

**From:** [Andy Newkirk](#)  
**To:** [Andy Newkirk](#)  
**Subject:** FW: Federal and State preemption of city ordinances restricting ham antennas...  
**Date:** Wednesday, May 08, 2019 2:50:35 PM

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**From:** Denis Franklin, MD <[denisfranklin@uchicago.edu](mailto:denisfranklin@uchicago.edu)>  
**Sent:** Wednesday, May 08, 2019 1:48 PM  
**To:** Kyle Richards <[krichards@cityofgoleta.org](mailto:krichards@cityofgoleta.org)>; Roger Aceves <[raceves@cityofgoleta.org](mailto:raceves@cityofgoleta.org)>; [ikyriaco@cityofgoleta.org](mailto:ikyriaco@cityofgoleta.org); Paula Perotte <[pperotte@cityofgoleta.org](mailto:pperotte@cityofgoleta.org)>; Stuart Kasdin <[skasdin@cityofgoleta.org](mailto:skasdin@cityofgoleta.org)>  
**Cc:** Anne Wells <[awells@cityofgoleta.org](mailto:awells@cityofgoleta.org)>  
**Subject:** Federal and State preemption of city ordinances restricting ham antennas...

### **Both Federal and Stat Law Partially Preempt the Right of Cities to Restrict the Existence and the Size of Ham Radio Antennas**

Wednesday, May 8, 2019

To the Mayor(s), council, commissioners and planning staff,

First, let me apologize if I seemed to stop my explanation abruptly at the joint meeting of the Council and Planning Commission at last evening's meeting. Unfamiliar with the timing process, when I heard the one-minute warning tone I thought my time was up that I had to stop speaking.

Had I used my final minute I would have explained that I spoke not as a hobbyist, but as a Ham operator with fifty years experience in emergency and disaster communications, including about twenty years of membership on the sheriff's communications teams in Alameda and Maricopa counties. In San Mateo County, because of then being both an emergency physician and a radio technician and operator, in the mid-1970's I was the Project Director of the Emergency Medical Services Project that introduced EMT's, Paramedics, central dispatch and ambulance-to-hospital radio telemetry in san Mateo County

Here I will try to be succinct. The subject is a bit complicated, both legally and technically, but I will do my best to be informative without wasting your time.

I provide the following information because after only two meetings it is clear to me that you are genuinely dedicated to trying to balance the needs of individual property owners against their collective need as citizens of Goleta.

I'm sure you all know that Ham radio is used almost every day somewhere in the country for disaster and emergency communications when other more vulnerable systems are damaged and fail. It is being called upon this very day, for example, in areas affected by floods in the midwest. And *for more than three months* after the hurricane in Puerto Rico, the *only* communications of any kind were provided by teams of Ham operators who went there, twenty at a time, to help. Therefore, the case of ham radio antenna regulation is very different from that of communications antennas in general. Because of this fact, both the FCC, and the State of California have mandated the following:

CA Govt Code § 65850.3 (2017)

**Any ordinance** adopted by the legislative body of a city or county that regulates amateur radio station antenna structures ***shall allow those structures to be erected at heights and dimensions***

sufficient to accommodate amateur radio service communications. shall not preclude amateur radio service communications, shall reasonably accommodate amateur radio service communications, and shall constitute the **minimum practicable regulation** to accomplish the city's or county's legitimate purpose.

It is the intent of the Legislature in adding this section to the Government Code, to codify in state law the provisions of Section 97.15 of Title 47 of the Code of Federal Regulations, **which expresses the Federal Communications Commission's limited preemption of local regulations governing amateur radio station facilities**.

*(Added by Stats. 2003, Ch. 50, Sec. 1. Effective January 1, 2004.)*

This constraint relates specifically to the current changes to Goleta's zoning ordinances. The Ninth Circuit Court of Appeals, in Howard v. City of Burlingame, and citing Evans v. Commissioners, City of Boulder and Bodony v. Incorporated Village of Sands Point, said, "... those [ordinances] which establish absolute limitations on antenna height [are] thus facially inconsistent with PRB-1." (The language of the Federal Code of Regulations in FCC rule PRB-1 is that which is repeated above in the California law.)

Following passage of the law, a number of court cases have held that cities may not impose a fixed height limit for all ham antennas in a given zone, but must consider such things as the terrain, obstructions and the physical dimensions required to allow ham radio operations on ham wavelengths. Moreover, the federal court of appeals has specifically held that applications for ham antennas must be decided on an individual, case-by-case basis after considering the relevant factors. The federal interest stems from the fact that hams often help in emergencies far from their home cities or states, and that each represents therefore not merely a local, but also a national resource.

Here I will describe, for those who may wish to understand why hams go to the trouble and expense of putting large antennas up on towers: why ham antennas are the size they are.

The length of antennas, and their height above ground are related to the lengths of the radio waves involved. Radio signals are actual ripples or waves, in the electrical and magnetic fields all around us. Like ocean waves, radio waves have an actual physical length, peak-to-peak or valley-to-valley. To send or receive radio signals, an antenna must be exactly half of one wavelength long. Under federal law and by international agreement, Ham radio operators are assigned the use of wavelengths from a fraction of an inch to more 500 feet long, with the most commonly used wavelengths for day-time, long-distance communications being about sixty feet long.

Normal police, fire and other municipal radio systems, using wavelengths of about one foot, will only travel as far as the eye can see. Using "repeaters" on mountain-tops can extend the useful range to perhaps fifty miles.

By using wavelengths of fifty or sixty feet, however, Ham operators generate signals that can "skip" like a flat rock on water, back and forth between earth and a layer of the ionosphere up about 200 miles, and thus travel great distances, including all the way around the earth. More to the point, ham signals can reach outside the area of even a widespread natural disaster, to provide communications with those in unaffected areas who can provide help.

If a Ham antenna, looking something like a big TV antenna, is mounted too low to the ground, it's signals are reflected straight up in the air by the ground, and do not travel, skipping, along the surface of the earth. As in skipping a rock on water, the angle has to be rather flat for it to work. For waves to travel more horizontally, the antenna must be mounted a wavelength or so above the ground. In the case of the frequencies hams must use for emergency and disaster communications, that height is often fifty to eighty feet above the ground. It is this that is referred

to in federal and California law as, “*heights and dimensions sufficient to accommodate amateur radio service communications*”.

I am sorry to burden you with this technical and legal information at this late stage of your process, but I fear that unless the problem is addressed in the final ordinance and ham antennas are treated as separate from other kinds of antennas, the city may lose costly lawsuits in the future, suits that could have been avoided.

If I can provide any further technical information, please feel free to contact me at the above e-mail address or by phone or text.

Denis Franklin, MD  
707-291-2200