

*Baltimore County, Maryland*

**Case # 06-180-SPHA**

SUPPLEMENTAL INFORMATION  
ACCOMPANYING APPLICATION  
FOR

APPROVAL OF RADIO OPERATOR ANTENNAS  
UNDER §426A

OR

A ZONING VARIANCE FROM §426A.E FOR RADIO  
OPERATOR ANTENNAS

SUBMITTED BY:

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## 1. PREAMBLE

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This is an application for an interpretation or approval pursuant to a special hearing, or for a zoning variance, for an existing private, non-commercial amateur radio antenna support structure with a maximum total height of 99 feet, located on a 2.20 acre (91,476 square feet) lot at 39 Glenbrook Drive, Phoenix, Maryland. The Applicant also owns the adjacent lot to the Northwest, 1.56 acres in size, for a total of 3.76 contiguous acres. The antenna system is screened by the presence of the house, and 50-60 foot tall trees in almost every direction. The nearest house from which the tower can be seen is 400 feet from the tower base. Other homes to the rear are further away, over 500 feet distant. All direct abutters, and the neighbor across the street, approve of this antenna system and letters from them, urging the grant of any permission necessary, are attached.

BCZR 300.1 and 426A, as well as 47 CFR §97.15(b) are the controlling laws of this case. The Telecommunications Act of 1996, 47 USC §332, *et seq.*, which provides a framework for regulation of Commercial Mobile Radio Services, does not apply.

The antenna support structure is for personal use by the Applicant, an individual licensed by the Federal Communications Commission (FCC) since 1962. The Applicant is the holder of an Extra Class amateur radio license (the highest class of such license issued by the FCC), call sign W3LL. See **Exhibit A**. He is a member of the American Radio Relay League, the national organization representing the interests of Amateur Radio, Chairman of the Northwest Region of the Potomac Valley Radio Club (PVRC, which encompasses the mid-Atlantic states of MD, DE, PA, VA, WVA and NC), and a member of the Baltimore County Amateur Radio Club. He is designated a National Weather Service certified severe weather reporting station.

This station is a part of the Baltimore County Amateur Radio Emergency Service (ARES). ARES is a nation-wide emergency communications service affiliated with the American Radio Relay League, operating under Memoranda of Understanding with such organizations as the American Red Cross, the National Weather Service, the Department of Homeland Security – Citizen Corps (FEMA), the Association of Public Safety Communications Officials- International, the Salvation Army and the Civil Air Patrol. Mr. Governale also belongs to the Baltimore County Radio Amateur Civil Emergency Service. RACES is administered by the Baltimore County Department of Homeland Security. His member ID card was issued after passing a background investigation, fingerprinting and photo. See **Exhibit H**. RACES personnel, with personnel from each agency, facility, and surge center, exercise their organization and equipment monthly. RACES representatives have established a close working relationship with the county fire, EMT and law enforcement agencies. RACES is represented on a number of county committees and incorporated into agency Emergency Operating Plans (EOP). Mr. Governale was the solo EOC (Emergency Operations Center) RACES net control operator during Hurricane Ernesto.

He also was the solo the net control operator for the Harford County EOC during their Weapons of Mass Destruction drill, a large event involving every county agency. Harford County is just north of Baltimore County. He was asked to help them. Mr. Governale also was the net control operator for the Baltimore County WMD (Weapons of Mass Destruction) drill. He has a team of five members. His station is used for RACES communications. In support of preparedness for emergency communications, the Applicant owns and maintains a generator at the site to provide emergency power for communications in times of power outages.

Ben Governale is a retired U.S. Coast Guard Commander. He is a retiree of the Black and Decker Corporation, having been employed for 32 continuous years in Towson, Maryland as an electrical engineer.

Amateur radio antenna systems are normally carried above the roofline; and amateur radio, inherently non-commercial, is an ordinary accessory use of a residence. Under Baltimore County Zoning §426A, “A radio operator antenna and related equipment, including any supporting structure, is considered an accessory structure or use and is permitted by right in any zone . . .”

The antenna structure presents the most viable option for the placement of the system on the Applicant’s property. The site was selected after a careful and exhaustive study. It is the belief of the Applicant that this site is in the best interest of the neighborhood and Baltimore County.

The antenna system involved in this application is not a detriment to the public good. Indeed, the system serves the public good. As an Amateur Radio Emergency Service station, it is available in support of the goals and operations of the Department of Homeland Security. For examples of emergency communications provided by radio amateurs both during and after the destruction to the Gulf Coast caused by Hurricane Katrina, see **Exhibit B**. A permit or variance for the existing antenna system would be consistent with Federal policies that protect the rights of licensed radio amateurs to construct and use amateur radio facilities, by, when necessary, preempting local and state law (as will be described further below).

The position of a radio amateur in the permitting process is uniquely enhanced by a Congressional finding that "reasonable accommodation should be made for the effective operation of amateur radio from residences, private vehicles and public areas, and that regulation at all levels of government should facilitate and encourage amateur radio operation as a public benefit." Public Law 103-408, §1 (3), October 22, 1994.

The Applicant and Kayren Governale, his wife, have been Baltimore County residents since 1971. They jointly own the property, and Kayren Governale joins with her husband in urging that necessary relief be granted.

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## 2. APPLICABLE BCZR REGULATIONS

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A careful reading of the Federal Preemption regulations, described elsewhere in this document, shows that the amateur radio antenna system described in this request is legal as constructed and that the Applicant has a right of construction. Amateur radio antenna systems are an ordinary accessory use of a residence and are found routinely in and around Baltimore County.

Amateur radio communications are inherently **not** commercial. The Applicant wishes to emphasize that the amateur radio antenna system described here is **not** intended for use with cellular telephones, paging systems, or any other commercial communication application for which fees are charged. It should be pointed out that the Federal Communications Commission (in 47 CFR §97.113) specifically prohibits the use of amateur radio communications for “hire or for material compensation” (i.e., **commercial use**):

**Sec. 97.113 Prohibited transmissions.**

- (a) No amateur station shall transmit:
  - (1) Communications specifically prohibited elsewhere in this part;
  - (2) Communications for hire or for material compensation, direct or indirect, paid or promised, . . .;
  - (3) Communications in which the station licensee or control operator has a pecuniary interest, including communications on behalf of an employer.

Amateur radio communications, by their very nature, and by federal law, are **noncommercial** and considered a **customary and incidental use**, subordinate to a residential structure.

In the Baltimore County Zoning Regulations (BCZR), §101, a “Building” is defined:

**BUILDING** -- A structure enclosed within exterior walls or fire walls for the shelter, support or enclosure of persons, animals or property of any kind.

Thus, the limits for building heights do **not** apply to antenna support structures.

In fact, BCZR §300, Height Exceptions, provides:

**300.1      Applicability.**

A. **The height limitations of these regulations shall not apply to** barns and silos, grain elevators or other accessory agricultural buildings, nor to church spires, belfries, cupolas, domes, **radio or television aerials**, drive-in theater screens, observation, transmission **or radio towers**, or poles, flagstaffs, chimneys, parapet walls which extend not more than four feet above the limiting height, bulkheads, water tanks and towers, elevator shafts, penthouses and similar structures, provided that any such structures shall not have a horizontal area greater than 25% of the roof area of the building. A satellite receiving dish is subject to the height limitations of the zone in which the dish is located. However, in residential zones, the height of an accessory satellite dish may not exceed 15 feet, unless it is located on the roof of a building. [Bill Nos. 7-1962; 71-1987; 51-1993] [*Emphasis added.*]

**A Permit Under §426A Is Appropriate**

However, in addition to the exemption from height limitations contained in BCZR §300, the BCZR also provides:

**Section 426A, Radio Operator Antennas [Bill No. 30-1998]**

- A. A radio operator antenna and related equipment, including any supporting structure, is considered an accessory structure or use and is permitted by right in any zone if the radio antenna and the related equipment meets the requirements of this section.
- B. A radio operator antenna shall be operated by an amateur radio operator who is licensed by the Federal Communications Commission and whose domicile is on the lot where the antenna and the related equipment is placed.
- C. A supporting structure for a radio operator antenna may not be located within 20 feet of any property line.
- D. A radio operator antenna may not extend closer than the front building line to any street on which the lot fronts.
- E. A radio operator antenna may not be higher than the lesser of 100 feet or the horizontal distance to the nearest property line above grade level.

Thus, it is important to examine this case (06-180-SPHA) with respect to §426A.

**The HF/VHF (7-52 MHz) Antenna**

With respect to §426A.¶A, the Applicant submits that the High Frequency/Very High Frequency (HF/VHF) radio antenna system meets all *lawful* requirements of §426A.

With respect to ¶B, the Applicant submits his amateur radio license, see **Exhibit A**.

With respect to ¶C, see **Exhibit C** and refer to the plot plan submitted with the original building permit application. The supporting structure is no closer than 102 feet from any property line, clearly

exceeding the 20-foot required yard.

With respect to ¶D, see **Exhibit C** and refer to the plot plan submitted with the original building permit application. The antenna is clearly in the rear-yard and meets this requirement.

With respect to ¶E, the paragraph has two tests:

- First, antenna height may not exceed 100 feet. This is true for this application, as the top antenna (for 432 MHz) is at 99 feet. This test is not in question.
- As to the second issue, “(a) radio operator antenna may not be higher than the horizontal distance to the nearest property line above grade level.” The standard rule of statutory interpretation requires that we should try to read a regulation so as to preserve its validity, and avoid preemption by federal law. Thus, the height of the antenna should be measured from its attachment point and not the edge of its turning radius. The words do not say that distance is measured from the outer edge of a turning radius. The words were intended to measure from the support structure to the property line, which is what the whole world thinks is the “height” of an antenna.

Height should be measured from the mid-point, or support structure, for several reasons:

- In this case, failure to interpret height as measured from the antenna’s mid-point results in a maximum height of only 65 feet. A maximum height of 65 feet fails to meet the requirements of federal regulations and case law that local regulations “reasonably accommodate” amateur radio communications desired by the applicant.
- There is no safety or other reason expressed in the ordinance at §426A for an interpretation that would arbitrarily lower the maximum height in this case to 65 feet. Yet Federal law requires:

[L]ocal regulations which involve placement, screening, or height of antennas based on health, safety, or aesthetic considerations must be crafted to accommodate reasonably amateur communications, and to represent the minimum practicable regulation to accomplish the local authority's legitimate purpose.

Source: FCC Order known as PRB-1, ¶25,  
<http://wireless.fcc.gov/services/amateur/prb/index.html>.

There is no indication whatsoever within the regulation, nor can there be in this case, that the regulation represents the “minimum practicable regulation,” because there is no indication of the authority’s purpose. Nor can it be assumed.

- Assuming that an amateur radio antenna system falls the full length of its height plus the turning radius of any antenna defies human experience. There is no known example proof of such an experience. See **Exhibit I**, a letter from U.S. Tower Services, a Maryland company, expressing real-life experience. Therefore, because the regulation does not reflect real life, it fails the “minimum practicable regulation” test – on the issue of “practicable.” Federal law does not permit regulation on the basis of a hypothetical that has never occurred – the regulation must be *practicable*. The burden falls on the proponent of an interpretation who asks for a hypothetical maximum fall zone -- to show that such a thing has happened in the practicable world.
- Under the improbable scenario that all three anchor bolts fail simultaneously, the structure cannot fall outside the property owned by the applicant. See **Exhibit J** for the trigonometry of a dead fall.

- An interpretation which allows a permit for an antenna support structure up to 95 feet, with a four foot vertical whip on top (thereby assuring that it does not extend beyond the setback), but prohibits the primary structure from being more than 65 feet tall when it holds a 7 MHz Yagi, makes no sense. “If the law supposes that,” said Mr. Bumble,... “the law is a ass—a idiot.” CHARLES DICKENS, *Oliver Twist*, chapter 51, p. 489 (1970). First published serially 1837–1839.
- An interpretation which causes the maximum height of a 7 MHz Yagi to be 65’ in this case is arbitrary, and does not meet the requirements of reasonable accommodation. For further explanation in a situation comparable to this one, see In *Snook v. Missouri City, TX*, <http://users3.ev1.net/~osnook/34.pdf> (USDC, SDTX, 2003, Hittner, J.)(the Order, 63 pp.), also <http://users3.ev1.net/~osnook/35.pdf> (the Final Judgment, 2 pp.). PACER citation: [https://ecf.txsd.uscourts.gov/cgi-bin/login.pl?387442335892775-L\\_238\\_0-14:03-cv-00243\\_Snook\\_v.\\_City\\_of\\_Missouri](https://ecf.txsd.uscourts.gov/cgi-bin/login.pl?387442335892775-L_238_0-14:03-cv-00243_Snook_v._City_of_Missouri).

The original bylaw permitted 35’, a second bylaw permitted greater height by specific use permit. After grant of building permit under first bylaw (the Building Inspector recognized that a fixed and unvarying 35’ was not legal), the radio ham built a 114’ support structure on a 0.958 acre lot in residential subdivision. The City cited the radio ham for repeated violations of the second bylaw for failure to have specific use permit, which it declined to grant. The City’s expert recommended 50-60’ for 14 MHz antenna, and just above treetops (60-80’) for VHF/UHF, but ignored 7 MHz and 3.5 MHz antenna requirements. For no special reason, City decided 65’ was acceptable. “To conduct effective emergency communications, Snook must be able to achieve at least a 75 to 90 percent successful signal under the changing variables that impact emergency or other amateur radio communications.” Findings of Fact ¶9. The City Ordinance was preempted. The Court ordered the City to issue a permit (without remand) consistent with existing structure. Citing *Younger v. Harris*, Court declined to enjoin the City, but received assurances the City will not further prosecute. “PRB-1 requires a site-specific, antenna-specific, array-specific, operations-specific, ordinance-specific, and city action-specific analysis. PRB-1 at p. 7.” [Referring to PRB-1 paragraphs 24 and 25.]

#### **In the Alternative, A Variance from §426A.E. Should Be Granted**

The Applicant has examined materials issued by the Department of Permits and Development Management (PDM), Bureau of Zoning Review and responds to the criteria as appropriate.

- A. The first step requires the petitioner to prove, to the satisfaction of the hearing officer, that the property whereon structures are to be placed (or uses conducted) is unique, unusual, and different from the surrounding properties such that the uniqueness causes the zoning provision to impact more on the subject property than on the surrounding properties.

Response: The property was purchased in 1975, after an exhaustive study of all available plots and residences within Baltimore County. A topographic map was used in making the selection. The property has a gentle slope to the Southwest, South and Northwest (down to the Loch Raven Reservoir – which will reflect signals and improve coverage). From this location, the buildings of Towson are visible, along with the lights of the City of Baltimore. This slope permits low angle signals to travel to regions of Asia and Pacific, the farthest locations where communications are both desirable and necessary. This slope also accommodates the requirement of a lot suitable for building a home with a full walk out basement. The slight rise to the Southeast accommodates perfectly the higher radiation angles necessary for communications with the Caribbean region. To the Northeast, the land is essentially flat which is perfect for communicating with Europe, an intermediate distance. It is not possible to duplicate the attributes required of this property anywhere within Baltimore County. On other properties, a much taller antenna support structure (exceeding 100’) would be necessary to duplicate the same radio propagation performance. For the proposed radio purposes,

the property is unique.

- B. The second step of the test requires that the petitioner must demonstrate that strict compliance with the BCZR would result in either practical difficulty or unreasonable hardship. The Court of Appeals in *Anderson v. Board of Appeals, Town of Chesapeake Beach*, 22 Md. App. 28, stated:

1. "To prove undue hardship for a use variance . . .

Response: **No use variance is required**, as this use is specifically authorized by right under BCZR §426A.A: "A radio operator antenna and related equipment, including any supporting structure, is considered an accessory structure or use and is permitted by right in any zone. . . ."

2. To provide practical difficulty for an area [and presumably height] variance, the following criteria must be met:

- (i) Whether strict conformance with requirement would unreasonably prevent the use of the property for the permitted purpose or render conformance unnecessarily burdensome.

Response: The requirement for the Applicant to show that §426A.E. unreasonably prevents use is at odds with the federal law which controls – requiring local law to reasonably accommodate the ham. In other words, **Federal law puts the burden on Baltimore County, and does not put the burden on the Applicant**. Nonetheless, the Applicant's propagation studies show that his communications effectiveness (a Federal test) will be substantially burdened, and some communications prevented, if the height restriction is applied in accordance with an illegal interpretation (one which limits height in this instance to 65' for 7 MHz).

- (ii) Whether the grant would be substantial injustice to the applicant, as well as other property owners in the district, or whether a lesser relaxation than that applied for would give substantial relief.

Response: Any licensed radio amateur in the district would be affected by the interpretation limiting height of a 7 MHz antenna to 65' in this instance. Given the impact of height on effectiveness at 7 MHz, a lesser relaxation would not meet the need.

- (iii) Whether relief can be granted in such fashion that the spirit of the ordinance will be observed and public safety and welfare secured.

Response: In this case, granting the relief is in the best interests of public safety and welfare, in accordance with a Congressional finding. See **Public Law 103-408 (J.Res., 103d Congress, 1994)**, §1(3), <http://thomas.loc.gov/cgi-bin/query/D?c103:1::temp/~c103axha51::>, or [http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=103\\_cong\\_bills&docid=f:sj90enr.txt.pdf](http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=103_cong_bills&docid=f:sj90enr.txt.pdf) (last visited June 11, 2005).

"Congress finds and declares that –

...

(3) reasonable accommodation should be made for the effective operation of amateur radio from residences, private vehicles and public areas, and that regulation at all levels of government should facilitate and encourage amateur radio operation as a public benefit."

- C. No increase in residential density beyond that allowed by the BCZR shall be permitted.

Response: Not applicable. This application does not increase residential density.

- D. The relief requested must be in strict harmony with the spirit and intent of height, area, parking or sign regulations.

Response: Relief would be in strict harmony with controlling Federal law (see Public Law 103-408, above), as well as the BCZR's purpose clause, §1:

1. For the purpose of promoting the health, security, comfort, convenience, prosperity, orderly development and other aspects of the general welfare of the community, zones are intended to provide broad regulation of the use and manner of use of land, in accordance with comprehensive plans.

The Congress, the FCC, and the courts have all declared that the promotion of amateur radio promotes the general welfare.

- E. And only in such manner as to grant relief without substantial injury to the public health, safety, and general welfare.

Response: In this case, there is clearly no "substantial injury to the public health, safety, and general welfare." In fact, the purpose clause for amateur radio, found at 47 CFR §97.1 declares the many affirmative benefits of amateur radio. The Applicant has no further burden as to public health, safety and general welfare.

#### Sec. 97.1 Basis and purpose.

The rules and regulations in this part are designed to provide an amateur radio service having a fundamental purpose as expressed in the following principles:

- (a) Recognition and enhancement of the value of the amateur service to the public as a voluntary noncommercial communication service, particularly with respect to providing emergency communications.
- (b) Continuation and extension of the amateur's proven ability to contribute to the advancement of the radio art.
- (c) Encouragement and improvement of the amateur service through rules which provide for advancing skills in both the communication and technical phases of the art.
- (d) Expansion of the existing reservoir within the amateur radio service of trained operators, technicians, and electronics experts.
- (e) Continuation and extension of the amateur's unique ability to enhance international goodwill.

#### **The 144 MHz (95') and 432 MHz (99') (VHF/UHF) Antennas**

To the North, there is an incline continuing out to Jacksonville (where microwave towers are located). To clear surrounding trees, and to be effective in communicating to the North (paying special attention to the ridge about 1.25 miles away and in the direction of Jacksonville), the Applicant needs a clear path. The Applicant needs to be above the trees to promote line-of-sight communications, especially with hand-held or mobile radios, in time of emergency – when cell phone systems are down, as happened in Hurricane Katrina. See **Exhibit B**.

Even under a highly restrictive construction of §426A.E.<sup>1</sup> (limiting height to the height of the antenna support structure plus the turning radius of the antenna, the Applicant could still erect and maintain

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<sup>1</sup> §426A.E. reads: A radio operator antenna may not be higher than the lesser of 100 feet or the horizontal distance to the nearest property line above grade level.

the present structure for VHF/UHF antennas, if he eliminated the 7-52 MHz antenna, a thought which makes no sense – neither in engineering nor in safety terms. Such a restrictive reading would definitely impinge on communications to the North at these frequencies, in violation of FCC Order DA 99-2569:

9. . . [W]e believe that PRB-1's guidelines brings to a local zoning board's awareness that **the very least regulation necessary** for the welfare of the community must be the aim of its regulations **so that such regulations will not impinge on the needs of amateur operators** to engage in amateur communications. (*Emphasis added.*)

The trees are typically 65-70 feet in height in wooded area neighboring the structure (especially to the North).

### **For VHF and UHF, a Permit Under §426A Is Appropriate**

With respect to §426A. ¶A, the Applicant submits that the Very High Frequency and Ultra High Frequency (VHF and UHF, 144 and 432 MHz) radio antennas meet *all* requirements of §426A.

- With respect to ¶¶B-E, the Applicant's answers are stated above.

*There is no rational reason to interpret the ordinance so as to require the Applicant to erect two separate antenna support structures: one for the VHF/UHF antennas, and one for the HF/VHF antenna.*

### **In the Alternative, for VHF and UHF, a Variance from §426A.E. Should Be Granted**

The Applicant has examined materials issued by the Department of Permits and Development Management (PDM), Bureau of Zoning Review and responds to the criteria as appropriate.

F. The first step requires the petitioner to prove, to the satisfaction of the hearing officer, that the property whereon structures are to be placed (or uses conducted) is unique, unusual, and different from the surrounding properties such that the uniqueness causes the zoning provision to impact more on the subject property than on the surrounding properties.

Response: As stated above.

G. The second step of the test requires that the petitioner must demonstrate that strict compliance with the BCZR would result in either practical difficulty or unreasonable hardship. The Court of Appeals in *Anderson v. Board of Appeals, Town of Chesapeake Beach*, 22 Md. App. 28, stated:

1. “To prove undue hardship for a use variance . . .

Response: No use variance is required, as stated above.

2. To provide practical difficulty for an area [and presumably height] variance, the following criteria must be met:

(i) Whether strict conformance with requirement would unreasonably prevent the use of the property for the permitted purpose or render conformance unnecessarily burdensome.

Response: As stated above.

(ii) Whether the grant would be substantial injustice to the applicant, as well

as other property owners in the district, or whether a lesser relaxation than that applied for would give substantial relief.

Response: Any licensed radio amateur in the district would be affected by the interpretation limiting height in this instance. Given the impact of height on effectiveness, due to attenuation by foliage at 144 and 432 MHz, a lesser relaxation would not meet the need.

- (iii) Whether relief can be granted in such fashion that the spirit of the ordinance will be observed and public safety and welfare secured.

Response: Given that Congress, the FCC and the Courts have all recognized amateur radio as a positive force on public safety and welfare, this criterion is met.

H. No increase in residential density beyond that allowed by the BCZR shall be permitted.

Response: Not applicable. This application does not increase residential density.

I. The relief requested must be in strict harmony with the spirit and intent of height, area, parking or sign regulations.

Response: As stated above.

J. And only in such manner as to grant relief without substantial injury to the public health, safety, and general welfare.

Response: Given that Congress, the FCC and the Courts have all recognized amateur radio as a positive force on public safety and welfare, this criterion is met.

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**3. THE TELECOMMUNICATIONS ACT OF 1996, §704 (47 USC §332 ET SEQ.), DOES NOT APPLY**

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People's Counsel emphasizes the limitations of the preemption of local zoning contained in The Telecommunications Act of 1996, the contents of which are now found at 47 USC §332, *et seq.*, and cases related to the PCS and cellular mobile industry (together, Commercial Mobile Radio Services, or CMRS, also "personal wireless services"). Nonetheless, 47 USC §332 is unrelated to the matter at hand. It does not apply.

People's Counsel is well pleased with, and cites, 47 USC §332(c)(7)(A):

- (7) Preservation of local zoning authority
  - (A) General authority
    - Except as provided in this paragraph, nothing in this chapter shall limit or affect the authority of a State or local government or instrumentality thereof over decisions regarding the placement, construction, and modification of **personal wireless service facilities**.  
*(emphasis added)*

People's Counsel also cites (in part) 47 USC §332(c)(7)(B):

- (B) Limitations
  - (i) The regulation of the placement, construction, and modification of **personal wireless service facilities** by any State or local government or instrumentality thereof -  
(I) shall not unreasonably discriminate among providers of

functionally equivalent services; and  
(II) shall not prohibit or have the effect of prohibiting  
the provision of personal wireless services.  
*(emphasis added)*

Unfortunately, People's Counsel does not discuss the definitions, which answer the question: "To whom does this apply"?

Please refer to 47 USC §332(c)(7)(C):

(C) Definitions

**For purposes of this paragraph -**  
**(i) the term "personal wireless services" means commercial mobile services, unlicensed wireless services, and common carrier wireless exchange access services;**  
**(ii) the term "personal wireless service facilities" means facilities for the provision of personal wireless services**

*(emphasis added)*

The Applicant is neither a commercial mobile service, nor an unlicensed wireless service, nor a common carrier. The Applicant is a non-commercial, FCC licensed, radio amateur, in a wholly different service and subject to a wholly different set of regulations (47 CFR §97), and the beneficiary of a wholly different preemption (47 CFR §97.15(b)). A discussion of *the law that does apply* is found later in this document, in the section entitled "Preemption."

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4. MISCELLANEOUS ISSUES

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**The Antenna Support Structure.** The antenna support structure that has been installed at the site, in accordance with the building permit, is an AN Wireless model AN HD-90 (indicating Heavy Duty-90' tall). It is 48 inches wide at the base, 15 and 19/32 inches (15.6") wide at the top, made of thick galvanized steel. See **Exhibit K**.

**Co-location.** The co-location requirements of the BCZR's section with cellular telephone carriers are not applicable. Even so, there exists no other suitable antenna support structure at the Applicant's residence.

**Height.** The Applicant, through extensive study and computer modeling has determined that the height of the antenna support structure is the minimum necessary to meet his needs for amateur radio communications. Summary information from these studies and his needs provides information on the importance of antenna height to effective communications. Detailed computer modeling, relating antenna height to effective communications capability for the Applicant's Baltimore County residence has been prepared by John Evans, Ph.D. (Physics), former president of COMSAT Labs, a fellow of the IEEE (Institute of Electrical and Electronics Engineers) and the AIAA (American Association of Astronautics and Aeronautics), as well as a Member of the National Academy of Engineering. Mr. Evans was joined in creating the needs analysis by James A. Nitzberg, Bachelor of Science in Electrical Engineering with specialization in digital systems software design, University of Delaware, 1985. The Needs Analysis accompanies this document.

**Building Permit Granted.** The Applicant's structure location exceeds all setback requirements. A building permit was applied for and granted on April 6, 2004. See **Exhibit C-2**. The only question subject to interpretation or variance is height.

**Aesthetics.** The antenna support structure has a neutral gray galvanized steel finish, which dulls with the passage of time – making it harder to see from a distance. In an attempt to make ships difficult to see from a distance, the U.S. Navy paints its ships gray. Gray is the best color for this purpose.

The antenna support structure will not interfere with the view from any publicly-owned or managed areas or major view corridors. For additional details on vegetative screening, see the section on "Site Selection," below.

Nor is this structure incompatible with the area, as there are four towers located less than 1.25 miles distant in Jacksonville, MD. Those towers serve microwave relay, cellular telephone and public safety. There are two microwave relay towers, holding 11 solid dishes of approximately 15' diameter each, a 700'-tall police relay tower with vertical antennas, and a 200' cellular telephone tower with two small dishes about 20' above ground. Those towers are in excess of seven times the height of the Applicant's tower and can be seen from all locations within the Applicant's community.

When the Applicant and his wife are no longer resident at their property on which the antenna support structure is located, they intend to remove the structures.

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## 5. DESCRIPTION OF THE ANTENNA SYSTEM AND NEED

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There are 11 commonly used amateur radio bands between 3.5 MHz to 432 MHz. The choice of which band to use depends on the distance between communicating stations, time of day, time of year, point in the 11-year sunspot cycle, as well as daily propagation conditions. At a given point in time, only one or two of these bands may be useful for communication to a particular location. To have a reasonably high probability of effective communications with a given location, at any given point in time, it is therefore necessary to have high performance antennas on all or most of these bands. High performance is obtained by using directional antennas. (Recall, before cable TV, the need to aim television antennas in the correct direction. In some outlying areas, a rotator was necessary to receive signals from more than one direction.) Directivity not only strengthens signals being received, but also is extremely important because it can also be used to "null out" interfering stations. High performance antennas can be particularly important under emergency conditions, when operating under auxiliary power sources, when operation may require communications with only low power output or communications with other stations operating under adverse conditions.

### 7 MHz to 432 MHz

For effective communications from this location, the Applicant requires a self-supporting 90-foot antenna support structure with a mast above the structure (extending to a maximum height of 99-feet) on which antennas are mounted to provide directional coverage between 7 MHz and 432 MHz. Directional antennas (e.g., Yagi beams, some of which work on more than one band) are mounted on the mast. A rotator is mounted inside of the structure. The Applicant has installed a self-supporting structure for the following reasons:

- a) It is possible to attain the required antenna-supporting capacity and height with a substantial additional margin of safety.
- b) The structure does not require guy wires. This simplifies antenna experimentation and structure maintenance.
- c) There is no need to invade a setback or required yard.

Amateur radio is an experimental service, promoted in Federal law.<sup>2</sup> It is natural and expected that

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<sup>2</sup> As PRB-1 says: 24. .... [T]here is . . . a strong federal interest in promoting amateur communications.

amateurs will need to change and modify antenna systems mounted on structures such as this, as interests and technology evolve and as propagation characteristics change with the season and the 11-year sunspot cycle. In addition, the Applicant performs experiments in radio signal propagation, communications effectiveness, and antenna design. Various configurations are needed to advance his knowledge and ability in the field of radio communications.

For a particular antenna design, needed antenna size is proportional to wavelength. Lower frequencies have longer wavelengths and require, correspondingly, larger antennas. In addition, for effective and reliable communications, horizontal antennas must be installed at higher elevations to achieve an adequately low angle radiation. The need to communicate effectively over long distances at 7 MHz requirement dictates the maximum size and height of this antenna and support structure. At this frequency (7 MHz), while less than optimal, 90 feet is the workable height and the Applicant is prepared to accept the limitations of such a low height.

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#### 6. WHY THIS HEIGHT? "EFFECTIVE COMMUNICATIONS"

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For communications at frequencies between 3.5 MHz and 30 MHz (the "short wave bands", also known as HF, for High Frequency), the height of an antenna above ground is the major controlling factor in the vertical angle at which signals are transmitted, which in turn directly affects the reliability and dependability of worldwide signal paths. More reliable signal paths also allow effective communication at reduced power levels (reduced power is preferable in all circumstances, and often necessary in emergency situations when commercial power is not available). If the antenna is not "high enough," signal reliability is compromised. This means that communications to certain parts of the world will be severely limited, or nonexistent. "High enough" is commonly accepted to be, *at a minimum*,  $\frac{1}{2}$  wavelength high at the lowest frequency used. A height of 1 to  $1\frac{1}{2}$  wavelengths at this lowest frequency is the design goal. This antenna support structure holds antennas for 7 MHz and above. At 7 MHz, 1 wavelength of height requires approximately 140 feet. Thus, the structure represents a significant, but marginally acceptable, compromise by the Applicant.

Communications at frequencies above 30 MHz (known as VHF or "Very High Frequency" where one finds FM radio, TV, police and fire departments) are dependent, largely, on 'line-of-sight' propagation. Most *local* emergency communications are conducted at these frequencies. Interference with trees and buildings cause significant signal loss at these frequencies. Thus, antennas that are above, free, and clear of such obstructions permit the amateur to communicate more effectively, over greater distances and using lower power levels. Doubling the height of the antenna is considered to be approximately equivalent to doubling the power output and receiving capability. Considered together, these factors are strong arguments for higher antennas.

The height of the present structure satisfies both of these needs by:

- 1) Placing the antennas high enough to allow reliable VHF communication, free from attenuation due to surrounding foliage and other obstructions to the north of the site.
- 2) Satisfying the Applicant's requirement of 90 feet for HF communication at 7 MHz and above.

As mentioned in above, more than one antenna is needed to cover the range between 7 MHz and 432 MHz. The particular antennas installed on the antenna support structure will change over time. Antennas must also be separated by a distance sufficient to mitigate potential interaction between different antennas. The exact distance is a complicated function of the individual antenna configuration and orientation, but can be predicted by computer modeling which the Applicant can perform. Nevertheless, there are general guidelines that are followed when positioning antennas on the mast above the antenna support structure. In particular, there is less load on the structure when larger antennas are placed closer to the bottom of the mast. Thus, the smaller VHF antennas are placed near the top of the mast. This reduces load on the structure, and provides more effective communications for the line-of-sight VHF/UHF bands that are used in local emergency communications.

The 3.5 MHz band is important for combinations of local, medium distance, and long distance communications, especially after dark. This band is widely used for regional amateur radio “traffic handling nets.” These regional message-passing networks (extending many hundreds of miles in the evening) are an important extension of local VHF (mostly on 144 MHz) communications networks that help prepare for emergency communications.

More details on this subject are given in the article “*Antenna Height and Communications Effectiveness*” by Straw and Hall. The Executive Summary of this article has been reproduced (with permission), and accompanies this Supplement. Propagation studies and comparisons, based on computer modeling, that are specific to the Applicant’s communications needs, antenna system, and location at 39 Glenbrook Drive have also been performed by two qualified engineers, as co-authors, Messrs. Evans and Nitzberg.

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## 7. SITE SELECTION

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The property upon which the antenna structure is located was selected after an exhaustive search using topographic maps of all buildable land available within Baltimore County during the year 1975. This site selection was later confirmed to be appropriate when computer modeling of radio propagation became available.

The Applicant has considered placement of the structure at a variety of sites on the property. The best option which has emerged for the 7 MHz to 432 MHz antenna support structure is presented below.

### 7 MHz to 432 MHz

The site for the 7 MHz to 432 MHz antenna support structure is approximately 150 feet behind the residence at 39 Glenbrook Drive. The site selected is as far as possible from adjacent residences without encroaching on setbacks or easements. It is far enough back in the lot such that the 34-foot high residence on the lot provides an effective screen for the bottom 60 feet of the structure (the ground elevation at the structure site is about 10 feet lower than the ground elevation at the house) from the majority of positions within the community. There is moderate to heavy tree and shrubbery screening in all directions. There is almost total visual screening in the southeast to northwest direction, provided by a continuous line of mature 50-foot spruce trees. In the northwest to northeast direction there is 1-1/2 acres of dense woodland owned by the Applicant, and containing mature trees typically in excess of 60 feet. To the northeast and southeast, there is a similar line of 50-foot tall spruce trees. In the easterly direction, the Applicant’s residence provides shielding along with ornamental trees. The Applicant planted the screening lines of spruce trees 32 years ago in anticipation of installing the present antenna structure.

### Transmission and Control Lines

All transmission lines and antenna control cables (for the rotator and antenna switch on the 7 MHz to 432 MHz structure, going to the residence run inside two 4-inch electrical conduits, buried approximately two feet below the ground, using proper drainage. These conduits terminate in electrical utility boxes, similar to (but separate from) that used to bring electrical service into the residence. These boxes contain devices for proper grounding of control cables and transmission lines.

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## 8. ABUTTER AND NEIGHBORHOOD APPROVAL

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The applicant has obtained signed letters from the owners of each of the five properties that directly

abut the site, as well as the property owner across the street. The letters represent each and every property where, in some unimaginable hypothetical, the structure falls a distance greater than its height, even up to twice its height. The letters state that those owners have no objection to the antenna structure and antennas, and the abutters urge the issuance of a permit or variance to maintain the structure as constructed. In two cases, properties changed hands in 2006. Yet all the same properties are represented in 2006 as well, plus the Allman family, three doors away. See **Exhibit E**.

In addition, four other neighbors, representing three addresses that are not abutters but live close by, have joined the abutters in signing the petition urging zoning relief in this matter. See **Exhibit F**.

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## 9. PREEMPTION

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The Applicant wishes to call attention to Federal law that preempts certain elements of regulation by a municipality. Federal Communications Commission Order PRB-1, 101 FCC 2d 952, 50 Fed. Reg. 38813 (September 25, 1985), declares in pertinent part:

Local regulations which involve placement, screening, or height of antennas based on health, safety or aesthetic considerations must be crafted to accommodate reasonably amateur communications, and to represent the **minimum** practicable regulation to accomplish the local authority's legitimate purpose. (Emphasis added)

Source: <http://wireless.fcc.gov/services/amateur/prb/index.html>

The above order has subsequently become part of the Code of Federal Regulations, as 47 C.F.R. §97.15 (b):

Except as otherwise provided, a station antenna structure may be erected at heights and dimensions sufficient to accommodate amateur service communications. State and **local regulation of a station antenna structure** must not preclude amateur service communications. Rather, it **must reasonably accommodate** such communications **and must constitute the minimum practicable regulation** to accomplish the state or local authority's legitimate purpose. (Emphasis added)

Source: <http://frwebgate.access.gpo.gov/cgi-bin/get-cfr.cgi?TITLE=47&PART=97&SECTION=15&YEAR=1999&TYPE=TEXT>

Finally, in its Order of November 18, 1999, the FCC added:

PRB-1's guidelines bring[ ] to a local zoning board's awareness that the very least regulation necessary for the welfare of the community must be the aim of its regulations so that such regulations will not impinge on the needs of amateur operators to engage in amateur communications.

Source: <http://www.fcc.gov/Bureaus/Wireless/Orders/1999/da992569.txt>

The Courts have routinely enforced these FCC rulings, which have the power of Federal law. See:

**Bodony v. Sands Point, NY**, 681 F. Supp. 1009 (E.D. NY 1987), <http://www.qsl.net/k3qk/bodony.html>. Ordinance with 25' height limit. Tower: 86'. Summary judgment for ham; settled with permit granted and \$60,000 in legal fees to ham on §1983 claim because town was seeking ways to deny his rights (soliciting opinion of counsel on how to deny, without regard to merits).

**Izzo v. River Edge, NJ**, 843 F.2d 765 (3d Cir. 1988). Upholds preemptive effect of PRB-1 on 35' height limitation. "The effectiveness of radio communication depends on the height of antennas." At 768. Holds that

Court need not abstain. Court awarded fees of \$10,000.

**Brower v. Indian River County Code Enforcement Board, FL**, No. 91-0456 CA-25 (June 23, 1993), 1993 WL 228785 (Fla.Cir.Ct.). Tower 68.88 feet, plus antenna to total of 95.6 feet; 72.4 feet from neighbor's property line. Absolute prohibition on towers > 70'. Ham erected without first attempting to obtain a permit. Court held that any application for a permit would have been futile ("a circular dead-end"). Ordinance facially void as an unvarying maximum height: "We agree with the Evans court's adoption of prior rulings in that case which concluded that flat prohibitions of this nature are not permitted, Evans, at 976" [Refers to Evans I]

**Pentel v. Mendota Heights, MN**, 13 F3d 1261 (8th Cir., 1994) <http://www.qsl.net/k3qk/pentel.html>. Ham applied for 68' antenna (crank-up 30-68' and two Yagis). Absolute 25' height limit in ordinance preempted. Rejects balancing test; FCC did the balancing. Accepts 56.5' as ineffective.

**Palmer v. Saratoga Springs, NY**, 180 F. Supp. 2d 379 (N.D.N.Y. 2001), <http://www.nysd.uscourts.gov/courtweb/pdf/D02NYNC/01-12259.pdf> Absolute height limit of 20' in ordinance preempted. "(A)n unvarying height restriction on amateur radio antennas would be facially invalid in light of PRB-1." (Citing *Pentel*, *Evans* and *Bullock*.) Commentary on bad faith of town. Request for information on RFI "unreasonable on (its) face. Grant of permit as applied for, at 47', without further proceedings. This, and Snook, are only cases that ever went to trial in a Federal District Court on PRB-1.

**Marchand v. Town of Hudson, NH**, 788 A.2d 250, 147 N.H. 380 (N.H. 2001), <http://www.courts.state.nh.us/supreme/opinions/2001/march221.htm>

Three, 100' tall antenna systems. Ruling that balancing not appropriate. "(T)o "reasonably accommodate" amateur radio communications . . . the ZBA may consider whether the particular height and number of towers are necessary to accommodate the particular ham operator's communication objectives. Remand to determine if three towers is a customary accessory use under NH law. [On remand, Hudson, NH Board held that three towers qualifies as a customary use.]

**Snook v. Missouri City, TX** (USDC, SDTX, 2003, Hittner, J.) , <http://users3.ev1.net/~osnook/34.pdf> (the Order, 63 pp.), also <http://users3.ev1.net/~osnook/35.pdf> (the Final Judgment, 2 pp.). Original bylaw permitted 35', second bylaw permitted more by specific use permit. After grant of building permit under first bylaw (B/I recognized 35' was not legal), Ham built 114'. City cited Ham for repeated violations of second bylaw for failure to have specific use permit, which it declined to grant. City expert recommended 50-60' for 20 meter antenna, and just above treetops (60-80') for VHF/UHF, but ignored 40 and 80 meter antenna argument. For no special reason, City decided 65' as acceptable. "To conduct effective emergency communications, Snook must be able to achieve at least a 75 to 90 percent successful signal under the changing variables that impact emergency or other amateur radio communications." Findings of Fact 9. City Ordinance preempted. Order for City to issue permit (no remand) consistent with existing structure. Citing *Younger v. Harris*, Court declined to enjoin City, but received assurances City will not further prosecute. "PRB-1 requires a site-specific, antenna-specific, array- specific, operations-specific, ordinance-specific, and city action-specific analysis. PRB-1 at p. 7." [Referring to PRB-1 paragraphs 24 and 25.]

**Chedester v. Town of Whately, MA** <http://www.qth.com/antennazoning/ham/chedester-decision.pdf> (2004). Bylaw permitted 35'. Ham granted permit for 140' when Building Inspector decided bylaw was preempted. Planning Board appealed to ZBA. ZBA revoked permit. Superior Court ruled that the town misinterprets both state and federal preemption in holding that while the ordinance may permit antennas over 35', restrictions on antenna support structures are not similarly affected. Height limit of 35' found to be "an absolute and unvarying height restriction" and preempted. "A 35' height restriction would effectively mean that no radio communications would be able to be transmitted." Building permit reinstated.

## The Needs of the Radio Amateur Control

The New Hampshire Supreme Court has decided:

In light of the FCC's requirement, a zoning board's fact-finding and analysis should focus, first, on whether the three towers are permitted under local zoning regulations. If, as we have determined here, they are not, the zoning board should then consider what steps must be taken to "reasonably accommodate" amateur radio communications. In making this determination, the ZBA may consider whether the particular height and number of towers are necessary to accommodate the particular ham operator's communication objectives.

There was some evidence presented to the ZBA that the tower and antenna operation "was not the typical installation, but rather was something that every ham who was interested in reliable international communication on a regular basis aspired to own." The ZBA, however, did not make any factual findings regarding whether Muller even requires the proposed three radio towers to facilitate his international ham radio operations. Therefore, we vacate the superior court's decision and remand with instructions to remand to the ZBA for proceedings consistent with this opinion.

*Marchand v. Town of Hudson*, 788 A.2d 250 (N.H. 2001) (Emphasis added.)

So the question is not whether some communications would be effective. The question relates to "the particular ham operator's communications objectives."

As the Federal District Court said in the Snook case:

PRB-1 requires a site-specific, antenna-specific, array-specific, operations-specific, ordinance-specific, and city action-specific analysis. PRB-1 at p. 7.

*Snook v. Missouri City*, PACER citation: [https://ecf.txsd.uscourts.gov/cgi-bin/login.pl?387442335892775-L\\_238\\_0-14:03-cv-00243\\_Snook\\_v.\\_City\\_of\\_Missouri](https://ecf.txsd.uscourts.gov/cgi-bin/login.pl?387442335892775-L_238_0-14:03-cv-00243_Snook_v._City_of_Missouri). <http://users3.ev1.net/~osnook/34.pdf> (USDC, SDTX, 2003, Hittner, J.)(the Order, 63 pp.), also <http://users3.ev1.net/~osnook/35.pdf> (the Final Judgment, 2 pp.) (last visited May 3, 2005).

The reference to PRB-1 at p.7 by the Snook Court is to PRB-1 paragraph 25:

25. Because amateur station communications are only as effective as the antennas employed, antenna height restrictions directly affect the effectiveness of amateur communications. Some amateur antenna configurations require more substantial installations than others if they are to provide the amateur operator with the communications that he/she desires to engage in.

FCC Order PRB-1, 101 FCC 2d 952, 50 Fed. Reg. 38813 (September 25, 1985, ("PRB-1"), <http://wireless.fcc.gov/services/amateur/prb/index.html> (last visited May 3, 2005).

Under PRB-1, the test is whether or not the municipality will reasonably accommodate a proposed installation "to provide the amateur operator with the communications that he/she desires to engage in."

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## 10. COMPLIANCE WITH FAA AND FCC REGULATIONS

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The Applicant's amateur radio antenna support structure is not considered tall by amateur radio standards. The Applicant's antenna support structure does not exceed 200 feet in height and it is more than 15 miles away from the closest public airport or heliport. Neither the FCC nor the FAA requires painting, lighting, marking, or registration of the antenna system (47 CFR §97.15, 47 CFR §17.7, and 47 CFR §17.21). The structure does not extend into the approach zones, clear zones or other restricted air space of any public airport. No risk to airmen is posed by this antenna system. See **Exhibit D** – a printout of the FCC's TOWAIR web site.

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**11. INSURANCE**

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The Applicant's USAA Insurance homeowner's policy provides coverage, without additional premium (a recognition that injury due to an antenna support structure injuring a third party is rare indeed), for personal liability and medical payments due to possible failure of some part of an amateur radio antenna support structure.

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**12. CONCLUSION**

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For the reasons set forth above, the Applicant requests an interpretation of §426A that permits the present height of the 7 MHz Yagi, or a zoning variance for the antenna support system at the proposed site according to the specifications in this supplement, and the accompanying building permit. Should any questions arise, please feel free to contact me or Atty. Howard Alderman at (410) 666-9189.

Respectfully submitted,



Benjamin A. Governale



Kayren P. Governale

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**EXHIBIT A: FCC LICENSE**

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**UNITED STATES OF AMERICA  
FEDERAL COMMUNICATIONS COMMISSION**

**AMATEUR RADIO LICENSE  
W3LL**

GOVERNALE, BENJAMIN A  
39 GLENBROOK DR  
PHOENIX, MD 21131

FCC Registration Number (FRN) 0003521481

Special Conditions/Endorsements

<b>Grant Date</b>	<b>Effective Date</b>	<b>Print Date</b>	<b>Expiration Date</b>
08/27/2002	08/27/2002	10/24/2005	11/24/2012
<b>File Number</b>	<b>Operator Privileges</b>	<b>Station Privileges</b>	
	Amateur Extra	PRIMARY	

**THIS LICENSE IS NOT TRANSFERABLE**

(Licensee's Signature)

FCC 660

APRIL 2002

Source: [http://wireless2.fcc.gov/UIsApp/UIsSearch/printAuth\\_amateur.jsp?licKey=792794](http://wireless2.fcc.gov/UIsApp/UIsSearch/printAuth_amateur.jsp?licKey=792794)

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EXHIBIT B: EMERGENCY COMMUNICATIONS FOR HURRICANE KATRINA

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**Sci/Tech > Science & Space**  
from the September 15, 2005 edition



**HELLO?** Joe Garcia, station manager of the American Radio Relay League in Newington, Conn., is one of many hams helping to coordinate disaster relief until land lines and cellphone service is fully restored.

LAUREN TAGLIATELA/THE HERALD/AP

## Ham radio operators tune in hurricane help

By Barbara W. Carlson / Contributor to *The Christian Science Monitor*

**NEWINGTON, CONN.** — Richard Webb, an amateur radio operator, was asleep on his air mattress at University Hospital in New Orleans during the aftermath of hurricane Katrina when he was awakened at 5 a.m. by a hospital administrator.

As Mr. Webb tells it, "He told me we had a lady who was in labor, who had swum five blocks in that dirty, nasty water to the hospital because she saw lights there - people with flashlights moving around." Medical personnel said the baby needed to be delivered by caesarean section. But the hospital had limited power, no running water, no way to sterilize instruments, no way to perform such surgery. "We figured we had two hours to get her medevacked out of there" before the lives of mother and child would be in danger. "So I got on the radio and was talking to a fellow who was with the Coast Guard auxiliary in Cleveland, Ohio. I was working with him to arrange a medevac."

Choppers did arrive in time, Webb says. The woman and another patient in need were evacuated successfully. Because the hospital had no landing pad, the two had to be lifted out in baskets lowered from the helicopters.

Webb, who lived in nearby Slidell, La., had been summoned to his hurricane post by the hospital's head of emergency management. He's one of about 750 amateur radio operators, or "hams," who have been in and out of the five hurricane states since day one: Louisiana, Mississippi, Alabama, and parts of northern Florida and

Texas, where evacuees are taking shelter. At least a thousand other hams throughout the nation have been involved in some way, relaying messages or assigning hams to various locations. They're all volunteers, all unpaid, and they do what they do because they want to. They train for disaster work; their FCC radio licenses mandate public service.

In typical disaster conditions, agencies like the Red Cross, Salvation Army, the Federal Emergency Management Administration (FEMA), and local government bodies call on a state ham leader for volunteers when usual channels of communication are down or jammed.

Katrina was different: It was far more vast. For the first time, the nonprofit American Radio Relay League (ARRL) set up a website and database to facilitate assigning hams.

Pamela Taylor, who works as an events manager in Hampton Beach, N.H., got a call from FEMA and headed south on Sept. 9. She was deployed to a shelter in Ocean Springs, Miss., near Gulfport, before moving to New Orleans. The shelter was a church, well-supplied and maintained, with an abundance of volunteers. Her job was to radio for special needs, anything from a doctor to paper plates. Nights sometimes brought an emergency or two when a resident had to be removed, usually for alcohol or drug problems.

Hams worked with the National Weather Service before and during the hurricane. They still are receiving and transmitting messages in shelters and other locations, alerting emergency agencies that a community needs water, that an elderly woman needs an ambulance, or that sanitary conditions are in crisis.

An estimated 600,000 FCC-licensed amateur radio operators live in the United States; about 162,000 are members of the ARRL, which was founded in 1904 and is located here in Newington, Conn. Nearby Hartford is where Hiram Percy Maxim, the father of amateur radio, experimented at sending messages across the city and then relaying them across the country. Long before e-mail, there was amateur radio. It evolved over the last century so that today, ham operators communicate with one another around the world. Allen Pitts, for example, the ARRL's media-relations manager, says he has spoken to fellow hams in 213 foreign countries or "political entities."

That's the hobby part of hamdom. The serious and vital part is seen in the Amateur Radio Emergency Service (ARES). Trained ham operators are ready with their "go kits" of equipment, batteries, and energy bars. ARRL coordinates the work of the emergency operators. Hams were at ground zero in New York within hours, they were in Florida for the multiple hurricanes last year, and they handled communications in the Northeast blackout

of 2003.

Hams are volunteers. When they set sail for disasters, they pay their own way. Sometimes employers give them a paid leave or reimburse expenses. Hams' sacrifices are real, but the rewards are often intangible.

Mark Conklin of Tulsa got time off as a sales manager for an appliance company to relay messages. At first he handled communications between the state department of emergency management and the highway patrol.

Next he was assigned to the 1,200 evacuees transplanted to an Oklahoma National Guard camp. At the camp, he talked to an elderly woman who was crying because she was happy - "communications" had been able to get a pair of glasses for her. "For the first time in a week," she said, "I can see."

Source: <http://www.csmonitor.com/2005/0915/p12s02-stss.html>



## Ham radio operators to the rescue after Katrina

**Amateur radio networks help victims of the hurricane**

**By Gary Krakow**

Columnist

MSNBC

Updated: 6:12 p.m. ET Sept. 6, 2005

With telephones down and wireless service disrupted, at least one group of people did manage last week to use technology to come to the rescue of those in need.

Often unsung, amateur radio operators regularly assist in emergency situations. Hurricane Katrina was no exception. For the past week, operators of amateur, or ham, radio have been instrumental in helping residents in the hardest hit areas, including saving stranded flood victims in Louisiana and Mississippi.

Public service has always been a large part of being an amateur radio operator. All operators, who use two-way radios on special frequencies set aside for amateur use, must be tested and licensed by the federal government, which then issues them a unique call sign. (Mine is W2GSK.)

Ham operators communicate using voice, computers, televisions and Morse code (the original digital communication mode.) Some hams bounce their signals off the upper regions of the atmosphere, so they can talk with hams on the other side of the world; others use satellites. Many use short-range, handheld radios that fit in their pockets.

When disaster strikes, ham networks spring into action. The Amateur Radio Emergency Service (ARES) consists of licensed amateurs who have voluntarily registered their qualifications and equipment for communications duty in the public service.

In this disaster a number of ham emergency stations and networks have been involved in providing information about this disaster – from [WX4NHC](#), the amateur radio station at the National Hurricane Center to the [Hurricane Watch Net](#), the [Waterway Net](#), [Skywarn](#) and the Salvation Army Team Emergency Radio Network ([SATERN](#)).

On Monday, Aug. 29, a call for help involving a combination of cell telephone calls and amateur radio led to the rescue of 15 people stranded by floodwaters on the roof of a house in New Orleans. Unable to get through an overloaded 911 system, one of those stranded called a relative in Baton Rouge. That person called another relative, who called the local American Red Cross.

Using that Red Cross chapter's amateur radio station, Ben Joplin, WB5VST, was able to relay a request for help on the SATERN network via Russ Fillinger, W7LXR, in Oregon, and Rick Cain, W7KB, in Utah back to Louisiana, where emergency personnel were alerted. They rescued the 15 people and got them to a shelter.

Such rescues were repeated over and over again. Another ham was part of the mix that same Monday when he heard over the same Salvation Army emergency network of a family of five trapped in an attic in Diamond Head, La. The family used a cell phone to call out. Bob Rathbone, AG4ZG, in Tampa, says he checked the address on a map and determined it was in an area struck by a storm surge.

He called the Coast Guard search-and-rescue station in Clearwater, explained the situation and relayed the information. At this point, the Coast Guard office in New Orleans was out of

commission. An hour later he received a return call from the South Haven Sheriff's Department in Louisiana, which informed him a rescue operation was under way.

Another search-and-rescue operation involved two adults and a child stuck on a roof. The person was able to send a text message from a cell phone to a family member in Michigan. Once again, the Coast Guard handled the call.

Relief work is not just relegated to monitoring radios for distress calls. The organization representing amateur radio operators, The American Radio Relay League or ARRL, now is seeking emergency volunteers to help supplement communication for American Red Cross feeding and sheltering operations in Mississippi, Alabama and the Florida Panhandle — as many as 200 locations in all.

Hams who wish to volunteer their time and services should contact the Hurricane Katrina volunteer registration and message traffic [database](#).

And, for the first time, the federal government will help hams help others. The Corporation for National and Community Service ([CNCS](#)) will provide a \$100,000 grant supplement to ARRL to support its emergency communication operators in states affected by Hurricane Katrina. The grant will help to fund what is being termed "Ham Aid," a new program to support amateur radio volunteers deployed in the field in disaster-stricken areas.

One last note for ham operators in the stricken area: The FCC has announced that it's extending amateur license renewal deadlines until October 31, 2005.

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URL: <http://msnbc.msn.com/id/9228945/>



You may retrieve this story by entering QuickLink# 56636

## Ham radio volunteers help re-establish communications after Katrina

Some 700 operators are already at work, with more on the way

News Story by [Todd R. Weiss](#)

SEPTEMBER 06, 2005 ([COMPUTERWORLD](#)) - Volunteer ham radio operators are coming to the aid of relief agencies and emergency officials to help with badly needed communications in areas of Louisiana, Alabama and Mississippi ravaged early last week by Hurricane Katrina.

With power still out in much of the region and telephone service restored in limited areas (see "[Cell operators restore some network service in New Orleans](#)") of New Orleans, the Mississippi cities of Biloxi and Gulfport, and other hard-hit areas, ham radio operators have been [asked](#) by the American Red Cross and other agencies to supplement communications at more than 200 storm shelters in Mississippi, Alabama and the Florida panhandle.

Some 700 ham radio volunteers from around the nation are already at work helping in the efforts, with more on the way, said Allen Pitts, a spokesman for the 157,000-member American Radio Relay League Inc. (ARRL), a nationwide amateur radio organization based in Newington, Conn. "This is going to be a marathon, not a sprint," Pitts said. "We have people there; we have more people coming."

On Sunday, the American Red Cross asked for about 500 more radio operators to assist at shelters and food kitchens set up to aid evacuees, he said. The volunteers are driving to needed areas and meeting with officials at staging areas in Montgomery, Ala., and in Oklahoma and Texas, where they are being dispatched to disaster shelters, Pitts said. The ham radio operators travel to the disaster areas using their own vehicles and pay their own way, he said.

Many of the volunteers sprung into action even before the storm struck the Gulf Coast, broadcasting as part of a "Hurricane Watch-Net" three days before deadly Hurricane Katrina slammed into the coast on Aug. 29, Pitts said.

Ham radio equipment can be used in disaster areas even when power is out and phone lines, relays and other communications systems are down because the radios run on their own battery or generator power, Pitts said. "Each one is a complete transmission and reception center unto itself," he said. "It works when other stuff is broken. You give an amateur radio operator a battery, a radio and a piece of a coat hanger and they'll find a way to make it work."

The volunteers carry their own fuel for their generators and bring all the equipment they need. Used ham radio systems can be bought for as little as \$100, while newer, state-of-the-art hardware can run as high as \$5,000, he said.

Source: <http://www.computerworld.com/printthis/2005/0,4814,104418,00.html>

## IN KATRINA'S WAKE

# Power Outages Hamstring Most Emergency Communications

By CHRISTOPHER RIGGDS  
And AMY SCHATZ

Millions of dollars have been spent to upgrade emergency phone and radio communications systems since the Sept. 11 attacks, but Hurricane Katrina exposed a simple but nagging vulnerability: power.

In Katrina's aftermath, communication between different emergency-response agencies has been nearly impossible in places. Cell towers, emergency communications equipment and 911 centers in many locations are inoperable because they are underwater.

Federal agencies have churned out several reports detailing standards for first-responder phone and radio equipment and formed countless working groups. But this week officials in Washington have had trouble gathering information about the situation in hurricane-ravaged areas because communications are sporadic.

States received about \$830 million for interoperable telecom equipment in fiscal year 2004 alone, according to the Department of Homeland Security. But many communities have been slow to upgrade equipment so that it operates on the same radio frequency. The Federal Communications Commission has set aside some frequencies for use by emergency responders, but much of it isn't available yet because it's still being used by television broadcasters. In many smaller communities, emergency responders still use equipment that oper-

ates on different frequencies, making it difficult to talk to one another.

In New Orleans and other Gulf Coast areas, the biggest problem, however, has been far simpler: There's just not enough power.

The problem worsened yesterday, as radio and phone equipment batteries began to die. "Field personnel are beginning to lose power on the radios because they don't have any way to recharge them. It's not looking good," says Court-

Sprint Nextel Corp., the wireless carrier that has a large business with governments and emergency personnel, said that a long-distance switch in the area reported flooding and had to be turned off, affecting long-distance calling. Wireless towers, which require electrical power, are running on battery backups and in many cases are about to expire, if they haven't already.

In Plaquemines Parish, near New Orleans, the 911 center was beneath six feet

**In many locations, cell towers, 911 centers and emergency communications equipment are underwater in Katrina's aftermath. The gap is being filled by ham-radio operators.**

ney McCarron, spokeswoman for the Association of Public-Safety Communications Officials.

Emergency generators powering some cell towers and underground phone switches, which route traditional phone calls, may also soon begin to go dark. "The issue is a power issue at its core," one FCC official said.

For customers, phone service will take even longer to restore because phone companies are mostly concentrating on getting emergency services operational.

of water and had to be abandoned, according to a spokesman from Motorola Inc., the company that supplies gear to the parish and many other agencies in the affected area. After the walls to the center collapsed, the remaining workers floated out using life jackets. "Due to the catastrophic effects of Hurricane Katrina, many of our customers' emergency equipment remains inaccessible or underwater," said Jeffrey Madsen, a Motorola spokesman.

Motorola, based in Schaumburg, Ill., said it has shipped more than 2,300

pieces of communications equipment—including portable radios, fully charged batteries and chargers—to the affected areas. To cope with the lack of working transmitters in the area, Motorola has also deployed three emergency communication trailers to the region.

Sprint Nextel is sending five satellite trucks to the region to help restore some communication for emergency services, the company said. An emergency team is also being sent with 3,000 walkie-talkie handsets. The response team, which includes hundreds of engineers and technicians, will move into the area once it is declared safe, the company said.

In the meantime, the communication gap is being filled by a low-tech solution: ham-radio operators. A number of those stranded, or friends and relatives of those missing, are contacting ham-radio enthusiasts, who in turn are telling local emergency personnel about the location of those in need.

"Obviously, the communications system is not working because people are contacting us, even to dispatch police calls," said Allen Pitts, spokesman for the American Radio Relay League, a ham-radio association located in Newington, Conn. Earlier this week, after a New Orleans police officer was shot while attempting to prevent looting, a witness was unable to reach 911 emergency dispatchers but contacted a ham-radio operator, who in turn reached local police to respond to the fallen officer, Mr. Pitts said.

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PC Magazine

**November 8, 2005 Tuesday**

**OPINIONS**

876 words

Inside Track v24n19;

John C. Dvorak

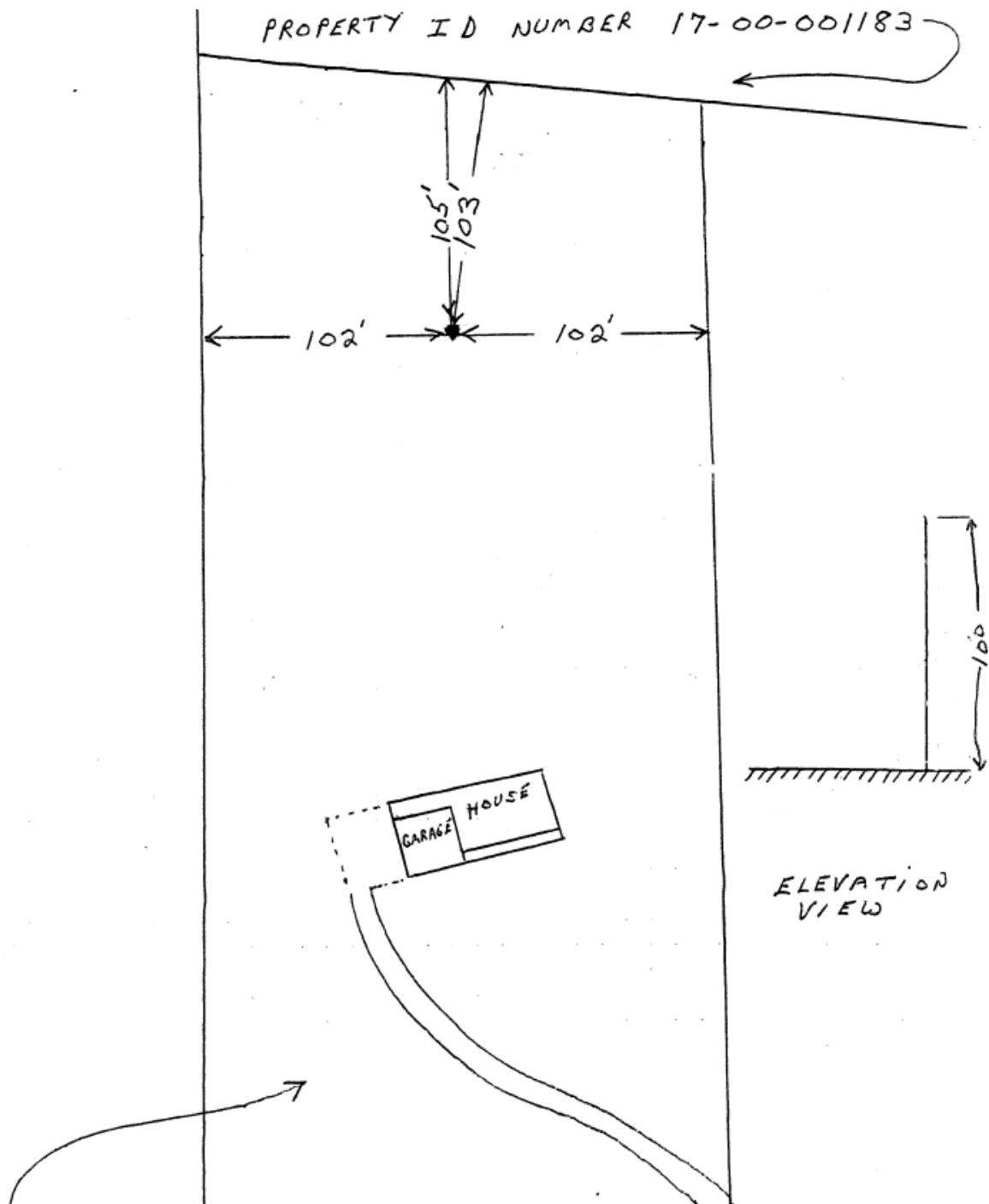
The most overlooked participants in Katrina relief were the ham radio folks. Bush should give them all medals.

Two weeks after Hurricane Katrina, it was reported that over 100 Internet networks were still down in Louisiana, as well as another dozen elsewhere that had been in the path of the hurricane. So much for the notion that the Web is impossible to kill. Hard to have an Internet with no power! WiMAX and other solutions are useless, too, though I suppose a generator would be useful for WiMAX. Whatever the case, the most overlooked participants in the Katrina relief effort were the ham radio folks, who were doing whatever they could as ad hoc emergency dispatchers, creating their own network within the system. These dedicated persons pride themselves on their ability to do worldwide communications under adverse conditions, and the ARRL (Amateur Radio Relay League) and its members, as well as others, were a big part of the aid effort. Of course, since amateur radio is anything but trendy in today's Xbox, gene-splicing world, there was zero coverage of its contribution in the mainstream press, and these people are not the world's greatest self-promoters. At least some of us are paying attention. Good work, guys! Bush should be giving medals to you all.

Source:

<http://www6.lexisnexis.com/publisher/EndUser?Action=UserDisplayFullDocument&orgId=574&toPicId=100017534&docId=l:317616881&start=1> as retrieved on Oct 13, 2005 13:09:10 GMT.

EXHIBIT C-1: PLOT PLAN



PROPERTY ID NUMBER: 17-00-014319 (NO. REVERSED)  
LOCATIONS

SAME OWNER FOR BOTH PROPERTIES

EXHIBIT C-2: BUILDING PERMIT



**BALTIMORE COUNTY, MARYLAND**  
DEPARTMENT OF PERMITS AND DEVELOPMENT MANAGEMENT  
TOWSON, MARYLAND 21204

*Timothy Kotroco*  
TIMOTHY M. KOTROCO  
DIRECTOR

BUILDING PERMIT

*John R. Reisinger*  
JOHN R. REISINGER  
BUILDINGS ENGINEER

PERMIT #: B551665 CONTROL #: RR DIST: 10 PREC: 04  
DATE ISSUED: 04/06/2004 TAX ACCOUNT #: 17000001183 CLASS: 04

PLANS: CONST 0 PLOT 1 R PLAT DATA ELEC YES PLUM NO  
LOCATION: 39 GLENBROOK DR  
SUBDIVISION: BLENVIEW

OWNERS INFORMATION  
NAME: BENJAMIN GOVERNIALE  
ADDR: 39 GLENBROOK DR PHOENIX MD 21131

TENANT:  
CONTR: BENJAMIN GOVERNIALE (OWNER)  
ENGRN:  
SELLR:  
WORK: CONSTRUCT A 100' HIGH MONOPOLE RADIO TOWER  
ON REAR OF PROPERTY. MUST CLEAR ALL OVER-  
HEAD WIRES, MFG. SPECS TO BE ON SITE OR NO  
INSPECTIONS WILL BE GIVEN. REPLACES EXPIRED  
PERMIT B484929, TWO(2)YEARS PERMIT AS REQUESTED  
BY APPLICANT, PERMIT CANNOT BE RENEWED  
BLDG. CODE:  
RESIDENTIAL CATEGORY: DETACHED OWNERSHIP: PRIVATELY OWNED

PROPOSED USE: SFD + TOWER  
EXISTING USE: SFD

TYPE OF IMPRV: NEW BULDING CONTRUCTION  
USE: OTHER - RESIDENTIAL  
FOUNDATION: BASEMENT:  
SEWAGE: PRIV. EXISTS WATER: PUBLIC EXIST

LOT SIZE AND SETBACKS

SIZE: 0210.00 X 0000.00  
FRONT STREET:  
SIDE STREET:  
FRONT SETB: NC  
SIDE SETB: 102 '/102'  
SIDE STR SETB:  
REAR SETB: 103 '

---

EXHIBIT D: NO FAA PERMIT REQUIRED

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## TOWAIR Determination Results

### \*\*\* NOTICE \*\*\*

TOWAIR's findings are not definitive or binding, and we cannot guarantee that the data in TOWAIR are fully current and accurate. In some instances, TOWAIR may yield results that differ from application of the criteria set out in 47 C.F.R. Section 17.7 and 14 C.F.R. Section 77.13. A positive finding by TOWAIR recommending notification should be given considerable weight. On the other hand, a finding by TOWAIR recommending either for or against notification is not conclusive. It is the responsibility of each ASR participant to exercise due diligence to determine if it must coordinate its structure with the FAA. TOWAIR is only one tool designed to assist ASR participants in exercising this due diligence, and further investigation may be necessary to determine if FAA coordination is appropriate.

### DETERMINATION Results

**Structure does not require registration. There are no airports within 8 kilometers (5 miles) of the coordinates you provided.**

### Your Specifications

#### NAD83 Coordinates

Latitude	39-29-35.2 north
Longitude	076-33-38.5 west

#### Measurements (Meters)

Overall Structure Height (AGL)	30.2
Support Structure Height (AGL)	27.4
Site Elevation (AMSL)	176.8

#### Structure Type

TOWER - Free standing or Guyed Structure used for Communications Purposes

Source: <http://wireless2.fcc.gov/UlsApp/AsrSearch/towairSearch.jsp>

---

EXHIBIT E: APPROVAL BY DIRECT ABUTTERS

---

Letter from 35 Glenbrook Drive – Euker (2005)

Carl Euker  
35 Glenbrook Drive  
Phoenix, Maryland 21131

October 31, 2005

CASE NUMBER: 06-180-SPHA

Baltimore County  
Department of Permits and Land Management  
111 West Chesapeake Avenue  
Towson, Maryland 21204

Ladies and Gentlemen:

I live *next door* to the Governale family, who reside at 39 Glenbrook Drive. Mr. Governale has explained his antenna Variance request to me, and has satisfactorily answered all of my questions about it.

I have no objection to the granting of a Special Exception or Variance to him, and I encourage the Board to do so.

(Sincerely,  
  
Carl Euker)

Letter from 35 Glenbrook Drive – Leonard (2006)  
Bought from Euker in 2006

Michael and Melissa Leonard  
35 Glenbrook Drive  
Phoenix, Maryland 21131

November 26, 2006

CASE NUMBER: 06-180-SPHA

Baltimore County Board of Appeals  
400 Washington Avenue  
Towson, Maryland 21204

Ladies and Gentlemen:

We live *next door* to the Governale family, who reside at 39 Glenbrook Drive. Mr. Governale has explained case 06-180-SPHA to us, and has satisfactorily answered all of our questions about it.

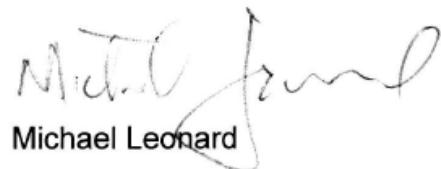
We have no objection to the antennas and tower in their present location and height. The tower and antennas can be seen from our property. We do not object to their visual presence. In addition, they had no influence on our purchase of 35 Glenbrook this year. Their presence increases our level of security to both ourselves and to the community.

We encourage the Board to rule in favor of the Governale family.

Sincerely,



Melissa Leonard



Michael Leonard

Letter from 37 Glenbrook Drive – Gore (2005)

Kenneth Gore  
37 Glenbrook Drive  
Phoenix, Maryland 21131

October 31, 2005

CASE NUMBER: 06-180-SPHA

Baltimore County  
Department of Permits and Land Management  
111 West Chesapeake Avenue  
Towson, Maryland 21204

Ladies and Gentlemen:

I live next door to the Governale family, who reside at 39 Glenbrook Drive. Mr. Governale has explained his antenna Variance request to me, and has satisfactorily answered all of my questions about it.

I have no objection to the granting of a Special Exception or Variance to him, and I encourage the Board to do so.

Sincerely,



Kenneth Gore

Letter from 37 Glenbrook Drive – Gore (2006)

Kenneth and Abigail Gore  
37 Glenbrook Drive  
Phoenix, Maryland 21131

November 26, 2006

CASE NUMBER: 06-180-SPHA

Baltimore County Board of Appeals  
400 Washington Avenue  
Towson, Maryland 21204

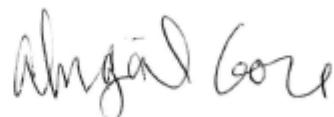
Ladies and Gentlemen:

We live *next door* to the Governale family, who reside at 39 Glenbrook Drive. Mr. Governale has explained case 06-180-SPHA to us, and has satisfactorily answered all of our questions about it.

We have no objection to the antennas and tower in their present location and height. The tower and antennas can be seen from our property. We do not object to their visual presence. Their presence increases the level of security to both ourselves and the community.

We encourage the Board to rule in favor of the Governale family.

Sincerely,



Abigail Gore

Kenneth Gore



Letter from 39 Glenbrook Drive – Governale (2005)

*Benjamin Governale  
39 Glenbrook Drive  
Phoenix, Maryland 21131*

November 4, 2005

**CASE NUMBER: 06-180-SPHA**

Baltimore County  
Department of Permits and Land Management  
111 West Chesapeake Avenue  
Towson, Maryland 21204

***In re: Parcel #17-00-001183, and the Radio Antenna Project at 39 Glenbrook Drive***

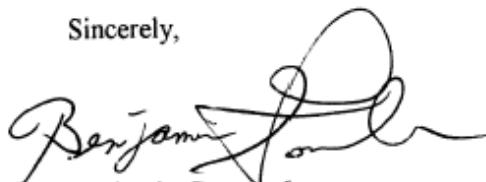
Ladies and Gentlemen:

I own the property directly to the rear of and abutting 39 Glenbrook Drive, Phoenix, Maryland 21131. This property is identified in the Baltimore County Tax records as # 17-00-001183. The heavily wooded 1.56 acre parcel separates the Blenview Community from the Sunnybrook Community. The parcel at 39 Glenbrook Drive is part of the Blenview Community.

As owner of both parcels, I am, of course, completely familiar with the proposal before the Department. As owner of parcel # 17-00-001183, I am pleased to say that the owner of that parcel has no objection to any aspect of the project, and encourages the board to grant such relief as may be necessary for the project.

With the filing of this letter, each and every property owner whose property abuts 39 Glenbrook Drive has filed a letter encouraging the County to grant such relief as may be necessary for the project.

Sincerely,



*Benjamin Governale*  
Benjamin Governale

Letter from 39 Glenbrook Drive – Governale (2006)

Benjamin and Kayren Governale  
39 Glenbrook Drive  
Phoenix, Maryland 21131

November 26, 2006

CASE NUMBER: 06-180-SPHA

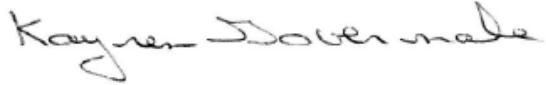
Baltimore County Board of Appeals  
400 Washington Avenue  
Towson, Maryland 21204

Ladies and Gentlemen:

We own the property directly to the rear of 39 Glenbrook Drive, Phoenix, Maryland 21131. This property is identified in the Baltimore County Tax records as # 17-00-001183. The heavily wooded 1.56 acre parcel and included storm drainage woodland separates the Blenview Community from the Sunnybrook Community. We, the Governale's are part of the Blenview Community.

We encourage the Board to rule in favor of allowing the tower and antennas to remain at their present location and height.

Sincerely,

  
Kayren Governale

  
Benjamin Governale

Letter from 40 Glenbrook Drive – Nelson (2006)

Tom and Kay Nelson  
40 Glenbrook Drive  
Phoenix, Maryland 21131

November 26, 2006

CASE NUMBER: 06-180-SPHA

Baltimore County Board of Appeals  
400 Washington Avenue  
Towson, Maryland 21204

Ladies and Gentlemen:

We live opposite the Governale family, who reside at 39 Glenbrook Drive. Mr. Governale has explained case 06-180-SPHA to us, and has satisfactorily answered all of our questions about it.

We have no objection to the antennas and tower in their present location and height. The tower and antennas can be seen from our property. We do not object to their visual presence. Their presence increases our level of security to both ourselves and the community.

We encourage the Board to rule in favor of the Goverale family.

Sincerely,

Kay Nelson



Tom Nelson



Letter from 41 Glenbrook Drive – Marino (2005)

Michael Marino  
41 Glenbrook Drive  
Phoenix, Maryland 21131

October 31, 2005

CASE NUMBER: 06-180-SPHA

Baltimore County  
Department of Permits and Land Management  
111 West Chesapeake Avenue  
Towson, Maryland 21204

Ladies and Gentlemen:

I live *next door* to the Governale family, who reside at 39 Glenbrook Drive. Mr. Governale has explained his antenna Variance request to me, and has satisfactorily answered all of my questions about it.

I have no objection to the granting of a Special Exception or Variance to him, and I encourage the Board to do so.

Sincerely,



Michael Marino

Letter from 41 Glenbrook Drive – Lally (2006)  
Bought from Marino in 2006

Daniel and Jennifer Lally  
41 Glenbrook Drive  
Phoenix, Maryland 21131

November 26, 2006

CASE NUMBER: 06-180-SPHA

Baltimore County Board of Appeals  
400 Washington Avenue  
Towson, Maryland 21204

Ladies and Gentlemen:

We live *next door* to the Governale family, who reside at 39 Glenbrook Drive. Mr. Governale has explained case 06-180-SPHA to us, and has satisfactorily answered all of our questions about it.

We have no objection to the antennas and tower in their present location and height. The tower and antennas can be seen from our property. We do not object to their visual presence. In addition, they had no influence on our purchase of 41 Glenbrook this year. Their presence increases our level of security to both ourselves and to the community.

We encourage the Board to rule in favor of the Governale family.

Sincerely,

Jennifer Lally

Daniel Lally

Letter from 3330 Blenheim Road – Oakley (2005)

Douglas Oakley  
3330 Blenheim Road  
Phoenix, Maryland 21131

October 31, 2005

CASE NUMBER: 06-180-SPHA

Baltimore County  
Department of Permits and Land Management  
111 West Chesapeake Avenue  
Towson, Maryland 21204

Ladies and Gentlemen:

I live *next door* to the Governale family, who reside at 39 Glenbrook Drive. Mr. Governale has explained his antenna Variance request to me, and has satisfactorily answered all of my questions about it.

I have no objection to the granting of a Special Exception or Variance to him, and I encourage the Board to do so.

Sincerely,



Douglas Oakley

Letter from 3330 Blenheim Road – Oakley (2006)

Douglas Oakley  
3330 Blenheim Road  
Phoenix, Maryland 21131

November 26, 2006

CASE NUMBER: 06-180-SPHA

Baltimore County Board of Appeals  
400 Washington Avenue  
Towson, Maryland 21204

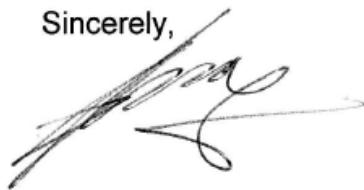
Ladies and Gentlemen:

I live on my Black Angus farm *next door* to the Governale family, who reside at 39 Glenbrook Drive. Mr. Governale has explained case 06-180-SPHA to me, and has satisfactorily answered all of my questions about it.

I have no objection to the antennas and tower in their present location and height. The tower and antennas can be seen from my property. I do not object to their visual presence. Their presence increases the level of security to me and my community.

I encourage the Board to rule in favor of the Governale family.

Sincerely,



Douglas Oakley

Letter from 3412 Blenheim Road – Allman (2006)

Leo Michael and Linda Allman  
3412 Blenheim Road  
Phoenix, Maryland 21131

November 26, 2006

CASE NUMBER: 06-180-SPHA

Baltimore County Board of Appeals  
400 Washington Avenue  
Towson, Maryland 21204

Ladies and Gentlemen:

We live *three houses away from the Governale family*, who reside at 39 Glenbrook Drive.

Mr. Governale has explained case 06-180-SPHA to us, and has satisfactorily answered all our questions about it.

We have no objection to the antennas and tower in their present location and height. The tower and antennas can be seen from our property. We do not object to their visual presence. Their presence increases our level of security to both ourselves and the community.

We encourage the Board to rule in favor of the Governale family.

Sincerely,



Linda Allman



Leo Michael Allman

EXHIBIT F: NEIGHBORHOOD APPROVAL - 2005

**PETITION IN SUPPORT OF ZONING RELIEF  
GOVERNALE RESIDENCE  
39 Glenbrook Drive**

**Case No. 06-180-SPHA**

Zoning Relief Requested: to permit the continued configuration, height and location of the existing, radio operator antenna on the Governale property as meeting the locational requirements of the Zoning Regulations or, alternatively, grant the necessary variance from the Zoning Regulations to permit the existing radio operator antenna to remain in its present configuration, height and location.

<i>Melba Watkeys</i>	<u>Melba Watkeys</u>	<u>34 Glenbrook Dr., Phoenix, 85016</u>
Signature <u>Ken Gore</u>	Print Name <u>KEN GORE JR</u>	Address <u>37 Glenbrook Dr. Phoenix, 85016</u>
Signature <u>Abigail Gore</u>	Print Name <u>ABIGAIL GORE</u>	Address <u>31 Glenbrook Dr.</u>
Signature <u>Carl Euker</u>	Print Name <u>CARL EUKER</u>	Address <u>35 GLENBROOK DR.</u>
Signature <u>Michael Marino</u>	Print Name <u>MICHAEL R. MARINO</u>	Address <u>41 GLENBROOK DR.</u>
Signature <u>Jane Marino</u>	Print Name <u>JANE MARINO</u>	Address <u>41 Glenbrook Dr.</u>
Signature <u>Manda Manis</u>	Print Name <u>MANDA MANIS</u>	Address <u>41 Glenbrook Dr.</u>
Signature <u>Leo M. Almanza</u>	Print Name <u>LEO M. ALMANZA</u>	Address <u>3412 Belmont Rd</u>
Signature <u>Kathleen Nelson</u>	Print Name <u>KATHLEEN</u>	Address <u>40 GLENBROOK DR.</u>
Signature <u>Thomas Nelson</u>	Print Name <u>THOMAS NELSON</u>	Address <u>40 GLENBROOK Dr.</u>
Signature <u>James Orkay</u>	Print Name <u>JAMES ORKAY</u>	Address <u>3330 Belmont Rd</u>

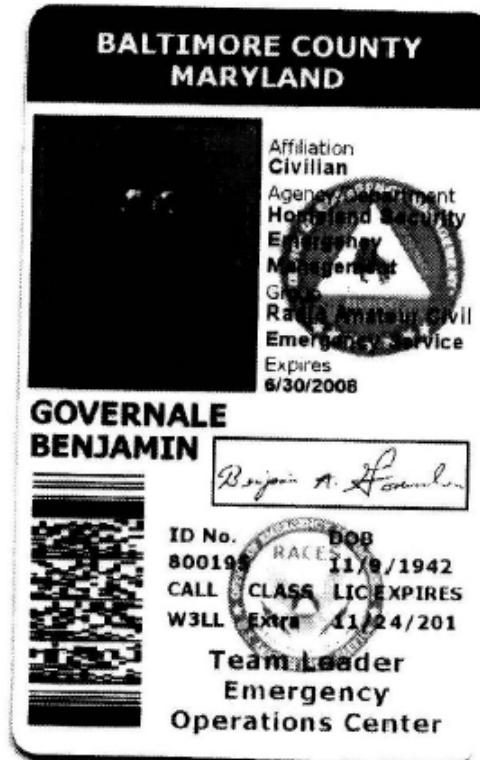
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EXHIBIT G: NEIGHBORHOOD AERIAL PHOTO

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EXHIBIT H: BALTIMORE CO. EMERGENCY OPERATIONS CTR.-TEAM LEADER ID



Property of Baltimore County Surrender Upon Request

The bearer of this card is designated Emergency Responder.  
After credential verification bearer may be given access to  
controlled areas.

Return To:  
RACES Officer Baltimore County  
Office of Homeland Security  
700 E. Joppa Road  
Towson, MD 21086



---

EXHIBIT I: LETTER FROM U.S. TOWER SERVICES LTD.

---



November 29, 2006

County Board of Appeals of Baltimore County  
Old Courthouse, Room 49  
400 Washington Avenue  
Towson, MD 21204

To the Board:

I am a founder and Vice President of United States Tower Services Ltd., where I have worked since 1970. We are experienced in all aspects of tower construction such as antenna and tower placement, design, fabrication, erection and testing. We have extensive experience with monopoles, self support, guy towers, medium and high frequency fixed and rotatable antennas, including dipoles, log periodics, conicals and biconicals, vertical and conical monopoles, fans and curtains. At present, USTS employs over 40 people.

Examples of our work include the installation of the digital/analog antenna for WETA, Washington, DC, relocation of a 200 foot self-supporting tower and antennas for the US Navy in Alaska, setting up a high frequency (HF) site for the US Air Force in the Azores, and the installation of an 800 foot tower in Brandywine, MD.

I am a graduate of the University of Maryland (1967). After my graduation, I worked in the physics department there as electrical engineer for three years. Since then, my entire business life has been in the tower industry. I am also a radio ham, call sign K3GJB, licensed since 1957. I hold the highest class of license, the extra class license, issued by the FCC.

I am familiar with the characteristics of the self-supporting AN Wireless, model AN-90 tower, and the types of antennas installed at the Governale site.

In over 35 years of experience, which includes prominent roles in the National Association of Tower Erectors (NATE), I can say that I have never seen, nor heard of, a situation in which a tower has fallen a distance greater than its height – including situations in which a tower was deliberately taken down. I know of no example in the literature of the field that relates such an incident. I can't imagine it. I fail to understand how a tower height limitation can be rationally related to a measurement of an antenna's width or turning radius.

Sincerely,



Joseph Bryan Burdette  
Joseph Bryan Burdette, Vice President  
joeburdette@ustowerservices.com

---

EXHIBIT J: TRIGONOMETRY OF A DEAD FALL

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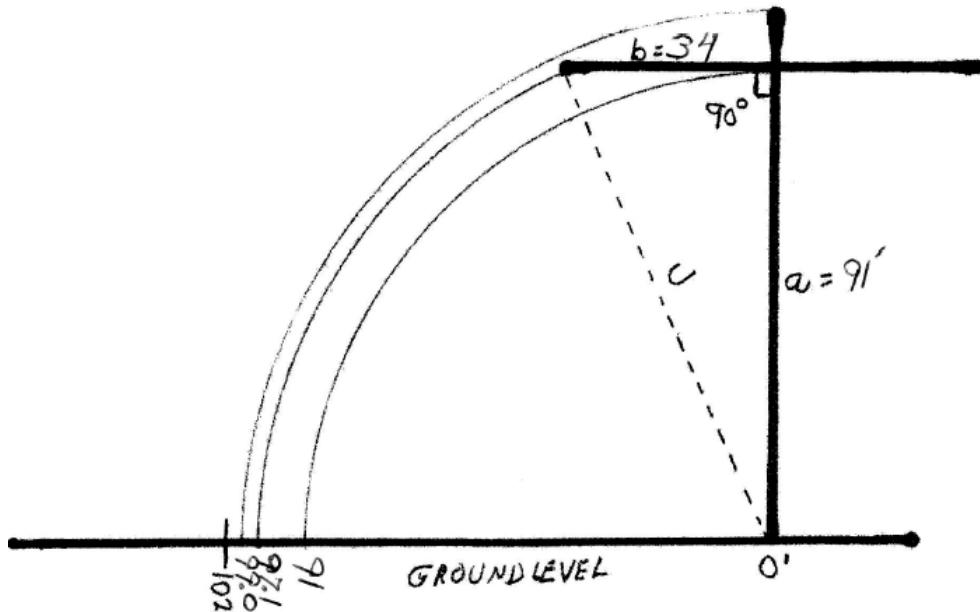
Basic Geometry  
for the Right Triangle

$$c^2 = a^2 + b^2 \quad c = \sqrt{a^2 + b^2}$$

$$\begin{aligned} a &= 91 \text{ ft} & a^2 &= 8281 \\ b &= 34 \text{ ft} & b^2 &= 1156 \text{ hence } c = \sqrt{9437} = 97.1 \text{ feet} \end{aligned}$$

therefore the tip of longest beam element would strike the ground at 97.1 feet from the base of the tower if the tower failed at ground level (worst case). This is 4.9 feet short of the property line at 102ft from the tower base.

see sketch below



**Note:** The graphic depicts a monopole as the antenna support structure. The actual antenna support structure is a three legged (triangular), self-supporting, AN Wireless Model AN HD-90, steel lattice tower. See **Exhibit K**. It is designed for windloads greater than this application requires. The Applicant submits that, unless all three leg bolts fail simultaneously, the failure mode would be for one leg to buckle first. The structure would then collapse on itself with the failure occurring at the weak point and the top hanging down against the lower portion.

**EXHIBIT K: AN WIRELESS, MODEL AN HD-90**

The chart above shows construction detail for a typical section. On the chart below, the Applicant's structure is comprised of Sections 1-9.

Section Face Dimensions & Weights

