tower and Antennas
	Up to 140% of Height Limit	Over 140% of Height Limit	Up to 125% of Height Limit	Over 125% of Height Limit*	Up to 125% of Height Limit	Over 125% of Height Limit*	Up to the Permitted Tower Height
ZONING DISTRICT							
P-OS, A-G	C	C	C	C	X	X	X
R-1, R-2, R-3, R-4, R-MH, R-IV, R-OV, U-T	SP	SP	C	X	X	X	X
C-O, C-N, C-SC, D-O, C-V, P-F	A	SP	SP	C	X	X	X
C-C, D-COR, D-CM, P-PK	A	A	SP	C	X	X	X
C-T, C-G, B-P	A	A	SP	C	SP	C	C
I-H, I-L	A	A	SP	SP	SP	SP	SP
P-D	See Section 20.58.070.H						

Key

A =	Administrative approval by Planning Division (Building Permit)
SP =	Site Plan Review Permit required
C =	Conditional Use Permit required
X- =	Prohibited
* =	Cannot exceed Maximum Height Limits in Table 20.58-1.

20.58.060 Applications

A. Administrative Approvals.

1. Wireless communication facilities requiring administrative approval by the Planning Division shall be reviewed as part of the Building Permit process.
2. The applicant shall submit all information needed by the Planning Division to verify compliance with the requirements of this chapter as part of the Building Permit application.

B. Site Plan Review and Conditional Use Permits. An application for a proposed wireless communication facility that requires a Site Plan Review or Conditional Use Permit shall submit the following information in addition to the materials required by Chapter 20.68 (Permit Requirements).

1. **Visual Impact Study.** A graphic simulation showing the appearance of the proposed tower, antennas, and ancillary facilities from at least five points within a one-mile radius. Such points shall be chosen by the applicant with review and approval by the Director of Development Services to ensure that various potential views are represented.

2. **Co-location Information.** Evidence demonstrating co-location or that co-location is impractical for reasons of:
   a. Lack of existing support structures.
   b. Structural support capabilities.
   c. Electromagnetic interference that cannot be corrected.
   d. Fees, costs, or contractual provisions required by the owner in order to share an existing support tower or to adapt an existing support tower for sharing are unreasonable (e.g. costs exceeding new tower development are presumed to be unreasonable).
   e. Failing to meet service coverage area needs.
   f. Other limiting factors that render existing support towers unsuitable.
3. **Capacity Information.** A report documenting the anticipated capacity of the proposed support tower, including the number and types of antennas.
4. **Coverage Map.** Within a three-mile radius of the proposed facility, a map with locations and boundaries of the coverage areas and search ring analysis for all of the applicant's anticipated tower sites.
5. **Engineer's Statement.** A statement from a qualified radio engineer documenting the reasons for the location, design, and height of the proposed facility.

20.58.070 Findings

To approve a wireless communication facility requiring a Site Plan Review or Conditional Use Permit, the review authority must make the following findings (if applicable) in addition to the findings required by Chapter 20.68 (Permit Requirements) for the applicable permit:

A. For a proposed lattice tower located in other than an industrial district, the applicant has demonstrated that there is no feasible alternative to use of a lattice tower at the proposed site or within the search ring.

B. The proposed wireless communication facility is designed at the minimal functional height.

C. The location for the wireless communication facility minimizes the visibility of the facility from residentially zoned property and minimizes the obstruction of scenic views from residentially zoned property.

D. Projection of the antenna or antenna array has been minimized to the greatest extent possible.

E. In the case of an application for use of a new site for wireless communication facilities, all reasonable opportunities to locate the facility or to co-locate the facility on an existing structure have been exhausted by the applicant and are not feasible.

F. Support towers located in an agricultural zoning district are located and designed to minimize dangers to aerial sprayers.

G. Sites near the project area, which are poorly suited for other forms of development, are unavailable for use by the wireless communication facility.

H. For planned developments, the underlying land use designation permits and would not be adversely affected by the proposed type of wireless communication facility. For example: in an industrial planned development, a lattice tower may be found to be acceptable while in a residential planned development, a stealth facility or monopole may be found to be acceptable, but a lattice tower would not. To determine the effect of the proposed wireless communication facility on the land use designation and the permit process required, use Table 20.58-2.