

SECTION 1022 – ANTENNAS

SECTION

- 1022.01: Purpose
- 1022.02: General Standards
- 1022.03: Tower Design
- 1022.04: Co-location Requirement
- 1022.05: Accessory Antennas
- 1022.06: Personal Wireless Services Antennas
- 1022.07: Satellite Dishes
- 1022.08: Commercial and Public Radio and Television Transmitting Antennas, and Public Utility Microwave Antennas
- 1022.09: Telecommunications Rights-of-Way Users
- 1022.10: Additional Submittal Requirement

1022.01: PURPOSE: The purpose of this Section is to establish predictable, balanced regulations for the siting and screening of wireless communications equipment in order to accommodate the growth of wireless communicating systems within the City of Big Lake while protecting the public against any adverse impacts on the City's aesthetic resources and the public welfare. The provisions of this Section are intended to maximize the use of existing towers, structures, and buildings to accommodate new wireless telecommunication antennas in order to minimize the number of towers needed to serve the community or area.

1022.02: GENERAL STANDARDS: The following standards shall apply to all personal wireless service, public utility, microwave, radio and television broadcast transmitting, radio and television receiving, satellite dish and short-wave radio transmitting and receiving antenna.

Subd. 1. All obsolete and unused antenna shall be removed within twelve (12) months of cessation of operation at the site, unless an exemption is granted by the Zoning Administrator.

Subd. 2. All antennas shall be in compliance with all City Building and Electrical Code requirements and as applicable shall require related permits

Subd. 3. 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, shall be verified and approved by a structural engineer.

Subd. 4. When applicable, written authorization for antenna installation shall be provided by the property owner.

Subd. 5. No advertising message shall be affixed to the antenna structure.

Subd. 6. The height of the antenna shall be the minimum necessary to function satisfactorily, as verified by an electrical engineer or other appropriate professional.

Subd. 7. Antennas shall not be artificially illuminated unless required by law or by a governmental agency to protect the public's health and safety.

Subd. 8. When applicable, proposals to erect new antenna shall be accompanied by any required federal, state, or local agency licenses.

Subd. 9. 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 (1) additional user, including but not limited to other cellular communication companies, local police, fire and ambulance companies. Towers shall be designed to allow for future re-arrangement of antennas upon the tower and to accept antennas mounted at varying heights.

Subd. 10. Antenna support structures under two hundred (200) feet in height shall be painted a non-contrasting color consistent with the surrounding area, such as blue, gray, or brown to reduce visual impact.

Subd. 11. Except as may be applicable in cases where a conditional use permit is required, antennas and support structures for federally licensed amateur radio stations and used in the amateur radio service are exempt from Subdivisions 3, 6, and 9 above, and must comply with Subd. 12 below.

Subd. 12. Amateur radio towers must be installed in accordance with the instructions furnished by the manufacturer of that tower model. Because of the experimental nature of the amateur radio service, antennas mounted on such a tower 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 manufacturers specifications.

1022.03: TOWER DESIGN: 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.

1022.04: CO-LOCATION REQUIREMENT: 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 a one mile search radius (one-half mile search radius for towers under one hundred (100) feet in height) of the proposed tower due to one (1) or more of the following reasons:

Subd. 1. The planned equipment would exceed the structural capacity of the existing or approved tower, building or structure as documented by a qualified and licensed professional engineer, and the existing or approved tower cannot be reinforced, modified, or replaced to accommodate planned for equivalent equipment at a reasonable cost.

Subd. 2. 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.

Subd. 3. 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.

Subd. 4. Other unforeseen reasons that make it unfeasible to locate the antennas upon an existing or approved tower or structure.

Subd. 5. 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.

Subd. 6. The applicant shall demonstrate that a good faith effort to co-locate on existing towers or structures was made, but an agreement could not be reached.

1022.05: ACCESSORY ANTENNAS: The following standards shall apply to all accessory use antennas including radio and television receiving antennas, satellite dishes, TVRO's, three and one-half (3.5) meters or less in diameter, short-wave dispatching antennas and or those necessary for the operation of electronic equipment including radio receivers, federally licensed amateur radio stations and television receivers. amateur short-wave radio transmitting and receiving antennas. Antennas that are accessory to the principal use of property are permitted accessory uses in all zoning districts provided they meet the following conditions:

Subd. 1. Height. A ground mounted accessory antenna shall not exceed twenty (20) feet in height from ground level.

Subd. 2. Yards. Accessory antennas shall not be located within public or private utility and drainage easements. Accessory antennas shall not be located within the required front yard or side yard, except for wall mounted antennas less than twenty-four (24) inches in dimension, wall mounted to a principal building and the setback encroachment does not exceed two (2) feet.

Subd. 3. Roofs. If vegetation or obstructions interfere with satellite signals at a location in any allowable placement area, the accessory antenna may be placed on the roof of any authorized structure on the premises.

Subd. 4. Setbacks. The height of the accessory antenna attached to an antenna support structure may exceed five feet above the peak of the roof only by conditional use permit. Accessory antennas shall not be located within five (5) feet of any lot lines of adjoining lots or within a drainage or utility easement.

Subd. 5. The installation of more than one (1) support structure per property shall require the approval of a conditional use permit.

Subd. 6. Building Permits. A building permit shall be required for the installation of any accessory antenna requiring a conditional use permit. Building permit applications shall be accompanied by a site plan, and structural components data for the accessory antenna, including details of anchoring. The Building Official must approve the plans before installation.

Subd. 7. Lightning Protection. Each accessory antenna shall be grounded to protect against natural lightning strikes in conformance with the National Electrical Code as adopted by the City of Big Lake.

Subd. 8. Electrical Code. Accessory antenna electrical equipment and connections shall be designed and installed in conformance with the national Electrical Code as adopted by the City of Big Lake.

Subd. 9. Color/Content. Accessory antennas shall be of a neutral color and any lettering or scenes contained on said device qualifying it as a sign shall be subject to the Big Lake Sign Code.

1022.06: PERSONAL WIRELESS SERVICE ANTENNAS:

Subd. 1. Agricultural and Residential District Standards.

1. Antennas located upon a public structure or existing tower: Personal wireless service antenna located upon a public structure or co-located on an existing tower shall require administrative approval and shall comply with the following standards:
 - a. The applicant shall demonstrate by providing a coverage/interference analysis and capacity analysis prepared by a certified engineer that location of the antennas as proposed is necessary to meet the frequency reuse and spacing needs of the personal wireless system and to provide adequate portable personal wireless service 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. A building and use permit is issued in compliance with Section 1006 (Building Permits) of this Ordinance.
2. Antennas not located upon a public structure or existing tower: Personal wireless service antenna not located upon a public structure or co-located upon an 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 certified 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 portable personal wireless service coverage and capacity to areas which cannot be adequately served by locating the antennas in a less restrictive district.
 - b. If no existing, non-residential 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 not exceed seventy-five (75) feet in height.
 - (2) The setback of the pole from the nearest residential structure is not less than the height of the antenna. Exceptions to such setback may be granted if a qualified structural 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 (8) feet in height with a maximum capacity opacity of fifty (50) percent shall be provided around the support structure.
 - e. The conditional use permit provisions of Section 1007 (Conditional Use Permits) of this Ordinance are considered and determined to be satisfied.

Subd. 2. Business District Standards.

1. Antennas Located Upon a Public Structure or Existing Tower: Personal wireless service antenna located upon a public structure or co-located on an existing tower shall require administrative approval and shall comply with the following standards:
 - 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. Antennas mounted on public structures shall not extend more than fifteen (15) feet above the structural height of the structure to which they are attached.
 - c. Building-mounted antennas shall not exceed more than fifteen (15) feet above the roof, and shall be set back at least five (5) feet from the roof edge.
 - d. Wall or façade mounted antennas may not extend more than five (5) feet above the cornice line and must be constructed of a material or color which matches the exterior of the building.
 - e. A building and use permit is issued in compliance with the provisions of Section 1006 (Building Permits) of this Ordinance.
2. Antennas Not Located Upon A Public Structure or Existing Tower. Personal wireless service antennas not located upon a public structure or co-located upon an 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 certified 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 portable personal wireless service 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 not exceed seventy-five (75) feet in height.

- (2) The setback of the pole from the nearest residential structure is not less than the height of the antenna. Exceptions to such setback may be granted if a qualified structural 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 (8) feet in height with a maximum opacity of fifty (50) percent shall be provided around the support structure.
- e. The conditional use permit provisions of Section 1007 (Conditional Use Permits) of this Ordinance are considered and determined to be satisfied

Subd. 3. Industrial District Standards.

- 1. Antennas Located Upon A Public Structure or Existing Tower. Personal wireless service antennas located upon a public structure or co-located on an existing tower structure shall require administrative approval and shall comply with the following standards:
 - a. Building-mounted antennas shall not exceed more than fifteen (15) feet above the roof, and shall be set back at least five (5) feet from the roof edge.
 - b. Wall or façade mounted antennas may not extend more than five (5) feet above the cornice line and must be constructed of a material or color which matches the exterior of the building.
 - c. A building and use permit is issued in compliance with the provisions of Section 1006 (Building Permits) of this Ordinance.
- 2. Antennas Not Located Upon A Public Structure or Existing Tower. Personal wireless service antennas not located upon a public structure or co-located upon an existing tower shall require administrative approval and shall comply with the following standards:
 - a. If 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 (150) feet in height. The tower shall be located on a parcel having a dimension equal to the height of the tower

measured between the base of the tower located nearest the property line and said property line, unless a structural engineer specifies in writing that the collapse of the tower will occur within a lesser distance under all foreseeable circumstances.

- b. A building and use permit is issued in compliance with the provisions of Section 1006 (Building Permits) of this Ordinance.
3. Temporary Mobile Towers. Personal wireless service antennas located upon a temporary mobile tower used on an interim basis until a permanent site is constructed shall require administrative approval and shall comply with the following standards:
- a. Temporary mobile towers are exempt from co-location and permanent tower structure design standards contained in Sections 1022.03 and 1022.04 of this Section.
 - 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 administrative approval.
 - c. Guyed towers are prohibited.
 - d. Mobile units shall have a minimum tower design wind load of eighty (80) miles per hour, or be set back 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 (90) feet.

1022.07: SATELLITE DISHES:

Subd. 1. Agricultural District and Residential District Standards. Single satellite dish TVROs greater than two (2) meters in diameter may be allowed as a conditional use within the Agricultural District and residential zoning districts of the City and shall comply with the following standards:

- 1. All accessory use provisions of Section 1029 (Non-conforming Buildings, Structures, Uses and Lots) of this Ordinance 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 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 receive window.
4. The satellite dish antenna is not greater than three and one-half (3.5) meters in diameter.
5. The conditional use permit provisions of Section 1007 (Conditional Use Permits) of this Ordinance are considered and determined to be satisfied.

Subd. 2. Business District Standards. Satellite dish antennas within the business zoning districts of the City shall be limited to those listed as permitted accessory uses in the applicable zoning district subject to the provisions of Section 1020 (Accessory Buildings, Structures and Uses) of this Ordinance.

Subd. 3. Industrial District Standards. Commercial, private and public satellite dish transmitting or receiving antennas in excess of three and one-half (3.5) meters may be allowed as a conditional use within industrial districts of the City and shall comply with the following standards:

1. All accessory use provisions of Section 1020 (Accessory Buildings, Structures and Uses) of this Ordinance 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 provisions of Section 1007 (Conditional Use Permits) of this Ordinance are considered and determined to be satisfied.

1022.08: COMMERCIAL AND PUBLIC RADIO AND TELEVISION TRANSMITTING ANTENNAS, AND PUBLIC UTILITY MICROWAVE ANTENNAS: Commercial and public radio and television transmitting and public utility microwave antennas shall comply with the following standards:

1. Such antenna shall be considered an allowed conditional use within the I-1 and I-2 Districts of the City and shall be subject to the regulations and requirements of Section 1007 (Conditional Use Permits) of this Ordinance.

2. The antennas, transmitting towers, or array of towers shall be located on a continuous parcel having a dimension 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 registered structural engineer specifies in writing that the collapse of any antenna or tower will occur within a lesser distance under all foreseeable circumstances.
3. Unless the antenna is mounted on an existing structure, at the discretion of the City, a fence not greater than eight (8) feet in height with a maximum opacity of fifty (50) percent shall be provided around the support structure and other equipment.

1022.09: TELECOMMUNICATIONS RIGHTS-OF-WAY USERS: 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 of Big Lake. 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.

Subd. 1. 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 Section 1003 (Administrative Permits) of this Ordinance, and Chapter 14 (Right of Way Management), 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 (60) feet 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 (60) feet in height.

- c. Antennas and radio transmitter and receiver devices shall not extend horizontally more than twenty-four (24) inches 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.
- 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 this Section 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 (18) inches from the pole or any existing attachments to the pole.
 - (3) Any antennas do not extend more than twenty-four (24) inches 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 (50) feet from the nearest principal residential structure.
- h. All ground mounted equipment shall not exceed five (5) feet in height or twenty (20) square feet in size, and shall be located as far as possible, but at least five (5) feet 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.
- j. The following standards shall apply to small cell wireless facilities located within single family residential neighborhoods, in addition to those established in Chapter 14 (Right of Way Management):

- (1) Location shall be as near as practicable to intersections, no less than five (5) feet from the street curb, and no more than five (5) feet from the side lot line extended to the street.
 - (2) Construction shall be of durable materials with an earth tone consistent with the character of the neighborhood.
 - (3) The height shall not exceed the average height of all structures on the block or the maximum height of structures allowed in the district, whichever is less.
 - (4) A detailed survey shall be provided by a registered land surveyor showing all existing aerial, surface and underground utilities within a fifty (50) foot radius of the proposed wireless support structure to identify possible conflicts with existing utility infrastructure.
3. Upon determining compliance with the provisions of the City Code and Comprehensive Plan, the City Engineer shall issue an administrative permit for the installation and operation of any structure or equipment.
4. The City Engineer 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 City Engineer 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 to the City Council within ten (10) days after the Zoning Administrator's written decision. The appeal shall be processed under the rules set forth in Section 1005 (Appeals) of this Ordinance.

6. The permittee shall notify the City Engineer upon completion of the work specified in the permit.

1022.10: ADDITIONAL SUBMITTAL REQUIREMENT: In addition to the information required elsewhere in this Section, development applications for towers, excluding amateur radio towers, shall include the following supplemental information:

Subd. 1. A letter of intent committing the tower owner and their successors to allow the shared use of the tower if an additional user agrees in writing to meet reasonable terms and conditions for shared use.

Subd. 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.