

Application for a Variance to Enhance Amateur Radio Communications



Tornado damage, Northwestern Delaware County, September 20, 2002.
Photos by the applicant

Thomas D. Cox
4920 West Caleb Court
Muncie, IN 47302

**APPLICATION OF THOMAS D. COX FOR A VARIANCE FOR AN
ACCESSORY USE AND STRUCTURE**

**Delaware – Muncie Metropolitan Board of Zoning
Appeals**

Application for a Variance for an Accessory Structure and Use

Supporting Documents

**Thomas D. Cox
4920 West Caleb Court
Muncie, IN 47302**

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**APPLICATION OF THOMAS D. COX FOR A VARIANCE FOR AN
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**DELAWARE-MUNCIE METROPOLITAN PLAN COMMISSION
PROPOSED ZONING CHANGE APPLICATION**

Jurisdiction: (Check One)

 X Delaware County

_____ City of Muncie

Submitted: _____

Case No.: _____

- (1) Applicant: THOMAS D. COX
(2) Address: 4920 West Caleb Court, Muncie, Indiana 47302
(3) Phone: 765-282-4763

(2) Record of Applicant's Ownership:

A. X By Deed:

Deed Book No. & Page No: Plat Book 8, page 2

Date of Deed: April 19, 1990

B. _____ By Recorded Contract:

Misc. Book No. & Page

No.: _____

Date of

Contract: _____

C. _____ By Unrecorded Contract:

Date of

Contract: _____

Name of Contract

Seller: _____

Book No. & Page No. of Deed in Seller's

Name: _____

(3) Legal Description of Property in which rezoning is requested: (From the Deed or Abstract)

**Lots 65, 66 and 67 in No Name Park Extension, an Addition to the City of Muncie,
as recorded in Plat Book 8, page 2, Records of Delaware County, Indiana.**

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(4) Common Address of Property involved: (If in the City, give street address; if in the County, give county roads and distances.)

4920 West Caleb Court, Muncie, Indiana 47302

(5) Proposed Zoning Change: (Give exact zone classification.)

From the _____ Zone

To the _____ Zone

This application is for an accessory use and structure, rather than for a change of zone.

(6) Intent and Purpose of Proposed Change: (Specify use contemplated on property.)

Applicant wishes to erect an antenna support structure for non-commercial, Amateur Radio use in excess of the limit of 75 feet specified in Article IX, Section 14, Subsection 2, Paragraph D of the Comprehensive Zoning Ordinance of Delaware County. Applicant proposes to erect an antenna support structure of 130 feet in total height (120 feet of galvanized steel tower and 10 feet of tubular mast). This is not a cellular telephone tower.

(7) Will the Owner develop the property for the use specified in Item 6 or does owner intend to sell property for the purpose specified?

Owner will continue to occupy property as before.

(8) State how the proposed change will not adversely affect the surrounding area.

Antenna support structure will have minimal impact on the surrounding area, and will be erected in compliance with, and meeting or exceeding, all applicable engineering standards and regulations, including anti-climb devices.

(9) Will certain variances be requested if the proposed zoning change is granted?
(If yes, list the variances)

Variance is requested for accessory use and structure, as stated in (6), above. Article X, Section 1 of the Comprehensive Zoning Ordinance of Delaware County permits the Board to authorize this variance.

(10) Has the applicant provided stamped, addressed envelopes to send notices of this rezoning to all property owners within 300 feet? YES

Has the applicant discussed this rezoning with these owners personally? YES

(If answer is yes, give their attitudes toward the rezoning.)

All abutters support the project. Letters of support are attached to this application. Please refer to the Appendix of the supporting documents.

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(11) Are there any restrictions, easements and/or covenants governing the property prohibiting its use for the purpose specified in this application? (If answer is yes, attach copy of same and/or explain.)

No. Amateur Radio is a permitted use of the property. Covenants are silent on the issue of antenna support structures. (Copy of covenants from the Abstract of Title is attached. Please refer to the Appendix of the supporting documents.)

AFFIDAVIT

(I or We) Thomas D. Cox and Sheree A. Cox
being duly sworn, depose and say that I/We am/are the owner(s)/contract owner(s) and contract seller(s) of property involved in this application and that the foregoing signatures, statements, and answers herein contained and the information herewith submitted are in all respects true and correct to the best of my/our knowledge and belief.

Signed _____

Subscribed and sworn to before me this _____ day of _____, 20_____.

Notary Public

Commission Expires

DO NOT WRITE IN THIS SPACE

The foregoing application has been inspected by me and was submitted to the Delaware-Muncie Metropolitan Plan Commission Office in accordance with all the formal requirements. If properly advertised by the applicant, this application will be heard by the Plan Commission in Public hearing on the _____ day of _____, 20_____.

Signed _____

Date _____

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Summary of Supporting Documents

The applicant asks the Board of Zoning Appeals to grant a variance from Article IX, Section 14, Subsection 2, Paragraph D of the Comprehensive Zoning Ordinance of Delaware County, which defines Accessory Uses/Structures, in particular, “Amateur radio sending and receiving antennae...”

D. Amateur radio sending and receiving antennae, provided the height thereof including masts shall not exceed seventy-five (75) feet measured from the finished lot grade at the base of the tower. (AN ORDINANCE ESTABLISHING MINIMUM COMPREHENSIVE ZONING STANDARDS FOR THE COUNTY OF DELAWARE, INDIANA, Article IX, Section 14, Subsection 2, Paragraph D)

The applicant believes that Article X, Section 1 of the ordinance would allow the board to make an exception to the 75-foot limit under the circumstances described in this application:

Towers, chimneys, stacks, spires, penthouses, cupolas, water tanks, silos, windmills, monuments, domes, grain elevators and like structures may be built to a greater height than established in this Ordinance except in the approach area of any airport where no structure shall be built which exceeds the maximum height permissible under the rules and regulations of any governmental agency. (AN ORDINANCE ESTABLISHING MINIMUM COMPREHENSIVE ZONING STANDARDS FOR THE COUNTY OF DELAWARE, INDIANA, ARTICLE X; Section 1, STRUCTURES OTHER THAN BUILDINGS)

The applicant’s property lies over six statute miles from the nearest end of the nearest runway of the nearest airport (Reese Airport), and the proposed support structure is under 200 feet in overall height. At this distance, there is no height limitation or painting or lighting requirement imposed by either state law (IC 8-21-10-3: Regulation of Tall Structures; See Appendix page A-2), or by the regulations of the Federal Aviation Administration. Neither FCC registration (See Appendix page A-4) nor FAA approval (See Appendix page A-3) will be required for the applicant to erect this antenna support structure.

Hardship Imposed

The applicant is a federally licensed Amateur Radio Operator (see license on Appendix page A-4). The Amateur Radio Service, regulated by the Federal Communications Commission, is described in the regulations as, “[a] radiocommunication service for the purpose of self-training, intercommunication and technical investigations carried out by amateurs, that is duly authorized persons interested in radio technique solely with a personal aim and without pecuniary interest.” (Federal Communications Commission Regulations, “Part 97,” Amateur Radio Service, §97.3 (4) (See Appendix page A-5).

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The applicant maintains that the height limitation of 75 feet in the ordinance imposes a hardship on him, because it limits his ability to send and receive amateur radio signals, due to the effect of the height of the antenna on the propagation of such signals. Applicant will show in supporting documents (See Appendix) of this application that there is a direct and proportional relationship between antenna height, and distance over which he can make reliable radio contacts. Limitations on distances over which communications can reliably be achieved unnecessarily impair the ability of the applicant to pursue the Amateur Radio hobby.

Applicant respectfully reminds the board that Amateur Radio is a voluntary, public service hobby, for which the radio amateur, by law, receives no monetary compensation. This structure will not be used for cellular telephone service, paging service or any other activity for which any fee is charged.

This area's history of violent weather, the constant risk of chemical spills from railroad or highway accidents, and the new risk of terror attack are all situations for which Delaware County is attempting to prepare. The new Comprehensive Emergency Management Plan, reported in The Star Press on September 10, 2002, reflects the new awareness of Delaware County officials of the need to have a plan in place for dealing with a wide and inherently unpredictable range of emergencies.

Disasters are often accompanied by the loss of power and the destruction of communication antennas, in addition to overloading and damaging telephone facilities, making it even more difficult for people in the affected area to reach the surrounding areas by radio. The availability of tall antenna support systems in the surrounding areas can make a difference between conveying important information into and out of the affected area, and a communications blackout that makes recovery efforts even more complicated and difficult.

Please see the Appendix for letters from Delaware County residents involved in emergency management who support this application, because it enhances the applicant's ability to provide emergency communications in the public interest.

Radio Frequency Interference and Health Issues

Further, the Applicant will offer documentation that raising the height of a transmitting antenna reduces, rather than increases, the likelihood of radio frequency interference (RFI) in the area surrounding the antenna, and that, for the same reasons, increased antenna height also reduces the exposure of residents of the area to radio frequency energy (See Appendix). Parenthetically, Applicant has received no complaints of RFI to date from anyone in the neighborhood.

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It is important to note that the Board has been relieved of any responsibility for the regulation or remediation of radio frequency interference by the Communications Act of 1934, as amended in 1982:

“The Conference Substitute is further intended to clarify the reservation of exclusive jurisdiction to the Federal Communications Commission over matters involving RFI [radio frequency interference]. Such matters shall not be regulated by local or state law, nor shall radio transmitting apparatus be subject to local or state regulation as part of any effort to resolve an RFI complaint

[T]he Conferees intend that regulation of RFI phenomena shall be imposed only by the Commission.”

H.R. Report No. 765, 97th Cong., 2d Sess. 33 (1982), reprinted in 1982 U.S. Code Cong. & Ad. News 2277, referring to amendments to Section 302(a) of the Communications Act.

Please see a series of letters from the FCC’s General Counsel in the Appendix, “Pettit-Haller-MacNamara Letters on Preemption of RFI by FCC,” for a discussion of the statutory and case law regarding federal preemption of other jurisdictions in RFI matters. Clearly, the Board is protected from any criticism for not attempting to regulate RFI, by the Communications Act of 1934, as amended.

The Quality of the Support System

The Applicant proposes to erect a support system manufactured by the Rohn Manufacturing Company, Model SSV, to a height of 120 feet, with a mast pipe extending above the tower 10 feet, for a total structure height of 130 feet. A copy of the manufacturer’s specification sheet and other engineering information is attached as Exhibit E. The structure is self-supporting at the specified wind load, when installed with the correct combination of sections and concrete foundation in accordance with the manufacturer’s instructions for the proposed height (see Appendix).

Good Engineering Practice

This structure is to be installed by a licensed engineering contractor, New Horizons Communications, of West Lafayette, IN, an experienced erector of commercial and private antenna support systems, The system will be installed according to the manufacturer’s specifications, and meeting, or, in most instances, exceeding applicable construction standards in all respects. The National Electrical Code requirements for lightning protection will be exceeded as well. The contractor will obtain all necessary building permits from the appropriate Delaware County offices prior to any construction activity.

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Equivalent Visual Impact

From most viewing angles around the property, the visual impact of the structure is about that of a tall flagpole. The trees on the applicant's property and surrounding properties tend to limit the view of the lower, larger sections from street level, and the upper sections are progressively smaller and less visible. The structure consists of an open latticework of galvanized steel, which, with weathering, takes on a dull, neutral gray color. Photographs in the Appendix (Exhibit S, Page A-37) show the limited view that can be expected of this structure from several points around the neighborhood, and a graphic illustrating the geometry affecting the view.

Site Selection

The site selected for the structure (see Appendix) was chosen for safety and security reasons. The site selected is as far as it can be from adjacent residences without encroaching on building lines and easements. It is close enough to the applicant's residence that it can be watched for trespassers who might try to climb it in spite of the anti-climb equipment. Motion-detector-activated floodlights will cover the base of the tower and its immediate surroundings at night, discouraging unauthorized persons from approaching the tower. In addition, the tower will be enclosed by a fence with a secured gate that surrounds the Applicant's back yard. (See Appendix for site map with distances to surroundings.)

Choice of Height

A height of 130 feet was chosen to place as many antennas as possible at a height that enhances signal propagation at a distance. In keeping with the applicant's desire to provide radio communications during emergencies such as natural or man-made disasters, he wishes to place several VHF and UHF antennas at or near this height. The nature of radio communications at these frequencies above 30 MHz is such that there is a directly proportional relationship between antenna height and distance over which communication can be carried out at a given power level. The nearer the antennas at each end of the radio contact are to being in sight of each other ("line of sight"), the more reliable is the communication link.

At frequencies below 30 MHz, radio signals are reflected one or more times between a layer of the earth's atmosphere called the ionosphere, and the surface of the earth. Signals may make several "hops" to get to distant locations around the world. Higher antennas at these frequencies mean fewer hops are required to cover great distance. Since the signal strength diminishes with each hop, it is stronger when it reaches its destination if it has originated from a higher antenna. Equally important for successful communications, the same principal applies to signals arriving from the remote site.

Applicant has used geographical information software and United States Geographical Survey quadrangle maps to study the geography of several locations around Indiana that surround his home. Among other locations requiring increased height, "line of sight"

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contact on VHF frequencies with Winchester, Indiana, at a distance of only 24 miles from the Applicant's home, would require an antenna at least 168 feet above the ground at the applicant's residence, because of the rise in elevation as one moves east toward the Ohio state line (See Appendix). The applicant wishes to be able to conduct reliable emergency communications with Winchester and other locations in that area, but is willing to forego the additional height needed and compensate with increased power, if necessary, rather than attempt to place a 168-foot tower in the neighborhood. Several exhibits in support of the case for increased antenna height are included in the Appendix.

Covenants and Restrictions

The deed restrictions for the Applicant's property are silent on the issue of antennas and antenna support structures. The only height restriction applies to dwellings:

“RESTRICTIONS

“1. LAND USE AND BUILDING TYPE. No lot shall be used except for residential purposes. No building shall be erected, altered, placed, or permitted to remain on any lot other than one detached single family dwelling not to exceed one and one-half stories in height and a private garage for not more than two cars.” (Plat Book 8, Page 2, Records of Delaware County, Indiana)

The complete list of restrictions from the applicant's abstract of title is included in the Appendix.

Tower Structures and Property Values

Objectors at proceedings similar to this one in other jurisdictions have expressed the belief that the presence of an Amateur Radio antenna support structure on a piece of property nearby will lower the appraised value of their own property. Fortunately for the Applicant, well as for his neighbors and anyone else who desires to maintain the highest possible value of his or her property, this concern is unfounded.

Research by the American Radio Relay League has failed to find any evidence in the appraisal literature, or anywhere else, that home values are harmed by the presence of amateur radio antenna systems. The only study found concluded:

“In the course of this study, I have looked at seven different locations. I have considered thirty-three matched pairs. As I indicated in the introduction, this has covered a variety of types, styles locations, time periods, and lot sizes. In no instance have I been able to discover any measurable, uniform decline in value that can be attributed to the presence of a radio antenna. This is verified by my general real estate experience in over 35 years of selling various kinds of residential properties throughout the Denver Metropolitan Area. The presence of a radio antenna has not only failed to make a measurable difference in value, it has not affected the sales time for the properties involved.

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“Therefore, I have concluded that it is not a measurable factor in value.” Russ Wehner, Jr., MAI, SRPA (Appraiser), evidence in *Evans v. Boulder*, 994 F2d 755 (10th Cir., 1993) (decided on other grounds).” The complete text of the *Evans vs. Boulder Assessment Study* is included in the Appendix, along with other references on the effect of towers on real estate values.

Use of the Proposed Structure

The applicant wishes to place numerous Amateur Radio antennas on this structure, in order to advance his knowledge and ability in the field of radio communications. Applicant wishes to emphasize that this structure is not intended for use with cellular telephones, paging systems, or other any communication application for which fees are charged.

Special Legal Status of Amateur Radio

Amateur radio is a unique hobby, in that the United States Congress has expressed a strong interest in seeing that no unreasonable legal or regulatory restriction impairs the ability of the radio amateur (“ham”) to carry on his or her hobby activity. The position of a radio amateur in the permitting process is uniquely enhanced by a Congressional finding that:

“[R]easonable 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. (See Appendix).

The applicant’s hobby of amateur radio is entertaining and educational, but he recognizes that the privileges granted him by his license are accompanied by certain responsibilities. Most prominent among those responsibilities is the mandate to be prepared to offer emergency communication when it is needed.

The communication infrastructure that is required to support emergency response cannot be built on a moment’s notice. It must be provided for well in advance, and tested and improved constantly. The applicant is taking an active role in that preparation by proposing to build this antenna support structure, and he hopes the board will allow him to do so.

Respectfully Submitted,

Thomas D. Cox