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Town of Lenox

Planning Board

Meeting Agenda

October 11, 2022

6:00 p.m.

MEETING AGENDA

Hybrid Meeting

Physical meeting: Town Hall

Virtual meeting: via Microsoft Teams

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Meeting ID: 294 735 309 642
Passcode: SNJREe

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1. **Form A:** none at time of posting
2. **Wireless:** Discuss mapping work conducted by the Town's consultant, Isotrope LLC; discuss location preferences and draft bylaw language to prepare for a Special Town Meeting in November (tentative date is 11/17); discuss wireless content.
3. **Approval of Minutes**
    - October 3rd
    - July 26, August 9, September 13 pending completion
4. **Adjourn**

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Binder Index

1) Cover page with index

2) Discussions to have at Oct. 11 meeting:
    a. Ensure familiarity with binder materials – clarify what's in each tab and why
    b. Discuss (3) Draft *reorganized and in Table Format* – current bylaw content draft incorporating suggestion to respond to 9/21 PB comments, David Maxson comments, and bringing over a few zoning things from Spec & Design manual. Note: This has all been organized to make it easier to read, digest, analyze, edit, etc. It can be reorganized later for publication (e.g. put definitions first) as required.
    c. Get agreement on content
    d. Identify any issues yet to be resolved
    e. Plan for content review/needs for Oct. 18 meeting

3) Bylaw Draft in Table Format

4) GIS map at 100', 250', 500' – GM work showing how various setbacks from residential property lines would affect tower location possibilities

5) Isotrope mapping of tower coverage potential from various (mostly municipal) properties

6) Benchmarking/comparisons looking at bylaws from other municipalities for how they handle various bylaw factors

7) Shows changes made to 9/2021 bylaw version that led to Bylaw Draft in Table Format. Shows bylaw "cut into sections" starting with 9/2021 draft + comments + D. Maxson 2022 comments + changes suggested to address same. Does not include items brought over from Spec & Design Manual to Bylaw Draft in Table Format.

8) 9/2021 bylaw draft from website

9) 9/2021 draft WCF Standard Specifications and Design Manual

DRAFT – Lenox Planning Board
ZONING BYLAW
WIRELESS COMMUNICATIONS FACILITIES (WCF)
Last content update: 10/5/22; Format edits 9/23/21; changes made per DM comments onto 7/7/21.

Status Summary 10/7/22 This draft includes updates suggested to address comments from David Maxson along with some items pulled over from WCF Specifications Manual.

Wireless Communications Facilities

Purpose.

The purpose of this bylaw is to establish general guidelines for the locating of wireless communication towers, antennas, ground equipment, and related accessory structures. The intent of this bylaw is to:

(1) Accommodate the growing need and demand for wireless communications services.

(2) Establish review procedures to ensure that applications for communications facilities are reviewed for compliance with federal, state, and local regulations and acted upon within a reasonable period of time as required by applicable state and federal regulations.

(3) Minimize the impacts of wireless communications facilities on surrounding land uses by establishing standards for location, structural integrity, and compatibility.

(4) Encourage the location and colocation of communications equipment on existing structures thereby minimizing new visual, aesthetic, and public safety impacts, effects upon the natural environment and wildlife, and reducing the need for additional towers, while also recognizing that a fewer number of taller towers or other wireless communications facilities may not always be better than a greater number of shorter less visible towers or wireless communications facilities.

(5) Respond to the policies embodied in the Telecommunications Act of 1996 in such a manner as not to unreasonably discriminate between providers of functionally equivalent personal wireless services or to prohibit or have the effect of prohibiting personal wireless services.

(6) Respond to the policies embodied in the Federal Communication Commission's *Declaratory Ruling and Third Report and Order* of September 27, 2018 (FCC 18-133), in such a manner as to not effectively prohibit the provision of wireless services.

From David Maxson: There is a whole chain of FCC decisions. This is one of the R&Os about small cells. Also 20-51 and 20-75 (IIRC) and 14-153 covers Sec 6409. Might be best to refer to FCC regulations in general. These R&Os are the basis for the regulations. Also, 18-133 is less about effective prohibition and more about rights to the right of way.

(7) Protect the character of the Town while meeting the needs of its citizens to enjoy the benefits of wireless communications services.

Does not prohibit, non-discrimination.

The provisions of this bylaw are not intended to and shall not be interpreted to prohibit or to have the effect of

prohibiting personal wireless services or be applied in such a manner as to unreasonably discriminate between providers of functionally equivalent personal wireless services

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Application and Permits Required.

A written request on a Town wireless communications facility application form to the Land Use Department is required to install, modify or operate a wireless communications facility on property other than a public way. The application shall also include all required exhibits and submittals as required by the Land Use Department and the applicable fee for the review of such application. Wireless communications facilities and modifications thereto shall require the following Approval(s) or Permit(s):

(1) **Administrative Approval**. Required of facility types set forth in the Use Table in the zoning districts indicated and identified as "AA", and equipment modifications (except modifications qualifying as "substantial change"), and tower replacement/upgrades no more than 10% taller than the original tower. The Zoning Board of Appeals shall grant Administrative Approval and any Waivers, where allowed, through a majority vote.
From David Maxson: You might still want this to be a Special Permit process to protect your rights and to maintain a history of special permits and/or special permit modifications on the property. The application criteria and the review process can be limited to comply with federal limitations. You still have the right to verify the application for an eligible facilities request is bonafide and to apply design criteria that are not otherwise preempted by FCC.

(2) **Special Permit**. Required of facility types set forth in the Use Table in the zoning districts indicated and identified as "BA", along with tower replacement/upgrades more than 10% taller than the original tower, or modifications to existing towers that constitute a substantial change as defined in Subsection 8.18.5(5) below. The Zoning Board of Appeals may grant Special Permits only through a supermajority vote. Waivers, where allowed, may be granted by majority vote.

(3) **Wireless Communications Facilities Standard Specifications & Design Manual**. All applications for a Special Permit or Administrative Approval must meet the requirements and provide such evidence in their initial application. The Manual is maintained by the Planning Board and may be updated periodically.

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Use Table AA = Administrative Approval; BA = Special Permit; N– = Not Permit

Zoning District	R-1A	R-3	R-15	R-30	C	C-1A	C-3a	I
Shared Site Collocation (parse by concealed/non-c?)								
New Freestanding Tower (parse by concealed/non-c?)								
Small Wireless Facilities								
Substantial Changes and tower replacement/ upgrades more than 10% taller than the original								
Eligibility Facility Request per 47 USC §1455	AA	AA	AA	AA	AA	AA	AA	AA

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Location Preference.

In order to achieve purposes of this bylaw, the following location criteria shall take preference in the approval of sites for new wireless facilities:

1. New wireless communications facilities located on existing structures (Shared Site Collocations), unless it can be demonstrated that a greater number of shorter less visible towers or wireless communications facilities is preferable in terms of achieving the purposes of this bylaw.
2. Towers and Shared Site Collocations located along denser commercial and industrial corridors where such new infrastructure is more compatible with other commercial and industrial structures.
3. New towers located as far from residential uses as possible so that their height does not "loom over" neighbors.
4. New towers in locations that do not pierce valuable scenic and historic views, although towers that "blend into" hillside forests in an aesthetically unobtrusive way may achieve the purposes.
5. Municipal locations or other quasi-public sites that align with other requirements of this bylaw.
   For what it's worth, here is an attempt to modify the original priority list: (it does not voice the town property preference):

(1) Location Preference of collocations and new towers Collocations and new towers shall be in accordance with the below preferences. Where a lower ranked alternative is proposed, the applicant must provide in its application 1) relevant information demonstrating that diligent efforts were made to adhere to the established hierarchy within the search area, and that higher ranked options are not technically feasible, practical, or justified given the location of the proposed wireless communications facility, 2) the impact of the proposed facility is demonstrably better than any available higher priority solutions. Location preferences are as follows:

(i) First priority

8.14.3.1.i.1 Concealed collocation, or

8.14.3.1.i.2 Attachment to existing tower (not a substantial change), or

8.14.3.1.i.3 Small wireless facility

(ii) Second priority

8.14.3.1.ii.1 Camouflaged collocation

(iii) Third priority

8.14.3.1.iii.1 Collocation except substantial modification to existing base station or tower

(iv) Fourth priority

8.14.3.1.iv.1 Substantial modification to existing base station or tower.;

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(v) Fifth priority
8.14.3.1.v.1 New camouflaged or concealed tower
(vi) Sixth priority
8.14.3.1.vi.1 New tower

Shared Site Collocations.

Wireless communications facilities may be mounted onto a building or support structure that is not primarily constructed for the purpose of holding wireless communications facilities, subject to the following standards:

David Maxson: It appears this section is about collocation not site sharing. **From PK/GM:** Please clarify the difference between collocation and site sharing.

i. The top of the concealed attached antenna shall not extend more than fifteen (15) feet above the existing or proposed building or structure to which it is attached. Notwithstanding this provision, the height of the antenna shall not extend more than eight (8) feet above the maximum allowed height for a structure in the zone in which it is located.

ii. Non-concealed antenna attachments outside of a public right-of-way shall be allowed only on electrical transmission towers, utility poles, and existing light stanchions in the zoning districts set forth in the Use Table above. Additional height may be allowed to accommodate the minimum safety separation necessary from electrical lines, as required by the National Electrical Safety Code and the utility provider.

iii. *Consider any other provisions surfaced from benchmarking.*

iv. Except for non-concealed attached antennas, feed lines and antennas shall be designed to architecturally match the façade, roof, wall, and/or structure on which they are fixed or otherwise blend with the existing structural design, color, and texture. MOVE TO DESIGN?

v. Where the proposed attached antennas do not meet the standards set forth by subsections (i) through (iii) above, a Special Permit is required, with a neighbor notification radius of TBD feet.

From David Maxson: SP already required, could this be a waiver request?

New Freestanding Towers.

Determination of Need. No new concealed or non-concealed tower shall be permitted unless the applicant demonstrates that no existing structure or tower can the applicant's proposed use without increasing the height of the existing tower or structure [*beyond height limitations within this bylaw]*

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[we need to address height increases allowed for collocation] or otherwise creating a greater visual impact; or that use of such existing facilities would prohibit or have the effect of prohibiting personal wireless services in the search area to be served by the proposed tower.

Height Limitation**.** New Freestanding Towers constructed within the Town shall not exceed a maximum height above ground level (AGL) of one hundred (100) feet, subject to the provisions of Subsection 8.18.6 below. If an applicant demonstrates through RF engineering evidence that a proposed facility requires additional height to meet the minimum elevation necessary for effective functioning of the provider's network, the applicant may seek a waiver to exceed the maximum height allowed.

From David Maxson: Any higher will require a variance. Does the town want an exception process or to establish locations (i.e. an overlay) where taller is allowed?

Setbacks. New freestanding towers and equipment compounds shall be subject to the setbacks described below: a). The minimum setback distance to the nearest residential or commercial structure not on the same parcel shall be equal to ___

Mailed Notice to Neighbors. All new towers shall require that mailed notice, meeting the standards of M.G.L. C. 40A, Section 11, be sent to all property owners within 600 feet of the land subject to the application.
From David Maxson: This law defines "parties in interest" at 300 feet. Does 600 feet create a new class or is it intended to add them to this class? Advice of counsel?

Consider any other provisions surfaced from benchmarking.

Substantial Changes.

For the purpose of the Use Table and the section on Eligible Facility Requests below, "substantial change" means the following:

HERE IS THE FCC DEFINITION

Substantial change. A modification substantially changes the physical dimensions of an eligible support structure if it meets any of the following criteria:

(i) For towers other than towers in the public rights-of-way, it increases the height of the tower by more than 10% or by the height of one additional antenna array with separation from the nearest existing antenna not to exceed twenty feet, whichever is greater; for other eligible support structures, it increases the height of the structure by more than 10% or more than ten feet, whichever is greater;

(A) Changes in height should be measured from the original support structure in cases where deployments are or will be separated horizontally, such as on buildings' rooftops; in other circumstances, changes in height should be measured from the dimensions of the tower or base station, inclusive of originally approved appurtenances and any modifications that were approved prior to the passage of the Spectrum Act.

(ii) For towers other than towers in the public rights-of-way, it involves adding an appurtenance to the body of the tower that would protrude from the edge of the tower more than twenty feet, or more than the width of the

tower structure at the level of the appurtenance, whichever is greater; for other eligible support structures, it involves adding an appurtenance to the body of the structure that would protrude from the edge of the structure by more than six feet;

(iii) For any eligible support structure, it involves installation of more than the standard number of new equipment cabinets for the technology involved, but not to exceed four cabinets; or, for towers in the public rights-of-way and base stations, it involves installation of any new equipment cabinets on the ground if there are no pre-existing ground cabinets associated with the structure, or else involves installation of ground cabinets that are more than 10% larger in height or overall volume than any other ground cabinets associated with the structure;

(iv) It entails any excavation or deployment outside of the current site, except that, for towers other than towers in the public rights-of-way, it entails any excavation or deployment of transmission equipment outside of the current site by more than 30 feet in any direction. The site boundary from which the 30 feet is measured excludes any access or utility easements currently related to the site;

(v) It would defeat the concealment elements of the eligible support structure; or

(vi) It does not comply with conditions associated with the siting approval of the construction or modification of the eligible support structure or base station equipment, provided however that this limitation does not apply to any modification that is non-compliant only in a manner that would not exceed the thresholds identified in § 1.40001(b)(7)(i) through (iv).

Eligible support structure. Any tower or base station as defined in this section, provided that it is existing at the time the relevant application is filed with the State or local government under this section.

Eligible facilities request. Any request for modification of an existing tower or base station that does not substantially change the physical dimensions of such tower or base station, involving:

(i) Collocation of new transmission equipment;

(ii) Removal of transmission equipment; or

(iii) Replacement of transmission equipment.

==========

1). The mounting of the proposed antenna on the tower or building would increase the existing height of the tower or building by more than 10%, or by the height of one additional antenna array with separation between the top of the nearest existing antenna to the base of the proposed antenna not to exceed twenty (20) feet, whichever is greater, except that the mounting of the proposed antenna may exceed the size limits set forth in this paragraph if necessary to avoid interference with existing antennas; or

2). The mounting of the proposed antenna would involve the installation of more than the standard number of new equipment cabinets for the technology involved (not to exceed four) or more than one new equipment shelter; or

3). The mounting of the proposed antenna would involve adding an appurtenance to the body of the tower or building that would protrude from the edge of the tower or building more than twenty (20) feet, or more than the width of the tower structure at the level of the appurtenance, whichever is greater, except that the mounting of the proposed antenna may exceed the size limits set forth in this paragraph if necessary to shelter the antenna from inclement weather or to connect the antenna to the tower via cable; or

4). The mounting of the proposed antenna would involve excavation outside the current tower site, defined as the current boundaries of the leased or owned property surrounding the tower and any access or utility easements currently related to the site by more than 30 linear feet in any direction.

Collocation and other modifications to existing facilities pursuant to Section 6409 of the Middle-Class Tax Relief and Job Creation Act of 2012 (47 U.S.C. §1445(a)).

ii. Modifications to facilities that involve the addition, removal, and/or replacement of transmission equipment that do not Substantially Change the physical dimensions of an existing tower, antenna support structure, or building shall be subject to the streamlined procedures set forth for Administrative Approval.

From David Maxson: See above, Recommend keeping this a special permit process. (just a streamlined one). Discuss what is a streamlined special permit process.

iii. Increases to height allowed by Subsection 8.18.5(3)(ii) above to an existing tower shall be based on the maximum height allowed by the original approval (if applicable) of the existing tower and shall not affect any existing tower lighting. Concealed attached antennas [*just say wcf's?*] located on a roof top, not constructed exclusively for wireless service, *[<<are commas necessary – what is being modified?*] shall not be considered a tower and shall be limited to the maximum height approved.

iv. Additional equipment shall maintain the appearance intended by the original facility, including, but not limited to, color, screening, landscaping, camouflage, concealment techniques, mounting configuration, or architectural treatment. Notwithstanding this provision, the Zoning Board of Appeals may approve a modification where maintaining the original design is not feasible, provided that the applicant provides evidence demonstrating that the modification's design or configuration is necessary, does not defeat the existing concealment technique in the view of a reasonable person, and is the least obtrusive means of accomplishing the objective.

DM Note: the FCC limitations on application submittal requirements for eligible facilities requests: (see 47 CFR 1.6100 for the whole modification regulation)

Documentation requirement for review. When an applicant asserts in writing that a request for modification is covered by this section, a State or local government may require the applicant to provide documentation or

information only to the extent reasonably related to determining whether the request meets the requirements of this section. A State or local government may not require an applicant to submit any other documentation, including but not limited to documentation intended to illustrate the need for such wireless facilities or to justify the business decision to modify such wireless facilities.

Tower Replacement/Upgrade.

From David Maxson: What is an upgrade?

Existing towers may be replaced or upgraded pursuant to this Section 8.18, provided that the replacement or upgrade accomplishes a minimum of one of the following: 1) reduces the number of towers; 2) reduces the number of nonconforming towers; 3) replaces an existing tower with a new concealed tower to improve either network functionality or structural integrity; 4) replaces an existing non-concealed tower with a concealed tower.

From David Maxson: Not sure this hierarchy is sufficient or necessary as framed. Need to parse this out to find the holes.

Replacements and upgrades are subject to the following requirements:

ii. Landscaping. At the time of replacement or upgrade, the tower equipment compound shall be brought into compliance with any applicable landscaping requirements as required by the Wireless Communications Facilities Specification and Design Manual.

iii. Setbacks. A replacement of an existing tower shall not be required to meet new setback standards so long as the new tower and its equipment compound are no closer to any property lines or dwelling units as the tower and equipment compound being replaced, even if the old tower had nonconforming setbacks.

Wireless Communications Facility Height Waivers.

This Section shall apply exclusively to wireless communications facilities to evaluate the necessity and compatibility of requests to exceed the height requirements in Section 8.18.5 (2) above as part of a Special Permit. In order to authorize a wireless communications facility height waiver, the Zoning Board of Appeals must find that:

(1) Waiver is Necessary to Provide Reasonable Coverage or where a gap in coverage or capacity of the provider's network exists.; and

(2) Minimum Adjustment. The proposed height is the minimum height necessary for effective functioning of the provider's network.

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From David Maxson: If desired, there could be language here or elsewhere that gives more latitude (lower waiver threshold) for commercial properties or for designated properties in an overlay (if an overlay is proposed). For Planning Board: language that is more prescriptive/flexible for commercial properties or overlay properties?

(3) *Add additional clause allowing for anticipated collocation.*

Supplemental Review.

Not sure this is the best word. CH44 Sec 53g calls it "employment of outside consultants "

From David Maxson: There should be (under separate regulation) an appeals process to go with the 53g account administration. For Tuesday—what is right word and is appeals process in fed, law?

The Town reserves the right to require a supplemental review for any Permit processed under this Section 8.18, subject to the following:

(1) Town may obtain the services of a third party expert(s), the costs of which shall be borne by the applicant and be in addition to other applicable fees. Schedules of current fees are listed in the Town of Lenox Fee Schedule.

(2) Based on the results of the expert review, the approving authority may require changes to the applicant's application or submittals or the submission of supplemental materials during the hearing.

(3) The supplemental review may address any or all of the following:

i. The accuracy and completeness of the application and any accompanying documentation.

ii. The applicability of analysis techniques and methodologies.

iii. The validity of conclusions reached.

iv. Whether the proposed wireless communications facility complies with the provisions set forth in this bylaw (8.18).

v. Whether the proposed facility is designed to meet the minimum height requirement necessary for effective functioning of the provider's network.

vi. The potential for alternatives to address the need for the proposed facility.

vii. Any other technical matter that the approving authority requires expert assistance with.

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RFR Study.

Any time after the installation of the proposed wireless communications facility, the Town may require operators of approved wireless communications facilities to demonstrate compliance with FCC regulations regarding the safety of all relevant radio frequency emissions from the sits (47 CFR 1.1310) either by performing a field survey of emissions and/or by performing calculations consistent with FCC OET Bulletin 65, as directed by the Town. The Town may require the operator(s) to reimburse the Town for such analysis commissioned by the Town. In the event the results demonstrate that the wireless communications facility is not in compliance with the applicable rules, the applicant shall immediately bring the facility into compliance, including by cessation of operations if necessary prior to implementing changes

Abandonment (Discontinued Use).

(1) Towers, wireless communications facilities, antennas, and the equipment compound shall be removed, at the owner's expense, within 180 days of cessation of use.

(2) An owner wishing to extend the time for removal or reactivation shall submit an application stating the reason for such extension. The Town may extend the time for removal or reactivation up to 60 additional days upon a showing of good cause. If the tower or antenna is not removed within this time, the Town may give notice that it will contract for removal within 30 days following written notice to the owner. Thereafter, the Town may cause removal of the tower with costs being borne by the owner.

(3) Upon removal of the tower, wireless communications facility, antenna, and equipment compound, the development area shall be returned to its natural state and topography and vegetation consistent with the natural surroundings or consistent with the current uses of the surrounding or adjacent land at the time of removal. At the Town's discretion, the foundation may be abandoned in place if reduced to below finished grade.

(4) All applicants shall, upon grant of Administrative Approval or a Special Permit, furnish a performance bond or irrevocable letter of credit naming Town of Lenox as beneficiary in the sum of $50,000.00 ("Performance Bond) which shall provide language, inter alia, stating it is for the purpose of assuring the removal of the permitted wireless communications facility in the case of abandonment as contemplated herein.

Fees for Wireless Communications Facility Applications.

Application processing fees for wireless communications facilities shall be paid at the time of application in accordance with the Town of Lenox Fee Schedule.

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Administrative Approval – Process.

Work on. Majority vote of Zoning Board of Appeals required; submission requirements for given request set by set by the town with limitations imposed by the FCC and in Specifications manual; noticing process same as for Special Permit; fee set in fee schedule; reasonable conditions serving the municipal interest may be required.

Exempt Facilities.

The following items are exempt from the standards for wireless communication facilities notwithstanding any other provisions:

(1) Satellite earth stations used for the transmission or reception of wireless communications signals with satellites that are one (1) meter (39.37 inches) or less in diameter in all residential zones and two (2) meters or less in all other zones.

(2) A temporary wireless communications facility, upon the declaration of a state of emergency by federal, state, or local government, and a written determination of public necessity by the Town designee; except that such facility must comply with all federal and state requirements. No communications facility shall be exempt from the provisions of this Section beyond the duration of the state of emergency.

(3) A government-owned wireless communications facility erected for the purposes of providing communications for public health and safety.

(4) A temporary wireless communications facility for the purposes of providing coverage of a special event, and subject to federal and state requirements. Said communications facility may be exempt from the provisions of this Section up to one week before and after the duration of the special event.

(5) Amateur radio towers solely used for licensed amateur services up to 70 feet in height, or at such additional height as approved by informal application to the Zoning Board of Appeals.

Definitions.

The following definitions are used exclusively in the Wireless Communications Bylaw (and are repeated in Town of Lenox Standard Specifications and Design Manual for Wireless Facilities (the "Design Manual")), as amended:

antenna – a device consisting of exposed elements or of an enclosure containing one or more elements that transmits and/or receives electromagnetic radio frequency signals. Two or more antennas operated by one carrier/owner at one site constitute an antenna array. In context, a single enclosure that contains multiple antenna elements connected to multiple electrical ports that provide for any of the following is considered an

antenna herein: multiple frequency bands, multiple input/multiple output arrays, transmit/receive isolation, polarization and space diversity.

applicable codes - building, plumbing, electrical and fire codes adopted by the Commonwealth or the Town; requirements of the National Electric Code or the National Electric Safety Code; and the applicable laws, regulations and requirements of the Federal Communications Commission, the Occupational Safety and Health Administration, as well as any other local, state, or federal agency regulating wireless communications, as any may be amended from time to time.

applicant - any person who submits an application for zoning relief under this bylaw.

application - a written request on a Town wireless communications facility application form submitted by an applicant to the Land Use Department to install, modify or operate a wireless communications facility on public or private property within the Town but not within a right-of-way property other than a public way.

Administrative Approval – a written authorization that must be obtained by the applicant from the Zoning Board of Appeals to perform an action or initiate, continue, or complete certain types of wireless communications facilities.

camouflaged (facility/antennas) – the use of materials added to an installation, including when applicable added to existing architecture, to render a facility or antennas less noticeable.

Base station. A structure or equipment at a fixed location that enables FCC-licensed or authorized wireless communications between user equipment and a communications network. The term does not encompass a tower or any equipment associated with a tower.

(i) The term includes, but is not limited to, equipment associated with wireless communications services such as private, broadcast, and public safety services, as well as unlicensed wireless services and fixed wireless services such as microwave backhaul.

(ii) The term includes, but is not limited to, radio transceivers, antennas, coaxial or fiber-optic cable, regular and backup power supplies, and comparable equipment, regardless of technological configuration (including Distributed Antenna Systems and small-cell networks).

(iii) The term includes any structure other than a tower that, at the time the relevant application is filed with the State or local government under this section, supports or houses equipment described in paragraphs (b)(1)(i) through (ii) of this section that has been reviewed and approved under the applicable zoning or siting process, or under another State or local regulatory review process, even if the structure was not built for the sole or primary purpose of providing such support.

(iv) The term does not include any structure that, at the time the relevant application is filed under this section, does not support or house equipment described in paragraphs (i)-(ii) of this sub-section.

concealed (facility, antennas) - a wireless communications facility or portion thereof that is designed in a manner that it is not visible to the public, typically through the use of radio frequency transparent materials integrated with existing architecture Work on esp. in Design Manual – there, more clearly differentiate between concealed and camouflaged.

FCC - the Federal Communications Commission of the United States.

modification – a change of equipment or design of an existing wireless communications facility, including without limitation equipment, structural or architectural additions, changes or deletions of materials or equipment that exceed the limitations imposed by bylaw, regulation or conditions of permit. See also,

substantial modification

rom David Maxson: Let's talk about this. A simpler definition might prevent misinterpretation. Also, it depends on how the term is used. It might be better to put the exceptions in the body so that a modification is a modification but some kinds are either exempt or waivable by staff or board. Also note how it is used in 8.18.4 as being allowed by right unless it is an FCC substantial modification. Some modifications that are not substantial in the FCC's eyes might still deserve scrutiny. FCC does not preclude review, but says if not substantial, the town "may not deny and shall approve"

New Freestanding Tower - a proposed new, freestanding structure to be constructed, such as a monopole; tower, either guyed or self-supporting; billboard; or other ~~existing or~~ proposed structure designed to support or capable of supporting wireless facilities.

person - an individual, corporation, limited liability company, partnership, association, trust, or other entity or organization.

Shared Site Collocation - to install, mount, maintain, modify, operate, or replace wireless communications facilities on ~~or adjacent to~~ a pre-existing wireless support structure including but not limited to onto a pre-existing wireless tower, building, rooftop, water or fire tower, pole, cupolas, etc.

small wireless facility -
"Small Wireless Facilities," as used herein and consistent with section 1.1312(e)(2), encompasses facilities that meet the following conditions. The facilities:

1. are mounted on structures 50 feet or less in height including their antennas as defined in section1.1320(d), or
2. are mounted on structures no more than 10 percent taller than other adjacent structures, or
3. do not extend existing structures on which they are located to a height of more than 50 feet or by more than 10 percent, whichever is greater;
4. Each antenna associated with the deployment, excluding associated antenna equipment (as defined in the definition of antenna in section 1.1320(d)), is no more than three cubic feet in volume; All other wireless equipment associated with the structure, including the wireless equipment associated with the antenna and any pre-existing associated equipment on the structure, is no more than 28 cubic feet in volume;
5. The facilities do not require antenna structure registration under part 17 of this chapter;
6. The facilities are not located on Tribal lands, as defined under 36 CFR 800.16(x); and
7. The facilities do not result in human exposure to radiofrequency radiation in excess of the applicable safety standards specified in section 1.1307(b).

wireless communications facility –an installation of equipment and utilities for the provision of personal wireless services to link remote user equipment to a communications network,

wireless services – personal wireless services as defined in the National Wireless Telecommunications Policy, 47 U.S.C. 332(c): "commercial mobile services, unlicensed wireless services, and common carrier wireless exchange access services." Note: this covers telecommunications services offered to the public or a subset thereof using a network of base stations to link remote subscribers to the telecommunications network.

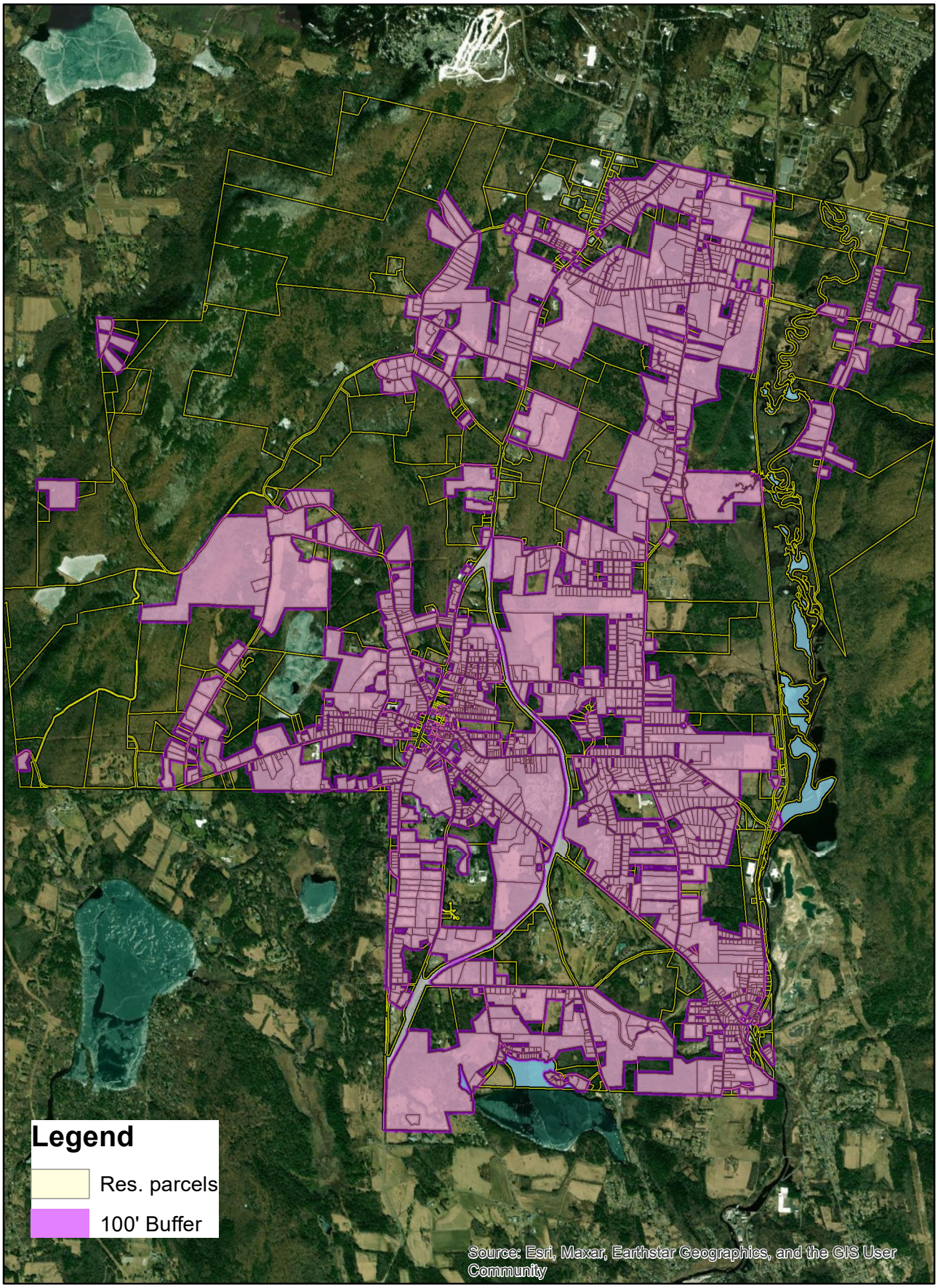
wireless infrastructure provider – any person that builds or installs systems or structures that support the operation of wireless communications facilities, such as a tower developer or a provider of distributed antenna system facilities.

wireless services provider - a person who delivers wireless services to subscribers.

DRAFT

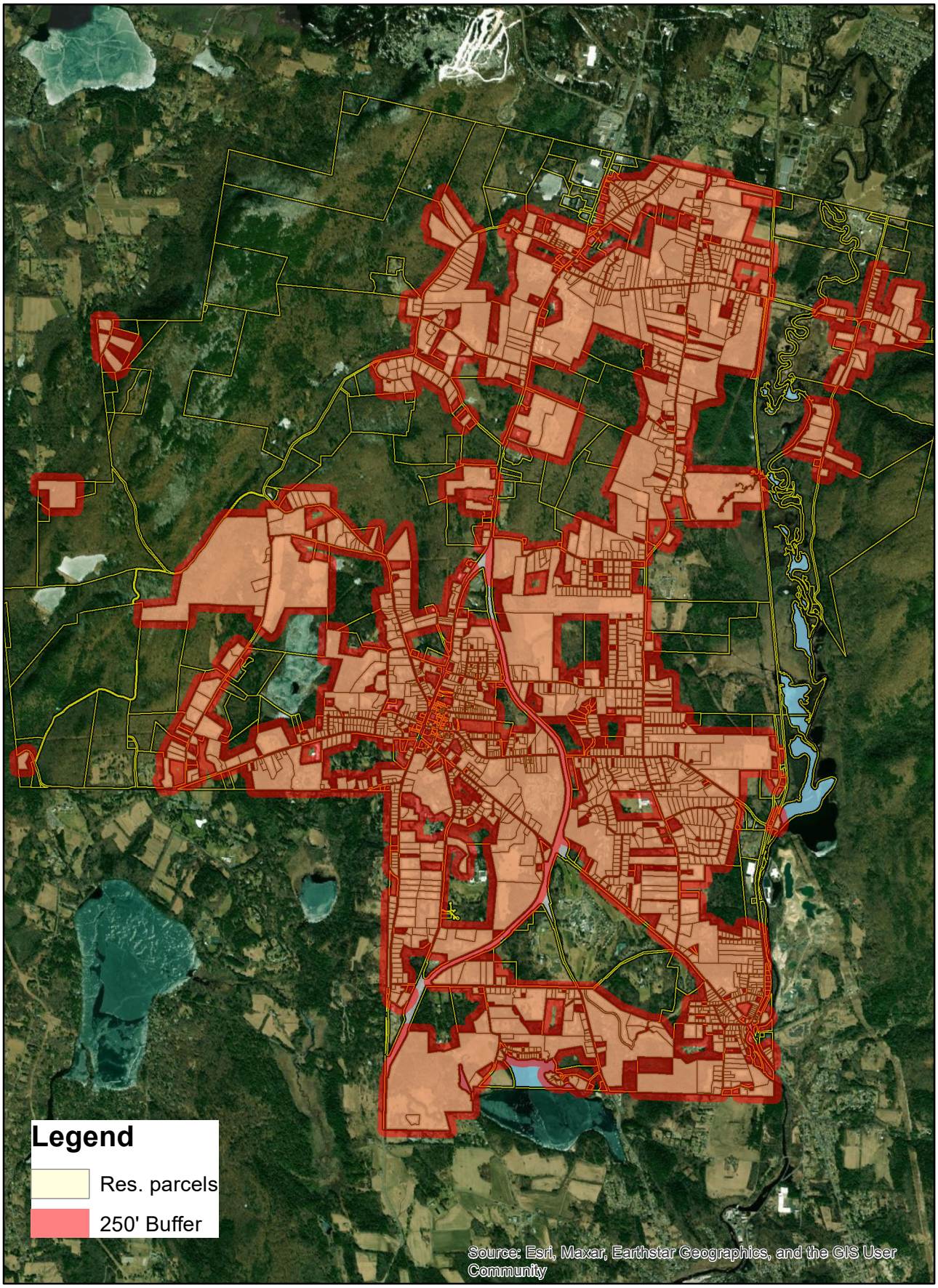
DRAFT

100' Buffer--Residential Properties



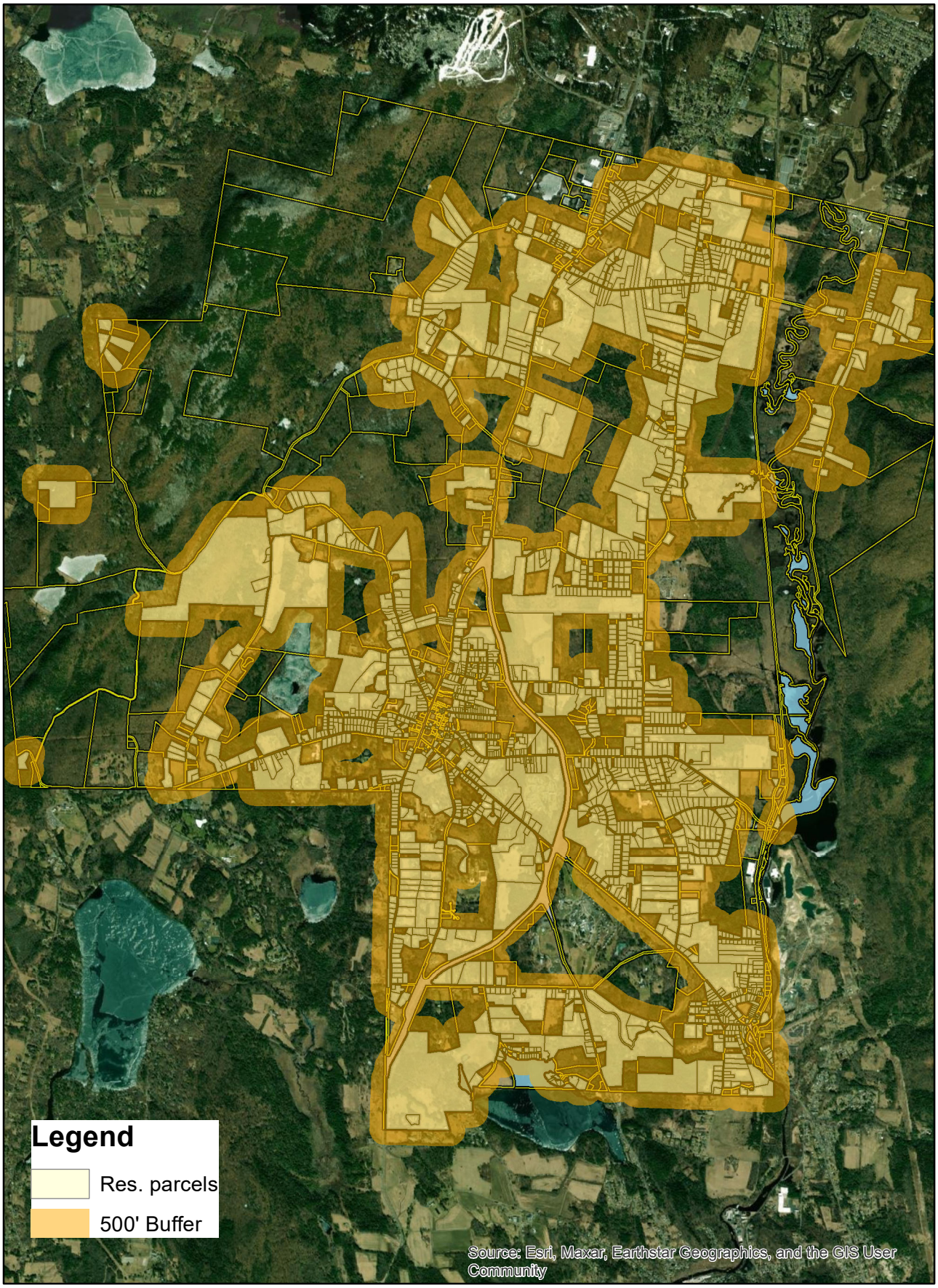
1 inch = 4,333 feet

250' Buffer--Residential Properties



1 inch = 4,333 feet

500' Buffer--Residential Properties



1 inch = 4,333 feet

Thinking outside the sphere

August 4, 2022

WIRELESS DRIVE TEST REPORT FOR LENOX, MASSACHUSETTS

OVERVIEW

A drive test capturing wireless coverage of the major carriers was conducted in Lenox on May 5, 2022, traversing approximately 100 miles[1] of town roads. Cell phones with special software were attached to the windshield inside a car and the route was driven. The coverage with the currently deployed technology, 4G LTE, was captured. The drive test data was divided into four quality-of-service categories as shown on the legends in the maps. The signal strength classifications include Excellent, Network Design Goal, Marginal and Poor.[2] In places that were driven but no LTE signal was detectable, a fourth color (orange) is indicated.

In the accompanying file folder are the results of the drive test in the form of a kmz file for use with GIS or Google Earth applications and a set of drive test map files for each carrier. There are 2 series of maps, one displaying overall cell coverage in town, including service from facilities inside and outside of town. The other displays what portion of the coverage, as best can be discerned, is coming from out-of-town facilities.

COVERAGE

The signal strength information can be interpreted in two ways. First, it shows coverage. Signal strengths are reported as the outdoor signal level as measured. A signal level of, say, -85 dBm (Excellent) that exists outside a building has a better chance of penetrating much of a building and still providing a good connection than a weaker signal. Signals at a level of -95 dBm might not be as effective in providing good coverage inside the entirety of a building, but might still be usable inside portions of buildings and would still be good at penetrating automobiles. Signals in the "Marginal" range are generally reliable outdoors. Signals in the "Poor" range may still be able to provide a connection, such as for phone calls, but they are more likely to be interrupted or suffer quality degradation. Each of these thresholds are not exact limits for

[1] Note that in pre-drive discussions, Roaring Brook Rd was to be included in the route. On the day of the drive test, a portion of the road was closed for construction.

[2] The signal level thresholds go from a high of -85 dBm to a low of -115 dBm. This is because the values are negative numbers.

in-building, in-vehicle and outdoor coverage, as anyone who has had to move near a building window to get a good signal can understand. The probability of a certain quality of connection diminishes with the increase in obstacles between cell site and user, such as walls, cars, and terrain. Distance from the cell site also affects signal strength.

In summary, with respect to using signal strength to estimate quality of the connection, service is likely available in smaller residential buildings in the yellow and green areas, with increasing difficulty for larger buildings in the yellow areas. Even with blue signal areas, some users may be able to use the network adequately from some locations in residences, but with much less certainty and reliability. Likewise, a person in an automobile is likely to be able to maintain a call in areas that are blue, although best service and data connectivity is obtained in the green and yellow areas. It is a sliding scale of probability and the design goal is to serve as much of a developed area with green and yellow as possible, while counting on the blue to leave the impression of service in difficult-to-reach or low-activity areas. The black areas indicate unreliable service, but a connection to the cell site is possible. It is best to be out in the open and standing still to make a call in the black areas, and data service will be minimal. Locations marked orange had no service.

CAPACITY

The other thing that the signal strength maps imply is the potential capacity of a connection. Increased capacity is available from two phenomena – more signals available and stronger signals available.

POOR SIGNAL STRENGTH WASTES CAPACITY

When the signal is strong, it is received clearly and with few errors. As the signal gets weaker, the network must send more information (redundant data bits for error correction) more slowly (like a telegraph operator striking longer dots and dashes to overcome a noisy connection) to be sure it is received well. This means that a subscriber at the cell coverage edge loads the capacity of the cell site more than a subscriber close to the cell site. This is a reason why it is important to have cell sites close to where subscribers congregate.

FEWER RADIO CHANNELS AVAILABLE AWAY FROM CELL SITES

Cell sites operate on several bands of radio frequencies.[3] Higher frequencies generally do not cover as much area as lower ones. This means that when a subscriber is near a cell site, there is more capacity available because there are more frequency bands available with good signal quality. This is another reason why it is

[3] "Frequencies" in the radio spectrum are the same as the "colors" of visible light. Bands include Cellular 850 MHz, PCS, AWS, and 700 MHz, with new bands at higher frequencies being deployed mostly in urban settings – C Band, CBRS and millimeter wave.

important to have cell sites close to where the subscribers congregate. A coverage map that shows where the signals are strongest also implies where the various frequencies of the cell site are more readily available and more capacity is available to more subscribers.

TOO MANY USERS ON ONE CELL SITE

In addition to the availability of more frequency bands closer to a cell site, the other cause of a capacity crunch is simply when there are too many subscribers connecting to a site. Even a place with good signal strength can be too demanding for one cell site to handle. The first strategy to relieve capacity at a cell site is to eliminate a large number of users at the cell edge, who tend to waste capacity due to poor signal quality. If there is a commercial area, residential area or recreational area with large population that is on the fringe of cell coverage, it is a candidate for a new wireless facility. By offloading those distant users to a new cell site, the existing cell site is relieved of a disproportionate burden. A second strategy to relieve a capacity crunch on a cell site is to put in fill-in facilities at high-activity areas. They could be rooftop facilities in a busy commercial area, or "small cells" placed on utility poles, lamp posts, etc. in strategic locations.

LENOX "PRESSURE POINTS"

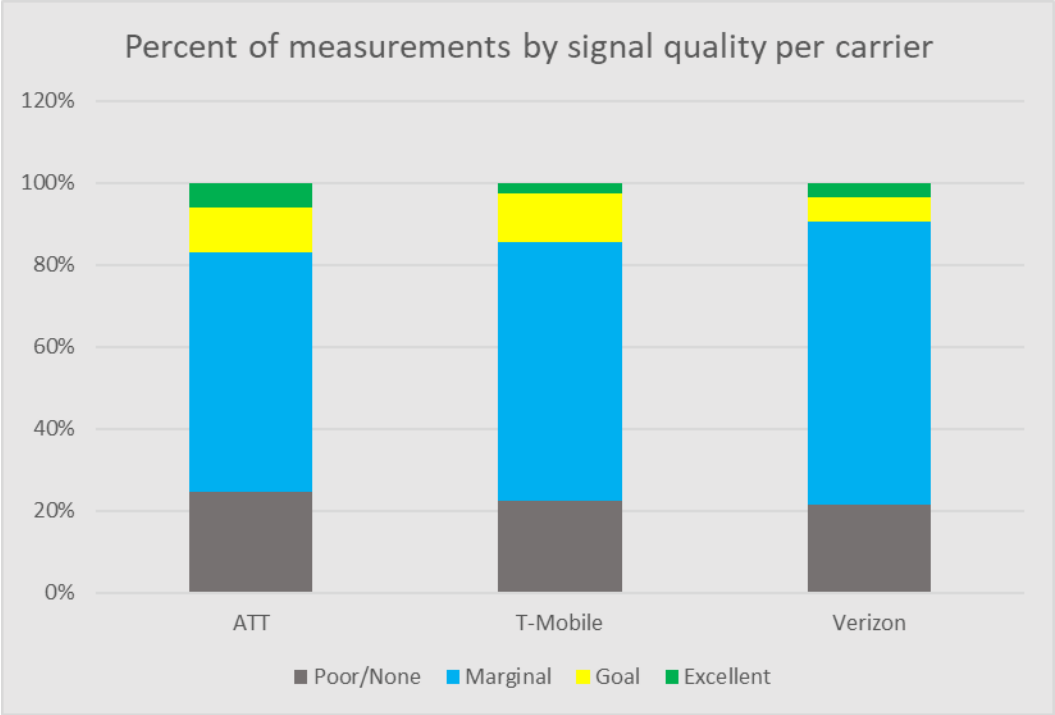
The drive test shows that along most of the roads tested, one can likely make a 911 call outdoors, standing still (includes the black on the maps). T-Mobile has a large gap near Tanglewood. Much of the town has "Marginal" service (blue) for all carriers, which is likely to support emergency calls (or any calls) in a vehicle although it might need to be stationary or the user holding the phone near a car window, provided the car stays in the blue while in motion. These are not ideal conditions, but it is reassuring that the test received LTE signals from the carriers at most places for (except the orange marks on the maps). The chart on the next page shows the proportion of measurements obtained in each category.

The existing cell tower at 90 Pittsfield Rd (Rt 7) has all three carriers on it.[4] This facility provides the dominant coverage to a large segment of Rt 7 and to the town center, as shown by comparing the coverage maps with the maps of the non-Lenox facility coverage in Lenox. The coverage in the town center and on much of Rt 7 is marginal to poor.

The southeast corner of town, generally described as the area from Housatonic St southerly to the Lee boundary, is a likely target for new facilities. This is an area with a concentration of streets and development that is largely served by out-of-town facilities to a level of coverage that is not up to design standards. As noted above, the fact that this area is of substantial size, with substantial street penetration and development, and coupled with the less-than-stellar signal levels, suggests this area could be a drain on the

[4] AT&T, T-Mobile, and Verizon. Sprint was absorbed by T-Mobile. Dish Networks is the new 4th carrier and will be expanding its national footprint in the coming years.

capacity of cell sites outside the town. To increase capacity of existing cell sites outside town and provide a higher quality of service to this area, the southeast part of town is a likely location to target a new facility.



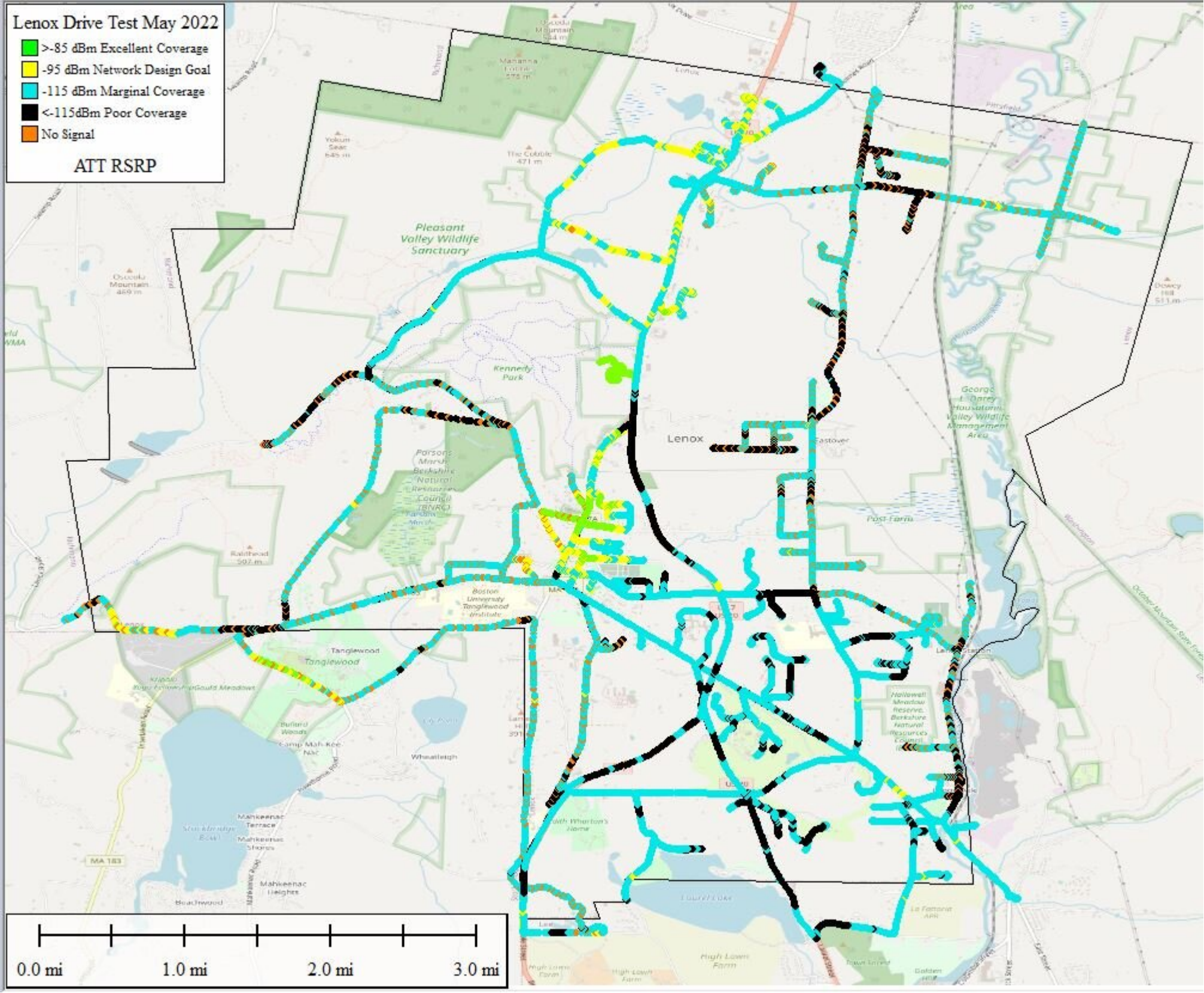
The Tanglewood area is poorly served by T-Mobile and partially served by AT&T and Verizon. AT&T and Verizon appear to have facilities in Stockbridge, southwest of Tanglewood, providing some good coverage along West Hawthorne Rd and perhaps into the lawn and music shed area. Verizon has a small cell on a utility pole on West St (Rt 183) in Lenox to buttress service on the Lenox side of the town line. With the large concentration of seasonal activity in this area, no doubt this is a challenging area for the carriers to address. Tanglewood is largely in Stockbridge, so the pressure point favors a solution in Stockbridge. The traffic generated on Rt 183 in Lenox could be a target for new coverage as well. Verizon seems to have addressed this at least in part with its small cell.

The center of town has an AT&T facility in a steeple, and we understand there has been other carrier interest in putting facilities on building rooftops to serve the center of town. Just as is the case with the steeple installation of AT&T, putting other carriers' facilities in visually acceptable locations near the center of town will provide the best coverage to the most people without resorting to a new cell tower.

CONCLUSIONS

Lenox has one cell tower. The town is primarily served from cell sites outside the town. The two most likely areas of potential wireless facility development are the center of town and the southeast portion of town between Housatonic Street and the Lee line.

David Maxson, WCP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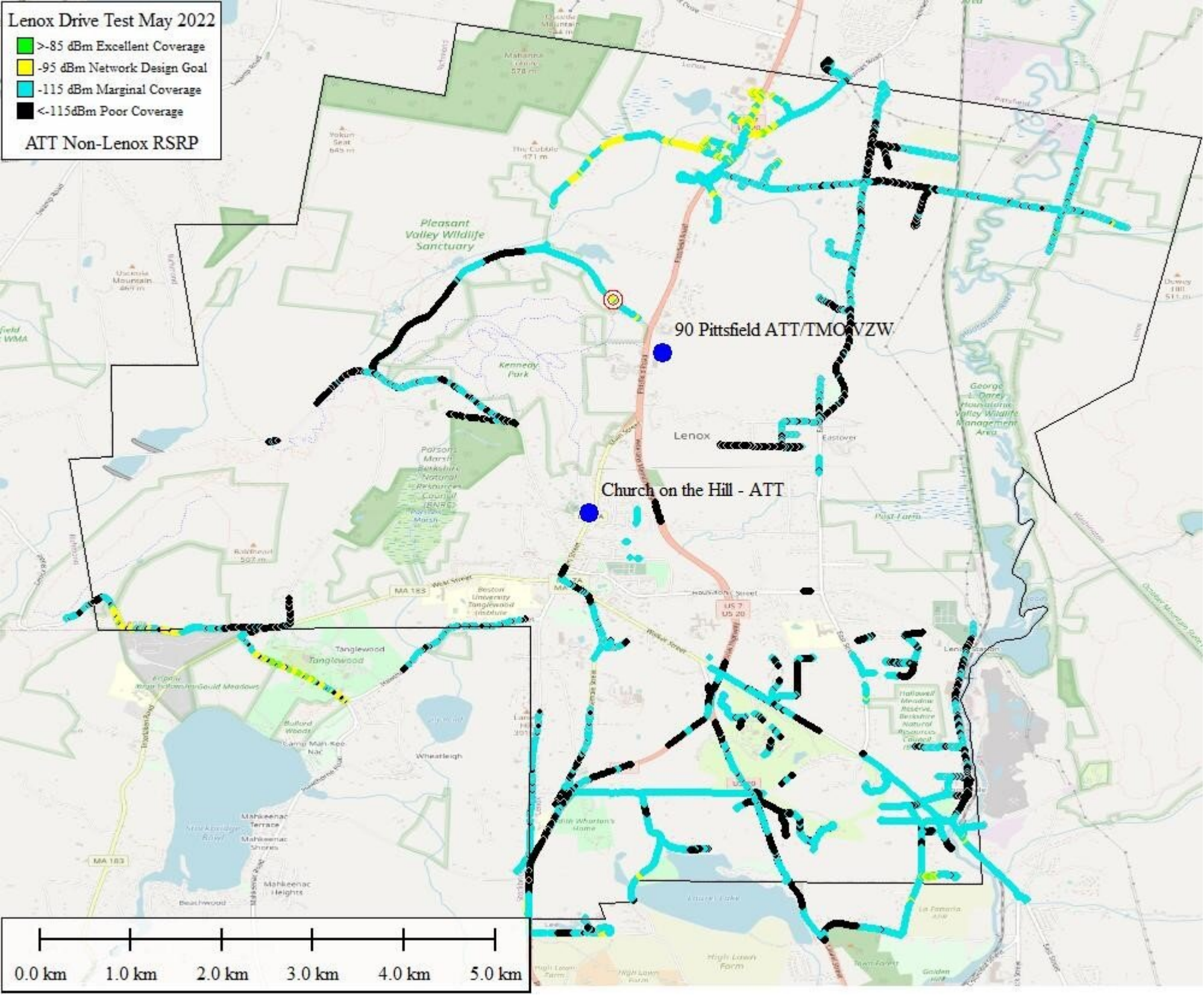
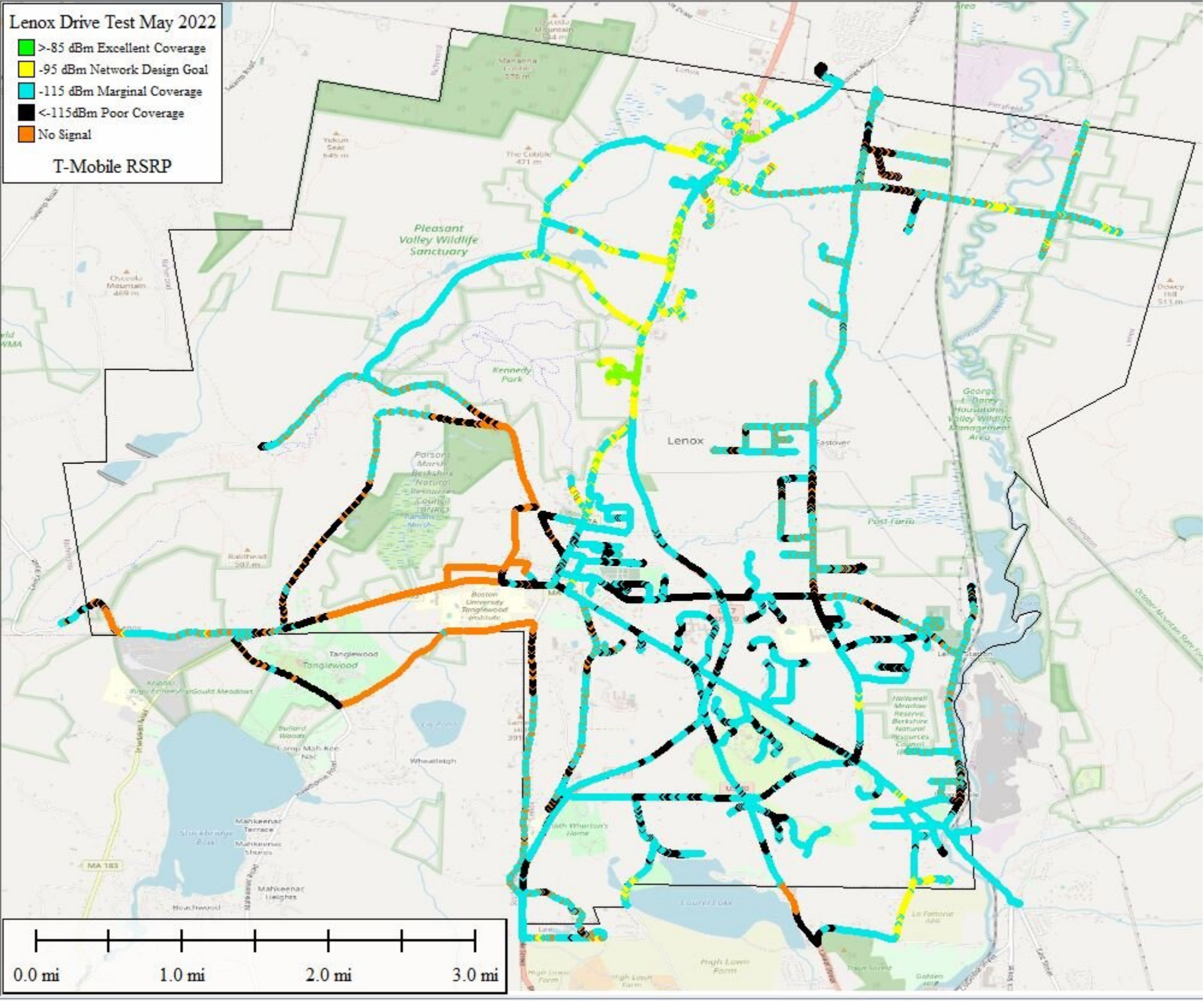
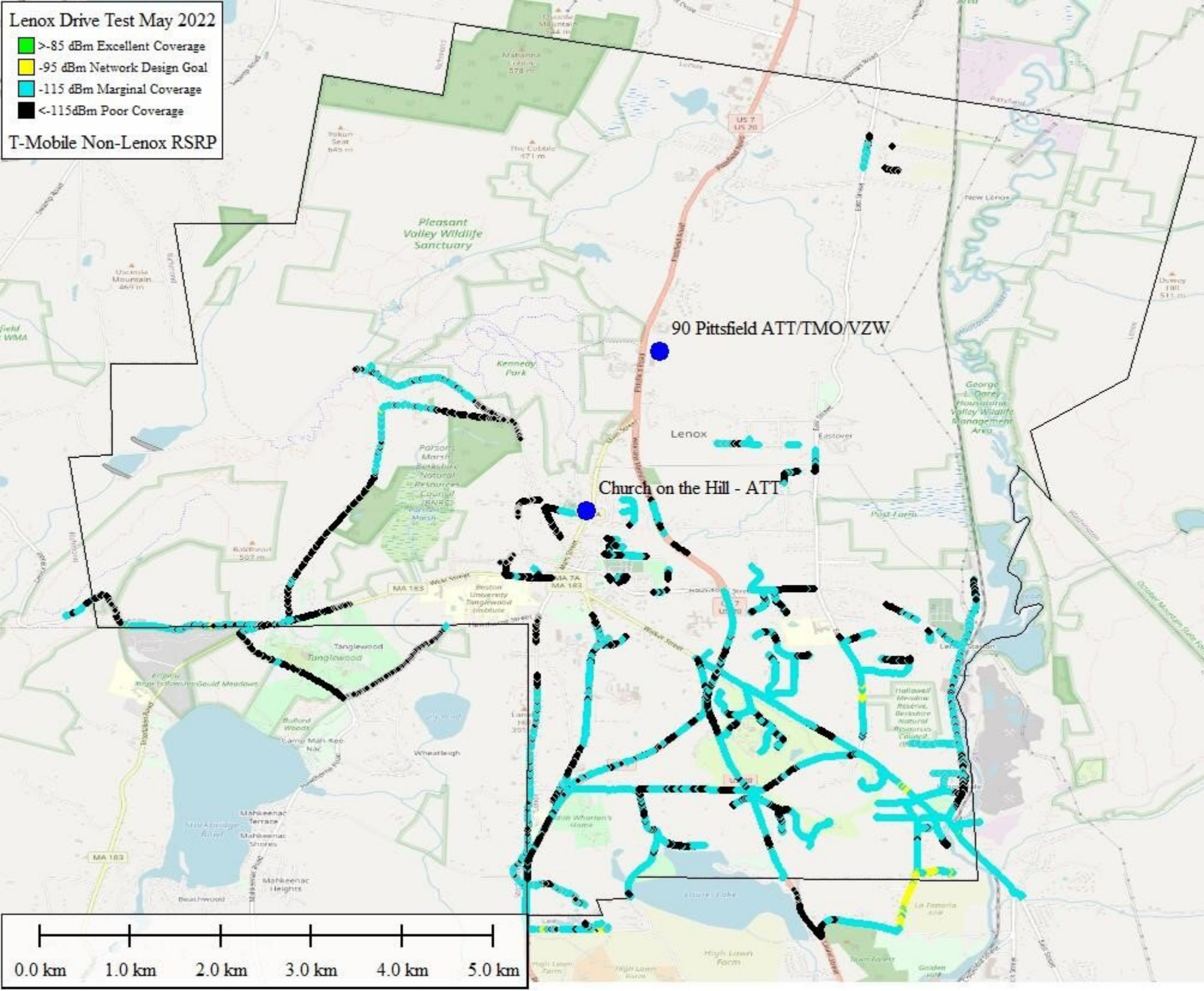
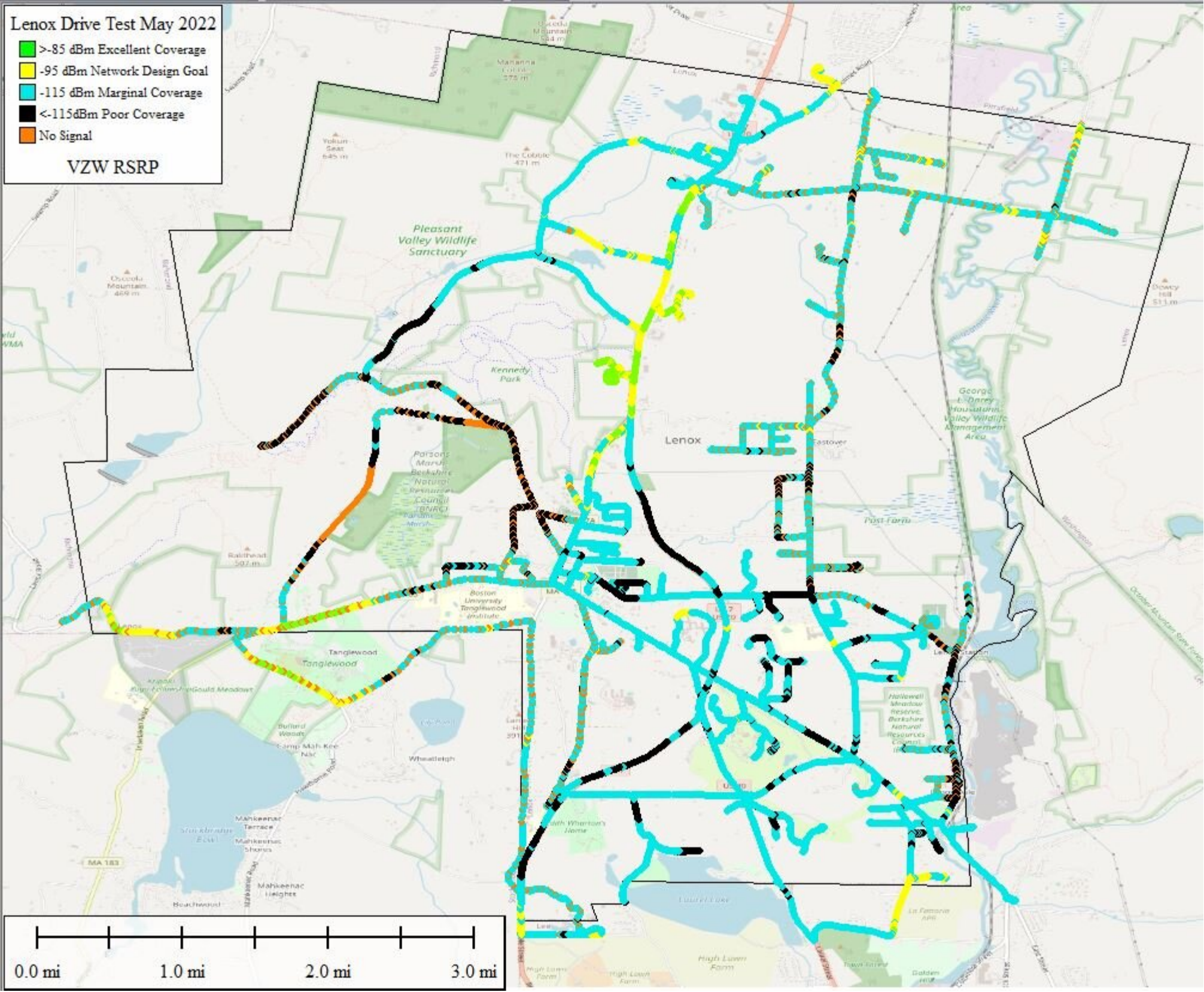
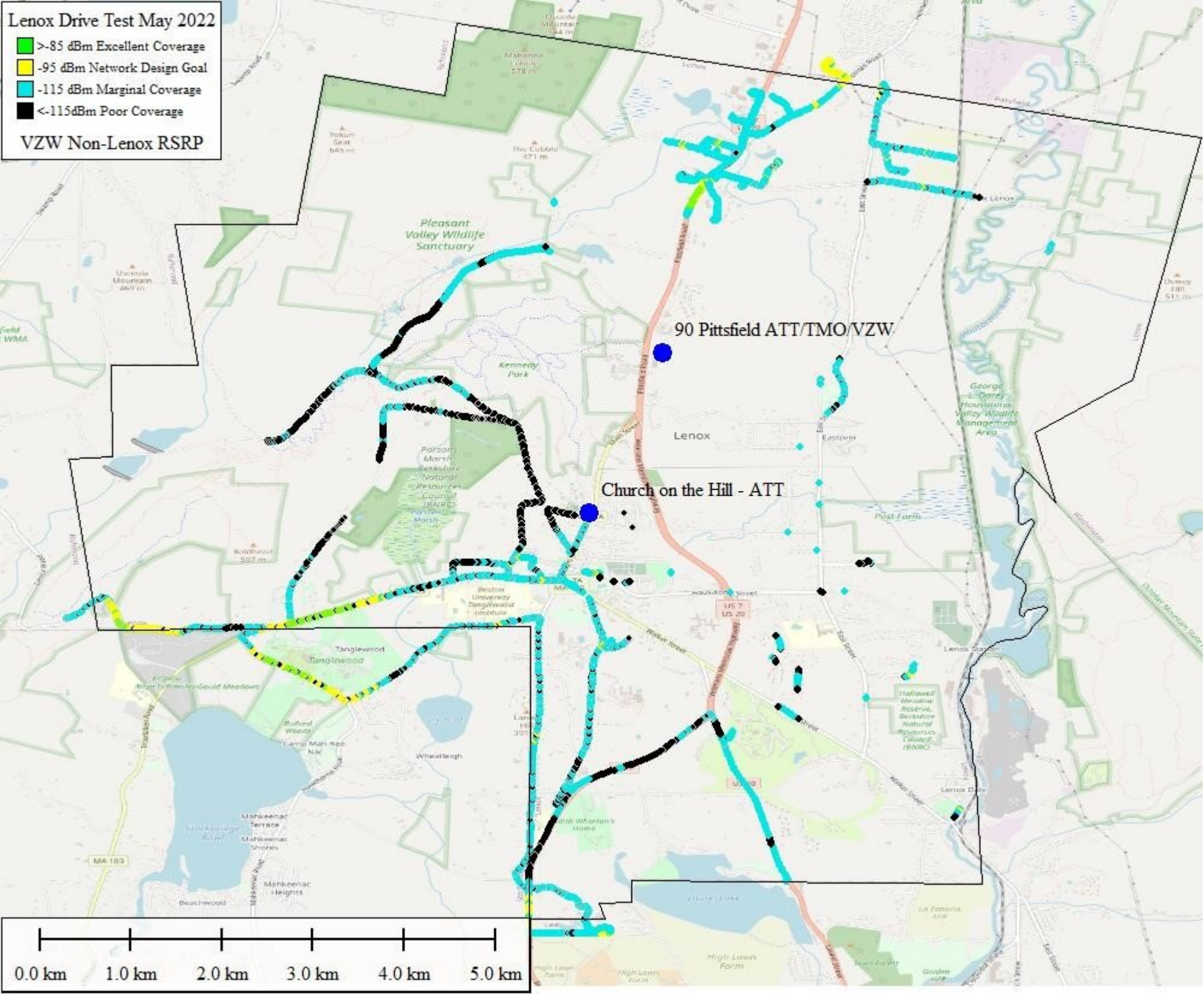
>-85 dBm Excellent Coverage
-95 dBm Network Design Goal
-115 dBm Marginal Coverage
<-115dBm Poor Coverage
No Signal
ATT RSRP
Pleasant Valley Wildlife Sanctuary
Kennedy Park
Lenox
Tanglewood
Wheatleigh
0.0 mi
1.0 mi
2.0 mi
3.0 mi

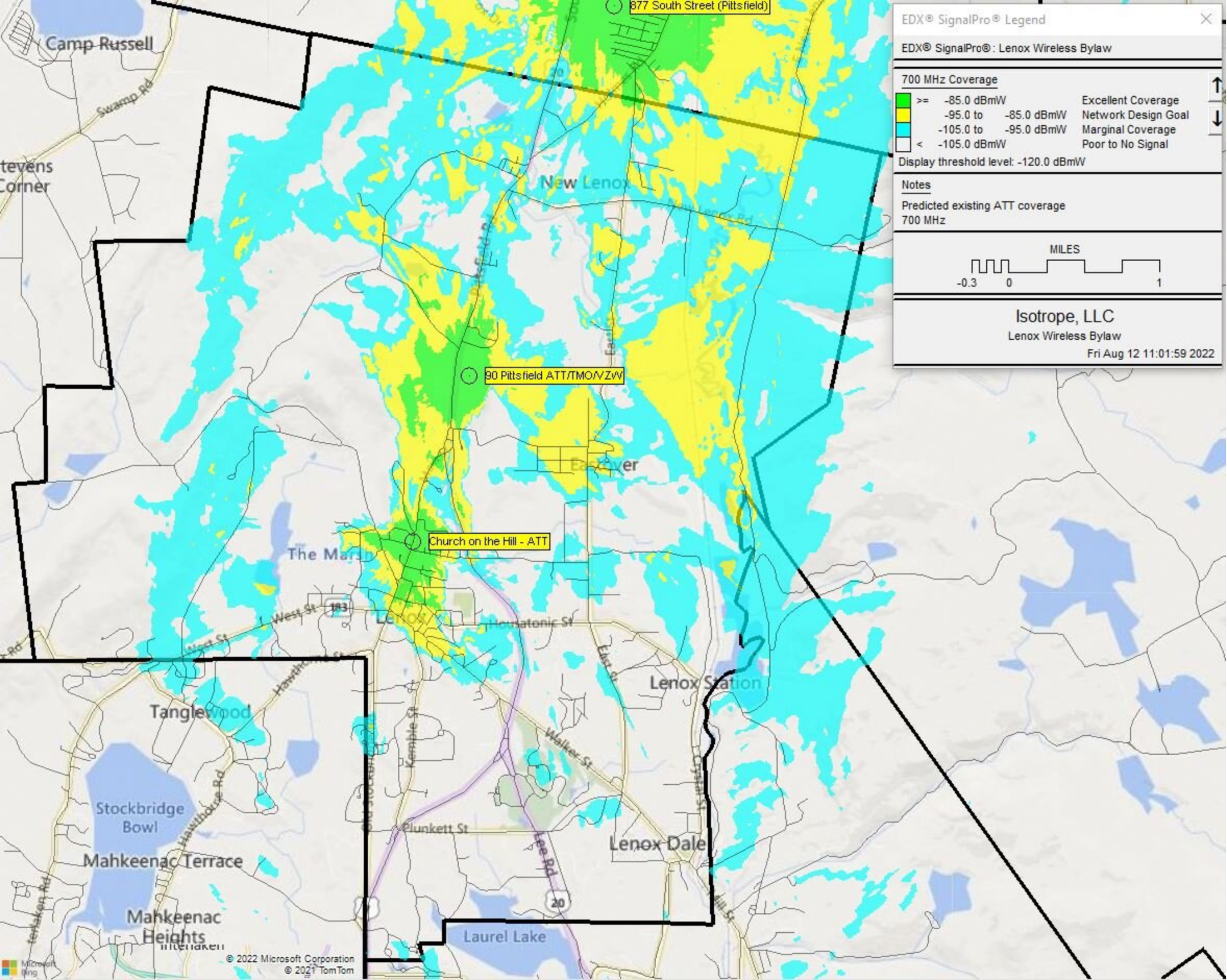

Lenox Drive Test May 2022
>-85 dBm Excellent Coverage
-95 dBm Network Design Goal
-115 dBm Marginal Coverage
<-115dBm Poor Coverage
ATT Non-Lenox RSRP
90 Pittsfield ATT/TMO/VZW
Church on the Hill - ATT
Lenox
Pleasant Valley Wildlife Sanctuary
Kennedy Park
Tanglewood
Wheatleigh
0.0 km
1.0 km
2.0 km
3.0 km
4.0 km
5.0 km


Lenox Drive Test May 2022
>-85 dBm Excellent Coverage
-95 dBm Network Design Goal
-115 dBm Marginal Coverage
<-115dBm Poor Coverage
No Signal
T-Mobile RSRP
Pleasant Valley Wildlife Sanctuary
Kennedy Park
Lenox
Tanglewood
Post Farm
0.0 mi
1.0 mi
2.0 mi
3.0 mi


Lenox Drive Test May 2022
>-85 dBm Excellent Coverage
-95 dBm Network Design Goal
-115 dBm Marginal Coverage
<-115dBm Poor Coverage
T-Mobile Non-Lenox RSRP
90 Pittsfield ATT/TMO/VZW
Church on the Hill - ATT
Lenox
Pleasant Valley Wildlife Sanctuary
Kennedy Park
Tanglewood
0.0 km
1.0 km
2.0 km
3.0 km
4.0 km
5.0 km


Lenox Drive Test May 2022
>-85 dBm Excellent Coverage
-95 dBm Network Design Goal
-115 dBm Marginal Coverage
<-115dBm Poor Coverage
No Signal
VZW RSRP
Pleasant Valley Wildlife Sanctuary
Kennedy Park
Lenox
Tanglewood
Wheatleigh
Mahkeenac Terrace
Mahkeenac Shores
Mahkeenac Heights
Beachwood
Post Farm
0.0 mi
1.0 mi
2.0 mi
3.0 mi


Lenox Drive Test May 2022
>-85 dBm Excellent Coverage
-95 dBm Network Design Goal
-115 dBm Marginal Coverage
<-115dBm Poor Coverage
VZW Non-Lenox RSRP
90 Pittsfield ATT/TMO/VZW
Church on the Hill - ATT
Lenox
Pleasant Valley Wildlife Sanctuary
Kennedy Park
Tanglewood
Wheatleigh
0.0 km
1.0 km
2.0 km
3.0 km
4.0 km
5.0 km


877 South Street (Pittsfield)
90 Pittsfield ATT/TMO/VZW
Church on the Hill - ATT
Camp Russell
Stevens Corner
New Lenox
East Lee
The Marsh
Lenox
Lenox Station
Lenox Dale
Tanglewood
Stockbridge Bowl
Mahkeenac Terrace
Mahkeenac Heights
Laurel Lake
Swamp Rd
West St
Housatonic St
Walker St
Plunkett St
Kemble St
Hawthorne Rd
Lee Rd
East St
Hill St
© 2022 Microsoft Corporation
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EDX® SignalPro® Legend
EDX® SignalPro®: Lenox Wireless Bylaw
700 MHz Coverage
>= -85.0 dBmW Excellent Coverage
-95.0 to -85.0 dBmW Network Design Goal
-105.0 to -95.0 dBmW Marginal Coverage
< -105.0 dBmW Poor to No Signal
Display threshold level: -120.0 dBmW
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700 MHz
MILES
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Isotrope, LLC
Lenox Wireless Bylaw
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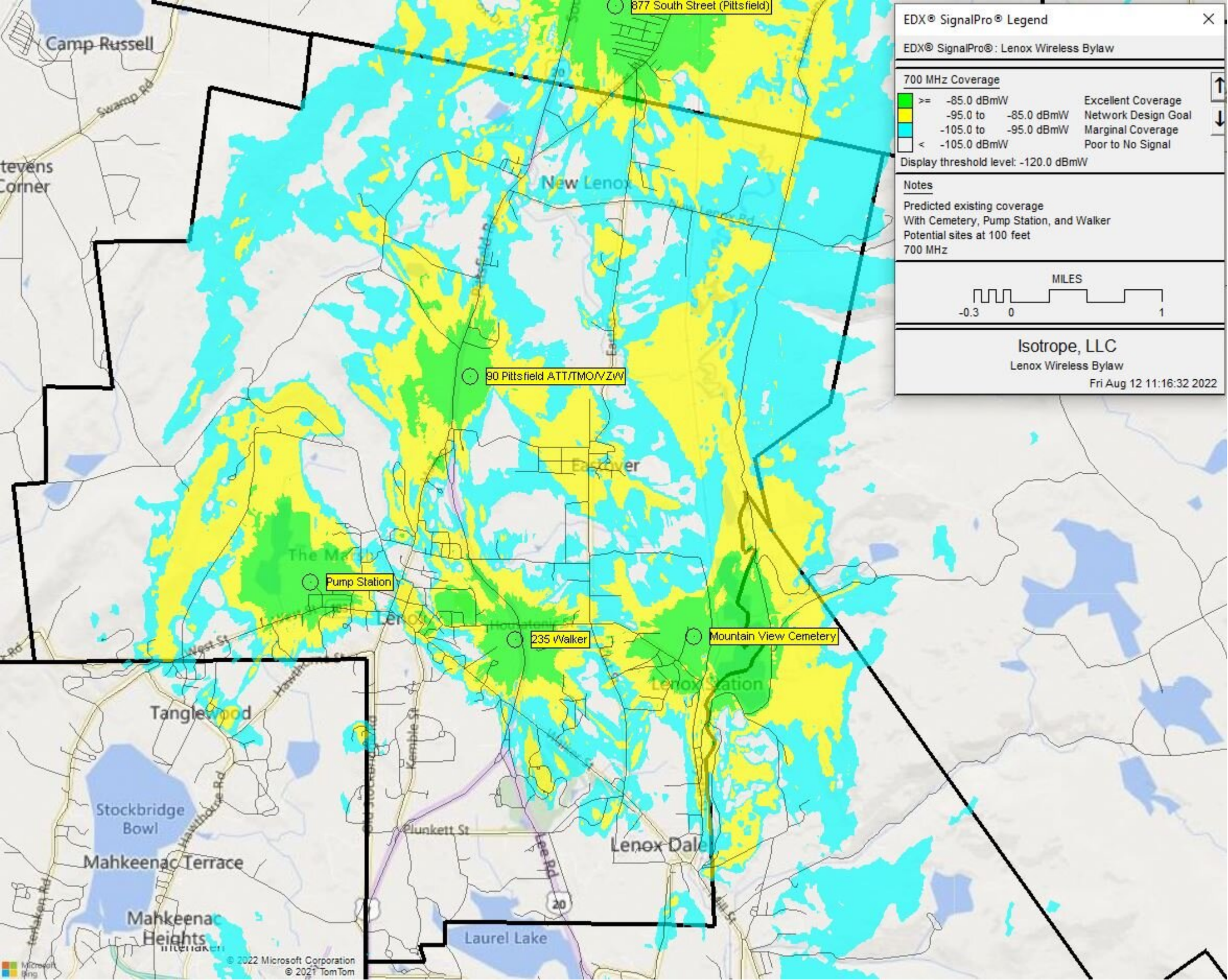
877 South Street (Pittsfield)
90 Pittsfield ATT/TMO/VZW
Pump Station
235 Walker
Mountain View Cemetery
Camp Russell
Swamp Rd
Stevens Corner
New Lenox
Eastover
The Mews
Lenox
Lenox Station
Lenox Dale
Tanglewood
Stockbridge Bowl
Mahkeenac Terrace
Mahkeenac Heights
Laurel Lake
Plunkett St
West St
Hawthorne St
Kemble St
Hawthorne Rd
Lee Rd
Hill St
20
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EDX® SignalPro® Legend
EDX® SignalPro®: Lenox Wireless Bylaw
700 MHz Coverage
>= -85.0 dBmW Excellent Coverage
-95.0 to -85.0 dBmW Network Design Goal
-105.0 to -95.0 dBmW Marginal Coverage
< -105.0 dBmW Poor to No Signal
Display threshold level: -120.0 dBmW
Notes
Predicted existing coverage
With Cemetery, Pump Station, and Walker
Potential sites at 100 feet
700 MHz
MILES
-0.3 0 1
Isotrope, LLC
Lenox Wireless Bylaw
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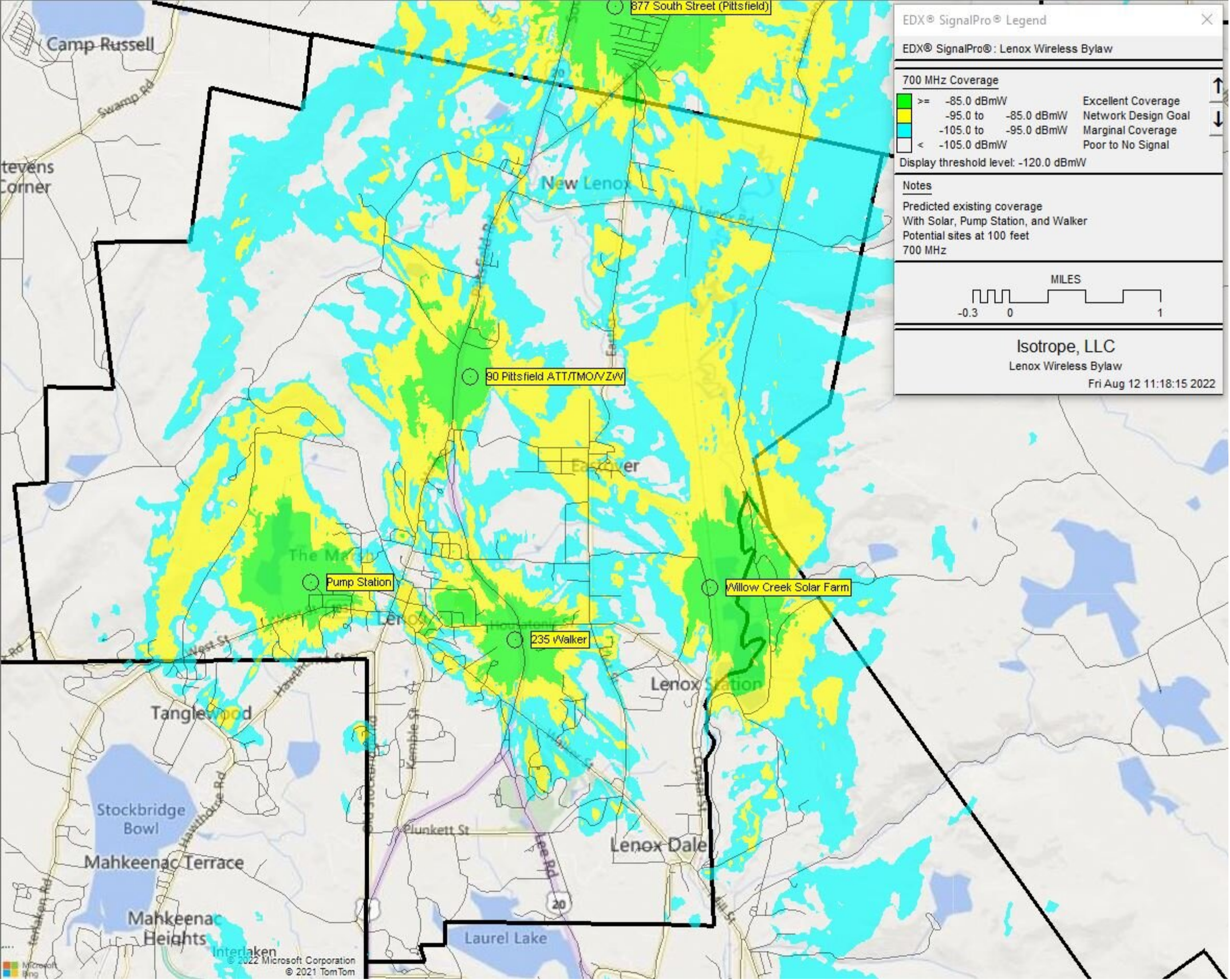
877 South Street (Pittsfield)
90 Pittsfield ATT/TMO/VZW
Pump Station
Willow Creek Solar Farm
235 Walker
Camp Russell
Swamp Rd
Stevens Corner
New Lenox
Eastover
The Mews
Lenox
Lenox Station
Tanglewood
Stockbridge Bowl
Mahkeenac Terrace
Mahkeenac Heights
Interlaken
Laurel Lake
Lenox Dale
Plunkett St
West St
Hawthorne Rd
Kemble St
Lee Rd
Kilpatrick
20
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EDX® SignalPro® Legend
EDX® SignalPro®: Lenox Wireless Bylaw
700 MHz Coverage
>= -85.0 dBmW Excellent Coverage
-95.0 to -85.0 dBmW Network Design Goal
-105.0 to -95.0 dBmW Marginal Coverage
< -105.0 dBmW Poor to No Signal
Display threshold level: -120.0 dBmW
Notes
Predicted existing coverage
With Solar, Pump Station, and Walker
Potential sites at 100 feet
700 MHz
MILES
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Isotrope, LLC
Lenox Wireless Bylaw
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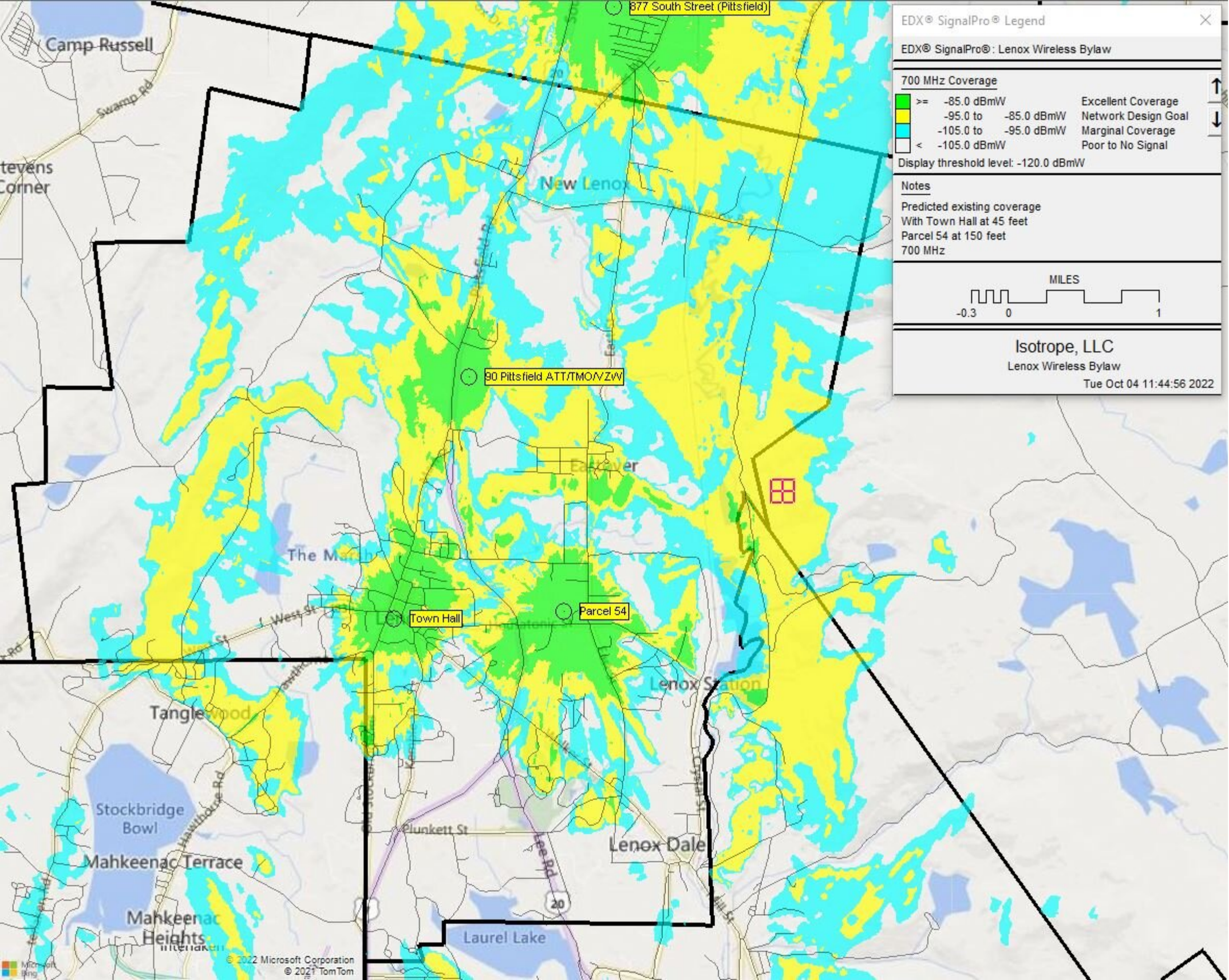
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Town Hall
Parcel 54
Camp Russell
Stevens Corner
New Lenox
Eastover
The Marsh
Lenox Station
Tanglewood
Stockbridge Bowl
Mahkeenac Terrace
Mahkeenac Heights
Lenox Dale
Laurel Lake
West St
Plunkett St
Swamp Rd
Hawthorne Rd
Lee Rd
Hill St
20
EDX® SignalPro® Legend
EDX® SignalPro®: Lenox Wireless Bylaw
700 MHz Coverage
>= -85.0 dBmW Excellent Coverage
-95.0 to -85.0 dBmW Network Design Goal
-105.0 to -95.0 dBmW Marginal Coverage
< -105.0 dBmW Poor to No Signal
Display threshold level: -120.0 dBmW
Notes
Predicted existing coverage
With Town Hall at 45 feet
Parcel 54 at 150 feet
700 MHz
MILES
-0.3 0 1
Isotrope, LLC
Lenox Wireless Bylaw
Tue Oct 04 11:44:56 2022
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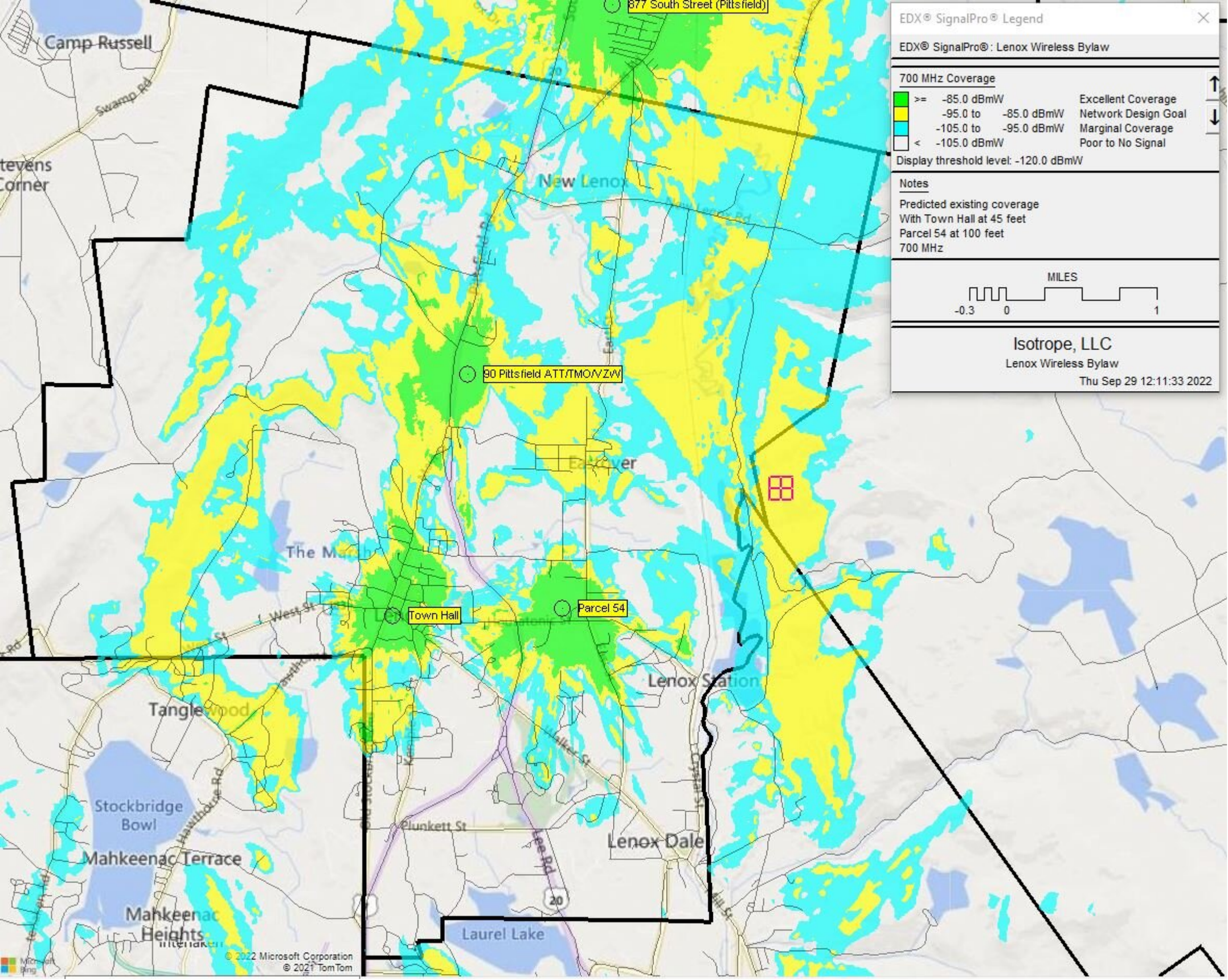
877 South Street (Pittsfield)
90 Pittsfield ATT/TMO/VZW
Town Hall
Parcel 54
Camp Russell
Swamp Rd
Stevens Corner
New Lenox
East Over
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West St
Tanglewood
Lenox Station
Stockbridge Bowl
Mahkeenac Terrace
Mahkeenac Heights
Plunkett St
Lenox Dale
Laurel Lake
Hawthorne Rd
Walker St
Lee Rd
20
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EDX® SignalPro® Legend
EDX® SignalPro®: Lenox Wireless Bylaw
700 MHz Coverage
>= -85.0 dBmW Excellent Coverage
-95.0 to -85.0 dBmW Network Design Goal
-105.0 to -95.0 dBmW Marginal Coverage
< -105.0 dBmW Poor to No Signal
Display threshold level: -120.0 dBmW
Notes
Predicted existing coverage
With Town Hall at 45 feet
Parcel 54 at 100 feet
700 MHz
MILES
-0.3
0
1
Isotrope, LLC
Lenox Wireless Bylaw
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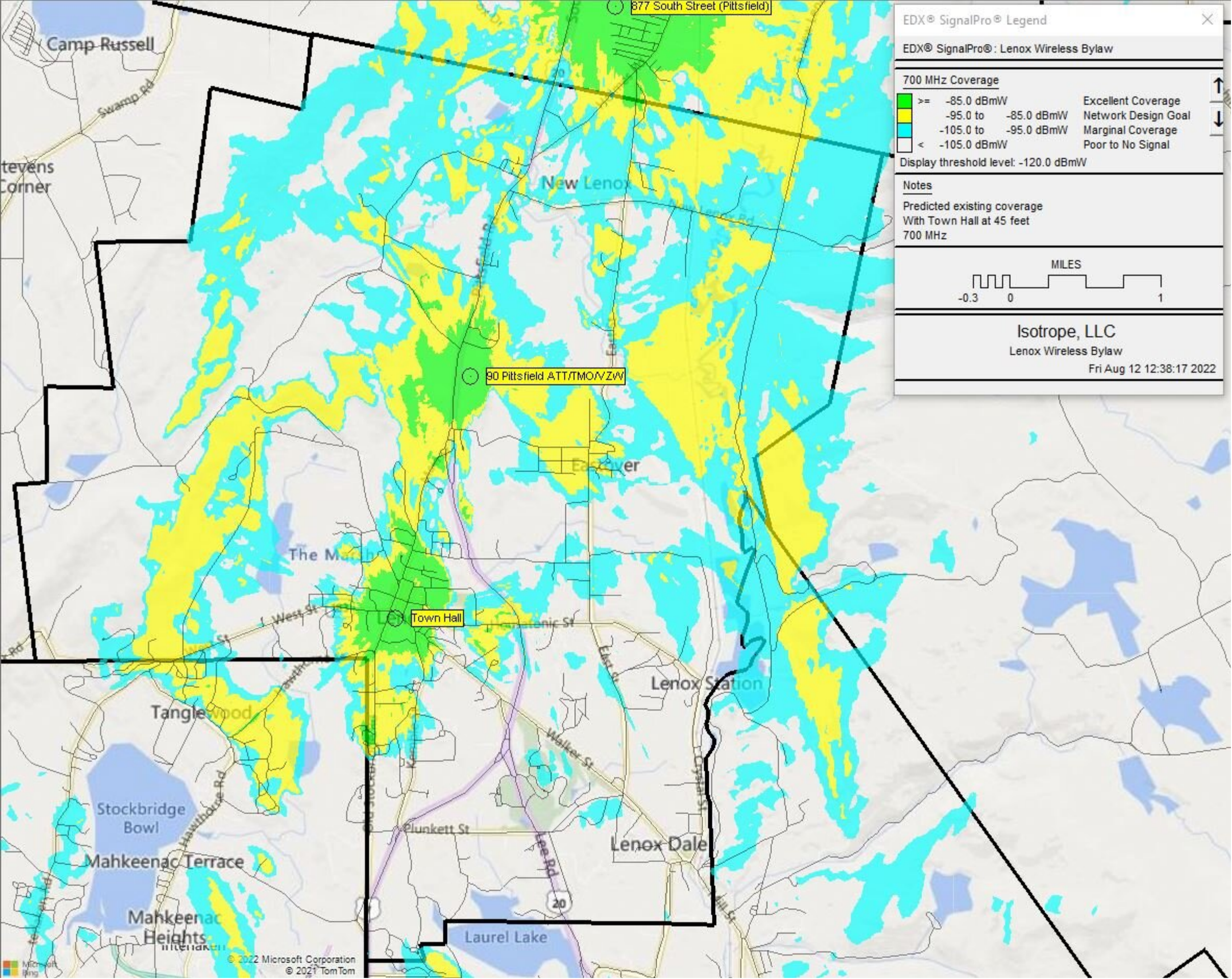
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Town Hall
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Tanglewood
Lenox Station
Walker St
Plunkett St
Lee Rd
Lenox Dale
Stockbridge Bowl
Mahkeenac Terrace
Mahkeenac Heights
Laurel Lake
20
© 2022 Microsoft Corporation
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EDX® SignalPro® Legend
EDX® SignalPro®: Lenox Wireless Bylaw
700 MHz Coverage
>= -85.0 dBmW Excellent Coverage
-95.0 to -85.0 dBmW Network Design Goal
-105.0 to -95.0 dBmW Marginal Coverage
< -105.0 dBmW Poor to No Signal
Display threshold level: -120.0 dBmW
Notes
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700 MHz
MILES
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Isotrope, LLC
Lenox Wireless Bylaw
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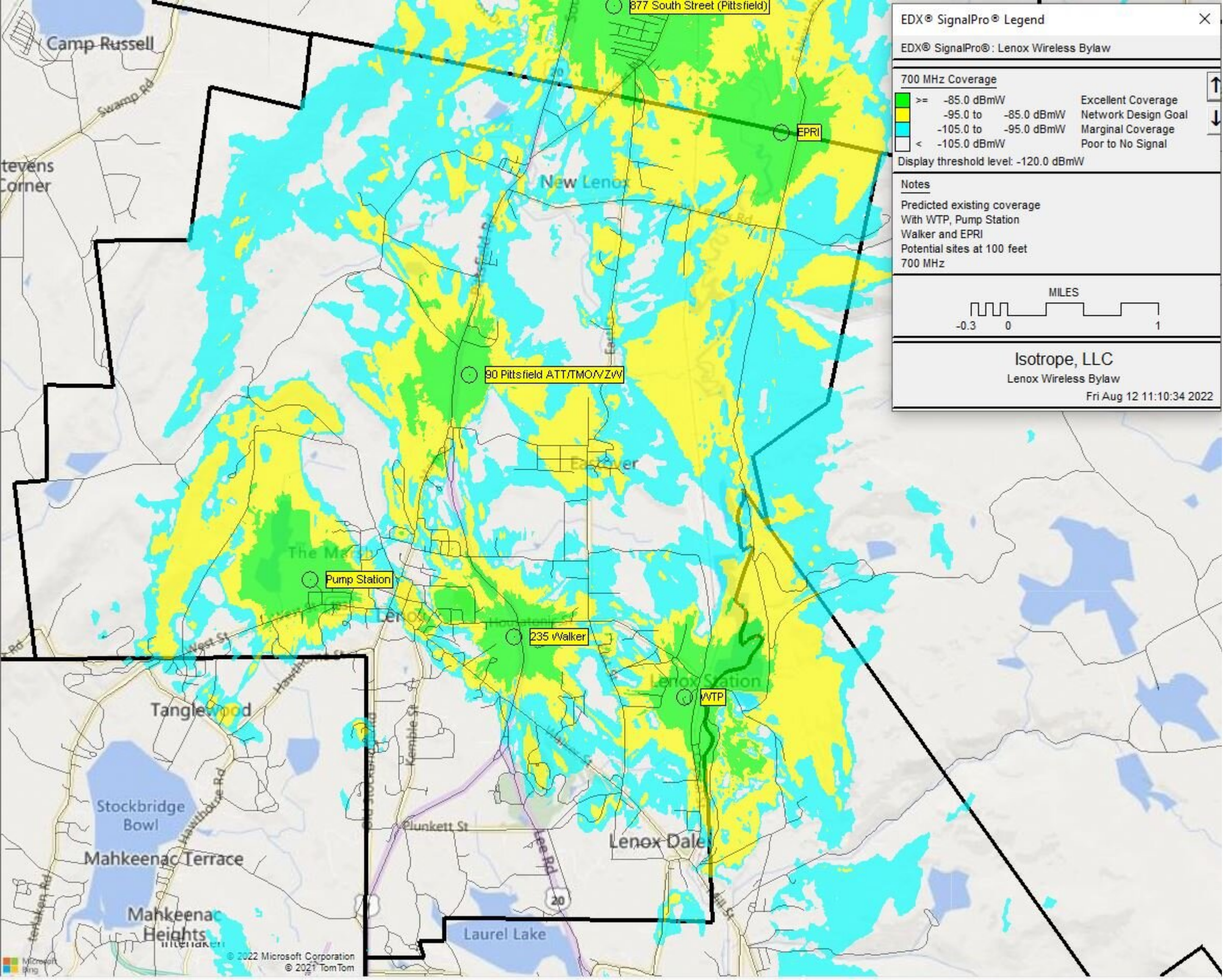
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EPRI
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235 Walker
WTP
Camp Russell
Swamp Rd
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The Mews
Lenox
Lenox Station
Tanglewood
Stockbridge Bowl
Mahkeenac Terrace
Mahkeenac Heights
Lenox Dale
Laurel Lake
Plunkett St
Kemble St
Hawthorne Rd
West St
Lee Rd
20
© 2022 Microsoft Corporation
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EDX® SignalPro® Legend
EDX® SignalPro®: Lenox Wireless Bylaw
700 MHz Coverage
>= -85.0 dBmW Excellent Coverage
-95.0 to -85.0 dBmW Network Design Goal
-105.0 to -95.0 dBmW Marginal Coverage
< -105.0 dBmW Poor to No Signal
Display threshold level: -120.0 dBmW
Notes
Predicted existing coverage
With WTP, Pump Station
Walker and EPRI
Potential sites at 100 feet
700 MHz
MILES
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Isotrope, LLC
Lenox Wireless Bylaw
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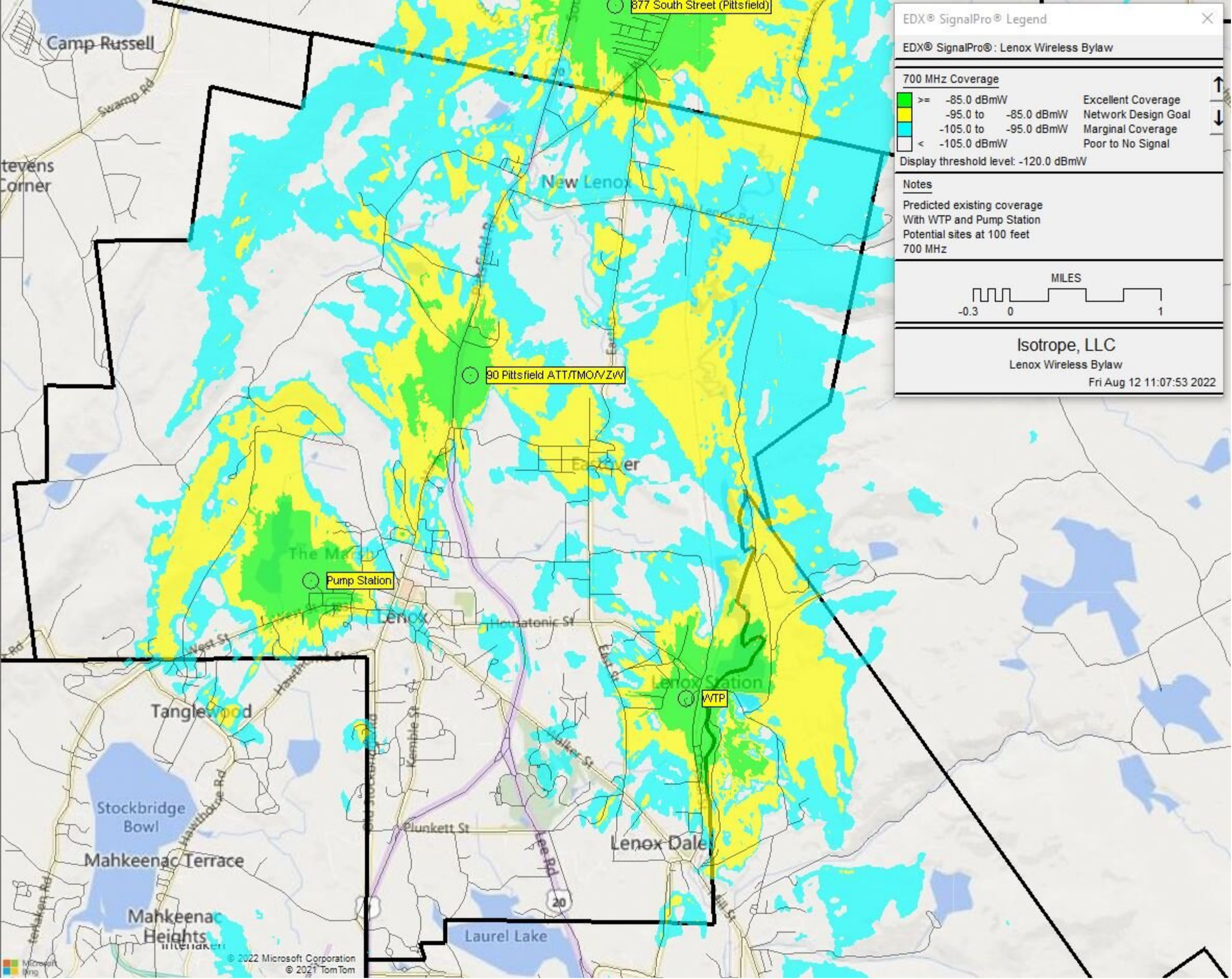
877 South Street (Pittsfield)
90 Pittsfield ATT/TMO/VZW
Pump Station
WTP
Camp Russell
Swamp Rd
Stevens Corner
New Lenox
East Lee
The Marsh
Lenox
Housatonic St
West St
Hawthorne St
Lenox Station
Tanglewood
Stockbridge Bowl
Mahkeenac Terrace
Mahkeenac Heights
Plunkett St
Lenox Dale
Laurel Lake
Walker St
Kemble St
Old Stockbridge Rd
Hawthorne Rd
Lee Rd
East St
Hill St
20
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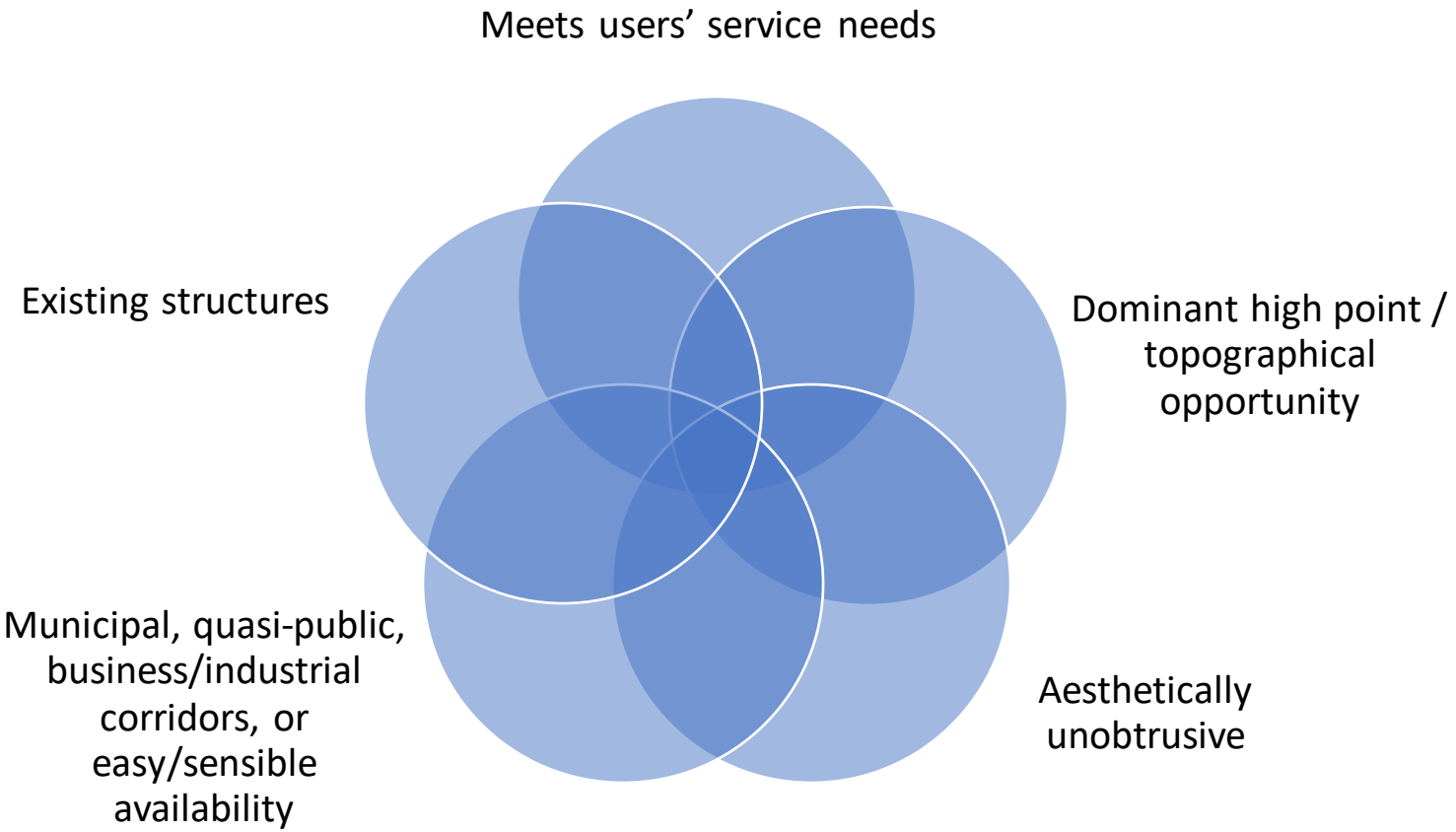
© 2021 TomTom
EDX® SignalPro® Legend
EDX® SignalPro®: Lenox Wireless Bylaw
700 MHz Coverage
>= -85.0 dBmW Excellent Coverage
-95.0 to -85.0 dBmW Network Design Goal
-105.0 to -95.0 dBmW Marginal Coverage
< -105.0 dBmW Poor to No Signal
Display threshold level: -120.0 dBmW
Notes
Predicted existing coverage
With WTP and Pump Station
Potential sites at 100 feet
700 MHz
MILES
-0.3 0 1
Isotrope, LLC
Lenox Wireless Bylaw
Fri Aug 12 11:07:53 2022

Wireless infrastructure location preferences

Note: We're not looking for the little sliver of possibility at the center of all the overlapping circles -- but the flexibility of the overlaps to shift a little here and there and get an adequate location that meets the capacity need.

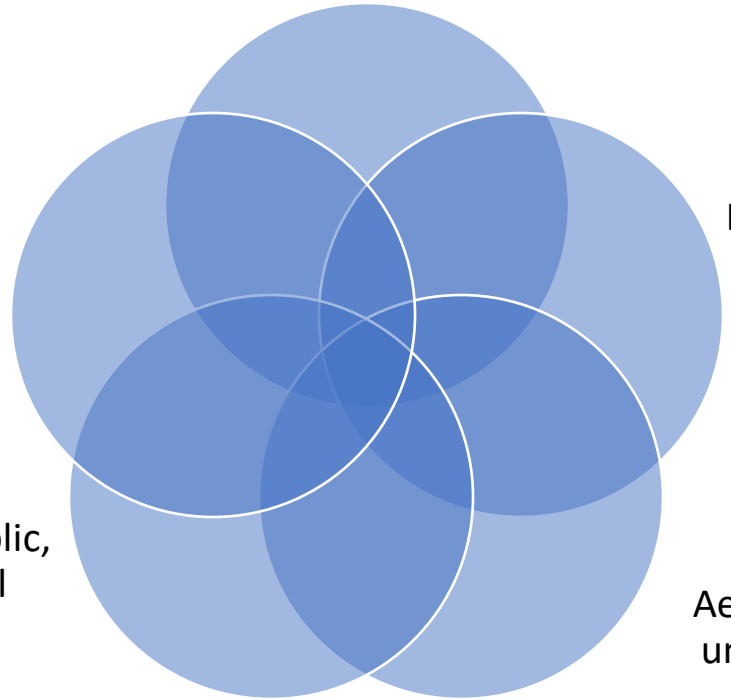


pk and kmv 7/6/2022

Wireless infrastructure location preferences filter

Note: We're not looking for the little sliver of possibility at the center of all the overlapping circles -- but the flexibility of the overlaps to shift a little here and there and get an adequate location that meets the capacity need.

Meets users' service needs



Existing structures

Examples:

- Fire tower on Lenox Mountain

Dominant high point / topographical opportunity

- Map dominant high points so that we can see where they are, then we can filter for other location preferences

Aesthetically unobtrusive

Examples:

- Mountainside tower in Lee seen from top of Golden Hill Road

Municipal, quasi-public, business/industrial corridors, or easy/sensible availability

Examples:

- Top of water treatment plant, Lenox Dale
- All along Route 7
- Along commercial / industrial corridor in Lenox Dale starting at Classical Tents all the way to Town solar farm
- Electricity transmission corridors
- Fire breaks

DRAFT pk and kmv 7/6/2022

This section; FYI:

- 9/2021 version – starting point
- Shows all comments from PB + David Maxson
- Shows recommended changes – layered in with handwritten
- Does not show stuff pulled over from Specs + Design

Point is: you can see starting document + comments + ways they are addressed. All in sequence. Looks confusing at first, but take it slow, get accustomed to flow, and I hope it makes it 'easy' enough to really follow.

P

10- -22 DM + PB + PK/SL

1

8.18 Wireless Communications Facilities

8.18.1 Purpose. The purpose of this bylaw is to establish general guidelines for the locating of wireless communication towers, antennas, ground equipment, and related accessory structures. The intent of this bylaw is to:

(1) Accommodate the growing need and demand for wireless communications services.

moved from below

(2) Establish review procedures to ensure that applications for communications facilities are reviewed for compliance with federal, state, and local regulations and acted upon within a reasonable period of time as required by applicable state and federal regulations.

added by DM (ok)

~~(1)~~(3) Minimize the impacts of wireless communications facilities on surrounding land uses by establishing standards for location, structural integrity, and compatibility.

~~(2)~~(4) Encourage the location and collocation of communications equipment on existing structures thereby minimizing new visual, aesthetic, and public safety impacts, effects upon the natural environment and wildlife, and reducing the need for additional towers.

Commented [DM1]: Standard caution: be careful not to require collocation at the expense of impact. Fewer taller towers are not always better than more less-visible towers/facilities. Bylaws that recognize the tension between the two give the SPGA the latitude to balance these objectives.

so...

(4) Encourage the location and collocation of communications equipment on existing structures thereby minimizing new visual, aesthetic, and public safety impacts, and effects upon the natural environment, while also recognizing that a fewer number of taller may not always be better than a greater number of less visible shorter towers or wireless communications facilities.

~~communications services.~~

~~(4)~~(5) Respond to the policies embodied in the Telecommunications Act of 1996 in such a manner as not to unreasonably discriminate between providers of functionally equivalent personal wireless services or to prohibit or have the effect of prohibiting personal wireless services.

~~(5)~~(6) Respond to the policies embodied in the Federal Communication Commission's *Declaratory Ruling and Third Report and Order* of September 27, 2018 (FCC 18-133), in such a manner as to not effectively prohibit the provision of wireless services.

added by DM (ok)

~~(6)~~(7) Protect the character of the Town while meeting the needs of its citizens to enjoy the benefits of wireless communications services.

8.18.2 The provisions of this bylaw are not intended to and shall not be interpreted to prohibit or to have the effect of prohibiting personal wireless services or be applied in such a manner as to unreasonably discriminate between providers of functionally equivalent personal wireless services.

2

8.18.3Definitions. The following definitions are used exclusively in the Wireless Communications Bylaw (and are repeated in Town of Lenox Standard Specifications and Design Manual for Wireless Facilities (the "Design Manual")), as amended:

ADA - ~~the Americans with Disabilities Act, as amended, and the regulations promulgated thereunder~~;

delete no reference in this bylaw

antenna -– a device consisting of exposed elements or of an enclosure containing one or more elements ~~communications equipment~~ that transmits and/or receives electromagnetic radio frequency signals ~~used in the provision of wireless services~~. Two or more antennas operated by one carrier/owner at one site constitute an antenna array. In context, a single enclosure that contains multiple antenna elements connected to multiple electrical ports that provide for any of the following is considered an antenna herein: multiple frequency bands, multiple input/multiple output arrays, transmit/receive isolation, polarization and space diversity.

DM, I believe OK

applicable codes - building, plumbing, electrical and fire codes adopted by the Commonwealth or the Town; requirements of the National Electric Code or the National Electric Safety Code; and the applicable laws, regulations and requirements of the Federal Communications Commission, the Occupational Safety and Health Administration, as well as any other local, state, or federal agency regulating wireless communications, as any may be amended from time to time.

~~*applicant* - any person who submits an application for zoning relief under this bylaw and is, or is acting on behalf of, a wireless services provider or wireless infrastructure provider.~~

applicant - any person who submits an application for zoning relief under this bylaw ~~and is, or is acting on behalf of, a wireless services provider or wireless infrastructure provider~~.

DM OK

3

Can we just delete this moved w/ bylaw

application - a written request on a Town wireless communications facility application form submitted by an applicant to the Land Use Department to install, modify or operate a wireless communications facility on [redacted] for a permit to collocate wireless communications facilities on an existing wireless support structure; install a wireless support structure; or install modifications or modify operation of any existing wireless communications facility, as well as all required exhibits and submittals as required by the application form and the applicable fee for the review of such application.

Commented [DM2]: Pretty convoluted definition. The more it says, the more there is a chance of unintended interpretations. E.g. right of way is perhaps broader than intended. Utilities are sometimes said to be on rights of way. Public way addresses town streets. How are private ways regulated?

Commented [DM3]: All this clarifying language might be more suited to normative language in the bylaw below than in the definition. An application is an application and it might later be determined to be not ripe or not applicable according to the terms of the bylaw. Consider relocating these constraints.

Consider replacing this language with "under this bylaw."

basic use permit - a written authorization that must be obtained by the applicant from the Town to perform an action or initiate, continue, or complete certain types of wireless communications facilities. Application process will be contained in the Specifications Manual.

Commented [LF4]: Process to be outlined in Specifications Manual?

Commented [DM5]: This is normative language and not part of the definition. Put in the body.

will be replaced w/ "Administrative Approval"

Administrative Approval – a written authorization that must be obtained by the applicant from the Zoning Board of Appeals to perform an action or initiate, continue, or complete certain types of wireless communications facilities. Majority vote of Zoning Board of Appeals required; submission requirements for given request set by FCC and in Specifications manual; noticing process same as for Special Permit; fee set in fee schedule; reasonable conditions serving the municipal interest may be required.

Work on details also put w/ bylaw?

~~*breakpoint technology* - the engineering design of a monopole wherein a specified point on the monopole is designed to have stresses concentrated so that the point is at least five percent (5%) more susceptible to failure than any other point along the monopole so that in the event of a structural failure of the monopole, the failure will occur at the breakpoint rather than at the base plate, anchor bolts, or any other point on the monopole.~~

Commented [DM6]: This is technically do-able until the assumptions that are necessary to certify so are understood reveal the impracticality. E.g., a 4 carrier tower with one carrier has stresses that might be maximum at one point on the tower whereas with 4 carriers the stresses peak elsewhere. Even though most of the tower is overbuilt by 5%, there is no guarantee that a certain kind of failure mode will cause the failure at the breakpoint. Moreover, towers can fail due to manufacturing and operational errors unrelated to the breakpoint. This seems like unnecessary regulatory burden.

delete

collocate or collocation - to install, mount, maintain, modify, operate, or replace wireless communications facilities on or adjacent to a wireless support structure.

Commented [DM7]: Sadly, the FCC and the industry went a different way with this term in the late 1990s. While zoning regulations treat co-location as locating new wireless facility on a structure that already has one or more wireless facilities on it (typically intended for towers but often applied accidentally to buildings, on the other hand, the FCC calls attaching to any existing structure as collocation. We have been shifting to "site sharing" instead of coolocation to avoid conflict with the FCC definition.

ok so replace with:

Shared Site Collocation - to install, mount, maintain, modify, operate, or replace wireless communications facilities on or adjacent to an existing structure, including but not limited to onto an existing wireless tower, building, rooftop, water or fire tower, pole, cupolas, etc.

delete as per DM ok?

~~*communications facility* - a wireless communications facility, as defined below.~~

~~*communications service* - cable service, as defined in 47 U.S.C. 522(6), as amended; information service, as defined in 47 U.S.C. 153(24), as amended; telecommunications service, as defined in 47 U.S.C. 153(53), as amended; mobile service, as defined in 47 U.S.C. 153(33), as amended; or wireless service other than mobile service.~~

~~*communications service provider* - a cable operator, as defined in 47 U.S.C. 522(5), as amended; a provider of information services, as defined in 47 U.S.C. 153(24), as amended; a telecommunications carrier, as defined in 47 U.S.C. 153(51), as amended; or a wireless provider;~~

Commented [DM8]: Term is duplicative. 25 instances of wireless communications facility. 2 (other than here) of just communications facility. One refers to government communications facilities. Change all to wireless communications facilities. Delete definition.

Commented [DM9]: These terms are not used without the prefix "wireless"

PK/SL think this definition is ok

concealed facility - a wireless communications facility that is designed in a manner that it is not readily identifiable as a wireless communications facility, and further is designed to be aesthetically compatible with existing building(s) and uses on a site and in the neighborhood or similar area.

Page 4: [1] Commented [DM10] David Maxson 6/17/2022 1:15:00 PM

In general, to conceal wireless equipment is to hide it so it is not recognized that there is wireless equipment. It is the components that are concealed (like the antennas, or alternatively the ground equipment) not necessarily the facility as a whole. In contrast, camouflage is to reduce the conspicuity of equipment. Coloration or screening behind vegetation are forms of camouflage. The overlap occurs when a faux fire tower/water tank/carillon tower/pine tree is used to camouflage what would have been a plain cell tower. It is not concealed from view. It uses familiar architectural vernacular to conceal the equipment. Similarly a new cupola with antennas inside it might be in the gray area between concealment and camouflage. Modifying an existing steeple is more concealment than camouflage.

to what degree to ~~ex~~ more extensively handle in Specs manual?

FCC - the Federal Communications Commission of the United States.

fee - a ~~one-time~~ charge imposed by~~paid to~~ the Town on~~by the~~ an applicant with the application. delete?

historic district - land ~~a group of buildings, properties, or sites that are~~ so designated ~~as an historic district by the Town~~ as set forth in the Lenox Historic District Bylaw. delete

~~*interference* - The effect of unwanted energy due to one or a combination of emissions, radiations, or inductions upon reception in a radio communication system, manifested by any performance degradation, misinterpretation, or loss of information which could be extracted in the absence of such unwanted energy.~~ ok delete

per bylaw, all HDC locales need certificate of appropriateness, no need to repeat here (?)

~~*law* - a federal, Massachusetts or local statute, regulation (including applicable codes, as defined above), ordinance, order or rule.~~ ok delete

modification – a change of equipment or design to an existing wireless communications facility that involves the addition of new equipment, the exchange of new equipment for existing equipment where the new equipment has a greater weight or larger size than the existing equipment, the addition of any new transmission lines or replacement of existing transmission lines with new lines of greater dimension, or the increase in any amount of the height or girth of the wireless communications facility. discuss

person - an individual, corporation, limited liability company, partnership, association, trust, or other entity or organization.

Commented [DM11]: Does fee need a definition? It appears twice as Town of Lenox Fee Schedule and once in the definition of application. Fees (plural) appears twice around the mention of the Town of Lenox fee.
Broadly, some kinds of fees are also periodic (annual fees) such as what towns can charge for small wir ... [2]

Commented [DM12]: Is this definition necessary? A historic district is land-based even if it is to protect certain buildings.
If retaining the definition,

Commented [DM13]: Interference is used once in the document and not in this context. In that instance, it could be interference due to radiated emissions, but also due to physical obstruction. This definition can be eliminated and the plain meaning of interference will suffice for the term.

Commented [DM14]: "law" only appears once, in the definition of applicable codes. No need for this definition.

Commented [DM15]: Let's talk about this. A simpler definition might prevent misinterpretation. Also, it depends on how the term is used. It might be better to put the exceptions in the body so that a modification is a modification but some kinds are either exempt or waivable by staff or board.
Also note how it is used in 8.18.4 as being allowed by right unless it is an FCC substantial modification. Some modifications that are not substantial in the FCC's eyes might still deserve scrutiny. FCC does not preclude review, but says if not substantial, the town "may not deny and shall approve"

exceptions are in bylaw, as are elements that constitute "substantial change"

(6

small wireless facility - a wireless communications facility that meets both of the following qualifications:

(i) each antenna is located inside an enclosure of no more than three (3) cubic feet in volume or, in the case of an antenna that has exposed elements, the antenna and all of its exposed elements could fit within an imaginary enclosure of no more than three (3) cubic feet; and

(ii) all other ancillary wireless equipment associated with the facility is cumulatively no more than twenty-eight (28) cubic feet in volume. The following types of associated ancillary equipment are not included in the calculation of equipment volume: electric meter, concealment elements, telecommunications demarcation box, ground-based enclosures, grounding equipment, power transfer switch, cut-off switch, and vertical cable runs for the connection of power and other services.

VS.

Here is the FCC definition:

"Small Wireless Facilities," as used herein and consistent with section 1.1312(e)(2), encompasses facilities that meet the following conditions:

(1) The facilities—

(i) are mounted on structures 50 feet or less in height including their antennas as defined in section 1.1320(d), or

(ii) are mounted on structures no more than 10 percent taller than other adjacent structures, or

(iii) do not extend existing structures on which they are located to a height of more than 50 feet or by more than 10 percent, whichever is greater;

(2) Each antenna associated with the deployment, excluding associated antenna equipment (as defined in the definition of antenna in section 1.1320(d)), is no more than three cubic feet in volume;

(3) All other wireless equipment associated with the structure, including the wireless equipment associated with the antenna and any pre-existing associated equipment on the structure, is no more than 28 cubic feet in volume;

(4) The facilities do not require antenna structure registration under part 17 of this chapter;

(5) The facilities are not located on Tribal lands, as defined under 36 CFR 800.16(x); and

(6) The facilities do not result in human exposure to radiofrequency radiation in excess of the applicable safety standards specified in section 1.1307(b).

Commented [DM16]: I think it is best to keep to the FCC definition to keep it narrowly focused .

decide, or just cite Federal Statute

perhaps only need of SWF are in Use Table

(otherwise, only one other reference + it's w/a definition

special use permit - a written authorization that must be obtained by the applicant from the Town to perform an action or initiate, continue, or complete certain types of wireless communications facilities as further defined in Section 8.19 of the Town of Lenox Bylaw.

Commented [DM17]: It is defined special use permit, but never used. Special permit appears throughout. The general zoning bylaws have a special permit process defined. The basic use and the special use permits should be subsets of Special Permit. Probably need a special permit statement similar to the one in the current overlay district bylaw (that bylaw would be removed, yes?)

yes, delete. SP + req. in ZBL already

wireless communications facility – means equipment at a fixed location that enables wireless communications between user equipment and a communications network, including: (i) equipment associated with wireless communications; and (ii) radio transceivers, antennas, coaxial or fiber-optic cable, regular and backup power supplies, and comparable equipment, regardless of technological configuration. "Wireless communications facility" does not include (i) the structure or improvements on, under, or within which the equipment is collocated or (ii) wireline backhaul facilities. A wireless communications facility under this bylaw shall also include a small wireless facility, that~~which~~ is not located within a Town right-of-way.

say personal wireless? services instead

wireless infrastructure provider - any person ~~person authorized to provide telecommunications services in the commonwealth~~ that builds or installs systems or structures that support the operation of wireless communications facilities, such as a tower developer or a provider of distributed antenna system facilities. ~~wireless communications transmission equipment, wireless facilities, wireless support structures, or utility poles and that is not a wireless services provider but is acting as an agent or a contractor for a wireless services provider for the application submitted to the Town.~~

ok ok ok

Commented [DM18]: Put normative language about what an infrastructure provider is allowed to do in the body of the bylaw: e.g. "A WIP may file an application for permit under this bylaw provided there is at least one wireless service provider that has demonstrated in writing that it is committed to utilizing the proposed infrastructure and that provides the necessary evidence regarding its provision of service in Lenox."

wireless services - any ~~person providing wireless (PK)~~ services provided to the general public, including a particular class

personal wireless services (PK)

Will add this w/ bylaw

of customers, and made available on a nondiscriminatory basis using licensed or unlicensed spectrum, whether at a fixed location or mobile, provided it is using wireless facilities.

wireless services provider - a person who provides wireless services.

wireless support structure - a freestanding structure, such as a monopole; tower, either guyed or self-supporting; billboard; or other existing or proposed structure designed to support or capable of supporting wireless facilities.

Commented [DM19]: This might be more narrowly defined. Also, it is only used in the definition of collocate. application and of collocate.

Generally the reason for having this term is to regulate things that are installed for the purpose (towers). There is a tendency to distinguish between new towers (and new tower-like structures) and the use of existing structures like billboards, water towers, utility poles, rooftops, etc. If this is not needed in the body, it may be removed from the definitions.

so...

New Freestanding Tower - a proposed new, freestanding structure, such as a monopole; tower or tower-like structure, either guyed or self-supporting; or other proposed structure designed to support or to be capable of supporting wireless facilities; not to include the use of existing strucurs like billboards, water towers, utility pole, rooftops, etc.

(inclusive of small wireless facility)

8.18 .4 Town Standards → Separate into more, distinct sections for readability

(A) Exempt Facilities. The following items are exempt from the standards for wireless communication facilities notwithstanding any other provisions:

(1) Satellite earth stations used for the transmission or reception of wireless communications signals with satellites that are one (1) meter (39.37 inches) or less in diameter in all residential zones and two (2) meters or less in all other zones.

(2) A temporary wireless communications facility, upon the declaration of a state of emergency by federal, state, or local government, and a written determination of public necessity by the Town designee; except that such facility must comply with all federal and state requirements. No communications facility shall be exempt from the provisions of this Section beyond the duration of the state of emergency.

Who

Commented [DM20]: Someone in the town has to be charged with appointing a designee?

(3) A government-owned wireless communications facility erected for the purposes of ~~installing antenna(s) and ancillary equipment necessary to~~ providing communications for public health and safety.

ok delete text idid

Commented [DM21]: Since the definition of the facility includes antennas and equipment, no need to duplicate here.

(4) A temporary wireless communications facility for the purposes of providing coverage of a special event, and subject to federal and state requirements. Said communications facility may be exempt from the provisions of this Section up to one week before and after the duration of the special event.

add scope etc

Commented [DM22]: Any limitations on this? Staff review? Is there enough info here for the Building Commissioner to interpret?

(5) Amateur radio towers solely used for licensed amateur services

up to 70 feet in height, or at such additional height as approved by informal application to the Board.

Commented [DM23]: Trying not to trigger formal site plan review but give the board discretion like in site plan review. Federal law says "minimum practicable regulation" of amateur towers

(B) (B) Permits Required. Wireless communications facilities and modifications thereto shall be permitted as follows:

(1) Basic Use Permit. Required of facility types set forth in the Use Table in Subsection 8.18.4 (C) below in the zoning districts indicated below and identified as "BU", along with equipment modifications (except modifications qualifying as "substantial change"), and tower replacement/upgrades no more than 10% taller than the original tower. The Zoning Board of Appeals shall grant Basic Use Permits through a majority vote.

(2) Special Permit. Required of facility types set forth in the Use Table in Subsection 8.18.4 (C) below in the zoning districts indicated below and identified as "BA", along with tower replacement/upgrades more than 10% taller than the original tower, or modifications to existing towers that constitute a substantial change as defined in Subsection 8.18.5(5) below. The Zoning Board of Appeals may grant Special Permits only through a supermajority vote.

yes - AA now

Commented [LF24]: KMV reminds us: If it can't be denied and requires just an administrative approach – not a ZBA function.

Commented [DM25R24]: We see modifications going through some boards, still sometimes as special permit modifications. The law says "may not deny and shall approve". Still, it is appropriate for someone to make the decision whether the application is indeed not a substantial modification. Bldg Comm? Staff? Board? And some towns still reserve the right to approve with conditions.

fixed

Commented [26]: In another reference below, it says Land Use director can allow a modification. But if a BU is required shouldn't this be part of the BU process?

Commented [DM27R26]: Or sever modifications from permits. BU permit is for what? What reduced review is appropriate for BU? Sometimes the strictures in industrial districts or overlay districts are less tight (like site plan review, or relaxed tower height limits, etc) than in other districts. That's the kind of distinction between applications that typically allows less control for preferred solutions.

See use table

nix in definitions

Application required. *A* written request on a Town wireless communications facility application form shall be submitted by an applicant to the Zoning Board of Appeals to install, modify or operate a wireless communications facility. on property other than a public way, ~~whether for a permit to collocate wireless communications facilities on an existing wireless support structure, install a wireless support structure, or install modifications or modify operation of any existing wireless communications facility~~ as well as all required ~~exhibits and submittals as required by the~~ application form and the applicable fee for the review of such application.

set this last but

Wireless communications facilities and modifications thereto shall be permitted as follows:

(1) **Administrative Approval**. Required of facility types set forth in the Use Table in the zoning districts indicated below and identified as "AA", and equipment modifications (except modifications qualifying as "substantial change"), and tower replacement/upgrades no more than 10% taller than the original tower. The Zoning Board of Appeals shall grant Administrative Approval and any Waivers, where allowed, through a majority vote. The Zoning Board retains the right to require conditions.

(2) **Special Permit**. Required of facility types set forth in the Use Table in the zoning districts indicated below and identified as "BA", along with tower replacement/upgrades more than 10% taller than the original tower, or modifications to existing towers that constitute a substantial change as defined in Subsection 8.18.5(5) below. The Zoning Board of Appeals may grant Special Permits only through a supermajority vote. Waivers, where allowed, may be granted by majority vote.

(3) **Standard Specifications & Design Manual**. All applications for a Special Permit or Administrative Approval must meet the requirements and provide such evidence in their initial application. The Manual is maintained by the Planning Board and may be updated periodically. **In formatting this section, PK is suggesting adding this (3) to reinforce that Specs manual is part of process. Except EFR and non-substantial changes?**

(3) **Use Table*** BU = Basic Use Permit; BA = Special Permit; N– = Not Permitted

(*Eligible Facility Collocations per 47 USC §1455 administratively approved as a Basic Use Permit)

Zoning District	R-1A	R-3	R-15	R-30	C	C-1A	C-3A	I
New Concealed Antenna on Existing Tower or Building	*Completion of the Use Table is pending, to be informed by the planned Needs Analysis and Wireless Master Plan and subsequent discussion.*							
New Concealed Tower								
New Non-Concealed Antenna on Existing Tower or Structure								
Existing Tower or Antenna Substantial Change								
New Non-Concealed Tower								

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Commented [LF28]: The Use Table as detailed here under discussion as the comments reveal. The final permit requirements are yet to be discussed and determined.

Commented [30]: iii. above says non-concealed antenna not in the right of way is only allowed on tower, light pole or electric pole. so take out Building maybe say Structure instead

replace w → p12

[Note: Suggestion for new use table items based on DM's recommendations that rank ordering prioritized locations can be to prescriptive leading to less optimal results.]

Use Table

Zoning District	R-1A	R-3	R-15	R-30	C	C-1A	C-3a	I
Shared Site Collocation								
New Freestanding Tower								
Small Wireless Facilities								
Substantial Changes; tower replacement/upgrades more than 10% taller than the original								
Eligibility Facility Collocations per 47 USC §1455	AA	AA	AA	AA	AA	AA	AA	AA
Non-substantial modifications; Tower replacement upgrades no more than 10% taller than original	AA	AA	AA	AA	AA	AA	AA	AA

how about this for use table?

↓

~~tracks~~ tracks section before/ definitions track

Freestanding

(2) Height Limitation. New towers constructed within the Town shall not exceed a maximum height above ground level (AGL) of one hundred (100) feet, subject to the provisions of Subsection 8.18.6 below.

Add Setbacks here

C

(C) Processing Timelines for Basic Use Permit and Special Permit

(1) Tolling and Sufficiency.

(i) Determination of Sufficiency. For all wireless communications facility applications, determination of sufficiency must occur within ten (10) days of submittal. The applicant shall receive written notice of incompleteness within ten (10) days of submittal.

Commented [DM31]: FCC 10 days applies only to SWF applications. Others are 30 days. I suggest not limiting the town on the others. 10 days is a short time even for a simple SWF application.

(ii) If an application is determined incomplete and the applicant receives written notice within ten (10) days of submittal, the processing timeline, or "shot clock", for the application shall toll and shall not restart until the applicant re-submits the materials necessary to make the application complete.

(2) An application for a Basic Use Permit shall be approved or denied within ninety (90) days of receipt of an application by the Town, except for eligible facility request modifications and collocations pursuant to subsection 8.18 .5 (2) which shall be approved or denied within sixty (60) days of an application. The time periods herein shall be tolled while an application is incomplete. Completeness of an application and the tolling periods shall be interpreted pursuant to the Federal Communications Commission's Report and Order in Docket 13-238 released October 21, 2014, as amended and the Federal Communications Commission's Third Report and Order in Docket 17-79 and 17-84 released September 27, 2018 as amended.

(3) An Application for a Special Permit shall be approved or denied within one hundred fifty (150) days of the Town's receipt of any application. The time periods herein shall be tolled while an application is incomplete. Completeness of an application and the tolling periods shall be interpreted pursuant to the Federal Communications Commission's Report and Order in Docket 13-238 released October 21, 2014, as amended.

indeed!
delete - shot clocks = federal law, as long as Town + its review consultant know the rules we are AOK

D

(D) Fees for Wireless Communications Facility Applications

Application processing fees for wireless communications facilities shall be paid at the time of application in accordance with the Town of Lenox Fee Schedule.

14

8.18

8.18 .5 General Requirements

(1) Location Preference of New Antenna Array and New

8.18.2

New Locating Preference list on next pg

!

Commented [LF32]: Considering how to best locate the use table and not restate use table here.

Commented [DM33]: We are regulating wireless facilities. They include antennas that are likely to be mounted in arrays. They might include a new tower. Best to eliminate antenna arrays from this para.

Commented [LF34]: Note to reviewers: An **antenna array** (or **array antenna**) is a set of multiple connected **antennas** which work together as a single **antenna**, to transmit or receive radio waves. ... An **antenna array** can achieve higher gain (directivity), that is a narrower beam of radio waves, than could be achieved by a single element.
Question for AL: Are there ever cases of a single antenna or only an "array"? Generally – AL notes that most towers have 3 antennas (or an array) Very occasionally 1 antenna might be added

Note: added to antenna definition

Commented [DM35R34]: Lauryn's definition of array is in an engineering context. Antennas or antenna elements are fed the same signal and create a focused pattern. For example, each cellular antenna contains a stack of elements that are in effect separate antennas mounted inside the cover to provide the focusing power (gain/directivity) described above, but you would not know by looking at it.
In the zoning context, an array is a group of antennas placed generally together. Cell sites often are considered to have three arrays per carrier, one facing each sector. Some antennas in a cellular array do cooperate, but not to increase directivity. Cell carriers tend to have two to four antennas per sector. (also ote that some antenna panels have not just multiple elements for one antenna, but multiple antennas of multiple elements inside them.) Clear as mud?

Towers. Locating a new antenna array or a new tower shall be in accordance with the below preferred locating alternatives order. Where a lower ranked alternative is proposed, the applicant must provide in its application relevant information demonstrating that despite diligent efforts to adhere to the established hierarchy within the search area, higher ranked options are not technically feasible, practical, or justified given the location of the proposed wireless communications facility. Location preferences are as follows:

(i) New concealed attached antenna or collocated antenna on an existing tower or building on Town property;

(ii) New concealed attached antenna or collocated antenna on an existing tower or building not on Town property;

(iii) New Concealed freestanding tower on Town property;

(iv) New Concealed freestanding tower not on Town property;

(v) Non-concealed attached antenna on an existing tower on Town property;

(vi) Non-concealed attached antenna on an existing tower not on Town property;

(vii) Substantial changes to an existing tower or existing antenna on a building on Town property;

(viii) Substantial changes to an existing tower or existing antenna on a building not on Town property;

(ix) Non-concealed freestanding tower or antenna on a building on Town property;

(x) Non-concealed freestanding tower or antenna on a building not on Town property.

Commented [DM36]: I recommend simplifying this list. Unintended consequences can arise from rigid priorities when a proposal at a lower priority is of less impact than a higher-priority option that is available. Generally, the installation of a new tower of any kind is not desirable if the use of existing structures can do it. And any kind of hidden installation on an existing structure might be desirable over visible ones - but consider a hidden installation on a prominent building that creates a huge unusual concealment wall (penthouse) or other odd architectural element versus a unconcealed antennas on a less visible rooftop. It is difficult to predict the visual impact of a type of installation just by these criteria.

No with new list

Commented [37]: This requires an SP under 8.14.4.b.2, right? is language in there inclusive of antennas?

Commented [DM38]: It is difficult to predict what kind of substantial change would be more derogatory than any hypothetical alternative. Perhaps changes should be addressed outside this priority list?

Commented [39]: contradicted elsewhere

Commented [40]: contradicted elsewhere

DRAFT

8.18.1

General Requirements

move higher

this is from benchmarks

A Wireless Infrastructure Provider may file an application for a permit under this bylaw provided there is at least one wireless service provider that has demonstrated in writing that it is committed to utilizing the proposed infrastructure and that provides the necessary evidence regarding its provision of service in Lenox.

brought over from definitions

~~8.18.3~~ 8.18.2

Location Preferences for New Wireless Facilities.

In order to achieve purposes of this bylaw, the following location criteria shall take preference in the approval of sites for new wireless facilities:

1. New wireless communications facilities located on existing structures (Shared Site Collocations).
2. Towers and Shared Site Collocations located along denser commercial and industrial corridors where such new infrastructure is more compatible with other commercial and industrial structures.
3. New towers located as far from residential uses as possible so that their height does not "loom over" neighbors.
4. New towers in locations that do not pierce valuable scenic and historic views, although towers that "blend into" hillside forests in an aesthetically unobtrusive way may achieve the purposes.
5. Municipal locations or other quasi-public sites that align with other requirements of this bylaw.

derived from our discussion last time/comments from PM

Important strategically

instead of list on previous page

below.

8.18.3

~~(2)~~(3) Collocation and other modifications to existing facilities pursuant to Section 6409 of the Middle-Class Tax Relief and Job Creation Act of 2012 (47 U.S.C. §1445(a)).

i. Modifications to facilities that involve the addition, removal, and/or replacement of transmission equipment that do not substantially change the physical dimensions of an existing tower, antenna support structure, or building shall be subject to the streamlined procedures set forth for a Basic Use Permit.

now AA

ii. For the purpose of this Section 8.18, "substantial change" means the following:

and the Use Table

1). The mounting of the proposed antenna on the tower or building would increase the existing height of the tower or building by more than 10%, or by the height of one additional antenna array with separation between the top of the nearest existing antenna to the base of the proposed antenna not to exceed twenty (20) feet, whichever is greater, except that the mounting of the proposed antenna may exceed the size limits set forth in this paragraph if necessary to avoid interference with existing antennas; or

2). The mounting of the proposed antenna would involve the installation of more than the standard number of new equipment cabinets for the technology involved (not to exceed four) or more than one new equipment shelter; or

3). The mounting of the proposed antenna would involve adding an appurtenance to the body of the tower or building that would protrude from the edge of the tower or building more than twenty (20) feet, or more than the width of the tower structure at the level of the appurtenance, whichever is greater, except that the mounting of the proposed antenna may exceed the size limits set forth in this paragraph if necessary to shelter the antenna from inclement weather or to connect the antenna to the tower via cable; or

4). The mounting of the proposed antenna would involve excavation outside the current tower site, defined as the current boundaries of the leased or owned property surrounding the tower and any access or utility easements currently related to the site by more than 30 linear feet in any direction.

Commented [41]: I guess I understand why you re-cited BU required here, but note: in other places where BU is required, we don't cite it there -- but in 8.18.4.b. I wonder if there's a way to be consistent...

Commented [42]: so what are these streamlined procedures - see notes below AA

Commented [DM43R42]: Good point. I suggest that a proposed modification be reviewed by consistency with Sec 6409 substantial modification criteria and if not substantial, it is an "eligible facilities request" and create simplified review procedures for eligible facilities requests.

Commented [44]: Note, there is the full bylaw, sections such as this one 8.18.5 and subsections

Commented [pk45]: t

Commented [46]: I think we should use "bylaw" when referring to the entire bylaw. We should cite a section/subsection by number in other cases if applicable

AL- is this referring to the full bylaw or this specific section?

Commented [pk47]: re note to AL above, this is how I get confused; continue to think we should refer to sections or subsections by number if they are what's being referred to; say bylaw or bylaw number if it's the overall bylaw that applies

17

still part of "~~Substantial Change~~" EFR's + non Substantial changes

iii. Increases to height allowed by Subsection 8.18.5(3)(ii) above to an existing tower shall be based on the maximum height allowed by the original approval (if applicable) of the existing tower and shall not affect any existing tower lighting. Concealed attached antennas located on a roof top, not constructed exclusively for wireless service, shall not be considered a tower and shall be limited to the maximum height approved.

Commented [LF48]: KMV: Out of whack – may be referring to allowance section to avoid interference (ii. (1) and (3). for inclement weather protection/or connection…

Commented [DM49R48]: This is to prevent repetitive invocations of the Sec 6409 allowance beyond the initial 20 ft/10%. It looks like it was written to be consistent with FCC interpretation thereof

Commented [50]: let's remember to check all such references if we change our numbering protocol

iv. Additional equipment shall maintain the appearance intended by the original facility, including, but not limited to, color, screening, landscaping, camouflage, concealment techniques, mounting configuration, or architectural treatment. Notwithstanding this provision, ~~the Land Use Director or their designee~~ may approve a modification where maintaining the original design is not feasible, provided that the applicant provides evidence demonstrating that the modification's design or configuration is necessary, does not defeat the existing concealment technique in the view of a reasonable person, and is the least obtrusive means of accomplishing the objective.

ZBA

non Substantial change: this is an ~~ZBA~~ AA

Commented [51]: In another place we say ZBA approves BU. KMV: Suggest we decide who is deciding on these permits and any exceptions or conditions: ZBA, LU Dir, etc.

Should this be the Town or its designee to allow for future change?

Commented [DM52R51]: I note elsewhere that "may not deny and shall approve" does not exempt such applications from board review. This can still go to the board if you want. Or go to the board at the chair's discretion after review by staff.

or as part of AA

DRAFT

New things...

8.18.4

~~(3)~~(4) Tower Replacement/Upgrade. Existing towers may be replaced or upgraded pursuant to this Section 8.18, provided that the replacement or upgrade accomplishes a minimum of one of the following: 1) reduces the number of towers; 2) reduces the number of nonconforming towers; 3) replaces an existing tower with a new concealed tower to improve either network functionality or structural integrity; 4) replaces an existing non-concealed tower with a concealed tower. Replacements and upgrades are subject to the following requirements:

OK as is

Commented [DM53]: I suggest that reducing the number of towers only occurs when a tower is eliminated. In this case, it is preventing an increase in the number of towers. Rephrase accordingly.

yes

Commented [DM54]: Is there a difference between 3 and 4?

i. Breakpoint Technology. A replacement tower shall use breakpoint technology in the design.

delete breakpoint techn.

ii. Landscaping. At the time of replacement or upgrade, the tower equipment compound shall be brought into compliance with any applicable landscaping requirements as per the Specif. and Design Manual

reflect

Commented [LF55]: Is this where we add in "screening" language or refer to Design Manual?

Commented [DM56R55]: The design manual was a child of the small wireless facility issue. Design criteria for SWFs can be managed separately to avoid having to take them through town meeting for adjustment (in zoning) and for them to be readily applied to both zoning before the Board and grants of location before the Select Board. Is the intent to have a separate design manual for cell towers?

We have sep. manual for WCFs

~~ii.~~iii. Setbacks. A replacement of an existing tower shall not be required to meet new setback standards so long as the new tower and its equipment compound are no closer to any property lines or dwelling units as the tower and equipment compound being replaced, even if the old tower had nonconforming setbacks.

8.18.5

~~(4)~~(5) Concealed & Non-concealed Attached Antenna. Antennas may be mounted onto a building or support structure that is not primarily constructed for the purpose of holding attached antennas, subject to the following standards:

Commented [DM57]: By right? No review? BU?

use this instead

Shared Site Collocations - Requirements

Shared Site Collocations. Wireless communications facilities may be mounted onto an existing tower, or a building or support structure that is not primarily constructed for the purpose of holding attached antennas, subject to the following standards:

i. The top of the concealed attached antenna shall not extend more than fifteen (15) feet above the existing or proposed building or structure to which it is attached. Notwithstanding this provision, the height of the antenna shall not extend more than eight (8) feet above the maximum allowed height for a structure in the zone in which it is located.

ii. Non-concealed antenna attachments outside of a public right-of-way shall be allowed only on electrical transmission towers, utility poles, and existing light stanchions in the zoning districts set forth in the Use Table above ~~and approval by the utility company.~~ delete Additional height may be allowed to accommodate the minimum safety separation necessary from electrical lines, as required by the National Electrical Safety Code and the utility provider.

Commented [DM58]: Approval by the utility company is inherently necessary and does not need stating here. Evidence of authorization is a reasonable application submission requirement. Also, light stanchions might not be owned a utility.

iii. Except for non-concealed attached antennas, feed lines and antennas shall be designed to architecturally match the façade, roof, wall, and/or structure on which they are fixed or otherwise blend with the existing structural design, color, and texture.

Commented [DM59]: The feed lines and antennas themselves will not match. It is the installation of these items that should not detract from the existing architecture. Moreover, this subclause excludes non-concealed attached antennas which leaves concealed attached antennas which are concealed anyway. Revisit this para. and decide what is being regulated how.

decide what is being regulated how

doesn't this all go in Specs & Design manual?

or keep to allow for waiver?

Where the proposed attached antennas do not meet the standards set forth by subsections (i) through (iii) above, a Special Permit is required, with a neighbor notification radius of -TBD feet~~600 feet~~.

Commented [60]: see Variance section related to height - bit of a conflict

Commented [pk61]: AL - pls advise

Commented [LF62]: (600') but does this apply ONLY to this specific set of standards – or to any request for SP?

KMV Suggests that PB members reconsider Use Table while looking at Town Zoning map. If an existing tower is located in an R district – and coverage could be done with modifications to existing tower or a new non-concealed antenna..... NP??? Which is where a variance/or SP exception come into play....

Commented [DM63R62]: This 600 ft applies to this subclause 5, which is for attaching to existing structures that are not wireless towers. It requires judgment to determine whether a proposal does not comply with i-iii and notification of a larger neighbor set in advance requires the applicant to predict how the Board will interpret. Fundamentally, what is wrong with the existing notification radius and how is it that only these proposals need the additional 300 feet? (I assume the radius is to property lines?)

Commented [pk64]: Another issue here; ii and iii both refer to height, which is controlled by variance elsewhere in the bylaw

Commented [DM65R64]: These are performance criteria for attaching antennas to existing structures that are not towers. Presumably these supersede any other height limitations in the bylaw, but only for this kind of installation. i basically adds 8 ft to the district limit for this clause. ii allows a minor adjustment for electrical poles, stanchions for electrical safety. Typically up to about 10 feet for high voltage spacing.

Commented [66]: Note that in Concealed and Nonconcealed Antenna requirements just above, only an SP seems to be required to waive the height requirement. As such, should this section really only apply to Towers? Or, take out ii. from SP mention in Concealed and Nonconcealed Antenna and for ... [3]

Commented [DM67]: Since variances are narrowly applied under state law and have been inartfully addressed in the federal courts on wireless cases, I would stay away from the term variance. This is a height waiver based on specific criteria.

We are still in Shared Site Collocations section. SSC's require an SP.

Say: Height waiver to i and ii may be granted by majority vote of ZBA

or, move this section into WCF Height Waivers so Height waivers are in same place?

21

Towers and SSCs? or just towers? or both

iv.

8.18.6

8.18 .6 Wireless Communications Facility ~~Variance~~Height Waivers.

This Section shall apply exclusively to wireless communications facilities to evaluate the necessity and compatibility of requests to exceed the height requirements in Section 8.18.5 (2) above as part of a Special Permit. In order to authorize a wireless communications facility height waiver~~variance~~, the Zoning Board of Appeals must find that:

(1) ~~Variance~~ Waiver is Necessary to Provide Reasonable Coverage or Capacity. A gap in coverage or capacity of the provider's network exists such ~~that users are regularly unable to connect to the service network, or are regularly unable to maintain~~ a connection; and

(2) Minimum Adjustment. The proposed height~~facility~~ is ~~designed to meet~~ the minimum

~~(2)~~(3) height ~~requirement~~ necessary for effective functioning of the provider's network.

Commented [DM69]: This is worded to not allow additional height for anticipated collocation.

address w/ benchmark language?

Commented [DM68]: Capacity issues can reduce network speed/quality of service in ways that do not break the connection. Perhaps leave it to "a gap in coverage or capacity of the provider's network that cannot be addressed by means that are more ... [4]

yes

Page 16: [4] Commented [DM68] David Maxson 6/19/2022 2:33:00 PM

Capacity issues can reduce network speed/quality of service in ways that do not break the connection. Perhaps leave it to "a gap in coverage or capacity of the provider's network that cannot be addressed by means that are more consistent with the bylaw."

22

requires expert assistance with.

8.18.8 RFI Study. Any time after the installation of the proposed wireless communications facility, the Town may require operators of approved wireless communications facilities to demonstrate compliance with FCC regulations regarding the safety of all relevant radio frequency emissions from the sits (47 CFR 1.1310) either by performing a field survey of emissions and/or by performing calculations consistent with FCC OET Bulletin 65, as directed by the Town. The Town may require the operator(s) to reimburse the Town for such analysis commissioned by the Town. ~~perform a site-specific radio frequency propagation and exposure study to determine if the wireless communications facility remains in compliance with applicable FCC Rules (OET Bulletin 65 and 47 CFR §1.1310) regarding radio frequency exposure standards.~~ In the event the results demonstrate that the wireless communications facility is not in compliance with the applicable rules, the applicant shall immediately ~~discontinue operation of the facility upon notification from the Town and modify the facility to~~ bring the facility ~~it~~ into compliance, including by cessation of operations if necessary prior to implementing changes ~~before restarting operations. In the event of results demonstrating noncompliance with the applicable FCC Rules, the applicant shall also be obligated to reimburse the Town for the cost of the study.~~

ok

8.18.9 Abandonment (Discontinued Use)

(1) Towers, wireless communications facilities, antennas, and the equipment compound shall be removed, at the owner's expense, within 180 days of cessation of use.

(2) An owner wishing to extend the time for removal or reactivation shall submit an application stating the reason for such extension. The Town may extend the time for removal or reactivation up to 60 additional days upon a showing of good cause. If the tower or antenna is not removed within this time, the Town may give notice that it will contract for removal within 30 days following written notice to the owner. Thereafter, the Town may cause removal of the tower with costs being borne by the

ok

23

owner.

(3) Upon removal of the tower, wireless communications facility, antenna, and equipment compound, the development area shall be returned to its natural state and topography and vegetation consistent with the natural surroundings or consistent with the current uses of the surrounding or adjacent land at the time of removal. At the Town's discretion,, ~~excluding~~ the foundation may be abandoned in place if~~, which shall be~~ reduced to below finished grade.

ok

~~(3)~~(4) All applicants shall, upon grant of a Basic Use Permit or Special Permit, furnish a performance bond or irrevocable letter of credit naming Town of Lenox as beneficiary in the sum of $50,000.00 ("Performance Bond) which shall provide language, inter alia, stating it is for the purpose of assuring the removal of the permitted wireless communications facility in the case of abandonment as contemplated herein.

ask Joel

Commented [DM71]: Bonds create an administrative burden for the town and a regulatory burden for the permittee. We have not seen a bond invoked for tower removal. At the very least, confine this bond requirement to wireless towers.

DRAFT

DRAFT – Lenox Planning Board
Wireless Communications Facilities Bylaw Draft
WIRELESS COMMUNICATIONS FACILITIES (WCF)
Last content update: 7/7/2021; Format edits 9/23/21

Status Summary 7-15-21: This draft includes updates from earlier PB discussions. The PB has not reviewed this document since 7-6-21. PB is scheduled to review and discuss this bylaw on 7-27/21. On 8-24, the Board opted to discontinue the review until a Needs Analysis and Wireless Communications Master Plan can be commissioned. 9-14-2021: PB agreed to post this latest draft online to accompany the update announcement about the planned Needs Analysis and Wireless Communications Master Plan; as such, certain sections (noted in document) that will be decided as a part of the Needs Analysis and Wireless Master Plan have been left blank for the time being.

8.18 Wireless Communications Facilities

8.18.1 Purpose. The purpose of this bylaw is to establish general guidelines for the locating of wireless communication towers, antennas, ground equipment, and related accessory structures. The intent of this bylaw is to:

(1) Accommodate the growing need and demand for wireless communications services.

(2) Establish review procedures to ensure that applications for communications facilities are reviewed for compliance with federal, state, and local regulations and acted upon within a reasonable period of time as required by applicable state and federal regulations.

(3) Minimize the impacts of wireless communications facilities on surrounding land uses by establishing standards for location, structural integrity, and compatibility.

(4) Encourage the location and collocation of communications equipment on existing structures thereby minimizing new visual, aesthetic, and public safety impacts, effects upon the natural environment and wildlife, and reducing the need for additional towers.

(5) Accommodate the growing need and demand for wireless communications services.

(6) Respond to the policies embodied in the Telecommunications Act of 1996 in such a manner as not to unreasonably discriminate between providers of functionally equivalent personal wireless services or to prohibit or have the effect of prohibiting personal wireless services.

(7) Respond to the policies embodied in the Federal Communication Commission's *Declaratory Ruling and Third Report and Order* of September 27, 2018, in such a manner as to not effectively prohibit the provision of wireless services.

(8) Protect the character of the Town while meeting the needs of its citizens to enjoy the benefits of communications services.

8.18.2 The provisions of this bylaw are not intended to and shall not be interpreted to prohibit or to have the effect of prohibiting personal wireless services or be applied in such a manner as to unreasonably discriminate between providers of functionally equivalent personal wireless services.

8.18.3Definitions. The following definitions are used exclusively in the Wireless Communications Bylaw (and are repeated in Town of Lenox Standard Specifications and Design Manual for Wireless Facilities (the "Design Manual")), as amended:

ADA - the Americans with Disabilities Act, as amended, and the regulations promulgated thereunder.

antenna - communications equipment that transmits and/or receives electromagnetic radio frequency signals used in the provision of wireless services. Two or more antennas constitute an antenna array.

applicable codes - building, plumbing, electrical and fire codes adopted by the Commonwealth or the Town; requirements of the National Electric Code or the National Electric Safety Code; and the applicable laws, regulations and requirements of the Federal Communications Commission, the Occupational Safety and Health Administration, as well as any other local, state, or federal agency regulating wireless communications, as any may be amended from time to time.

applicant - any person who submits an application and is, or is acting on behalf of, a wireless services provider or wireless infrastructure provider.

application - a written request on a Town wireless communications facility application form submitted by an applicant to the Land Use Department to install or operate a wireless communications facility on public or private property within the Town but not within a right-of-way, whether for a permit to collocate wireless communications facilities on an existing wireless support structure; install a wireless support structure; or install modifications or modify operation of any existing wireless communications facility, as well as all required exhibits and submittals as required by the application form and the applicable fee for the review of such application.

basic use permit - a written authorization that must be obtained by the applicant from the Town to perform an action or initiate, continue, or complete certain types of wireless communications facilities. Application process will be contained in the Specifications Manual.

Commented [LF1]: Process to be outlined in Specifications Manual?

breakpoint technology - the engineering design of a monopole wherein a specified point on the monopole is designed to have stresses concentrated so that the point is at least five percent (5%) more susceptible to failure than any other point along the monopole so that in the event of a structural failure of the monopole, the failure will occur at the breakpoint rather than at the base plate, anchor bolts, or any other point on the monopole.

collocate or collocation - to install, mount, maintain, modify, operate, or replace wireless communications facilities on or adjacent to a wireless support structure.

communications facility – a wireless communications facility, as defined below.

communications service – cable service, as defined in 47 U.S.C. 522(6), as amended; information service, as defined in 47 U.S.C. 153(24), as amended; telecommunications service, as defined in 47 U.S.C. 153(53), as amended; mobile service, as defined in 47 U.S.C. 153(33), as amended; or wireless service other than mobile service.

communications service provider - a cable operator, as defined in 47 U.S.C. 522(5), as amended; a provider of information services, as defined in 47 U.S.C. 153(24), as amended; a telecommunications carrier, as defined in 47 U.S.C. 153(51), as amended; or a wireless provider;

concealed facility - a wireless communications facility that is designed in a manner that it is not readily identifiable as a wireless communications facility, and further is designed to be aesthetically compatible with

existing building(s) and uses on a site and in the neighborhood or similar area.

FCC - the Federal Communications Commission of the United States.

fee - a one-time charge paid to the Town by the applicant with the application.

historic district - a group of buildings, properties, or sites that are designated as an historic district by the Town as set forth in the Lenox Historic District Bylaw.

interference- The effect of unwanted energy due to one or a combination of emissions, radiations, or inductions upon reception in a radio communication system, manifested by any performance degradation, misinterpretation, or loss of information which could be extracted in the absence of such unwanted energy.

law - a federal, Massachusetts or local statute, regulation (including applicable codes, as defined above), ordinance, order or rule.

modification – a change of equipment or design to an existing wireless communications facility that involves the addition of new equipment, the exchange of new equipment for existing equipment where the new equipment has a greater weight or larger size than the existing equipment, the addition of any new transmission lines or replacement of existing transmission lines with new lines of greater dimension, or the increase in any amount of the height or girth of the wireless communications facility.

person - an individual, corporation, limited liability company, partnership, association, trust, or other entity or organization.

small wireless facility - a wireless communications facility that meets both of the following qualifications:

(i) each antenna is located inside an enclosure of no more than three (3) cubic feet in volume or, in the case of an antenna that has exposed elements, the antenna and all of its exposed elements could fit within an imaginary enclosure of no more than three (3) cubic feet; and

(ii) all other ancillary wireless equipment associated with the facility is cumulatively no more than twenty-eight (28) cubic feet in volume. The following types of associated ancillary equipment are not included in the calculation of equipment volume: electric meter, concealment elements, telecommunications demarcation box, ground-based enclosures, grounding equipment, power transfer switch, cut-off switch, and vertical cable runs for the connection of power and other services.

special use permit - a written authorization that must be obtained by the applicant from the Town to perform an action or initiate, continue, or complete certain types of wireless communications facilities as further defined in Section __8.19_ of the Town of Lenox Bylaw.

wireless communications facility – means equipment at a fixed location that enables wireless communications between user equipment and a communications network, including: (i) equipment associated with wireless communications; and (ii) radio transceivers, antennas, coaxial or fiber-optic cable, regular and backup power supplies, and comparable equipment, regardless of technological configuration. "Wireless communications facility" does not include (i) the structure or improvements on, under, or within which the equipment is collocated or (ii) wireline backhaul facilities. A wireless communications facility under this bylaw shall also include a small wireless facility, which is not located within a Town right-of-way.

wireless infrastructure provider - any person authorized to provide telecommunications services in the commonwealth that builds or installs wireless communications transmission equipment, wireless facilities, wireless support structures, or utility poles and that is not a wireless services provider but is acting as an agent or a contractor for a wireless services provider for the application submitted to the Town.

wireless services - any services provided to the general public, including a particular class of customers, and

made available on a nondiscriminatory basis using licensed or unlicensed spectrum, whether at a fixed location or mobile, provided it is using wireless facilities.

wireless services provider - a person who provides wireless services.

wireless support structure - a freestanding structure, such as a monopole; tower, either guyed or self-supporting; billboard; or other existing or proposed structure designed to support or capable of supporting wireless facilities.

8.18 .4 Town Standards

(A) Exempt Facilities. The following items are exempt from the standards for wireless communication facilities notwithstanding any other provisions:

(1) Satellite earth stations used for the transmission or reception of wireless communications signals with satellites that are one (1) meter (39.37 inches) or less in diameter in all residential zones and two (2) meters or less in all other zones.

(2) A temporary wireless communications facility, upon the declaration of a state of emergency by federal, state, or local government, and a written determination of public necessity by the Town designee; except that such facility must comply with all federal and state requirements. No communications facility shall be exempt from the provisions of this Section beyond the duration of the state of emergency.

(3) A government-owned communications facility erected for the purposes of installing antenna(s) and ancillary equipment necessary to provide communications for public health and safety.

(4) A temporary wireless communications facility for the purposes of providing coverage of a special event, and subject to federal and state requirements. Said communications facility may be exempt from the provisions of this Section up to one week before and after the duration of the special event.

(5) Amateur radio towers solely used for licensed amateur services up to 70 feet in height.

(B) Permits Required. Wireless communications facilities and modifications thereto shall be permitted as follows:

(1) Basic Use Permit. Required of facility types set forth in the Use Table in Subsection 8.18.4 (C) below in the zoning districts indicated below and identified as "BU", along with equipment modifications (except modifications qualifying as "substantial change"), and tower replacement/upgrades no more than 10% taller than the original tower. The Zoning Board of Appeals shall grant Basic Use Permits through a majority vote.

(2) Special Permit. Required of facility types set forth in the Use Table in

Commented [LF2]: KMV reminds us: If it can't be denied and requires just an administrative approach – not a ZBA function.

Commented [3]: In another reference below, it says Land Use director can allow a modification. But if a BU is required shouldn't this be part of the BU process?

Subsection 8.18.4 (C) below in the zoning districts indicated below and identified as "BA", along with tower replacement/upgrades more than 10% taller than the original tower, or modifications to existing towers that constitute a substantial change as defined in Subsection 8.18.5(5) below. The Zoning Board of Appeals may grant Special Permits only through a supermajority vote.

(3) **Use Table*** BU = Basic Use Permit; BA = Special Permit; N– = Not Permitted

(*Eligible Facility Collocations per 47 USC §1455 administratively approved as a Basic Use Permit)

Zoning District	R-1A	R-3	R-15	R-30	C	C-1A	C-3A	I
New Concealed Antenna on Existing Tower or Building	*Completion of the Use Table is pending, to be informed by the planned Needs Analysis and Wireless Master Plan and subsequent discussion.*							
New Concealed Tower								
New Non-Concealed Antenna on Existing Tower or Structure								
Existing Tower or Antenna Substantial Change								
New Non-Concealed Tower								

Commented [LF4]: The Use Table as detailed here is under discussion as the comments reveal. The final permit requirements are yet to be discussed and determined.

Commented [6]: iii. above says non-concealed antenna not in the right of way is only allowed on tower, light pole or electric pole. so take out Building maybe say Structure instead

(C) Processing Timelines for Basic Use Permit and Special Permit

(1) Tolling and Sufficiency.

(i) Determination of Sufficiency. For all wireless communications facility applications, determination of sufficiency must occur within ten (10) days of submittal. The applicant shall receive written notice of incompleteness within ten (10) days of

submittal.

(ii) If an application is determined incomplete and the applicant receives written notice within ten (10) days of submittal, the processing timeline, or "shot clock", for the application shall toll and shall not restart until the applicant re-submits the materials necessary to make the application complete.

(2) An application for a Basic Use Permit shall be approved or denied within ninety (90) days of receipt of an application by the Town, except for eligible facility request modifications and collocations pursuant to subsection 8.18 .5 (2) which shall be approved or denied within sixty (60) days of an application. The time periods herein shall be tolled while an application is incomplete. Completeness of an application and the tolling periods shall be interpreted pursuant to the Federal Communications Commission's Report and Order in Docket 13-238 released October 21, 2014, as amended and the Federal Communications Commission's Third Report and Order in Docket 17-79 and 17-84 released September 27, 2018 as amended.

(3) An Application for a Special Permit shall be approved or denied within one hundred fifty (150) days of the Town's receipt of any application.. The time periods herein shall be tolled while an application is incomplete. Completeness of an application and the tolling periods shall be interpreted pursuant to the Federal Communications Commission's Report and Order in Docket 13-238 released October 21, 2014, as amended.

(D) Fees for Wireless Communications Facility Applications

Application processing fees for wireless communications facilities shall be paid at the time of application in accordance with the Town of Lenox Fee Schedule.

8.18 .5 General Requirements

(1) Location Preference of New Antenna Array and New Towers. Locating a new antenna array or a new tower shall be in accordance with the below preferred locating alternatives order. Where a lower ranked alternative is proposed, the applicant must provide in its application relevant information demonstrating that despite diligent efforts to adhere to the established hierarchy within the search area, higher ranked options are not technically feasible, practical, or justified given the location of the proposed wireless communications facility. Location preferences are as follows:

(i) New concealed attached antenna or collocated antenna on an existing tower or building on Town property;

(ii) New concealed attached antenna or collocated antenna on an existing tower or building not on Town property;

(iii) New Concealed freestanding tower on Town property;

(iv) New Concealed freestanding tower not on Town property;

(v) Non-concealed attached antenna on an existing tower on Town property;

Commented [LF7]: Considering how to best locate the use table and not restate use table here.

Commented [LF8]: Note to reviewers: An **antenna array** (or **array antenna**) is a set of multiple connected **antennas** which work together as a single **antenna**, to transmit or receive radio waves. ... An **antenna array** can achieve higher gain (directivity), that is a narrower beam of radio waves, than could be achieved by a single element.
Question for AL: Are there ever cases of a single antenna or only an "array"? Generally – AL notes that most towers have 3 antennas (or an array) Very occasionally 1 antenna might be added

Note: added to antenna definition

(vi) Non-concealed attached antenna on an existing tower not on Town property;

(vii) Substantial changes to an existing tower or existing antenna on a building on Town property;

(viii) Substantial changes to an existing tower or existing antenna on a building not on Town property;

(ix) Non-concealed freestanding tower or antenna on a building on Town property;

(x) Non-concealed freestanding tower or antenna on a building not on Town property.

(2) Height Limitation. New towers constructed within the Town shall not exceed a maximum height above ground level (AGL) of one hundred (100) feet, subject to the provisions of Subsection 8.18.6 below.

(3) Collocation and other modifications to existing facilities pursuant to Section 6409 of the Middle-Class Tax Relief and Job Creation Act of 2012 (47 U.S.C. §1445(a)).

i. Modifications to facilities that involve the addition, removal, and/or replacement of transmission equipment that do not substantially change the physical dimensions of an existing tower, antenna support structure, or building shall be subject to the streamlined procedures set forth for a Basic Use Permit.

ii. For the purpose of this Section 8.18, "substantial change" means the following:

1). The mounting of the proposed antenna on the tower or building would increase the existing height of the tower or building by more than 10%, or by the height of one additional antenna array with separation between the top of the nearest existing antenna to the base of the proposed antenna not to exceed twenty (20) feet, whichever is greater, except that the mounting of the proposed antenna may exceed the size limits set forth in this paragraph if necessary to avoid interference with existing antennas; or

2). The mounting of the proposed antenna would involve the installation of more than the standard number of new equipment cabinets for the technology involved (not to exceed four) or more than one new equipment shelter; or

3). The mounting of the proposed antenna would involve adding an appurtenance to the body of the tower or building that would protrude from the edge of the tower or building more than twenty (20) feet, or more than the width of the tower structure at the level of the appurtenance, whichever is greater, except that the mounting of the proposed antenna may exceed the size limits set forth in this paragraph if necessary to shelter the antenna from inclement weather or to connect the antenna to the tower via cable; or

Commented [9]: This requires an SP under 8.14.4.b.2, right? is language in there inclusive of antennas?

Commented [10]: contradicted elsewhere

Commented [11]: contradicted elsewhere

Commented [12]: I guess I understand why you re-cited BU required here, but note: in other places where BU is required, we don't cite it there -- but in 8.18.4.b. I wonder if there's a way to be consistent...

Commented [13]: so what are these streamlined procedures - see notes below

Commented [14]: Note, there is the full bylaw, sections such as this one 8.18.5 and subsections

Commented [pk15]: t

Commented [16]: I think we should use "bylaw" when referring to the entire bylaw. We should cite a section/subsection by number in other cases if applicable

AL- is this referring to the full bylaw or this specific section?

Commented [pk17]: re note to AL above, this is how I get confused; continue to think we should refer to sections or subsections by number if they are what's being referred to; say bylaw or bylaw number if it's the overall bylaw that applies

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4). The mounting of the proposed antenna would involve excavation outside the current tower site, defined as the current boundaries of the leased or owned property surrounding the tower and any access or utility easements currently related to the site by more than 30 linear feet in any direction.

iii. Increases to height allowed by Subsection 8.18.5(3)(ii) above to an existing tower shall be based on the maximum height allowed by the original approval (if applicable) of the existing tower and shall not affect any existing tower lighting. Concealed attached antennas located on a roof top, not constructed exclusively for wireless service, shall not be considered a tower and shall be limited to the maximum height approved.

iv. Additional equipment shall maintain the appearance intended by the original facility, including, but not limited to, color, screening, landscaping, camouflage, concealment techniques, mounting configuration, or architectural treatment. Notwithstanding this provision, the Land Use Director or their designee may approve a modification where maintaining the original design is not feasible, provided that the applicant provides evidence demonstrating that the modification's design or configuration is necessary, does not defeat the existing concealment technique in the view of a reasonable person, and is the least obtrusive means of accomplishing the objective.

(4) Tower Replacement/Upgrade. Existing towers may be replaced or upgraded pursuant to this Section 8.18, provided that the replacement or upgrade accomplishes a minimum of one of the following: 1) reduces the number of towers; 2) reduces the number of nonconforming towers; 3) replaces an existing tower with a new concealed tower to improve either network functionality or structural integrity; 4) replaces an existing non-concealed tower with a concealed tower. Replacements and upgrades are subject to the following requirements:

i. Breakpoint Technology. A replacement tower shall use breakpoint technology in the design.

ii. Landscaping. At the time of replacement or upgrade, the tower equipment compound shall be brought into compliance with any applicable landscaping requirements.

iii. Setbacks. A replacement of an existing tower shall not be required to meet new setback standards so long as the new tower and its equipment compound are no closer to any property lines or dwelling units as the tower and equipment compound being replaced, even if the old tower had nonconforming setbacks.

(5) Concealed & Non-concealed Attached Antenna. Antennas may be mounted onto a building or support structure that is not primarily constructed for the purpose of holding attached antennas, subject to the following standards:

i. The top of the concealed attached antenna shall not extend more than fifteen

Commented [LF18]: KMV: Out of whack – may be referring to allowance section to avoid interference (ii. (1) and (3). for inclement weather protection/or connection…

Commented [19]: let's remember to check all such references if we change our numbering protocol

Commented [20]: In another place we say ZBA approves BU. KMV: Suggest we decide who is deciding on these permits and any exceptions or conditions: ZBA, LU Dir, etc.

Should this be the Town or its designee to allow for future change?

Commented [LF21]: Is this where we add in "screening" language or refer to Design Manual?

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(15) feet above the existing or proposed building or structure to which it is attached. Notwithstanding this provision, the height of the antenna shall not extend more than eight (8) feet above the maximum allowed height for a structure in the zone in which it is located.

ii. Non-concealed antenna attachments outside of a public right-of-way shall be allowed only on electrical transmission towers, utility poles, and existing light stanchions in the zoning districts set forth in the Use Table above and approval by the utility company. Additional height may be allowed to accommodate the minimum safety separation necessary from electrical lines, as required by the National Electrical Safety Code and the utility provider.

iii. Except for non-concealed attached antennas, feed lines and antennas shall be designed to architecturally match the façade, roof, wall, and/or structure on which they are fixed or otherwise blend with the existing structural design, color, and texture.

iv. Where the proposed attached antennas do not meet the standards set forth by subsections (i) through (iii) above, a Special Permit is required, with a neighbor notification radius of TBD feet.

8.18 .6 Wireless Communications Facility Variance.
This Section shall apply exclusively to wireless communications facilities to evaluate the necessity and compatibility of requests to exceed the height requirements in Section 8.18.5 (2) above as part of a Special Permit. In order to authorize a wireless communications facility height variance, the Zoning Board of Appeals must find that:

(1) Variance is Necessary to Provide Reasonable Coverage or Capacity. A gap in coverage or capacity of the provider's network exists such that users are regularly unable to connect to the service network, or are regularly unable to maintain a connection; and

(2) Minimum Adjustment. The proposed facility is designed to meet the minimum height requirement necessary for effective functioning of the provider's network.

8.18 .7 Supplemental Review. The Town reserves the right to require a supplemental review for any Permit processed under this Section 8.18, subject to the following:

(1) Where due to the complexity of the methodology or analysis required to review an application for a Permit (Basic Use or Special) or a Variance as provided above, the Town may require the applicant to pay for a technical review by a third party expert, the costs of which shall be borne by the applicant and be in addition to other applicable fees. Schedules of current fees are listed in the Town of Lenox Fee Schedule.

(2) Based on the results of the expert review, the approving authority may require changes to the applicant's application or submittals.

Commented [22]: see Variance section related to height - bit of a conflict

Commented [pk23]: AL - pls advise

Commented [LF24]: (600') but does this apply ONLY to this specific set of standards – or to any request for SP?

KMV Suggests that PB members reconsider Use Table while looking at Town Zoning map. If an existing tower is located in an R district – and coverage could be done with modifications to existing tower or a new non-concealed antenna….. NP??? Which is where a variance/or SP exception come into play….

Commented [pk25]: Another issue here; ii and iii both refer to height, which is controlled by variance elsewhere in the bylaw

Commented [26]: Note that in Concealed and Nonconcealed Antenna requirements just above, only an SP seems to be required to waive the height requirement. As such, should this section really only apply to Towers? Or, take out ii. from SP mention in Concealed and Nonconcealed Antenna and force all height into variances.

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(3) The supplemental review may address any or all of the following:

i. The accuracy and completeness of the application and any accompanying documentation.

ii. The applicability of analysis techniques and methodologies.

iii. The validity of conclusions reached.

iv. Whether the proposed wireless communications facility complies with the provisions set forth in this bylaw (8.18).

v. Whether the proposed facility is designed to meet the minimum height requirement necessary for effective functioning of the provider's network.

8.18.8 RFI Study. Any time after the installation of the proposed wireless communications facility, the Town may perform a site-specific radio frequency propagation and exposure study to determine if the wireless communications facility remains in compliance with applicable FCC Rules (OET Bulletin 65 and 47 CFR §1.1310) regarding radio frequency exposure standards. In the event the results demonstrate that the wireless communications facility is not in compliance with the applicable rules, the applicant shall immediately discontinue operation of the facility upon notification from the Town and modify the facility to bring it into compliance before restarting operations. In the event of results demonstrating noncompliance with the applicable FCC Rules, the applicant shall also be obligated to reimburse the Town for the cost of the study.

8.18.9 Abandonment (Discontinued Use)

(1) Towers, wireless communications facilities, antennas, and the equipment compound shall be removed, at the owner's expense, within 180 days of cessation of use.

(2) An owner wishing to extend the time for removal or reactivation shall submit an application stating the reason for such extension. The Town may extend the time for removal or reactivation up to 60 additional days upon a showing of good cause. If the tower or antenna is not removed within this time, the Town may give notice that it will contract for removal within 30 days following written notice to the owner. Thereafter, the Town may cause removal of the tower with costs being borne by the owner.

(3) Upon removal of the tower, wireless communications facility, antenna, and equipment compound, the development area shall be returned to its natural state and topography and vegetation consistent with the natural surroundings or consistent with the current uses of the surrounding or adjacent land at the time of removal, excluding the foundation, which shall be reduced to below finished grade.

(4) All applicants shall, upon grant of a Basic Use Permit or Special Permit, furnish a performance bond or irrevocable letter of credit naming Town of Lenox as beneficiary in the sum of $50,000.00 ("Performance Bond) which shall provide

language, inter alia, stating it is for the purpose of assuring the removal of the permitted wireless communications facility in the case of abandonment as contemplated herein.

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Status Summary 7-13-21: This draft includes updates from earlier PB discussions. The PB has not reviewed this document, since it is first working to complete the bylaw (8.18) that this "Manual" will support as a reference for Town administration. 9-14-2021: PB agreed to post this latest draft online to accompany the update announcement about the planned Needs Analysis and Wireless Communications Master Plan; as such, certain sections (noted in document) that will be decided as a part of the Needs Analysis and Wireless Master Plan have been left blank for the time being.

TOWN OF LENOX
LAND USE DEPARTMENT
STANDARD SPECIFICATIONS & DESIGN MANUAL
WIRELESS COMMUNICATIONS FACILITIES (WCF)

Section 100 – Wireless Communications Facilities.

Item 101 - New wireless communications facilities.

(1) Scope of Work – the work under this section shall consist of installing wireless communications facilities either on a new communications tower or base station; or an existing communications tower or base station, and shall be performed in accordance with the provisions herein and those contained in Subsection 8.16 of the Town of Lenox Zoning Bylaw, which contains definitions for the terms used herein.

Item 102 - All new communications towers shall be subject to the following standards:

1. Performance Criteria for Concealed Towers. To ensure wireless communications facilities blend well with the Town of Lenox's landscape, concealed towers shall meet the following performance criteria:

   a). The concealed tower is designed to resemble the surrounding landscape and other natural features and is designed to be contextual in size, shape, and color with the scenic content immediately adjacent to its location.

   b). A minimum of 70% of the concealed tower is screened from view by existing vegetation, topography, or other existing structures from any public street or road.

c). Viewsheds are not significantly impacted by the proposed concealed facility. Not significantly impacted shall mean for this purpose that a proposed "slick stick" concealed facility occupies more than ten percent of the field of vision of a person from a distance of 100 feet from the concealed facility using 120 degrees of arc as an average. Applicants shall provide photosimulations with their application to demonstrate compliance with this requirement using as a reference a 45mm lens on a full frame sensor (24mm x 36mm) SLR camera. Other concealment methodologies shall not be subject to this requirement.

d). A concealed tower should be designed to be a "slick stick" monopole with all transmission lines and antenna contained within the pole as the first desired option. Other options that may be proposed for concealment include mimicking a manmade or natural object that is consistent with the surrounding landscape; for example, field light stanchions for athletic and recreational facilities or developed park areas, clock tower for commercially developed areas, fire watch tower or "monopine" evergreen tree native to Berkshire County for rural or undeveloped areas. The foregoing is meant to be illustrative and not an exhaustive list of possible options. For any proposed facility that is not a "slick stick" monopole an applicant and any subtenants, licensees, and customers shall use antenna wraps/socks on all panel antennas and shall not permit installation of RRUs, RACAPs or any other non-panel type antenna or other equipment without first demonstrating to the Town the concealment elements that will be used for such antenna types. Applicant shall provide design sketches to Town with its application for prior approval by Town of the concealment technology meeting the above parameters at a minimum.

2. Determination of Need. No new concealed or non-concealed tower shall be permitted unless the applicant demonstrates that no existing structure or tower can

accommodate the applicant's proposed use without increasing the height of the existing tower or structure or otherwise creating a greater visual impact; or that use of such existing facilities would prohibit or have the effect of prohibiting personal wireless services in the search area to be served by the proposed tower.

3. Height. New concealed towers shall be limited to the maximum height of 100 feet. If an applicant demonstrates through RF engineering evidence that a proposed facility requires additional height to meet the minimum elevation necessary for effective functioning of the provider's network, the applicant may seek a variance to exceed the maximum height allowed.

4. Setbacks. New freestanding towers and equipment compounds shall be subject to the setbacks described below:
   a). If the tower has been constructed using breakpoint design technology, the minimum setback distance to the nearest residential or commercial structure shall be equal to [*Recommendation to come pending completion of needs analysis and wireless communications master plan.*]
   b).

EXAMPLE: TBD

   c). If the tower is not constructed using breakpoint design technology, the minimum setback distance to the nearest residential or commercial structure shall be [*Recommendation to come pending completion of Needs Analysis and Wireless Communications Master Plan.*]

5. Equipment Compound and Cabinets. Cabinets may be

provided within the principal building, underground, behind a screen on a rooftop, or on the ground with landscape screening as required below. Equipment compounds and cabinets shall be designed to be visually compatible with adjoining terrain and structures. Equipment compounds shall not be used for the storage of any excess equipment or hazardous materials. No outdoor storage yards shall be allowed in a tower equipment compound. The equipment compound or cabinets shall be designed, located, and concealed in a manner compatible with the wireless support structure portion of the wireless facility. Ground equipment shall be located within a cabinet or shelter, to the maximum extent practicable. Antennae, cables, and related appurtenances shall be enclosed, concealed, screened, or obscured so that they are not readily apparent to a casual off-site observer.

6. Landscaping. The equipment compound shall be landscaped with a minimum of one plant unit per _____ square feet of floor area, pursuant to the standards specified in _____. Where the landscaping requirement is not achieving the intent of screening and buffering, the landscaping requirement may be reduced or waived by the Zoning Board of Appeals.

7. Signage. Commercial messages shall not be displayed on any tower. Required noncommercial signage shall be restricted to ASR (Antenna Structure Registration Number as required by the FAA and FCC), party responsible for operation and maintenance of the facility, and any additional security and/or safety signs as applicable.

8. Lighting. Lighting shall be prohibited on all towers unless required by the Federal Aviation Administration (FAA). Lighting required by the FAA shall not exceed minimum standards and shall be of minimum intensity and number of flashes per minute allowed by the FAA, or shall be a dual lighting system.

9. Visibility

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a). New towers shall be configured and located in a manner that shall minimize adverse effects including visual impacts on the landscape and adjacent properties and is designed to be contextual in size, shape and color with the scenic content immediately adjacent to its location. Small wireless facilities meeting the size parameters in Subsection 8.17 of the Zoning Bylaw but not located within a Town right of way shall utilize a "slick stick" concealment plan so that all equipment and antenna are contained within the interior of the vertical pole.

b). Lattice towers and guyed towers are prohibited.

c). All new freestanding towers shall be designed to blend with adjacent structures and/or landscapes with specific design considerations such as architectural designs, height, scale, color, and texture.

d). If a monopine concealed wireless communications facility is proposed the applicant shall demonstrate through photo-simulations the proposed facility mirrors an evergreen tree indigenous to Berkshire County with sufficient number of "faux" branches and foliage to conceal all external antenna, panels, trays, cables, support rods, crossbars, port holes, splitters, couplers and attenuators and any other equipment external to the tower mast, which shall be painted or have applied material to simulate tree bark indigenous to the area. "Faux" branches shall commence at 20 feet above ground level (AGL) and surround the tower in a multi-dimensional pyramid shape pattern to the top of the tower, with branches and foliage material in length, width and depth sufficient to obscure physical view of the tower, antenna elements and brackets. Antenna wraps shall be used on all type of antenna. Panel antennas, remote radio units or any other non-panel type antenna or other equipment may not be used without first demonstrating the concealment elements that will be used for such antenna.

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e). Other concealment methods shall demonstrate through photo-simulations the number of proposed antenna and potential collocations and proposed concealment methodology. All antenna shall be covered with concealment material.

f). New antenna mounts shall be flush-mounted, unless it is demonstrated through radio frequency (RF) propagation analysis that flush- mounted antennas will not meet the network objectives of the desired coverage area, will not allow for concealed design, is inconsistent with the proposed design, or reduces the ability to collocate future antenna arrays.

g). Towers shall be constructed to accommodate collocation of as many antenna arrays as feasible without causing interference, subject to the height and design of the facility and proposed mounting configuration of antennas.

10. Mailed Notice to Neighbors. All new towers shall require that mailed notice, meeting the standards of M.G.L. C. 40A, Section 11, be sent to all property owners within 600 feet of the land subject to the application.

Item 103 - Application Submittal Requirements: The following requirements are in addition to the requirements for a new communications tower seeking a Basic Use or Special Permit:

(1) Drawings

i. One set of plans at 24” x 36” and two sets of plans at 11” x 17” that include elevation views of the proposed facility.

ii. The maximum height of the proposed facility, proposed and future mounting elevations of future antenna, including individual measurement of the base, the tower, and lightning rods, if applicable.

iii. Access to the facility and a plan for winter access if access is not maintained in winter.

(2) A signed, notarized statement from the tower owner or tower owner's agent, agreeing to allow the collocation of wireless equipment on the proposed tower, if applicable.

(3) Compliance with American National Standards Institute (ANSI) standards for electromagnetic radiation: In order to protect the public from excessive exposure to electromagnetic radiation, the facility applicant shall certify through a written statement that the facility meets or exceeds current ANSI standards as adopted by the FCC.

(4) Prior to issuance of a building permit, a stamped or sealed structural analysis prepared by a professional engineer licensed in the Commonwealth of Massachusetts that the existing or proposed structure has sufficient structural integrity to support the proposed facility, and, if applicable, a statement specifying the design structural failure modes of the proposed tower.

(5) The applicant shall agree in a written statement that the proposed facility complies with all FCC regulations, including, but not limited to "The Enhanced Best Practices Guide," as set forth in Appendix D of FCC 04-168 (released August 6, 2004). The applicant shall submit a statement by a professional engineer licensed in the Commonwealth of Massachusetts that the application is in compliance with all FCC rules regarding interference to other radio services and the applicant shall submit a statement of compliance with all FCC rules regarding human exposure to radio frequency energy (47 CFR §1.1310 and OET Bulletin 65). No antenna shall be permitted to interfere with the Town's public safety communications equipment. All applications must demonstrate compliance with 47 CFR §1.1310 and OET Bulletin 65 by including a certified analysis from a professional engineer licensed in the Commonwealth of Massachusetts showing that the proposed facility satisfies the FCC's Radio-Frequency ("RF") exposure guidelines applicable on an individual basis, and on a cumulative basis (considering all frequencies, and all emitting sources as required by FCC regulations). After transmitter and antenna system optimization, but prior to unattended operations of the facility, applicant or its representative must

conduct on-site post-installation RF emissions testing to demonstrate actual compliance with the 47 CFR §1.1310 and OET Bulletin 65 RF emissions safety rules for general population/uncontrolled RF exposure in all sectors. For this testing, the transmitter shall be operating at maximum operating power, and the testing shall occur outwards to a distance where the RF emissions no longer exceed the uncontrolled/general population limit.

(6) Statement certifying that no unusual sound emissions such as alarms, bells, buzzers, or the like are permitted. Emergency Generators are permitted and are exempt from noise requirements during emergencies. Sound levels shall otherwise not exceed 40 db measured at the property line of the parcel containing the wireless communications facility with a running generator and shall not exceed 20 db measured at the property line of the parcel containing the wireless communications facility when a generator is not running.

(7) Photosimulations to demonstrate (a) no significant impact on viewsheds as described above and (b) concealment effectiveness as described above.

(8) All other documentation, evidence, or materials necessary to demonstrate compliance with the applicable approval criteria set forth in this Section.

Item 104 - Additional Requirements for New Communications Towers:

(1) A report and supporting technical data shall be submitted, demonstrating the following:

a) All potential antenna attachments, collocations, and alternative antenna configurations on existing elevated structures, including all usable utility distribution towers within the proposed service area have been examined, and found unacceptable.

b) Reasoning as to why the adequacy of alternative existing facilities or the replacement of existing facilities are not acceptable or available in meeting the applicant's need,

indicating that no existing communications facility could accommodate the applicant's proposed facility, shall consist of any of the following:

1). No existing towers located within the geographic area meet the applicant's engineering requirements without increasing the height of the existing tower or structure or otherwise creating a greater visual impact, and why.

2). Existing towers do not have sufficient structural integrity to support the applicant's proposed wireless communications facilities and related equipment, and the existing facility cannot be sufficiently improved.

3). Other limiting factors that render existing wireless communications facilities unsuitable.

(2) Technical data included in the report shall include certification by a qualified professional, which qualifications shall be included, regarding service gaps, service expansions, and/or system capacity that are addressed by the proposed tower, and accompanying maps and calculations demonstrating the need for the proposed tower.

(3) A balloon test shall be required subsequent to the receipt of the photo simulations in order to demonstrate the proposed height and concealment solution of the proposed tower. The applicant shall arrange to raise a red or orange colored balloon no less than three (3) feet in diameter at the maximum height of the proposed tower, and within twenty-five (25) horizontal feet of the center of the proposed tower. The applicant shall meet the following for the balloon test:

a. Applicant must inform the Land Use Department and abutting property owners in writing of the date and times, including alternative date and times, of the test at least fourteen (14) days in advance. Notice to abutting property owners shall be pursuant to subsection 102 (10) above.

b). A three-foot by five-foot (3' by 5') sign with lettering no less than three (3) inches high stating the purpose of the

balloon test shall be places at closest major intersection of proposed site.

c) The date, time, and location, including alternative date, time and location, of the balloon test shall be advertised in a locally distributed paper by the applicant at least seven (7) but no more than fourteen (14) days in advance of the test date and applicant shall provide notice to neighbors of the balloon test date and alternate date pursuant to subsection 102 (10)above.

d) The balloon shall be flown for at least four (4) consecutive hours during daylight hours on the date chosen. The applicant shall record the weather, including wind speed during the balloon test.

e) Re-advertisement will not be required if inclement weather occurs.

(4) A radio frequency propagation plot indicating the coverage of existing antenna sites, coverage prediction of the proposed site, and designated search ring, together with a statement from the applicant's radio frequency (RF) engineer that the proposed facility's coverage or capacity potential cannot be achieved by any higher ranked alternative such as a concealed facility, attached facility, replacement facility, or collocation.

(5) Prior to the submittal of a permit application, the applicant shall notify other wireless service providers, via certified mail, of the proposed freestanding tower to encourage collocation and coordination among providers. The Town Land Use Department will make available a list of wireless service providers and the letter format for applicants.

(6) Prior to issuance of a building permit, proof of FAA compliance with Subpart C of the Federal Aviation Regulations, Part 77, and "Objects Affecting Navigable Airspace," if applicable.

Item 105 – Collocations on Existing Wireless Communications Facilities

Collocations that do not constitute Eligible Facility Requests as defined in Subsection 8.16 of the Bylaw shall otherwise meet the performance standards set forth in Item 102 above.

Item 106 – All Wireless Communications Facilities – Insurance

The owner of a wireless communications facility, whether a wireless infrastructure provider or wireless services provider, shall carry, at their own cost and expense, the following insurance and provide evidence of same to Town upon request:

(1) occurrence basis commercial general liability coverage for bodily injury and property damage, including but not limited to its property's replacement cost against all risks;

(2) workers' compensation insurance, as required by Massachusetts law;

(3) The applicant shall maintain not less than such required coverage unless and until the wireless facility and all related equipment and appurtenances have been fully removed.

Item 107 –Compliance with Other Regulations Regarding Installation, Construction and Maintenance.

In addition to compliance with the standards, specifications and details in this document and Subsection 8.16 of the Town of Lenox Zoning Bylaw, the owner of a wireless communications facility, whether a wireless infrastructure provider or wireless services provider, shall comply with all other applicable rules, regulations, standards, specifications and details of any federal, state, or local law, code, or regulation regarding installation and construction of such a facility, including, but not limited to; provisions regarding electrical code compliance and safety, provisions regarding RF Interference and Exposure, and all other applicable safety, construction and maintenance regulations relating to wireless communications facilities.

Item 108 – Amendments.

(1) This Manual and the standards and specifications contained herein may be amended from time to time in accordance with Town policy and revisions to federal and Commonwealth law applicable to wireless communications facilities within public rights of way.

<u>Note: Sample illustrations to be added</u>

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Town of Lenox
Planning Board
Meeting Minutes

October 3, 2022

Members present in person: Tom Delasco (Chair), Pam Kueber, Kate McNulty-Vaughan, Jim Harwood
Members present via Teams: Susan Lyman
Others present at in person: Gwen Miller, staff; Cara Farrell, staff; Courtney Gilardi, Sonya Bykofsky, Sura Diane Sheldon, Robert Pellicotti, Tara Rahke, Lisa Tobin, Bonne Berate, Amy Judd, Ellen Jacobson, Scott Barrow
Others present via Teams: Deanna Garner, Staff; Scott Barrow

Documents available for meeting: Meeting packet for 9-27-22 which included 5-24, 7-12 meeting minutes; meeting agenda; sign bylaw, sign bylaw documents, and solar bylaw language.

1. Form A: 94 & 100 Church Street
Surveyor Pat McColgan presented a Form A plan for 94 and 100 Church Street, which would divide the parcel into two parcels. He included an opinion from Building Inspector Don Fitzgerald explaining how the two new parcels comply with Commercial "C" dimensional requirements for lots.

There were some questions regarding his opinion, and some questions for Pat McColgan. PK asked that applicants with Form A plans use the Planning Board form to clearly demonstrate how they meet the zoning requirements.

JH moved to approve the Form A as presented. PK seconded. KMV voted aye; JH voted aye; PK voted aye. SL and TD abstained.

2. Solar Bylaw: Presentation of recommended bylaw amendments from BRPC, discussion, next steps (30 minutes)
Cara Farrell of the Berkshire Regional Planning Commission reminded PB of DLTA goal, which was to update the existing Zoning Bylaw in Lenox to expand where new solar development is allowed. She explained the proposed language she was presenting allowed the development of ground-mounted solar in every zoning district in Lenox, with a cap based on lot coverage.

Discussion ensued

There was back and forth about if this new proposal would satisfy the solar exemption in 40A. PK had read two Supreme Judicial Court cases about solar zoning. She had concerns that certain restrictions or regulations in a solar zoning bylaw would not satisfy the exemption language, even if the Bylaw was permissive in terms of *where* solar could go.

The group talked about specific neighborhood impacts, and how these could be mitigated through:

-Setbacks

-Height

-Screening

PK asked if the solar would be considered an accessory use or primary use.

JH asked how this would handle battery storage.

PK wondered if the paragraph prohibiting the clearing of vegetation and trees was overly strict; shouldn't somebody be able to remove one or two trees if they want to site solar on their property?

GM noted in the past the group has talked about discouraging forest cutting for solar since the benefits of intact forest are so great.

The group talked over how they could permit varying scales of ground-mounted solar development.

They contemplated letting roof mounted solar displays be permitted by right; and thought that site plan approval could be for ground-mounted solar that is 250 kW and over—which is what the existing solar bylaw covers. Anything less than 250 kW could be a by-right approval from the Building Commissioner.

PK said she would send questions to GM to share w/ Joel Bard of KPLaw. Cara Farrell would take input from this meeting to tailor the draft bylaw language for a future meeting.

3. Signs Bylaw: Continue review of proposed sign bylaw revisions

The Signs Team was not available to continue the review of the proposed sign by-law revisions, so the Planning Board did not discuss this.

4. Wireless: discuss next steps and timeline for potential Town Meeting presentation

PK began by saying she had discussed the timing of the bylaw work with Town Manager Christopher Ketchen. She had been concerned by the urge for them to speed things up for a fall Special Town Meeting. He had shared with her great concern from the Selectboard from the summer—they received complaints about the limited wireless coverage in the village, and they hope to rectify the situation before next summer. She and Sue Lyman had gotten together the day before, and they felt that they could offer a draft ready for a Special Town Meeting in three Planning Board meetings. She believed that the language was there, and that the Board had three things they needed to resolve to make it a Lenox specific zoning bylaw:

Where to put the technology—locational preference
Setbacks
Height

PK reiterated she was talking about macro scale wireless infrastructure, because the Selectboard has a policy in place for reviewing micro-scale wireless infrastructure in the public right-of-way.

She had been reviewing other communities' wireless zoning bylaws and found the proposed language for Lenox to be similar.

In terms of timing, there would be a Special Town Meeting on November 17th, 2022.

JH thought the bylaw could be ready sooner, he said tomorrow.

TD suggested there does not seem to be great pressure from the market, since people are not coming to the town trying to create new infrastructure, and that even if a Special Town Meeting approves the zoning bylaw, it would still take time to pass muster at the Attorney General's office and for a developer to come in and permit and construct new infrastructure. He thought that timeline unrealistic, to have the actual utility work completed by Summer 2023.

Sue Lyman is in favor of having three meetings in less than three weeks. It would satisfy the Selectboard and they would be done with the wireless bylaw work. It would not be on the Planning Board or Zoning Bylaw if there are no wireless developers after the new bylaw is adopted. She thought they could reach consensus on the three issues Pam highlighted (location, setback, and height) and knows they can't please everybody.

KMV says she would be comfortable to ask for another special town meeting after November so they can have more time.

TD says they could work to get to a November meeting and suggested the next three meetings. There was discussion of timeline—draft to be posted when there is a "final" draft when warrant article is posted, and when they would need to have the public hearing. GM explained some of the timing requirements for noticing the public hearing, how close to Town Meeting it could be, and how far in advance the warrant may be posted.

The Board agreed to meet the three next Tuesdays to try and complete the bylaw work. David Maxson of Isotrope LLC will come to the meeting on October 11th to share findings on location suggestions.

TD opened the floor to comments and questions:

Amy Judd from the Curtis asked if the Curtis building would be a priority. The current language of the zoning bylaw does prioritize concealed infrastructure on existing buildings.

Diane Sheldon of 48 Old Stockbridge Road (Turnure Terrace) wondered why people talked at length about solar setbacks but not wireless setbacks. She passed out bylaw language from Great Barrington, Otis and Stockbridge.

Scott Barrow commended the Planning Board for the work they have done and encouraged the Board to talk a different consultant who has different opinions about wireless safety and health than the two consultants the Town has worked with to date. He was extremely disappointed that the Board haven't talked to differently opinioned consultants.

KMV said they are absorbing the information and read everything shared with them.

Courtney Gilardi had comments on the health impact of wireless infrastructure and cautioned the group to not allow what happened in her former neighborhood in Pittsfield, where a Verizon wireless tower caused illness with her own family and neighbors. She also asked that the Board work with a different consultant.

Both Scott and Courtney said it sounded like they needed to also bring their concerns to the Selectboard.

5. Approval of Minutes:
The Board approved the minutes of May 24th and July 12th with minor amendments.

6. Adjourn
The meeting adjourned at 8:53 p.m.