WIRELESS COMMUNICATION FACILITIES

6.4.1 Purpose. The purpose of this By-Law is to establish guidelines to the special permitting process for the siting of wireless communications facilities, towers and antennas within the town of Otis, and to:
1. Preserve the character and appearance of the Town while simultaneously allowing adequate Wireless Communication facilities to be developed.
2. Protect the scenic, historic, environmental, and natural or man-made resources of the community.
3. Minimize adverse impacts of wireless communication facilities and antennas on abutting properties, residential neighborhoods, traveled ways and area of historic or high scenic value.
4. Locate Towers and antennas, to the extent possible, to minimize negative impacts, such as but not limited to, visual blight, noise or falling objects on the general safety, welfare and quality of life of the community.
5. Encourage strongly, the shared use of new and existing tower sites and to minimize the overall number and height of such facilities to only what is essential.
6. Enhance the ability of the providers of telecommunications services to provide such services to the community quickly, effectively, and efficiently.

6.4.2 Definitions. The following terms shall be as defined:

ALTERNATIVE TOWER STRUCTURE: Man-made trees, clock towers, bell steeples, light poles and similar alternative-design mounting structures that camouflage or conceal the presence of antennas or towers.
ACT: The Communications Act of 1934, as it has been amended from time to time, including the Telecommunications Act of 1996, and shall include future amendments to the Communications Act of 1934 and 1996.
ANTENNA: Any structure or device used to collect or radiate electromagnetic waves, including both directional antennas, such as panels, microwave dishes and satellite dishes and omnidirectional antennas, such as panels, microwave dishes and satellite dishes and omni- directional antennas, such as whips but not including satellite earth stations.
ANTENNA HEIGHT: The vertical distance measured from the base of the support structure at grade to the highest point of the structure. If the support structure is on a sloped grade, then the average between the highest and lowest grades shall be used in calculating the antenna height.

ANTENNA SUPPORT STRUCTURE: Any pole, telescoping mast, tower tripod, or any other structure which supports a device used in the transmitting or receiving of radio frequency energy.

BASE STATION. The primary sending and receiving site in a wireless telecommunications network.

CAMOUFLAGED ANTENNA: An antenna and support structure that is manufactured as to be modeled after and mimic a tree. The support pole would look like “bark” and the antennas would be concealed as “branches”.

CHANNEL. The segment of the radiation spectrum from an Antenna which carries one signal. An Antenna may radiate on many Channels simultaneously.

COMMUNICATION EQUIPMENT SHELTER. A Structure located at a Base Station designed principally to enclose equipment used in connection with Wireless Communication Facilities.

DISH ANTENNA: A dish-like antenna used to link communications sites together by wireless transmission of voice or data. Also called microwave antenna or microwave dish antenna.

DISTANCE: shall be measured on a horizontal plane.

EMF. Electromagnetic Frequency Radiation

ERP. EFFECTIVE RADIATED POWER: The product of the antenna power input and the numerically equal antenna power gain.

FAA: the Federal Aviation Administration.

FCC: the Federal Communications Commission. The Government agency responsible for regulating telecommunications in the United States.

FCC 96-326. A Report and Order which sets new national standards for emissions of Radio Frequency emissions from FCC-regulated transmitters. This Report and Order is now contained within Title 47 Regulations, Section 1, 1.137.

GROUND STRUCTURE: a wireless communications structure anchored to the ground.

GOVERNING AUTHORITY: the governing authority of the Town of Otis.

HEIGHT: the distanced measured from ground level to the highest point on the structure.

LATTICE TOWER: A guyed or self-supporting three or four sided, open, steel frame structure, used to support telecommunications equipment.
LICENSE: The rights and obligations extended by the Town to an operator to own, construct, maintain, and operate its system within the boundaries of the Town.
MONITORING. The measurement, by the use of instruments in the field, of the radiation from a Site as a whole, or from individual Wireless Communications Facilities, Towers, Antennas or Repeaters.
MONITORING PROTOCOL. The testing protocol, initially the Cobbs Protocol, which is to be used to monitor the emissions from existing and new Wireless Communications Facilities and Repeaters. The Special Permit Granting Authority (SPGA) may, as the technology changes, require the use of other testing protocols.

MONOPOLE TOWER: A communication tower consisting of a single pole, constructed without guy wires and ground anchors.

NON-RESIDENTIAL STRUCTURE: Such structures as, but not limited to, buildings, grain silos, and water towers, but does not include houses, or apartments.

REPEATER: A small receiver/relay transmitter of not more than 20 watts output designed to provide service to areas which are not able to receive Adequate Coverage directly from a Base Station.

REPEATER SITE: The location within the Town of Otis used by one or more Wireless Communication Facilities Providers and upon which one or more Repeater(s) and required camouflage or screening are located.

ROOF STRUCTURE: A wireless communication structure mounted on a foot of a building or the top of a water tower.

SELF SUPPORT TOWER: A communication tower that is constructed without guy wires and ground anchors.

TOWER: Any structure that is designed and constructed primarily for the purpose of supporting one or more antennas, including self-supporting, lattice towers, guy towers, or monopole towers. The term includes radio and television transmission towers, microwave towers, common carrier towers, cellular telephone towers, alternative towers structures, and the like.
VISUAL BLIGHT: Any change to a landscape that adversely affects visual quality.
WIRELESS COMMUNICATION BUILDING: Any building or shelter used to house equipment primarily for the installation and operation of equipment for generating and erecting electromagnetic radiation and is an accessory to a wireless communication structure.
WIRELESS COMMUNICATION DEVICE: Any antenna, appurtenance, wiring or equipment used in connection with the reception or transmission of electromagnetic radiation which is attached to a structure.
WIRELESS COMMUNICATION FACILITY: Term to include wireless communication building, wireless communication device, and wireless communication structure.
WIRELESS COMMUNICATION STRUCTURE: Any structure or tower intended to support equipment used for the transmission and reception of electromagnetic radiation, including the antennas, wiring or other devices attached to or mounted on a structure.

6.4.3 Exemptions. This Article specifically exempts the following Wireless Telecommunication uses:

1. Wireless communication facilities used exclusively for Town or State emergency services, to include Police, Fire, Ambulance and other emergency dispatch, provided that the Tower is not used or licensed for any commercial purpose.
2. Amateur radio towers used in accordance and in compliance with the terms of any amateur radio service license issued by the FCC and used solely for that purpose. The tower shall be removed upon loss or termination of said FCC license.
3. Wireless communication structures and devices used exclusively for home television and radio reception.

6.4.4 General Guidelines

1. No wireless communication facility shall be erected, constructed, or installed without a special permit from the Zoning Board of Appeals.

2. Only freestanding monopoles with associated antenna are allowed. Lattice style towers and similar facilities requiring three or more legs and/or guy wires for support are not allowed.

3. Alternative Town Structures and Camouflage Antennas shall be preferred over all other types of wireless communication structure and antennas as to minimize adverse impacts on abutting properties, residential neighborhoods, village centers, traveled ways and areas of historic or scenic value.

4. Wherever feasible, wireless communication devices shall be located on existing towers or other non-residential structures, minimizing proliferation of new towers.

5. Wireless communication buildings shall be no larger than 500 square feet and 12 feet high, shall be designed to match other accessory buildings on the site, and shall be used only for the housing of equipment related to this particular site.

6.4.5 Siting and Height Requirements

1. Setbacks
A. The minimum distance from the base of the wireless communication structure to any property line or road right-of-way shall be at least 1.5 times the height of the structure to ensure adequate fall zone.
B. The setbacks for the wireless communication building shall comply with the setback requirements for the zoning district.
C. The wireless communication structure shall be a minimum distance of three times the height from school buildings, playgrounds, athletics fields, and abutting residences to prevent the structure from appearing to “tower” over, adversely affecting property values.
D. No tower shall be situated within 600 feet of any residential structure.

2. The height shall be the minimum height necessary to accommodate anticipated and future use.

3. Wireless communication structures are encouraged on State or Town owned lands, provided that said lands are not subject to the provisions of Article 97 of the Amendments to the Constitution of the Commonwealth of Massachusetts. If facilities predating this By-Law exist on such lands, the shared use of such facilities is encouraged.
4. The wireless communication structure shall, when possible, be sited off ridgelines and where their visual impact is the least detrimental to the general character of the community, or valuable historic and or scenic resources.

6.4.6 Relation to Existing Facilities.
No new wireless communication structure shall be permitted unless the Applicant demonstrates to the reasonable satisfaction of the Special Permit Granting Authority that no existing wireless communication structure can accommodate the Applicant’s proposed wireless communication device. Evidence submitted to demonstrate that no existing structure can accommodate the applicant’s proposed device may consist of any of the following:

1. No existing wireless communication structures or non-residential structures are located within the geographic area required to meet the applicant’s engineering requirements.

2. Existing wireless communication structures or non-residential structures are not of sufficient height to meet the applicant’s requirements.

3. Existing wireless communication structures or non-residential structures do not have sufficient structural strength or cannot be brought up to appropriate strength to support the proposed wireless communication device.

4. The proposed wireless communication device would cause electromagnetic interference with the existing devices on the site, or the existing devices would cause interference with the proposed wireless communication device.

5. The fee, costs, or contractual provisions required by the owner in order to share an existing wireless communication structure or to adapt an existing structure for use are unreasonable.

6. The applicant demonstrates that there are other limiting factors that render the use of existing structures unreasonable.

6.4.7 Design Requirements.
1. Wireless communication structures shall be designed to accommodate the maximum numbers of users as technologically possible.

2. There shall be no signs or advertisements, except for no trespassing signs and a required sign giving a phone number where the responsible party can be reached on a 24-hour basis.

3. All wireless communication devices shall be colored, molded, and/or installed to blend into the structure and/or the landscape.

4. The facility shall be fenced to control access to the tower structure, and accessory buildings. Fencing shall be between six (6′) and eight feet (8′) high. Fencing may be protective in nature, but shall not include a spun barbed wire design. A landscape buffer of evergreen shrubs or tree planting shall be provided on the outside of the fenced area. The shrub or tree planting shall mature to a minimum height to the fence height and be planted at a height of at least four feet (4′).

5. Night lighting of the Tower shall be prohibited unless required by the FAA. If required by the FAA, a copy of the FAA permit requiring lighting shall be submitted with the application.

6. There shall be a minimum of one parking space for each facility to be used in connection with maintenance of the site and not to be used for the storage of vehicles or other equipment.

7. Existing on-site vegetation shall be preserved or replicated to the maximum extent possible.

8. Vegetative screening shall be used to screen the facility from abutting residential properties and roadways. Plants that fit in with the surrounding natural vegetation shall be used.

6.4.8 Application Process. Application for a special permit for siting wireless communication facilities shall be filed in accordance with the rules and regulations established in the Town’s By-Laws and with the Zoning Board of Appeals. In the case of a proposal for siting a new wireless communication structure, the Zoning Board of Appeals shall hold a public hearing within sixty-five days of filing of an application and shall issue a decision within ninety days following the date of the public hearing.

A. TO SITE A NEW WIRELESS COMMUNICATION STRUCTURE, the Applicant shall submit:

1. Site plans and engineering plans, prepared by a professional engineer licensed to practice in Massachusetts, on 24″ x 36″ sheets at a scale of 1″ = 40′ or 1″ = 200′ where appropriate, on as many sheets as necessary, which show the following:

a. North arrow, date, scale, seal’(s) of the licensed professional(s) who prepared plans and space for reviewing licensed engineer’s seal;

b. Name and address of landowner and name and address of abutters;

c. Property lines and location of permanent structures or buildings, within 600-foot radius of proposed wireless communication structure;

d. Existing (from a topographical survey completed within two (2) years of application submittal date by a professional surveyor licensed to practice in Massachusetts) and proposed contour lines at a maximum of 2-foot intervals and spot elevations at base of all the proposed and existing structures;

e. Vegetation to be removed or altered.

f. Plans for drainage of surface water and plans to control erosion and sedimentation both during construction and as a permanent measure;

g. Delineation of wetlands, if any;

h. Location of wireless communication structure, including supports or guy wires, if any;

i. Plans for anchoring and supporting the structure, including specifications of hardware and all other building material;

j. Plans for accessory buildings; and

k. Layout and details of surfacing for access road and parking;

l. Amenities such as lighting, fencing, and landscaping;

m. Four view lines in a one to three-mile radius of the site, beginning at True North and continuing clockwise at ninety-degree intervals, plus additional view lines from any historic, scenic, or other prominent area of Town determined by the Zoning Board of Appeals;

n. Plans for a well or other water source, if any;

o. Plans for septic system, if any;

p. Plans for maintenance of roads necessary to access and maintain the property.

2. A map showing the areas covered/served by the proposed wireless communication structure and device of different signal strengths, and the interface with adjacent service areas.

3. A locus map at a scale 1″ =1000′ or larger if necessary, to show where in town the proposed tower is sited, which shall show streets, buildings, and landscape feature.

4. A description of the soil and surficial geology at the proposed site.

5. A narrative report written by the carrier and licensed professional engineer which shall:
a. Describe the justification of proposed site;

b. Describe the structure and the technical, economic, and other reasons for the facility design;

c. Describe the capacity of the structure, including the number and type of additional facilities it can accommodate;

d. Describe actions to be taken if electromagnetic radiation from the facility should exceed levels designated by the FCC and/or the Act;

e. Describe the projected future needs of the carrier, and how the proposed wireless communications facilities fit with future projections to serve the Town and adjacent towns;

f. Describe leasing agreement should another carrier desire to co-locate;

g. Describe special design features to minimize the visual impact of the proposed wireless communication facility; and

h. Describe other carriers' purpose should they co-locate.

6. Proof of approval of all other necessary permits needed for construction and operation, other than the building permit, as the special permit granted by the Zoning Board of Appeals is required before the issue of the building permit.

7. Written authorization or copy of contract from property owner of the proposed tower site.

8. After the application is submitted, and not less than 14 days or more than 21 days before the public hearing, the applicant shall arrange to fly a four-foot-diameter balloon at the site of the proposed wireless communication structure at the maximum height of the proposed installation, to photograph from various locations the balloon and then superimpose a tower at that height for visualization purposes. The date and location of the flight shall be advertised at least 14 days, but not more than 21 days before the flights, and again in the public hearing advertisement in a newspaper with a general circulation in the town.

B. TO SITE A WIRELESS COMMUNICATION DEVICE ON EXISTING WIRELESS COMMUNICATION STRUCTURES OR NON-RESIDENTIAL STRUCTURES, such as buildings, grain silos, steeples, water towers or other non-residential structures, including co- location with another carrier, provided that the new use does not add to the height of the structure, the Applicant shall submit:

1. Site plans and engineering plans, prepared by a professional engineer licensed to practice in Massachusetts, on 24″ x 36″ sheets at a scale of 1″ =40′ or 1″=200′ on as many sheets as necessary which shows the following:

a. North arrow, date, scale, the seal of the licensed professionals who prepared the plans and a space for the reviewing licensed engineer's seal;

b. Plans for supporting and attaching the device including specifications of hardware and all other building material;

c. Building plans for accessory buildings, if any;

d. Layout and details of surfacing for access road and parking, if it is to be altered form existing condition.

2. A map showing the areas covered by proposed device(s) of different signal strengths and the interference with adjacent service areas.

3. A locus map atascale1″=1000′ or larger, if necessary, to show where in town the proposed device is sited, which shall show streets, buildings, and landscape features.

4. A narrative report written by the carrier and licensed professional engineer which shall:

a. Include a copy of the contract between the structure / building owner (whichever appropriate) and the Applicant;

b. Demonstrate that the wireless communication structure or non-residential structure to which the device will be mounted has the structural integrity to support such device;

c. Describe actions to be taken if electromagnetic radiation from the facility should exceed levels designated by the FCC and/or Act;

d. Describe the projected future needs of the carrier, and how the proposed facility fits with future projections.

5. Proof of approval of all other necessary permits needed for construction and operation, other than the building permit, as the special permit granted by the Zoning Board of Appeals is required before the issue of the building permit.

6. If the proposed facility adds more than five feet to the height of the structure at the effective date of this By-Law, the Zoning Board of Appeals may require a balloon test as described above.

6.4.9 Inventory of Existing Sites. Each applicant shall provide to the Zoning Board of Appeals an inventory of its existing tower facilities that are either within the jurisdiction of the governing authority or within one mile of the border thereof, including specifying information about the location, height and design of each tower facility. The Planning Board and Zoning Board of Appeals may share such information with other applicants applying for administrative approvals or special permits under this By-Law or other organizations seeking to locate facilities within the jurisdiction of the governing authority, provided however, that the Planning and Zoning Board of Appeals are not, by sharing such information, in any way representing or warranting that such sites are available or suitable.

6.4.10 Review by Other Boards. The above information shall be submitted along with the regular application form to the following: 1 copy to the Building Inspector, 1 copy to the Fire Chief, 2 copies to the Planning Board, and 5 copies to the Zoning Board.

6.4.11 Third Party Review. In certain instances, there may be need for expert review by a third party of the technical data submitted by an applicant. The Zoning Board of Appeals or Governing Authority may require such technical, to be paid for by the applicant as set forth in G.L. c. 4, s. 53G. Review is intended to report on technical aspects of the proposed location but not to provide a subjective review of the site requested. Review will address accuracy, completeness, applicability, and validity of the data submitted.

6.4.12 Approval. In granting a special permit for wireless communication facilities, in addition to the findings required by the Town’s Zoning By-Law for Special Permits, the Special Permit Granting Authority and the Zoning Board of Appeals shall determine:
1. That the Applicant has demonstrated to its satisfaction that the requirements of this By- Law have been met.

2. That the size and height of the structure is the minimum necessary.

3. That the proposed wireless communication facilities will not adversely impact historic structures or scenic views.

4. That there are no feasible alternatives to the location of the proposed wireless communication facilities, including co-location that would minimize their impact, and the applicant has exercised good faith in permitting future co-location of facilities at the site.

6.4.13 Modification. Any extension, or construction of new or replacement towers shall be subject to an amendment to the Special Permit, following the same procedure as siting a new wireless

communication device on an existing structure.
Modifications include:
1. Any increase or proposed increase in dimensions of an existing and permitted Tower or other structure designed to support Wireless Communications Facilities transmission, receiving and/or relaying antennas or and/or equipment.
6.4.14 Review. Any special permit for wireless communications facilities will be reviewed every five (5) years. If after review, all conditions regulating said permit are in compliance, then the Special Permit will be renewed for an additional five (5) years.

6.4.15 Conditions of Use
1. The applicant shall post an initial bond or other security to cover construction costs and an annual maintenance bond to cover maintenance for the access road, site, and structure(s) and to cover the removal of facility in the event of non-operation in an amount approved by the Zoning Board of Appeals. An access road may include existing town roads not designed for heavy traffic.

2. Regulatory Compliance: All towers, antennas and transmitters must meet or exceed current standards and regulations of the FAA, the FCC, the Environmental Protection Agency, the American National Standards Institute, the Institute of Electrical and Electronics Engineers, the National Council on Radiation protection and Measurements, and any other agency of the federal government with the authority to regulate towers, antennas, and transmitters.

3. Inspections will be conducted at least every 24 months, or earlier if a more stringent compliance schedule is mandated by another agency, to assure continuing compliance. The tower shall be inspected by an expert-structural engineer who is regularly involved in the maintenance, inspection and/or erection of communication towers, demonstrating structural integrity and continuing compliance with current standards. At a minimum, this inspection shall be conducted in accordance with the tower inspection check list provided in the Electronics Industries Association (EIA) Standard 222, “Structural Standard for Steel Antenna Towers and Antenna Support Structures”.

4 Transmitters shall be inspected by an expert engineer who is regularly involved in the maintenance and inspection of such facilities. An engineer’s certification that levels of electromagnetic radiation (EMR), radio frequency (RF) emissions, to be generated by the facilities on the site, including the effective radiated power (ERP) of the antenna, shall be within the maximum permissible exposure (MPE) limits for the electric and magnetic field strength and power flux density for transmitters and facilities within the guidelines established by the FCC and as required by Section 704 of the Telecommunications Act of 1996 and its amendments. An antenna radiation pattern shall be included for each antenna, along with directional data concerning the pointing of any directive antennas.

5 A copy of such inspection records shall be filed with the Building Inspector and the Planning Board by the Special Permit Holder, and may be reviewed by a licensed professional engineer hired by the town and paid for by the Special Permit Holder.

6 If the FCC, the FAA or other agency regulations are changed, the owner or operator shall bring the facilities into compliance within six months or earlier if a more stringent compliance schedule is included in the regulation.

7 Failure to comply with any regulations shall be grounds for removal of non-complying structures, buildings, devices at the owner’s expense.

6.4.16 Removal and Repair

1. An applicant must execute a covenant with the Zoning board of Appeals agreeing to remove, within 90 days of notice from the town, the wireless communication facility not in operation.

2. If the facility is not removed within 90 days, the Town will remove said facility at the owner's expense.

3. In the event of major damage, repair must begin within 30 days of damage. Major damage shall mean damage to the facility caused by no fault of the owner operator

4. If the device is lowered on the tower as the customer base increases and the top of the tower is no longer needed, then the non-operational part of the tower shall be taken down within 120 days.

6.4.17 Fee Structure

1. An application fee of $300.00 (used for legal publishing and notification requirements). The Special Permit Granting authority retains the right to adjust application fees as needed.

2. Any additional fees as needed pertaining to special consultants specific to the Governing Authority or Zoning Board of Appeals need in reviewing information provided by the applicant

6.4.18 Accommodation of Emergency Communications
1. Space for local, regional, state or federal communications equipment to be placed on the structure to provide emergency communications shall be provided at no cost to the emergency communications authority, in a manner that will provide effective radio or other types of communication, if the location of the structure meets the needs of the emergency authority. There must also be adequate space reserved in the wireless communication building to allow for the necessary equipment to serve these antennae(s). This requirement survives the life of the structure and any change in ownership or carrier. It shall be the responsibility of the Board of Selectmen to facilitate communication between Emergency Services and the Applicant.

2. An applicant who seeks to site a wireless communications facility on a new structure must present to the Select Board and Emergency Services, separate from the Special Permit application, a plan which shows the proposed location, tower height and site plan to begin a process to study the site for emergency communications.