

Telecommunications 5G Antenna Streamlining Community Impact

Executive Summary

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Prepared for : Southborough Board of Selectmen

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Slim-Style Monopole



Fat-Style Monopole



What is 5G / DAS

- 5G is being billed as the “next generation”* of wireless.

**Note: Invalid argument “The VAST majority of current and future uses for IOT are in the home where they are typically already serviced by WiFi which converts the signal to a wired access point and sends it over fiber or coaxial cable.”*

- The antenna systems are also known as Distributed Antenna Systems (DAS) .
- It is available via newly licensed spectrum approved for commercial use to support Internet of things (IoT) applications.
- The current approach for 5G wireless internet will require **one 30-foot tower for every twelve homes.** ¹

¹See article citing New Street Research estimate here:<http://www.recode.net/2016/7/25/12266072/5g-wireless-broadband-spectrum-reality-check-fcc-internet-of-things>

So, What is The Problem?

- In many cities and towns telecom providers are filing applications for siting these in the rights of way *i.e. on existing telephone poles in residential areas via “streamlined” permitting process .*
- The manner in which this is being implemented in many communities nationwide bypasses local zoning authorities.
- To residents this means unsightly, obtrusive 5G “small cell “ towers which will negatively impact:
 - Public safety
 - Infrastructure Poses fully unknown long term health impacts on citizens from continuously pulsed radiation in close proximity to residences, schools, childcare facilities, workplaces etc.
 - Property values
 - This proposed infrastructure is *not intended* to improve cell phone service reception

Growing National Opposition to Streamlining

Municipalities and towns across the United States have strongly asserted rights to keep control of local zoning and right of way

“Florida League of Cities, said the proposed legislation would give technology companies “unfettered access” to public rights-of-way and would be a “nightmare” for public safety.”

Megan Sirjane-Samples, is a lobbyist for the Florida League of cities <https://www.jaxdailyrecord.com/article/cities-counties-oppose-terms-5g-wireless>

California Governor Brown recently Vetoed the SMALL CELL Bill with over 250 cities and towns opposed to this streamlining of wireless infrastructure

<http://www.mercurynews.com/2017/10/16/california-gov-jerry-brown-vetoes-bill-easing-permits-on-cell-phone-towers/>

https://www.cacities.org/Top/News/News-Articles/2017/September/Cities_-the-League-Urge-Governor-to-Veto-SB-649

League of Minnesota cities : Memo on Small Cells

<https://www.google.com/search?q=league+of+minnesota+cities+memo+on+small+cell&oq=league+of+minnesota+cities+memo+on+small+cell+&aqs=chrome..69i57.15087j0j8&sourceid=chrome&ie=UTF-8#>

Public Safety Impact

- **Study Finds 5G Frequencies Have A Biological Effect** A newly published study from distinguished Israeli physicists Yuri Feldman, Paul Ben-Ishai and colleagues found that the higher millimeter frequencies intended for use in 5G are preferentially absorbed in the sweat duct, a significant biological effect. “The Modeling of the Absorbance of the Sub-THz Radiation by Human Skin.”
https://www.researchgate.net/publication/51394628_Human_Skin_as_Arrays_of_Helical_Antennas_in_the_Millimeter_and_Submillimeter_Wave_Range
- **US National Toxicology Program (NTP) Study Found Wireless Caused Cancer and DNA Damage in Rodents** The National Institute of Environmental Health Sciences NTP long-term radiofrequency radiation (RFR) studies found male rats developed gliomas (brain cancer) and schwann cell tumors, the same types of tumors increased in long-term human cell phone users. In addition, DNA damage was found leading the scientists to conclude that, “exposure to RFR has the potential to induce measurable DNA damage under certain exposure conditions.”
<https://ntp.niehs.nih.gov/results/areas/cellphones/index.html>
- **Scientists worldwide are calling for a halt to the 5G Roll-out:** In 2017, over 180 scientists and doctors issued a declaration calling for a moratorium on the increase of 5G cell antennas citing human health effects and impacts to wildlife.
<https://ehtrust.org/wp-content/uploads/Scientist-5G-appeal-2017.pdf>
<https://ehtrust.org/wp-content/uploads/Scientist-5G-appeal-2017.pdf>
<https://ehtrust.org/small-cells-mini-cell-towers-health-letters-scientists-health-risk-5g/>
- **Cumulative daily radiation exposure poses serious public health risks:** Peer reviewed, published science indicates that exposures to wireless radiation can increase cancer risk and alter brain development and damage sperm. **Most people are unaware that wireless technology was never tested for long-term safety, that children are more vulnerable and that the accumulated scientific evidence shows harm.**
- **Microwave antennas in front yards present several worker and public safety issues:** Unions have already filed comments that workers were injured, unaware they were working near transmitting antennas. How will HVAC workers, window washers, and tree cutters be protected? The heavy large equipment cabinets mounted on poles along our sidewalks also present new hazards. Cars run into utility poles, often, what then? *Poles are already overburdened with infrastructure which creates further hazard.*

*adapted from https://ehtrust.org/wp-content/uploads/5G_What-You-Need-to-Know_V4-1.pdf

Wireless EMR and Disability



- **World Health Organization:** (WHO 2005) concluded : “EHS is characterized by a variety of non-specific symptoms that differ from individual to individual. The symptoms are certainly real and can vary widely in their severity. Whatever its cause, EHS can be a *disabling* problem for the affected individual...”

<http://www.who.int/peh-emf/publications/facts/fs296/en/> see also **WHO /IARC 2011 RF category 2B carcinogen classification** http://www.iarc.fr/en/media-centre/pr/2011/pdfs/pr208_E.pdf



US Access Board: People with chemical and/or electromagnetic sensitivities can experience debilitating reactions from exposure to extremely low levels of common chemicals such as pesticides, cleaning products, fragrances, and remodeling activities, and from electromagnetic fields emitted by computers, cell phones, and other electrical equipment. The severity of sensitivities varies among people with chemical and/or electromagnetic sensitivities. Some people can enter certain buildings with minor accommodations while others may be so severely impacted that they are unable to enter these same spaces without debilitating reactions. Furthermore individual tolerances to specific exposures can vary greatly from one individual to the next.

<https://www.access-board.gov/research/completed-research/indoor-environmental-quality/recommendations-for-accommodations>



Dept of Labor: Office of Disability Employment Policy (ODEP) “Electromagnetic sensitivity, also known as electromagnetic hypersensitivity, electrical sensitivity, electro-magnetic sensitivity, and idiopathic environmental illness (IEI), has been difficult for the environmental health and medical communities to define. Individuals with electromagnetic sensitivity may experience various non-specific symptoms including but not limited to fatigue, weakness, neurological issues, immunological issues, gastrointestinal issues, increased irritability, lack of ability to think clearly and quickly, sleep disturbance, overall malaise, and anxiety.”

<https://askjan.org/soar/other/electrical.html>

Potential Impact on Property values /Lost tax revenue

- “In some state/counties residents petitioned for reassessment of property taxes and received a lower value due to the proximity of a new tower”: <http://tinyurl.com/MoCoPropertyReductionCellTower>.
- One study in the publication *Land Economics* found that home values will diminish by an average of [7.5% if they are within 4500 feet](http://gattonweb.uky.edu/Faculty/blomquist/LE%202016%20Locke%20Blomquist%20towers.pdf) of any newly constructed cell tower.
<http://gattonweb.uky.edu/Faculty/blomquist/LE%202016%20Locke%20Blomquist%20towers.pdf>

Additional studies are summarized here : <https://ehtrust.org/cell-phone-towers-lower-property-values-documentation-research/>

- Approving applications for small cell siting could potentially result in millions in lost tax revenue for the Town of Southborough. This impact should be studied and assessed as part of a fully transparent due process before any telecom application approvals.

Potential Solutions for Consideration

- **Review and “Tightening” of local telecommunications siting ordinances to protect citizens and their property values as well as preserve tax rates for town.**

Precedent supports this:

“In Calabassas, California, the local government successfully defended its own laws and ordinances against a lawsuit filed by Crown Castle”.

<https://nouglytowers.wordpress.com/crown-castle-vs-calabassas/>.

“The City of San Francisco recently upheld the aesthetics argument as well”:

<http://www.fiercewireless.com/wireless/california-appeals-court-upholds-small-cells-ruling-against-t-mobile-crown-castle>

- **Grant moratorium on tower applications to review study impacts on public health, FCC Guideline is NOT protective of all biological impacts.**

“In Spokane, Washington, citizens were able to work with their government representatives to enact legislation protecting the aesthetics and home values in their neighborhoods. They directly challenged assertions made by the wireless company, which resulted in a better outcome for the citizens”.

“An article on the process itself, which details the 6-month moratorium on cell tower installations that was put in place while these laws were written can be read here”: <http://www.spokesman.com/stories/2015/nov/06/spokanes-cell-tower-moratorium-ends-with-stricter-/>.

- **Post notice of public hearing on the matter at open town meeting for citizens to understand the proposals and risks. Inform all stakeholders, Meet and discuss with Municipal Tech. Committee members etc.**

“Locally, in the City of Gaithersburg’s Westleigh community, the City halted the construction of Crown Castle sites in order to re-evaluate this process after 90% of its residents rose up in protest.” <https://www.youtube.com/watch?v=i0Tof1xUHXA&t=120m25s>.

Potential Solutions for Consideration Cont.

- **Amend telecommunications bylaws to prioritize public safety in residential areas, school districts, playgrounds and recreation spaces and historic spaces consider. Where feasible amend ordinance verbiage to specifically exclude wireless facilities from its definition as a Utility.**

Each of these local governments has enacted legislation that was upheld in court that protects homeowners from unsightly monopoles. A key common factor is that, while these codes cannot ban cell towers outright, they can block the towers for distances even up to 1000 feet **based on aesthetic reasons:**

- City of Calabasas codes: <http://tinyurl.com/CalabasasMonopoles>;
- City of Spokane codes: <http://tinyurl.com/SpokaneMonopoles>;
- City of San Francisco codes: <http://tinyurl.com/SanFranMonopole>;
- City of Rancho Palos Verdes: <http://tinyurl.com/RanchoMonopole>;
- Northampton Township: <http://www.ccat.org/DocumentCenter/View/153>.

Note: All of these codes have a **written requirement to notify citizens** with both advanced prior notice and a hearing before the erection of a monopole.

Common Misperceptions Corrected

FACT: Federal law preserves local zoning and land use authority.

Many officials *incorrectly* assume the 1996 Telecommunications Act (TCA) ties their hands to regulate and control land use. Here is what the TCA actually says:

..” When reviewing the relevant sections in their entirety, it becomes clear that federal law does not pre-empt local municipal regulations and land use controls. Specifically, the law states “[n]othing in this section affects the authority of a state or local government to manage the public rights of way or to require fair and reasonable compensation from telecommunications providers, on a competitively neutral and nondiscriminatory basis, for use of public rights of way ...” and that “nothing in this chapter shall limit or affect the authority of ... local government ... over decisions regarding the placement, construction, and modification of personal wireless service facilities” Source :TCA and <https://www.lmc.org/celltowers>

FACT: Massachusetts is a certified “Reverse Preemption” state

Federal Law Proscribes Nondiscriminatory Access to Poles, but States Can Assert Jurisdiction through “Reverse Preemption”

“Over the past decade, policymakers have worked to streamline deployments of all types of infrastructure – from towers and macro collocations to DAS and small cells.²⁹ Access to poles owned by utilities, however, is governed by a bifurcated process that has prompted many states to adopt their own pole attachment rules. Absent a pro-deployment framework, this process often impedes DAS and small cell deployments. Under Federal law (Section 224 of the Communications Act), utilities must afford telecommunications carriers and cable operators nondiscriminatory access to poles under “just and reasonable” rates, terms and conditions.³⁰ The FCC has made it clear that a wireless carrier that provides telecommunications service is entitled to all rights available under the statute. ³¹ And just last year, the FCC took further steps to “keep[] pole attachment rates unified and low.”³² As a result, wireless carriers have made some progress towards securing timely and fair access to utility poles in many states.³³ Certain states have elected to pursue their own path, however. **Under Section 224, states can certify that they regulate pole attachments (“reverse preemption” states).**³⁴ In reverse preemption states, attachers have the same rights under the law as they do in non-reverse preemption states, **but it is that particular state – rather than the FCC – that is responsible for ensuring attachers are able to exercise their rights.** Such states are also responsible for promulgating rules implementing Section 224 and resolving disputes over attachments. To date, 20 states plus the District of Columbia have so certified.³⁵ This means that these states, which cover roughly half the U.S. population, have jurisdiction over public utility pole attachments instead of the FCC.”

<https://www.ctia.org/docs/default-source/default-document-library/enabling-the-wireless-networks-of-tomorrow.pdf>

What is being done to protect public health in Massachusetts?

In 2017, Massachusetts introduced several bills to address wireless radiation and public health:

- [S.1268](#) Resolve creating a special commission to examine the health impacts of electromagnetic fields (Senator Karen E. Spilka).
- [S.1864](#) An Act relative to utilities, smart meters, and ratepayers' rights (gives people the no-fee choice of keeping their non-radiation-emitting water, gas and electrical meters instead of "smart" utility meters; Senator Michael O. Moore).
- [S.107](#) An Act relative to disclosure of radiofrequency notifications (requires warning labels on radiation-emitting products; Senator Julian Cyr).
- [S.108](#) An Act relative to the safe use of hand-held devices by children (requires specific language on packaging as modeled by an [ordinance](#) unanimously passed in Berkeley, California; Senator Julian Cyr).
- [H.2030](#) An Act relative to best management practices for wireless in schools and public institutions of higher education (asks the Massachusetts Department of Elementary and Secondary Education to set wi-fi standards for all schools; Representative Carolyn Dykema).
- [S.2079](#) An Act reducing non-ionizing radiation exposure in schools. (Senator Donald F. Humason, Jr.)
- [S.2080](#) An Act increasing medical awareness and insurance coverage of non-ionizing radiation injury and reliance upon credible independent medical research. (Senator Donald F. Humason, Jr.)

Source: <https://ehtrust.org/massachusetts-2017-bills-wireless-health/>

Further Consideration

Duty of Care / Liability

If this infrastructure goes forward without the proper due diligence, town officials will potentially be liable for violating their obligation and duty of care to their citizens.

Telecommunications providers do NOT bear liability

<https://ehtrust.org/key-issues/cell-phoneswireless/telecom-insurance-companies-warn-liability-risk-go-key-issues/>

Recent Related Legal news :

Long Island Residents protest CBS News : 2 minute news cast of angry residents who protested when these antennas went up in their neighborhood: <http://newyork.cbslocal.com/2017/05/11/woodbury-l-i-cellphone-repeaters/>

Long Islanders Sue in Federal Court Over Cell Tower Health Concerns; CBS New York, Oct 19, 2017
<http://cbsloc.al/2yDFOMX>

FCC Guideline outdated and has not considered non thermal impacts Such as EHS , Legal precedent:

Federal Judge Hillman, in a recent opinion (*Civil No. 4:15-cv-40116-TSH*) found that the now 14 year-old guidelines issued by the Federal Communication Commission (FCC), do not bar claims by those having EHS and thus being hypersensitive to cell phones or Wi-Fi. Those **FCC guidelines, the judge found, dealt only with assessing the amount radiation (from devices such as cell towers) which would heat up or burn human flesh, and did not address other effects of radiation, such as the effects suffered by those with EHS and thus sensitive to cell phone or Wi-Fi radiation.**