

TOWN of SHREWSBURY, VERMONT

ORDINANCE

For

TOWERS & TELECOMMUNICATIONS FACILITIES

Adopted July 6, 2005

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ARTICLE I: Authority & Purpose

The Town of Shrewsbury Selectboard, on this day, July 6, 2005, hereby ordain that:

The Town of Shrewsbury ordinance referred to as the “Town of Shrewsbury Ordinance for Towers and Telecommunications Facilities” is hereby adopted to state:

A Authority

This ordinance is enacted pursuant to the authority set forth in 24 V.S.A., Section 2291, Subsection 19, to regulate telecommunications facilities within the Town of Shrewsbury in order to:

- 1 Preserve the character and appearance of the Town of Shrewsbury;
- 2 Protect the scenic, historic, environmental, visual and natural or human resources of Shrewsbury;
- 3 Provide standards and requirements for the regulation, placement, design, appearance, construction, monitoring, modification and removal of these facilities;
- 4 Preserve property values within the Town;
- 5 Promote the general safety, health, welfare and quality of life of the citizens of Shrewsbury and all those who visit this community;
- 6 To require the least number of facilities or towers;
- 7 Require the use of existing structures where possible;
- 8 Require the sharing of existing communications facilities, towers, and sites where possible;
and
- 9 Allow adequate telecommunications service to be developed.

B Meaning of Ordinance

This ordinance shall constitute a civil ordinance within the meaning of 24 V.S.A. § 1971.

ARTICLE II: Consistency with Federal Law

A Consistency

This article is intended to be consistent with state and federal law, particularly the Telecommunications Act of 1996 in that:

- 1 It does not prohibit or have the effect of prohibiting the provision of personal wireless services;
- 2 It is not intended to be used to unreasonably discriminate among providers of functionally equivalent services;
- 3 It does not regulate personal wireless services on the basis of the environmental effects of radio frequency emissions to the extent that the regulated services and facilities comply with the FCC's regulations concerning such emissions.

ARTICLE III: Establishment of Telecommunications Review Board

A Establishment of Board

The Shrewsbury Development Review Board (DRB), or its successor, shall review all applications for towers and telecommunications facilities within the Town of Shrewsbury, pursuant to this ordinance.

B Provision for Hiring Independent Consultants

In connection with review of an application for a permit under this ordinance, the DRB may determine that it needs the assistance of an independent consultant or consultants to evaluate the application under applicable standards of this ordinance. Upon making such determination, the DRB may hire independent consultants, the customary costs of whose services shall be paid for by the applicant. These consultants shall be qualified professionals with an appropriate combination of training, record of service, and/or certification in one of the following fields:

- 1 Telecommunications/radiofrequency engineering,
- 2 Structural engineering,
- 3 Assessment of electromagnetic fields,
- 4 If determined necessary by the Board, other fields.

The DRB may provide any independent consultant(s) hired pursuant to this section with the full application for the proposed telecommunications facility for their analysis and review.

ARTICLE IV: Required Permit

A Permit Application

All applicants for a telecommunications facility permit shall complete a permit application using a form established by the DRB. If the owner of the facility and the property owner on which the facility is to be located are not the same, the two parties shall be co-applicants. The completed application with supporting documentation as required by Article VIII of this ordinance shall be filed with the Zoning Administrator of the Town of Shrewsbury.

B Public Hearing

Upon the filing of an application for a telecommunications permit, the Board shall hold a public hearing preceded by public notice meeting the requirements of 24 V.S.A. § 4447. Within thirty (30) days of completion of the public hearing, the DRB shall issue a written decision approving, approving with conditions, or denying the application.

C Permit is Required before Work Commences

No tower or telecommunications facility shall be erected, constructed, installed or substantially modified without first obtaining a Telecommunications Permit (“permit”) from the DRB.

D Documentation of Denial

Any decision by the DRB to deny an application for a permit under this article shall be in conformance with 47 U.S.C. 332(7)(B)(iii) of the Act, in that it shall be in writing and supported by substantial evidence contained in a written record.

E Term of Permit

A Permit issued for any telecommunications facility shall be valid for ten (10) years from the issuance of said permit. At the end of that time period, the telecommunications facility shall be removed by the carrier or a renewal of the Permit shall be required.

ARTICLE V: Exemptions

A List of Exempt Facilities

The following telecommunications facilities (if no higher than 35 feet, as measured from the average elevation of the finished grade to the highest point of the facility) are exempt from this Ordinance.

- 1 amateur (ham) radio
- 2 citizens band radio
- 3 local business radio dispatch
- 4 personal use antennae.

B Municipal Dispatch Services

Telecommunications facilities for municipal dispatch services are exempt, regardless of height.

C Temporary Facility

A temporary facility (tower, pole, antenna, etc., intended for testing purposes, for use while a permanent facility is under construction or being repaired, or for a special event or conference) may exceed 35 feet. A temporary facility, utilized for no longer than thirty (30) days, is exempt from this article. Any temporary facility permit shall be issued by the Zoning Administrator. The applicant for the temporary facility permit shall provide, in writing, information describing the temporary facility, stating the purpose for the facility, and establishing the dates during which it will be utilized. The Zoning Administrator may extend the length of a permit for a temporary facility, erected during repairs to a permanent facility, if evidence is provided that repair work is proceeding in a timely manner.

No other Telecommunications Facility shall be considered exempt from this ordinance for any reason whether or not said Facility is proposed to share a Tower or other structure with such exempt uses.

A temporary facility shall be removed immediately upon expiration of any permit and the site shall be restored to the same condition that existed prior to the construction of the temporary facility.

ARTICLE VI: Fees

A Fee Schedule

A schedule of fees for telecommunications facilities permitting and renewal, any monitoring and inspection of structures, and any other fees shall be established by the Shrewsbury Selectboard. This schedule may be amended from time to time.

ARTICLE VII: Project Review Criteria

A Criteria

The DRB shall determine that all of the following criteria which are applicable are met before granting the permit:

- 1 Applicant is not already providing adequate coverage and/or adequate capacity to the area to be served; and
- 2 Applicant is not able to use existing tower/facility sites either with or without the use of repeaters to provide adequate coverage and/or adequate capacity to the area to be served; and
- 3 Applicant has endeavored to provide adequate coverage and capacity to the area to be served with the least number of facilities and/or towers, and/or least obtrusive design; and
- 4 Efforts have been made to locate new towers adjacent to existing towers, and
- 5 Applicant has agreed to rent or lease available space on the tower, under the terms of a fair market lease, with reasonable conditions and without discrimination to other telecommunications providers; and
- 6 The proposed facility will be built and maintained in compliance with FCC Rules, and the transmission of radiofrequency energy shall be such that human exposure is in compliance with Rules & Regulations specified in 47 C.F.R. Part 1-Practice and Procedure, Subpart I-Procedures Implementing the National Environmental Policy Act of 1969; and
- 7 The proposed facility will be located so as to minimize the following potential impacts:

- a Visual/Aesthetic

Telecommunications facilities shall, when possible, be sited off ridge lines, and where their visual impact is least detrimental to scenic areas. In determining whether or not a facility will have an undue adverse visual impact on the scenic or natural beauty of a ridge or hillside, the DRB shall consider:

- i The period of time during which the proposed telecommunication facility would be viewed by the public on a public highway, path or body of water;
- ii The frequency of the view of the proposed telecommunication facility as experienced by the public;

- iii The degree to which the view of the telecommunication facility is screened by topographic features;
- iv Background features in the line of sight to the proposed telecommunication facility, which obscure the facility or make it more conspicuous;
- v The distance of the proposed telecommunication facility from the viewing vantage point and the proportion of the facility that is visible above the skyline; the number of vehicles and/or viewers traveling on a public highway, path or waterway at or near the critical vantage point; and
- vi The sensitivity or unique value of the particular view affected by the proposed development.

b Property values:

The facility shall not have an undue adverse impact on surrounding property values as determined by current real estate market trends or by changing a surrounding property's assessment (eg. views, neighboring properties, character/type of neighborhood).

c Safety hazards:

The facility shall not be situated in such a way as to cause a safety hazard in the case of structural failure, ice accumulation and discharge, and attractive nuisance.

d Environmental Impact:

The facility shall not have an undue adverse impact on wildlife or wildlife habitat, on wetlands, on streams and waterways, on water quality, on ambient noise levels, or on air quality.

8 The proposed facility shall be located as follows:

a Location by Zoning District

Except as prohibited elsewhere in this ordinance, the telecommunication facility shall be located in one of the following Districts as designated in the Shrewsbury Zoning Regulations:

- i Commercial
- ii Rural Residential
- iii Limited Residential

Exception: Except as prohibited elsewhere in this ordinance, Repeaters and Cable Microcell Integrators may be located in one of the following Districts as designated in the Shrewsbury Zoning Regulations:

- iv Commercial
- v Rural Residential
- vi Limited Residential
- vii Village Residential
- viii Historic Districts A, B, C, and D

g Location by Overlay District

Telecommunications facilities shall not be located in the following districts or overlay zones, as designated by the Shrewsbury Zoning Regulations:

- i Shrewsbury Peak;
- ii The habitat of any state listed rare or endangered wildlife or plant species;
- iii Any State or Federally designated wetlands; or
- iv Within 300 feet of sites which are known to be habitually used by significant numbers of birds for feeding, breeding or roosting.
- v Within any mapped deeryard, bear corridor, or other significant wildlife area that would conflict with the purpose of that area.

h Alternate locations:

Telecommunication facilities may not be approved within any other zoning districts under the Zoning Regulations, unless location in another district has been clearly demonstrated to be the only feasible way to provide adequate service.

i General zoning requirements:

The facility shall meet minimum lot size and other dimensional requirements of the Zoning Regulations for the district in which it is to be located. The facility shall not be considered a separate use for the purpose of density calculations.

ARTICLE VIII: General Project Requirements

A Access Roads & Above Ground Utilities

Where new telecommunication towers and facilities require construction of or improvement to access roads, to the extent practicable, roads shall follow the contour of the land, and be constructed or improved within existing forest or forest fringe areas, and not in open fields.

Utility or service lines shall be designed and located so as to minimize or prevent disruption to the scenic character or beauty of the area. Utility or service lines shall be underground cable unless permitted otherwise by the DRB in order to minimize disruption to the site. The DRB shall require closure of access roads to all motorized vehicles following facility construction except for authorized maintenance personnel. The applicant shall allow use of the road for non-motorized public activities such as hiking, x-county skiing, horseback riding, etc.

B Landscaping/Screening

Screening shall be required at the perimeter of the site. A natural or planted vegetative screen of a minimum of twenty (20) feet in depth and eight (8) feet in height shall be maintained at all times. Vegetation shall be of a type that has the potential to reach a height of at least fifteen (15) feet at maturity. Existing vegetation surrounding the site shall be preserved and maintained to the greatest extent possible. Applicant shall obtain a financial surety to cover the cost of the remediation of any damage to the landscape which occurs during the clearing of the site.

Existing on-site vegetation outside the immediate site for the wireless facility shall be preserved or improved. Disturbance to existing topography shall be limited to the absolute minimum required.

C Fencing and Signs

The area around the tower and communication equipment shelter(s) shall be completely fenced for security to a minimum height of eight (8) feet and gated. Use of razor wire is not permitted. A sign no greater than two (2) square feet indicating the name of the facility owner and a 24 hour emergency telephone number, either local or toll-free, shall be posted adjacent to the entry gate. In addition, "No Trespassing" or other warning signs, and the federal tower registration plate, where applicable, may be posted on the fence or as required to meet federal requirements.

D Building Design

Communication equipment shelters and accessory buildings located on the telecommunication site and property shall be designed to be architecturally similar to each other, and shall be no more than twelve (12) feet high, unless the DRB determines that a higher structure would be more compatible with the surroundings. Equipment shelters and other accessory buildings shall be designed consistent with traditional New England architectural styles and materials, with a roof pitch of at least 6/12 and wood clapboard or shingle siding, and shall be as small as possible to feasibly serve the intended purpose.

The buildings shall be used only for the housing of equipment related to this particular site. Whenever possible, the buildings shall be joined or clustered so as to appear as one building.

E Tower Finish

New towers shall have a galvanized finish unless otherwise required. The DRB may require the tower(s) to be painted or otherwise camouflaged to minimize the adverse visual impact.

F Commercial Advertising

Commercial advertising shall not be allowed on any telecommunications facility as defined in Article XV.

G Lighting

No external lighting is permitted, except for manually operated emergency lights for use when operating personnel are on site, or as excepted in Section I below. Emergency lighting shall be shielded from abutting properties. Area emergency maintenance lighting shall be full cut-off type. Illumination levels (horizontal, measured at the ground) shall be 0 footcandles at the edge of property.

H Noise

The sustained (for a period of one hour) sound pressure level of any telecommunication facility equipment shall not exceed the 60 decibel level at the property line between the hours of 7:00 a.m. and 7:00 p.m., and shall not exceed the 52 decibel level (or 1 db above the ambient decibel level) at the property line between the hours of 7:00 p.m. and 7:00 a.m. If the noise is impulsive (i.e. hammering), intermittent (i.e. machine sounds) or periodic (i.e. hums or screeches), the maximum sound pressure levels described above shall be reduced by five (5) db.

I Air Navigation

With the permit application, the applicant shall provide a document from the FAA indicating the proposed facility does not pose a hazard to air traffic and does not require obstruction lighting.

In the event of subsequent FAA determination that obstruction lighting or painting is required, Permittees under this ordinance agree to abandon and relocate the tower.

J Height of Towers

New towers shall not exceed 10 feet above both existing and potential treetops within a 200 foot radius. Applicant may submit a request for additional height to provide adequate service, to accommodate future sharing, or to provide indirect service as described in Article X. (C.), of this article, and shall provide design information to justify such additional height. Such additional height shall not cause an undue adverse aesthetic impact on the scenic character or appearance of the area.

K Setback Requirements

- 1 No telecommunications facility, including guy-wire anchors and protective fencing, if any, shall be located:
- 2 Closer than 500 feet horizontally from a structure intended for human occupancy as principal use.

Exception: Low power telecommunication facilities such as repeaters or cable microcell integrators may be located up to 100 feet horizontally from a structure intended for human occupancy as principal use.

- 3 Closer than 300 feet horizontally to any boundary of the site on which the tower is located, or 1.5 times the height of the facility, whichever is greater.
- 4 Within 200 feet horizontally of any state or federally regulated wetland boundary.
- 5 Within 200 feet horizontally of the riparian zone boundary measured horizontally from any river or perennial stream.
- 6 Within 200 feet horizontally from a designated scenic road or highway.

L Location on an Historic Structure or Within an Historic District

Any telecommunications facility located on or within an historic structure shall not alter the character-defining features, distinctive construction methods, or original historic materials of the building. Any alteration made to an historic structure to accommodate a telecommunications facility shall be fully reversible. Any telecommunications facility located on or within an historic district shall be concealed within or behind existing architectural features, or shall be located so that they are not visible from public roads and viewing areas

within the district.

ARTICLE IX: Legal & Technical Documentation

A Federal & State Permits

In connection with its review, the DRB may request copies of all pertinent submittals and showings including, but not limited to: FCC permitting/licensing; Environmental Assessments and Environmental Impact Statements ; FAA Notice of Construction or Alteration; aeronautical studies; all pertinent data, assumptions and calculations related to service coverage; and all pertinent calculations and/or measurement data related to non-ionizing radiation emissions and exposure; location, type, and amount of hazardous materials (as defined by the federal or state government) proposed to be stored on site; Act 250 permit application; wetlands permit; any other documents as may be required to permit, construct, modify or operate a telecommunications facility.

B Applicant/Contract with Provider

Applicants for a telecommunications tower or facility permit must be a telecommunications provider and an FCC licensee or must provide a copy of its executed lease/contract with an existing telecommunications provider to provide land and/or facilities to the telecommunications provider. A permit shall not be granted for a tower to be built on speculation.

C Contacts

Applicant shall submit the exact legal name, address or principal place of business and phone number of the following:

- 1 The applicant or applicants as well as an applicant's registered agent and registered office. If the applicant is not a natural person, the name and address of the business and the state in which it is incorporated and has its principal office shall be provided.
- 2 The person to whom correspondence or communications in regard to the application is to be sent. Notice, orders and other papers may be served upon the person so named, and such service shall be deemed to be service upon the applicant.
- 3 The person to be contacted and who is authorized to act or respond to any matters regarding the application, the design, and the construction and operation of the facility.
- 4 The person to be contacted in the event of an emergency that is available on a 24-hour basis and is authorized by the applicant to act on his behalf regarding said emergency.
- 5 All leasehold rights owners and copies of all leases/contracts.

6 Owner of the property on which the proposed tower shall be located, and the owner(s) of the proposed facility. Written permission of the owner(s) of the proposed property(s) or facility site(s) of landowners and of landowner(s) of deeded rights of way(s) for the project access for the town's independent consultant(s) to conduct any necessary site visit(s).

7 Names and addresses of the record owners of all abutting properties.

D Insurance, Bonds, Fees & Indemnification

The following items shall accompany the permit application for a telecommunications facility.

1 Proof of insurance coverage

The applicant shall be required to provide a certificate of insurance demonstrating it has a minimum of one million dollars (\$1,000,000.00) in general liability insurance covering any liability arising out of its construction, operation or dismantling of the telecommunication facility. The certificate shall contain a requirement that the insurance company shall notify the Town thirty (30) days prior to the cancellation, modification, or failure to renew the insurance coverage required.

2 Bonding

Applicant shall, as a condition of the permit, provide a financial surety bond payable to the Town of Shrewsbury and acceptable to the DRB to cover the cost of removal of the telecommunications facility and the remediation of the landscape, should the facility discontinue operation. Such bond shall be executed prior to construction of the facility. In order to provide for potential increases in cost, the bond shall be in an amount equal to 150% of the estimated cost of removal and site remediation.

3 Performance Bond

The applicant shall provide a performance bond to protect the facility building site during construction and to hire consultants/engineers to review applications and to monitor the facility construction.

4 Permit fees

Upon submission of signed application that meets all of the criteria herein described, including all supporting documents and maps, an application fee as determined by the fee schedule shall be submitted to the Town of Shrewsbury.

5 Indemnification

The Town shall not authorize a telecommunications facility siting until and unless the Town obtains an adequate indemnification from the applicant. The indemnification must at least:

- a Release the Town of Shrewsbury from, and against, any and all liability and responsibility in or arising from the construction, operation, or repair/maintenance of the telecommunications facility. The telecommunications facility operator must further agree not to sue or seek monies or damages from the Town in connection with the above mentioned matter.
- b Indemnify and hold harmless the Town of Shrewsbury, its elected and/or appointed officers, agents, servants, and employees from and against any and all claims, demands, or causes of action whatsoever kind of nature, and the resulting losses, costs, expenses, reasonable attorney's fees, liabilities, damages, orders, judgments or decrees sustained by the town or any third party arising out of, or by any reason of, or resulting from, or out of each telecommunications facility's operator's, agent's, employee's, or servant's negligent acts, errors or omissions.
- c Provide that the covenants and representations relating to the indemnification provision shall survive the term of any agreement and continue in force as to the responsibility of the party to indemnify.

E Commitment to Available Space

Applicants for new tower construction or modification permits shall provide a written, irrevocable commitment valid for the duration of the existence of the tower, to rent or lease available space for collocation on the tower at fair market prices and terms, without discrimination to other telecommunication providers.

F Lease of Tower

Applicants for a permit for a facility to be installed on an existing structure shall provide a copy of their lease/contract with the owner of the existing structure.

G Plans & Maps

Required physical plant (structures, buildings, and electrical, communications, and mechanical equipment) plans, prepared, stamped and signed by a professional engineer licensed to practice in Vermont shall be submitted. Survey plans shall also be stamped and signed by a land surveyor registered in Vermont. Signal propagation and radio-frequency studies, plots and related material shall be prepared, clearly identified and signed by a qualified radio-frequency engineer. Plans shall be on 24" X 36" sheets, on as many sheets as necessary, and at scales which are no less precise than listed below. Each plan sheet shall have a title block indicating the project title, sheet title, sheet number, date, revision dates, scale(s), and original seal(s) and signature(s) of the professional(s) who prepared the plan.

1 Location Map

Copy of a portion of the most recent U.S.G.S. Quadrangle map, at a scale of 1:25,000 or 1:24,000, and showing the area within at least two miles from the proposed tower site. Indicate the tower location and the exact latitude and longitude (degrees, minutes, and seconds to the nearest tenth).

2 Radiofrequency plots

Radial or tiled coverage plots showing existing and proposed facilities' coverage per Article XI: Evidence of Need.

3 Vicinity Map

At a scale of 1 inch = 500 feet (1:500) with contour intervals no greater than ten feet showing the entire vicinity within a 2500 foot radius of the tower site, and include the topography, public and private roads and driveways, buildings and structures, bodies of water, wetlands, landscape features, historic sites, habitats for endangered species. Indicate the property lines of the proposed tower site parcel and of all abutters to the tower site parcel (from assessors' maps or available surveys). Indicate any access easement or right of way needed for access from a public way to the tower, and the names of all abutters or property owners along the access easement or who have deeded rights to the easement.

4 Existing Conditions Plan

A recent survey of the area within 500 feet of the tower site at a scale no smaller than 1 inch = 40 feet (1:480 or metric equivalent 1:500) with topography drawn with a minimum of 5 feet (1.5 meter) contour intervals, showing existing utilities, property lines, existing buildings or structures, stone walls or fence lines, wooded areas, existing water wells and springs. Show the boundary of any wetlands or flood plains or watercourses, and of any bodies of water included in the Official Flood Hazard Area within 500 feet from the tower or any related facilities or access ways or appurtenances. Show existing tree cover on the property and adjacent properties, describing dominant species and average height. The survey plan must have been completed, on the ground, by a land surveyor (registered in Vermont) within two years prior to the application date.

5 Proposed Site Plans

Proposed facility and surrounding site layout at a scale no smaller than 1 inch = 40 feet, grading and utilities. Proposed site plans shall include the following:

- a Proposed tower location and all accessory buildings, barriers/fencing. Indicate property

boundaries and setback distances to the base(s) of the tower and to the nearest corners of each of the appurtenant structures to those boundaries, and dimensions of all proposed improvements. Indicate horizontal and radial distances of proposed antennae and repeaters to nearest dwelling and other existing buildings.

- b Proposed utilities, including distance from source of power, sizes of service available and required, locations of any proposed utility or communication lines, and whether underground or above ground, utility poles, transformer, and riser conduits. Include a copy of documentation from the local electric utility indicating their ability to serve the site and the facility.
 - c Proposed spot elevations at the base of the proposed tower and at the base of any guy wires, and the corners of all appurtenant structures.
 - d Any direct or indirect wetlands alteration proposed and copies of required state and/or federal permits.
 - e Detailed plans for drainage of surface and/or sub-surface water and plans to control erosion and sedimentation both during construction and as a permanent measure.
 - f Plans of proposed access driveway or roadway and parking area at the tower site. Include grading, drainage, and traveled width. Include a cross section of the access drive indicating the width, depth of gravel, or surface materials.
 - g Plans shall demonstrate the facility's compliance with this bylaw's setback requirements.
- 6 Proposed Facility Plans

Proposed facility layout at a scale no smaller than 1 inch = 10 feet, grading and utilities. Proposed facility plans shall include the following:

- a Proposed tower location and any appurtenances, including supports and guy wires, if any.
- b Proposed accessory building(s) with proposed purpose indicated (communication equipment shelter or other).
- c Proposed fencing (security barrier) and access gate(s), and signage.
- d Proposed spot elevations at the base of the proposed tower and at the base of any guy wires, and the corners of all appurtenant structures.
- e Proposed utilities at the site, including utility poles, transformer, and riser conduits.
- f Proposed exterior illumination calculation plan, based upon the proposed exterior lighting, as limited by Article IX, (G.), showing calculated average footcandle (fc)

contour lines at 5 fc, 1 fc, 0.2 fc, and 0 fc on the ground (at a minimum). Calculations shall be based upon lamp mean lumen output which shall be shown on the plans.

- g Proposed emergency generator and fuel tank(s). Proposed emergency generator information provided shall include:
 - i Percent of electrical power demand being proposed to be generated in event of loss of commercial power.
 - ii Type of fuel, storage method, and expected means and frequency of fuel delivery to the site for power generation.
 - iii Level of noise created by any emergency power generation equipment, measured at the property line.
 - iv Amount of generator run time (frequency and duration of occurrences) based on historical power reliability for the area of the facility, proposed frequency and duration of tests, and description of muffler system and methods for noise abatement.
 - v Feasibility of alternative solar power/wind power in conjunction with storage batteries.
- h Plans indicating locations and specifics of proposed screening, landscaping, ground cover, fencing, and any exterior lighting or signs. Include details of landscaping including plant and tree types, initial size (at planting) and full grown size.
- i Plans of proposed access driveway or roadway and parking area at the tower site. Include grading, drainage, traveled width. Include a cross section of the access drive indicating the width, depth of gravel, or surface materials (or refer to site plans).
- j Plans showing any changes to be made to an existing facility's landscaping, screening, fencing, lighting, drainage, wetlands, grading, driveways or roadways, parking, or other infrastructure as a result of a proposed modification of the facility.

7 Siting Elevations

Siting elevations, or views at grade shall be at ¼" = 1 ft. scale and shall show the following:

- a Proposed tower and appurtenances
- b Security barrier and/or fence(screening) with a cutaway to show the view behind the barrier
- c All buildings, structures and exterior mounted equipment
- d Existing trees and shrubs at current height and proposed trees and shrubs at proposed height at time of installation

- e Proposed exterior lighting and signage.
 - f Grade changes, or cuts and fills, to be shown as original grade and new grade line.
- 8 Proposed Tower and Appurtenances Details:
- a Plans, elevations, sections and details at appropriate scales but no smaller than 1 inch = 10 feet.
 - b Two cross sections through proposed tower drawn at right angles to each other, and showing the ground profile to at least 100 feet beyond the limit of clearing, and showing any guy wires or supports. Dimension of the proposed height of tower above grade at tower base. Show all proposed antennae, including their location on the tower.
 - c Details of proposed tower foundation, including cross sections and details. Show all ground attachments, specifications for guy wires, anchor bolts and other anchoring hardware.
 - d Details of proposed exterior finish of the tower.
 - e Relative height of the tower to the tops of surrounding trees as they presently exist, and the height to which they are expected to grow in ten years.
 - f Illustrations of the modular structure of the proposed tower indicating the heights of sections which could be removed or added in the future to adapt to changing communications conditions or demands.
 - g A professional structural engineer's written description of the proposed tower structure and its capacity to support additional antennae or other communications facilities at different heights and the ability of the tower to be shortened if future communications facilities no longer require the original height.
 - h A description of available space on the tower, providing illustrations and examples of the type and number of telecommunications facilities which could be mounted on the structure.
 - i Security barrier and/or visual buffer fencing with description of material, color, finish, etc
 - j Exterior lighting: Include locations, mounting height, luminaire type, and wattage. Provide catalog cut sheets of luminaire.
- 9 Plans of Proposed Accessory Buildings
- a Floor plans, elevations and cross sections at a scale of no smaller than 1/4" = 1' (1:48)

of any proposed appurtenant structure, and

- b Representative elevation views, indicating the roof, facades, doors, and other exterior appearance and materials. The elevations shall show facades and indicate all exterior materials and color of towers, buildings and associated facilities.

10 Proposed Telecommunications Equipment Plans and Specifications

- a Plans, elevations, sections, and details as appropriate scales but no smaller than 1 inch = 10 feet.
- b Mounting locations of facilities on tower or structure, including heights above ground.
- c Antenna type(s), manufacturer(s), model number(s).
- d For each antenna, the antenna gain, polarization and radiation pattern (composite pattern for an antenna array).
- e Number of channels per antenna, projected and maximum power input to the antenna(s).
- f Power output, in normal use and at maximum output for each antenna and all antennae as an aggregate.
- g Output frequency of the transmitter(s).
- h For a facility with multiple emitters, the results of an intermodulation study that predicts the interaction of the additional equipment with existing equipment.

H Visual Analysis Study

The applicant shall develop and submit to the Board an analysis and report of the visual impact of the proposed tower. This analysis shall include photographs, a balloon test, and photo-simulations of the facility as described below:

1 Photographs, Computer Generated Photo-simulations and Visibility Maps:

- a Existing (before condition) photographs of the site as it can be seen from all public rights-of-way, all adjacent properties and all private residences within the Town and in a two mile radius. Included shall be photographs of the site from eight (8) view lines – beginning at true north and continuing clockwise at 45 degree intervals.
- b Computer generated photo-simulations of the site and the proposed facility as it can be seen from all public rights-of-way, all adjacent properties and all private residences within the Town and the abutting Towns. The computer-generated photos shall also show the proposed landscaping including plantings at zero, half, and full growth.

- c Each photo must be labeled with the line-of-site, the date, and the elevation imprinted on the photograph. The photos and the simulations must be in color and show the site and facility in both a clear sky condition and a cloudy sky condition.
- d Visibility Maps: A map of the Town of Shrewsbury on which any visibility of the proposed tower from a public way (including all existing public rights of way) shall be indicated and the locations from which the photographs are taken shall be indicated.
- e Balloon Test: Within 35 days of submitting an application, the applicant shall arrange to fly, or raise upon a temporary mast, a three foot diameter brightly colored balloon at the maximum height of the tower and within fifty horizontal feet of the center of the proposed tower. The date, time, and location of this balloon test shall be advertised by the applicant, at 7 and 14 days in advance of the test date in the *Rutland Herald*. The applicant shall inform the Board of the dates and times of the test, at least 14 days in advance. The balloon shall be flown for at least four consecutive hours between 9:00 a.m. and 5:00 p.m. (and at least two hours before sunset) on the dates chosen.

I Noise Analysis

The applicant shall provide a report documenting the existing measured ambient noise level at the site and the maximum future projected noise level at the site and at the proposed property line of the site, to include levels at times of generator usage. Noise levels shall be measured in decibels. Such statement shall be certified and signed by an acoustical engineer, stating that noise measurements are accurate and meet the Noise Standards of this Bylaw. The DRB shall be notified in advance (two weeks) and shall be invited to be present for such noise measurements.

ARTICLE X: Evidence of Need

A Existing Coverage

Applicant shall provide written documentation demonstrating that existing telecommunications facility sites and other existing structures of suitable height in Shrewsbury and abutting towns in Vermont, including area within a five (5) mile radius of the proposed site, cannot reasonably be made to provide adequate coverage and/or adequate capacity to areas lacking such coverage and/or capacity. The documentation shall include, for each facility site listed, the exact location (in longitude and latitude, to degrees, minutes and seconds to the nearest tenth), ground elevation, height of tower or structure, output frequency, number of channels, power input and maximum power output per channel and facility owners' names and contact information. Potential adjustments to these existing facility sites, including changes in antenna type, orientation, gain, height or power output shall be specified. Radial or tiled coverage plots showing each of these existing facility sites, as they exist, and with adjustments as above, shall be provided as part of the application. The report shall be signed by a qualified radiofrequency engineer and/or structural engineer, as applicable.

B Use of Repeaters

The use of repeaters to assure adequate coverage, or to fill holes within areas of otherwise adequate coverage, while minimizing the number of required towers is permitted and encouraged. The use of cable microcell integrators is considered a use of repeaters and one application may be submitted which covers all such units. Applicants shall detail the number, location, power output, and coverage of any proposed repeaters in their systems and provide engineering data to justify their use.

Applicant shall demonstrate with written documentation that they have analyzed the feasibility of repeaters in conjunction with all facility sites listed in compliance with Article X, Section A, to provide adequate coverage and/or adequate capacity to the Town of Shrewsbury. Radial or tiled coverage plots of all repeaters considered for use in conjunction with these facility sites shall be provided as part of the application.

C Indirect Service

Applicant shall demonstrate which portion of a tower or structure and which antennae, if any, are to reduce or eliminate reliance on land-lines, or otherwise provide communications capability to the applicant, as opposed to providing direct service to customers. Such provision of indirect service may be considered if reasonable alternatives are not available and the incremental effect is consistent with the purposes set forth in this ordinance.

D Five-Year Plan

All applications shall be accompanied by a written five-year plan for the utilization of the proposed facilities. This plan should include justification for capacity in excess of immediate needs, as well as plans for any further development within the town.

ARTICLE XI: Monitoring & Evaluation of Compliance

A Radiofrequency Compliance & Annual Monitoring

The applicant shall submit a statement that the proposed facility will not exceed the FCC guidelines for Maximum Permissible Exposure ("MPE") levels for radiofrequency (non-ionizing) radiation. Upon completion of construction and prior to regular use, and annually thereafter, the applicant shall certify that the facility meets the applicable FCC MPE guidelines for radiofrequency (non-ionizing) radiation. The DRB may require, where applicable and allowed by federal law, site testing, at the applicant's expense, to demonstrate compliance. Such testing shall utilize methods in accordance with National Council on Radiation Protection and Measurements Reports 86 and 119, FCC Office of Engineering & Technology Bulletin 65, relevant decisions at the FCC web site (www.fcc.gov/oet/rfsafety), and Rules & Regulations specified in 47 C.F.R. Part 1-Practice and Procedure, Subpart I-Procedures Implementing the National Environmental Policy Act of 1969. The DRB may, at its discretion and in compliance with FCC policy, allow worst-case calculations by a qualified radiofrequency engineer in lieu of actual measurements.

Compliance certification by a site user, since it will demonstrate compliance of all emitters at the site, may be submitted on behalf of all collocated facilities provided there is annual demonstration of compliance. Financial responsibility shall be in accordance with MPE compliance responsibility outlined in FCC policy related to collocation sites.

B Excessive Exposure

Should the monitoring of a facility site reveal that the site exceeds the current FCC standard and guidelines, the owner(s) of all facilities utilizing that site shall be so notified. In accordance with FCC requirements, the owner(s) must immediately reduce power or cease operation as necessary to protect persons having access to the site, tower, or antennae. Additionally, the owner(s) shall submit to the DRB a plan for the correction of the situation that resulted in excessive exposure. Failure to act as described above shall be a violation of the permit.

C Structural Inspection

Tower owner(s) shall pay for an independent consultant (a licensed professional structural engineer) to conduct inspections of the tower's structural integrity and safety. Guyed towers shall be inspected at least every three years. Monopoles and non-guyed lattice towers shall be inspected at least every five years. A report of the inspection results shall be prepared by the independent consultant and submitted to the DRB and the Town Clerk. Any major modification of existing facility which includes changes to tower dimensions or antenna numbers or type shall require new structural inspection.

D Unsafe Structure

Should the inspection of any tower reveal any structural defect(s) which, in the opinion of the independent consultant render(s) that tower unsafe, the following actions must be taken: Within ten (10) business days of notification of unsafe structure, the owner(s) of the tower shall submit a plan to remediate the structural defect(s). The plan shall be submitted to the Zoning Administrator, or his/her designee, who shall review the plan and issue a written statement to the owner(s) to proceed. This plan shall be initiated within ten (10) days of the letter to proceed, and completed as soon as reasonably possible. Failure to accomplish this remediation of structural defect(s) within ten (10) business days of initial notification shall be a violation of the permit.

E Facility General Maintenance

The applicant and co-applicant shall maintain the telecommunications facility in good condition. Such maintenance shall include, but shall not be limited to, painting, structural integrity of the mount and security barrier, and maintenance of the buffer areas and landscaping. In the event the applicant fails to maintain the facility, the Town of Shrewsbury, by order of the Selectboard, may undertake such maintenance at the expense of the applicant or landowner. Under no circumstances shall biocides be used on the property that the facility is located.

F Maintenance Filing Schedule, Fee, & Failure to File

- 1 After the telecommunications facility is operational, the applicant shall submit a monitoring and maintenance report to the zoning administrator, within 90 days of beginning operations, and annually on June 15th starting from the first of the year following the date of the issuance of the Permit. A maintenance filing fee, as determined by the Selectboard, shall be paid annually to cover costs of review of the maintenance reports. The report shall contain the following:
- 2 Current (within 15 days of the submission of the report) measurements of RFR from the telecommunications facility. Such measurements shall be signed and certified by a RF engineer, stating that RFR measurements are accurate and meet FCC Guidelines as specified in Part A, this article.
- 3 Current (within 15 days of the submission of the report) measurements of noise level from the personal wireless service facility. Such measurements shall be signed by a qualified acoustical engineer, stating that noise measurements are accurate and meet the Noise Standards sub-section of this Bylaw.

- 4 Certification of the continuing safe operation of every facility/tower installed subject to these regulations.
- 5 A structural report (as specified in Part C, this article) shall be submitted every three (3) years along with the annual maintenance report.
- 6 Failure to file any or all of the above shall result in a fine of \$500 per day until 30 days after the filing date at which time the telecommunications facility shall be deemed to be no longer in use and considered abandoned. See Article XII.

ARTICLE XII: Abandonment or Discontinuation of Use

A Notification Guidelines

- 1 At such time that a licensed carrier plans to abandon or discontinue operation of a telecommunications facility, such carrier will notify the Town by certified U.S. mail of the proposed date of abandonment or discontinuation of operations. Such notice shall be given no less than 30 days prior to abandonment or discontinuation of operations. In the event that a licensed carrier fails to give such notice or fails to comply with this bylaw's requirements for monitoring and maintenance, the personal wireless service facility shall be considered abandoned upon such discontinuation of operations.
- 2 Upon abandonment or discontinuation of use, the carrier shall physically remove the telecommunications facility within 180 days from the date of abandonment or discontinuation of use. "Physically remove" shall include, but not be limited to:
 - a Removal of antennas, mount, equipment shelters and security barriers from the subject property.
 - b Proper disposal of the waste materials from the site in accordance with local and state solid waste disposal regulations.
 - c Restoring the location of the telecommunications facility to its natural condition, except that any landscaping and grading shall remain in the after-condition.
- 3 In the event the tower or facility is not removed within 180 days of notification of such a violation, the municipality may remove the tower or facilities. Costs of removal shall be assessed against the property or tower owner or paid for by the demolition bond.
- 4 Towers and facilities which are constructed in violation of permit conditions or application representations shall be corrected or be removed.

ARTICLE XIII: Enforcement & Severability

This ordinance shall be enforced as a civil ordinance in accordance with 24 V.S.A., Chapter 59.

If any portion of this bylaw is held unconstitutional or invalid by a court of competent jurisdiction, the remainder of this bylaw shall not be affected.

ARTICLE XIV: Definitions & Word Usage

The following terms shall have the meanings indicated. The word “shall” or “will” indicate mandatory requirements; “may” is advisory and indicates recommendations which are not mandatory.

- **ADEQUATE COVERAGE:** Coverage is considered to be “adequate” within that area surrounding a base station where the predicted or measured median field strength of the transmitted signal is such that the majority of the time, commonly used transceivers properly installed and operated will be able to communicate within the base station without objectionable noise and/or without calls being dropped. It is acceptable for there to be holes within the area of adequate coverage as long as the signal regains its strength to allow functional use of a typical transceiver. It is acceptable for there to be holes within the area of adequate coverage as long as the signal regains its strength further away from the base station. For the limited purpose of determining whether the use of a repeater is necessary or desirable, there shall be deemed not to be adequate coverage within said holes. The outer boundary of the area of adequate coverage, however, is that location past which the signal does not regain.
- **ADEQUATE CAPACITY:** Capacity is considered to be “adequate” if the grade of service (“GOS”) is $p_{.05}$ (probability that a user attempting a call will be blocked or delayed due to the system running at full capacity) or better for median teletraffic levels offered during the typical busy hour, as assessed by direct measurement of the facility in question. The GOS shall be determined by the use of standard Erlang B calculations. As call blocking may occur in either the land line or radio portions of a wireless network, Adequate Capacity for this regulation shall apply only to the capacity of the radio components. Where capacity must be determined prior to the installation of the personal wireless services facility in question, Adequate Capacity shall be determined on the basis of a 20% busy hour (20% of all offered traffic occurring within the busiest hour of the day), with total daily traffic based on aggregate estimates of the expected traffic in the coverage area.
- **ANTENNA:** A device which is attached to a tower, or other structure for transmitting and/or receiving electromagnetic waves.
- **AVAILABLE SPACE:** The space on a tower or structure to which antennae of a telecommunications provider are both structurally able to be attached.
- **BASE STATION:** The primary sending and receiving site in a wireless telecommunications network. More than one base station and/or more than one variety of telecommunications provider can be located on a single tower or structure.
- **BROADCASTING:** The dissemination of radio communications intended to be received by the public, directly or by the intermediary of relay stations.

- **BULLETIN 65:** Published by the FCC Office of Engineering and Technology specifying radio frequency radiation levels and methods to determine compliance.
- **CABLE MICROCELL INTEGRATOR:** A very low power (typically one or two watt output per channel) transceiver (transmitter/receiver) attached to, and interfaced with, the cable TV infrastructure.
- **CHANNEL:** The segment of electromagnetic spectrum which comprises a distinct audio, video or data signal. An antenna may simultaneously transmit and receive multiple channels.
- **COMMUNICATIONS EQUIPMENT SHELTER:** A structure designed exclusively to enclose equipment used in connection with telecommunications transmissions.
- **dBm:** Unit of measure of the power level of an electromagnetic signal at the input of a receiver, given its antenna system gain at a particular frequency, expressed as decibels (dB) above one milliwatt. Signal predictions with this measure are valid at one particular frequency, and ambiguous unless all receivers and antenna combinations are identical.
- **dBu:** Unit of measure of the field intensity of an electromagnetic signal, expressed as decibels (dB) above one microvolt per meter, an absolute measure for describing and comparing service areas, independent of the many variables (see **dBm**) introduced by different receiver configurations.
- **FEDERAL COMMUNICATIONS COMMISSION (FCC):** The government agency responsible for regulating telecommunications in the United States.
- **GIGAHERTZ (GHz):** One billion Hertz.
- **HERTZ:** One Hertz is the frequency of electric or magnetic field which reverses polarity once each second, or one cycle per second.
- **HISTORIC STRUCTURE:** Any structure that is:
 - Listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register; or
 - Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district; or
 - Individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the Secretary of the Interior; or

- Individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either;
 - By an approved state program as determined by the Secretary of the Interior or
 - Directly by the Secretary of the Interior in states without approved programs.

- **LOCATION:** References to site location shall be the exact longitude and latitude, to the nearest tenth of a second; the datum employed shall be specified.

- **MEGAHERTZ (MHZ):** One million Hertz.

- **MONITORING:** The measurement, by the use of instruments in the field, of non-ionizing radiation exposure at a site as a whole, or from individual telecommunications facilities, towers, antennae, or repeaters.

- **MONOPOLE:** A single self-supporting vertical pole with no guy wire anchors, usually consisting of galvanized or other unpainted metal, or a wooden pole with below grade foundations.

- **PERSONAL WIRELESS SERVICES:** Commercial mobile services, unlicensed wireless services, and common carrier wireless exchange access services. These services include: cellular services, personal communication services, specialized mobile radio services, and paging services.

- **RADIAL COVERAGE PLOTS:** Radial plots are the result of drawing equally-spaced lines (radials) from the point of the antenna, calculating the expected signal and indicating this graphically on a map. The relative signal strength may be indicated by varying the size or color at each point being studied along the radial; a threshold plot would use a mark to indicate whether that point would be strong enough to provide adequate coverage – i.e. the points meeting the threshold of adequate coverage. The drawback is the concentration of points close to the antenna and the divergence of points far from the site near the ends of the radials.

- **RADIATED-SIGNAL PROPAGATION STUDIES OR COVERAGE PLOTS:** Computer generated estimates of the signal emanating, and prediction of coverage, from Antennas or Repeaters sited on a specific tower or structure. The height above ground, power input and output, frequency output, type of antenna, antenna gain, topography of the site and its surroundings are all taken into account to create these simulations. They are the primarily tool for determining whether a site will provide adequate coverage for the telecommunications facility proposed for that site.

- **RADIO COMMUNICATIONS:** The transmission by radio of writing, signs, signals, pictures and sounds of all kinds, including all instrumentalities, facilities, apparatus and services (among

other things, the receipt, forwarding and delivery of communications) incidental to such transmission.

- **REPEATER:** A small receiver/relay transmitter of relatively low power output designed to provide service to areas which are not able to receive adequate coverage directly from a base or primary station.
- **STRUCTURALLY ABLE:** The determination that a tower or structure is capable of carrying the load imposed by the proposed new antennae under all reasonable predictable conditions as determined by professional structure engineering analysis.
- **STRUCTURE:** An assembly of materials for occupancy or use, including, but not limited to, a building, mobile home or trailer, billboard, sign, wall or fence, except for a wall or fence on a working farm.
- **SUBSTANTIAL MODIFICATION OF A TELECOMMUNICATION FACILITY:** Any change, or proposed change in power input or output, number of antennae, frequency, change in antenna type or model, repositioning of antenna(s), change in number of channels per antenna above the maximum number approved under a telecommunication permit. Also, any change, or proposed change in dimension of a tower or other structure designed to support telecommunications equipment.
- **TELECOMMUNICATIONS FACILITY:** Any structure and/or equipment which is used for the transmission into the atmosphere or transmission and reception from the atmosphere of radio frequency waves of a telecommunications provider, including any tower or structure on which such equipment is located, whether owned by the provider or some other entity, and also including any accessory structure located on the telecommunications property. For the purposes of this ordinance, this definition shall include facilities for the broadcasting of radio communications and personal wireless services.
- **TELECOMMUNICATIONS PROPERTY:** A lot, or any part thereof, which is owned or leased by one or more telecommunications providers and upon which one or more telecommunications facility(s) and required landscaping are located. It shall meet minimum lot size regulations for the zone in which it is to be located.
- **TELECOMMUNICATIONS PROVIDER:** An entity licensed by the FCC to provide telecommunications services.
- **TILED COVERAGE PLOTS:** Tiled plots result from calculating the signal at uniformly-spaced locations on a rectangular grid, or tile, of the area of concern. Unlike radial plots, tiled plots provide a uniform distribution of points over the area of interest; usually the same grid will be used as different sites are examined, and it is not necessary that the transmitter be within the grid area of interest. As with radial plots (see **RADIAL COVERAGE PLOTS**), the graphic display or plot can be either signal strength or adequate threshold. This method is preferable for

comparative analysis and shall normally be used for coverage prediction plots.

- **TOWER:** A lattice structure of framework, either self-supporting or guyed, or monopole, that is designed to support telecommunications antennae, and/or equipment.

The Town of Shrewsbury Selectboard does hereby adopt this Ordinance for Towers & Telecommunications Facilities on July 6, 2005.

Michael Stewart, Chair

Bert Potter

Donald A. Parrish