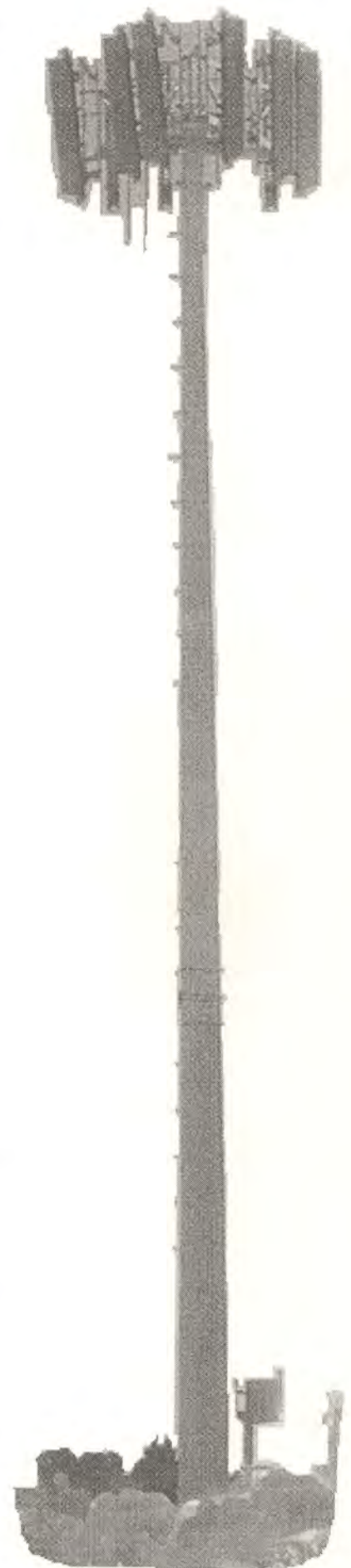


WIRELESS COMMUNICATIONS

HISTORY, DIRECTION AND RECOMMENDATIONS FOR BOONE COUNTY, KENTUCKY



BOONE COUNTY WIRELESS COMMUNICATIONS STUDY

***Prepared By:
Boone County Planning Commission
July 1, 1998***

Adopted By:

Boone County Planning Commission July 1, 1998

BOONE COUNTY WIRELESS COMMUNICATIONS STUDY

July 1, 1998

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I. Direction

- Purpose
- Objectives
- Problem Statement
- Statement of Opportunity

Purpose

The purpose of this study is to:

- Provide an informative document on the wireless communication industry;
- Investigate the effects of this technology on Boone County; and
- Develop a stance on how to regulate this industry while reaping the benefits of this technology.

This document and the Boone County Zoning Regulations shall serve as the official guide for Boone County's local governments to plan for and regulate the siting of cellular antennae towers as stated in House Bill 168. The following sections of this study set the foundation and basis for Boone County Planning Commission decisions to recommend approval or denial to the Public Service Commission for the construction of new cellular towers. The Boone County Zoning Regulations will be updated to recognize cellular antennae towers and the related equipment as permitted uses in certain zone districts and subject to a newly created section in the Supplemental Performance Standards section of that ordinance.

Objectives

- To understand the wireless service industry and its impact on the community.
- To explore the history of mass communication, the Telecommunications act of 1996, Kentucky Revised Statutes - Chapter 100, and House Bill No. 168.
- To identify the problems and opportunities of wireless communications.
- To catalog existing and proposed wireless facilities in Boone County.
- To assist service providers as a resource which will cite key locations for future wireless facilities.
- To create maps that will indicate the current and future service areas and possible co-location sites.
- To provide the foundation for decisions regarding the location, size and height of cellular towers, the co-location of cellular towers, and use of public infrastructure.
- To serve as the official guide along with the Boone County Zoning Regulations for recommending approval or denial to the Public Service Commission regarding new cellular tower construction in Boone County.

Problem Statement

The intrushes of wireless telecommunication providers pose many challenges for local governments. The challenges result from the recent tremendous growth of cellular and personal communications service (PCS) technologies. The wireless industry is eager to meet the growing demand for service and is erecting towers at a fast rate. While receiving this new service, communities argue that property values decrease as the number of unsightly towers increase. Along with the visual disruptiveness of cellular towers, the threat of a health hazard concerns citizens. However, local governments can not prohibit cellular towers on the basis of emission concerns if the towers and related antennae meet FCC regulations.

Municipalities, with adopted zoning regulations and/or comprehensive plans, face the issue of developing a stance on the wireless industry. Furthermore, municipalities must create guidelines that regulate the siting of cellular towers and to ultimately recommend approval or denial of a provider's request to build a new tower. Specifically, it is now up to local authority to find appropriate areas for cellular towers and to consider issues such as appropriate tower heights, setbacks, landscaping, color, etc.

Statements of Opportunity

The opportunity exists to work with wireless service providers and discuss possible co-location sites and the utilizing of public infrastructure. Co-location and leasing space on public infrastructure can help eliminate the need for new tower construction and can generate public revenue. Through the utilization of the Boone County GIS (Geographic Information System), the Boone County Planning Commission staff can evaluate and locate optimal sites for new cellular tower locations that are acceptable to the overall community. The Boone County Planning Commission can use this information in recommending approval or denial of a request to build a new tower. In doing so, the opportunity exists to provide an overall framework for cellular facilities in Boone County before the infrastructure is built out beyond the freeway corridors.

II. Historical Background

- Technology
- Mass Communication
- The Telecommunications Act of 1996
- House Bill No. 168

Technology

Two (2) major technological events - the agricultural and industrial revolution - characterize the evolution of society. The United States and the rest of the world are now in the middle of a new revolution - the information (or knowledge) revolution. The rapid development of advanced telecommunications services creates the basis for major social and cultural change. The way we communicate changes as wireless service becomes readily available. The ability to touch a button and communicate with someone regardless of their location directly opens the door to rapid and cost-effective means of communication. Boone County, Kentucky, including the cities of Florence, Union, and Walton, must take advantage of the economic development opportunities associated with this information age while balancing the safety and aesthetic issues of the equipment needed to provide this service.

Mass Communication

Telephones, broadcasting, and other forms of mass communication came into use in the late 19th and early 20th century. Since all forms of telecommunications utilize the electromagnetic spectrum, competition and interference arose as there was no central authority to administer these air waves. With the Communications Act of 1934, the federal government became the ultimate authority and began administering and allocating uses and users of the electromagnetic spectrum. However, the aesthetically displeasing aspects of this technology including telephone poles, wires, and metal antennas led municipalities to attempt to regulate the placement of these eyesores. Congress often stepped in and explicitly preempted state and local interference. Furthermore, rural areas were ignored as the technology concentrated on dense areas of population for economic reasons.

When telephone and cable technology developed and flourished, local and state government continued to challenge federal authority. Local governments began restricting the placement of satellite dishes and began setting rates for cable television service. Telecommunication companies protested the local regulations and the Federal Communication Commission (FCC) acted and prohibited many of the restrictions.

Similar to radio communication, wireless communications use radio waves within the electromagnetic spectrum. Both communication systems function in a straight line manner. They are limited geographically as mountains, hills, and buildings interfere with the line of sight. Therefore, the need to erect towers in key locations is critical to effectively transmit information. The erection of these new cellular towers, and the necessary equipment, is creating aesthetic and health concerns similar to those of the early 1900's. The Communications Act of 1934 serves as the foundation for federal regulation of telecommunications today and provides the federal government the ultimate authority to control the regulation of telecommunications. However, the Act of 1934 became outdated as technology advanced in the telecommunications industry and new issues were brought about that were not previously addressed.

The Telecommunications Act of 1996

The Telecommunications Act of 1996 created a marketplace filled with new technologies that have greatly impacted Boone County, as well as other localities throughout the country. This act prohibits local governments from banning wireless services or discriminating among wireless providers. However, the act

also recognizes the right of local governments to determine the criteria for siting cellular facilities. The FCC interpreted and initiated the rule making process. The cellular industry argued for preemption of local siting control. The FCC established a Local and State Government Advisory Committee to obtain input from government officials concerning tower siting and other topics. The Telecommunications Act of 1996 completely renovated the way telecommunications and broadcasts are regulated in the United States. The act attempts to remedy limitations on competition, market growth, and effective network building in both traditional broadcasting and modern communications.

The act is divided into seven major titles: Telecommunications Services, Broadcast Services, Cable Services, Regulatory Reform, Obscenity and Violence, Effect on Other Laws, and Miscellaneous Provisions. Each section covers a specific and distinct aspect of telecommunications reform. Specific to the personal telecommunications section, the Act governs federal, state and local government oversight of personal wireless service facilities. The Act preserves local zoning authority in siting, construction and modification issues, but clarifies when the exercise of local zoning authority may be preempted by the FCC. Section 704 prohibits any action that would discriminate between different providers and also prohibits any action that would ban altogether the construction, modification or placement of these kinds of facilities in a particular area. State or local government are required to act upon a request for authorization to place, construct, or modify personal wireless service facilities within a reasonable time. Any decision to deny a request must be made in writing and be supported by substantial evidence contained in a written record.

Kentucky Revised Statutes, Chapter 100

In the Commonwealth of Kentucky, the Public Service Commission has the authority to grant or deny applications for the locations of cellular towers and their related equipment. Section 100.324 of the Kentucky Revised Statutes states the following:

"All other provisions of this chapter to the contrary notwithstanding public utilities operating under the jurisdiction of the Public Service Commission (excluding first class cities), or the Department of Vehicle Regulation or Federal Power Commission, any municipally owned electric system, and common carriers by rail shall not be required to receive the approval of the planning unit for the location or relocation of any of their service facilities . . . The Public Service Commission and Department of Vehicle Regulation shall give notice to the planning commission of any planning unit of any hearing which effects locations or relocations of service facilities within that planning unit's jurisdiction."

In summary, although the Federal Communications Act of 1996 preserves local zoning authority in the siting, construction and modification of cellular towers, in the Commonwealth of Kentucky, the Public Service Commission has the ultimate control.

House Bill No. 168

Note: Text in *italics* is direct quotes from House Bill No. 168

In January of 1998, the Boone County Fiscal Court, and other governmental agencies, requested a change in the Public Service Commission's cellular tower review process. The result is House Bill No. 168. Prior to the adoption of House Bill No. 168, the Public Service Commission only advised planning units of a pending application. The planning units had to request hearings to enable them voice their opinion on specific proposals. Today, House Bill No. 168 grants local control for the siting of cellular antenna towers for jurisdictions that have adopted planning and zoning regulations. The house bill states the following:

A planning unit as defined in KRS 100.111 and legislative body or fiscal court that adopted planning and zoning regulations, except for a county that contains a city of the first class as provided under KRS 278.650, may plan for and regulate the siting of cellular antenna towers in accordance with locally adopted planning or zoning regulations in KRS Chapter 100 by officially registering with the Public Service Commission. The registration shall be in a form of an official resolution adopted by the local planning commission. Nothing in this section shall require a planning unit and legislative body or fiscal court to plan for and regulate the siting of cellular antenna towers.

The bill requires that any utility or company that is proposing to construct a new cellular tower or modify an existing tower submit an application to the planning commission including a map showing all existing and proposed cell towers within an area defined in the Bill. After the Planning Commission receives the application, the commission or staff reviews the application in light of its agreement with the comprehensive plan and locally adopted zoning regulations. The Planning Commission must advise the Public Service Commission within sixty (60) days after filing with its decision to approve or disapprove the application. The planning commission must state the reasons for disapproval and may make suggestions which better accomplish the objectives of the comprehensive plan and the locally adopted zoning regulations.

In any event, if a planning commission rejects the uniform application to construct an antenna tower, the Public Service Commission may override the decision of the planning commission and issue a certificate of convenience and necessity for construction of the cellular or personal communications services antenna tower. In this case, the Public Service Commission must determine that there is no acceptable alternate site and that the public convenience and necessity requires the proposed construction. Furthermore, the Telecommunications Act of 1996 indicates that no state or local regulations or requirements can prohibit or have the effect of prohibiting the ability to provide any interstate or intrastate telecommunications services. In this regard, the act allows the FCC to preempt enforcement of any state or local law or regulations if, after notice and public hearing, the FCC determines that such acts have the effect of prohibiting the carriers' ability to provide telecommunications services.

III. Existing Facilities in Boone County

- Trends
- Inventory
- Provider Service Area

Trends

Barrie Tabin, in the American City & Country Journal, estimates that more than 15,000 cellular towers have been built in the U.S. in the last 14 years to meet the service requirements of more than 25 million customers. He further estimates that by the year 2003, there will be more than 167 million Personal Communication Service (PCS) customers with at least 100,000 cellular towers needed to accommodate this growth. In Boone County, Kentucky, the growth of the cellular and personal communication service industry is evident through the increasing numbers of cellular towers that are dotting the landscape.

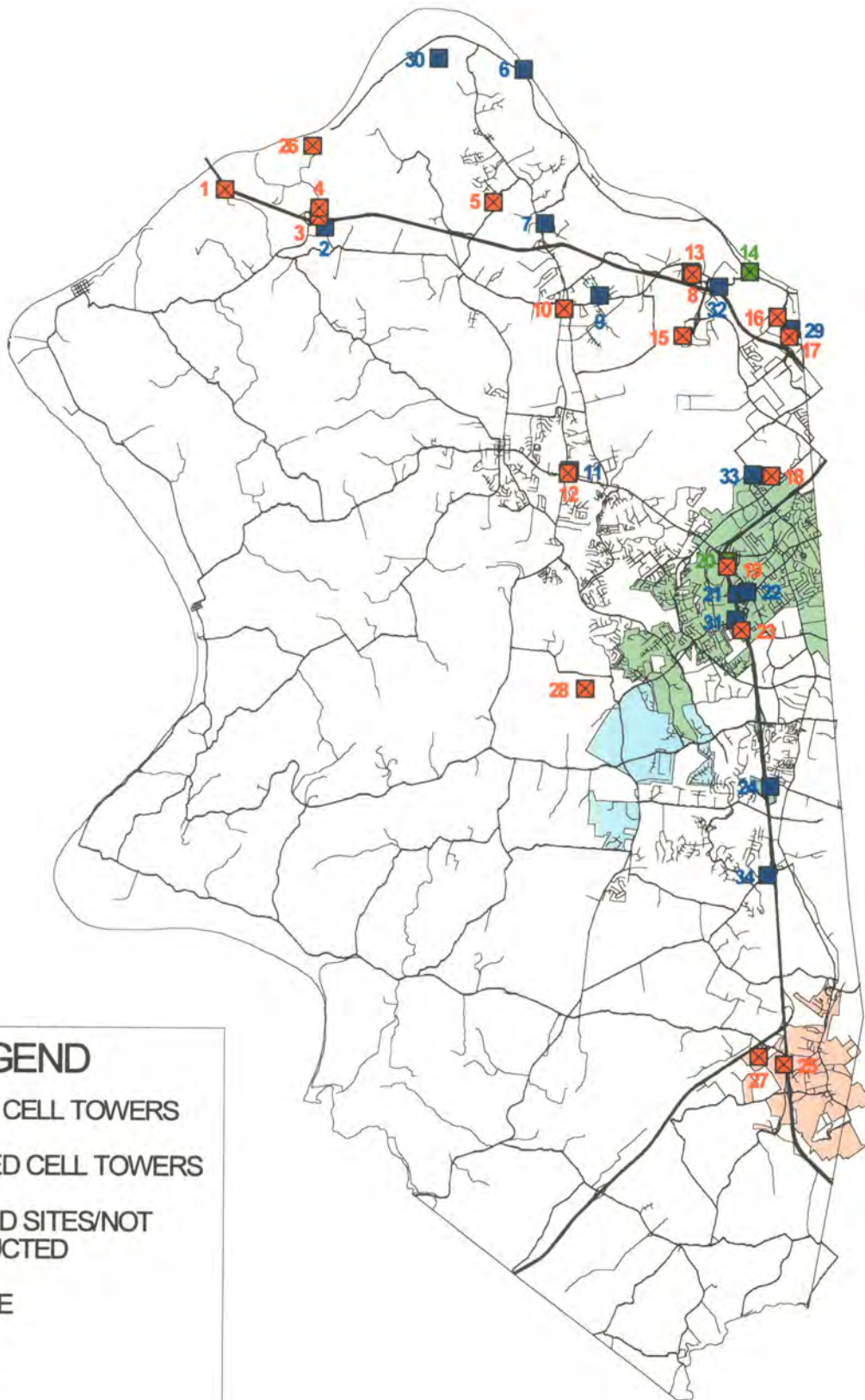
Inventory

As of April, 1998, there are eighteen (18) existing cellular towers (see Table 1 and Map 1) and sixteen (16) sites that have either been approved by the Public Service Commission or are under review (see Table 2). Currently, there are six (6) wireless companies that are providing, or will soon provide, service to Boone County. These include: AirTouch Cellular (Cellular One), Ameritech, AT&T Wireless, Nextel, GTE Mobilnet and SprintComm.

Table 1
Existing Cellular Towers

Map Number	PSC Case Number	Co-locatable	Provider(s)	Location	Height/Type
1	90-325	NA	AirTouch	Stevens Road	NA/Lattice
3		NA	Nextel	2620 Bullittsburg Church Road	120'/Monopole
4	97-164	YES	AT&T	2401 Bullittsburg Church Road	185'/Monopole
5	97-173	YES	AT&T	2648 Graves Road	190'/Monopole
8	9462	NA	AirTouch	KY 20/Ridgedale Lane	200'/Monopole
10	96-425	NA	GTE Mobilnet	3120 Northbend Road	125'/Lattice
12	96-459	YES	GTE Mobilnet	1983 Florence Pike	125'/Monopole
13	96-391	NO	AT&T Wireless	737 Petersburg Road	165'/Lattice
15		NA	Nextel	Radisson Inn Airport	Roof Mount
16	93-253	NA	Ameritech	3259 Point Pleasant Road	NA/Monopole
17	96-377	YES	GTE/AT&T	1261 Mineola Pike	180'/Monopole
18	92-465	NA	AirTouch	7500 Turfway Road	135'/Monopole
19	96-444	NA	GTE Mobilnet	7859 Tanners Lane	100'/Monopole
23		NA	Nextel	8080 Steilen Drive	120'/Monopole
25		NA	GTE Mobilnet	261 Beaver Road	Water Tower
26	97-061	NA	GTE Mobilnet	4734 Garrison Creek Road	195'/Monopole
27	92-544	NA	AirTouch	12140 Chandler Drive	135'/Monopole
28		NA	Ameritech	Longbranch Road	NA/Lattice

NA - Information is not available



LEGEND

- EXISTING CELL TOWERS
- PROPOSED CELL TOWERS
- APPROVED SITES/NOT CONSTRUCTED
- FLORENCE
- WALTON
- UNION

20000 0 20000 Feet

1 inch equals 16000 feet

Produced by the
Boone County Planning Commission
GIS Services Division
March 16, 1998



MAP 1 EXISTING/PROPOSED CELL TOWERS

Service providers have been erecting both monopoles and lattice towers in the county (Figure 1 and 2). In some cases, temporary poles are erected prior to the permanent structures (Figure 3). There are several cases of antennae located in places other than the traditional tower including: one (1) tower extending off on an existing light pole at the Turfway Race Track; a roof-mounted cellular antennae on the Radisson Inn Hotel, and a cellular antenna on the Walton Water Tower (Figures 4, 5 and 6). There is also one (1) cellular tower located on the Hebron Fire Department property (Figure 7). Fenced-in storage sheds and related equipment are usually associated with these towers (Figure 8). Furthermore, there are several cases of co-location in the county (Figure 9).

Table 2
Sites Under Public Service Commission Review

<u>Map Number</u>	<u>PSC Case Number</u>	<u>Co-locatable</u>	<u>Provider(s)</u>	<u>Location</u>	<u>Height/Type</u>
2	97-278	YES	AirTouch/SprintComm	Deck Lane	285'/Lattice
6	97-331	NA	Nextel	7596 River Road	Lattice Tower
7	97-230	YES	AirTouch/SprintComm	KY 237/Kilgore	185'/Monopole
9	97-277	YES	AT&T Wireless	1654 Petersburg Road	110'/Monopole
11	97-038	NA	AirTouch Cellular	1982 Florence Pike	185'/Monopole
14		NA	Nextel	4400 River Road	100'/Monopole
20	98-030	YES	AT&T (2 others)	Ewing Boulevard	190'/Lattice
21	97-491	NA	AT&T Wireless	8001 Dream	190'/Monopole
22	98-001	NA	AirTouch Cellular	7627 Ewing Boulevard	NA/Monopole
24	97-304	NA	GTE	321 Deer Trace	150'/Monopole
29	97-464	YES	SprintComm	3261 Mineola Pike	140'/Monopole
30	97-489	YES	SprintComm	255 North Bend Road	150'/Monopole
31	98-003	YES	SprintComm	8080 Steilen Drive	120'/Monopole
32		YES	SprintComm	579 Petersburg Road	150'/Monopole
33		YES	SprintComm	7500 Turfway Road	120'/Monopole
34		YES	SprintComm	Richwood Road	190'/Monopole

NA - Information is not available

Provider Service Area

Maps 2-7 represent each service provider and the locations of existing cellular towers or proposed locations that are currently under the Public Service Commission review. An approximate two and one-half (2½) mile radius is drawn around each cell tower, or proposed tower, to represent the maximum service area for that tower. This dimension was provided by the service industry as a rule of thumb for a tower of approximately 150 feet. These maps are not intended to provide exact service locations, but instead, are conceptual in nature. Some cellular companies provided the Planning Commission more detailed service ranges while others did not comment on the accuracy. It is estimated that the service areas for cell towers are approximately ½ to 3 miles depending upon the terrain of the land. Map 8 represents areas in Boone County where no service is currently provided nor expected to be provided in the near future.

The Boone County Planning Commission and staff recognize that commencing from the time that a utility files a uniform application with the Public Service Commission, all information contained within the application, except for information that specifically identifies the proposed location of the cell tower, shall be deemed confidential and proprietary within meaning of KRS 61.878. The Boone County Planning

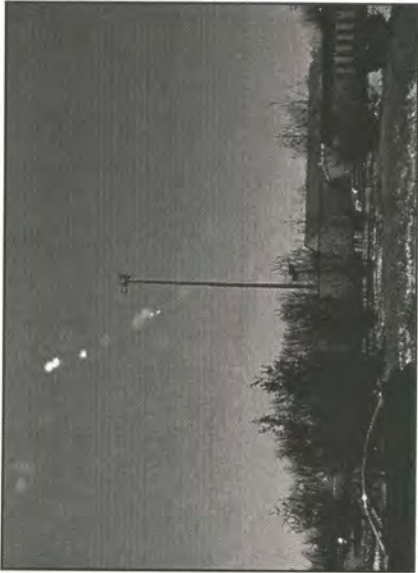


FIGURE 1 Monopole

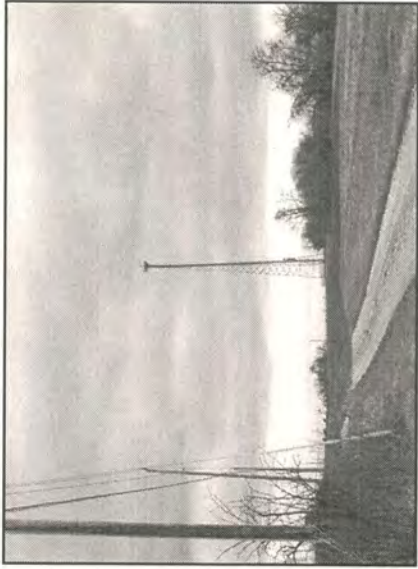


FIGURE 2 Lattice Tower

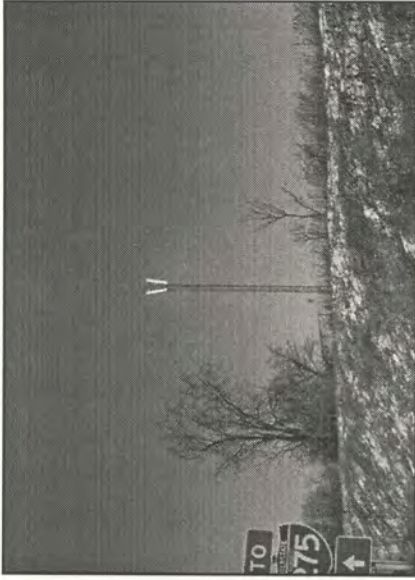


FIGURE 3 Temporary Tower



FIGURE 4 Cell Tower Attached to Light Pole



FIGURE 5 Antennae Attached to Hotel Roof



FIGURE 6 Antenna Attached to Water Tower

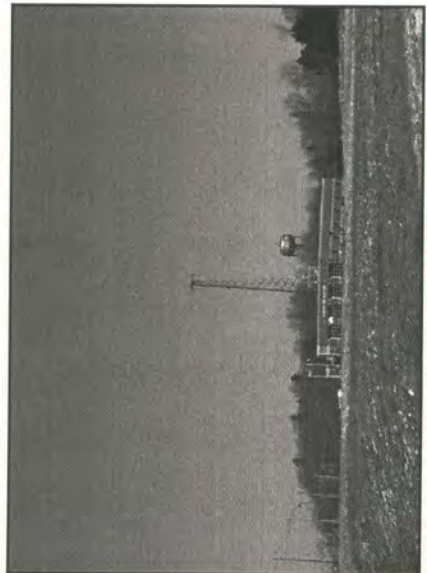


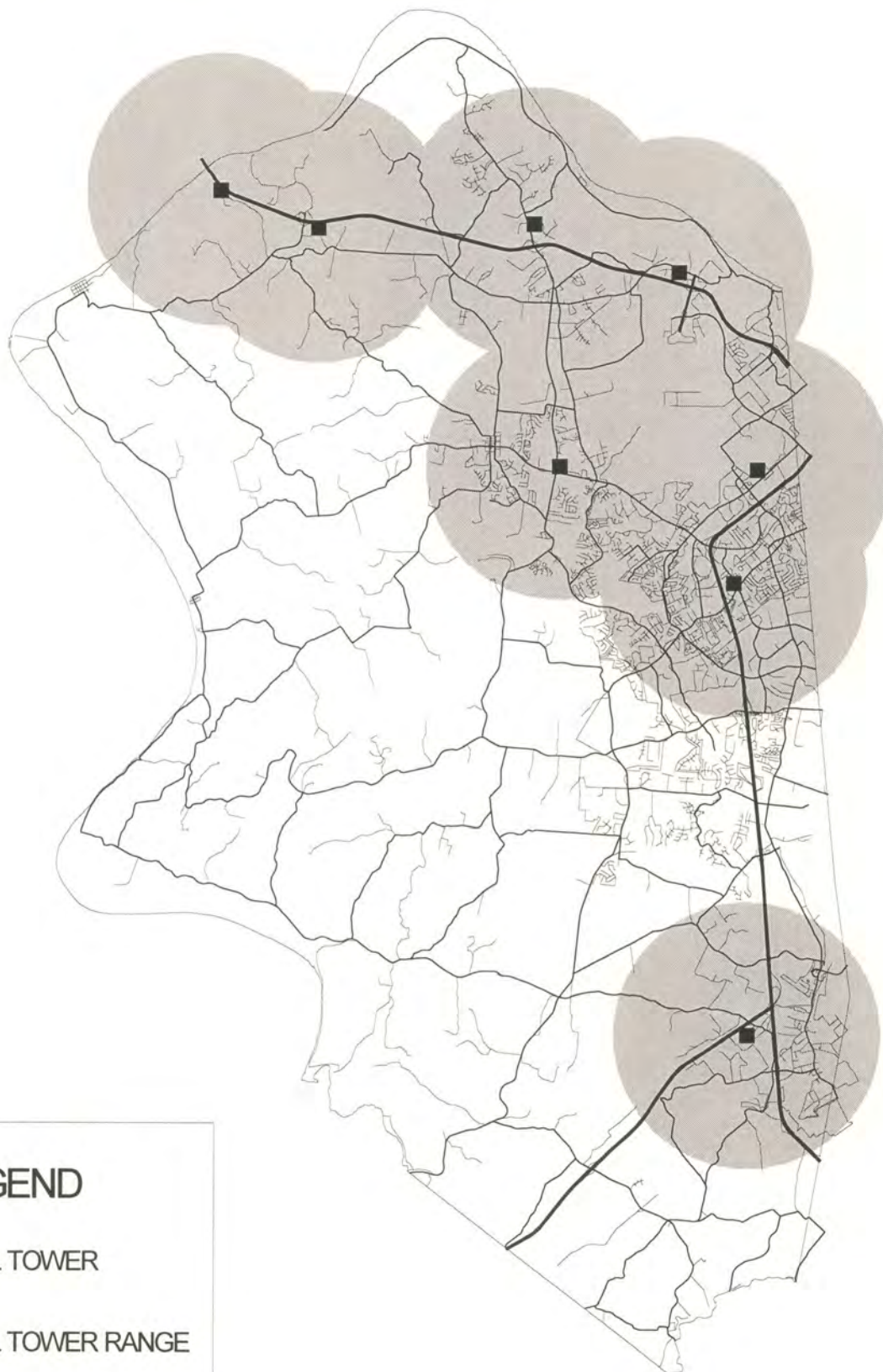
FIGURE 7 Cell Tower on Public Property



FIGURE 8 Typical Storage Shed



FIGURE 9 Co-Location



LEGEND



CELL TOWER



CELL TOWER RANGE

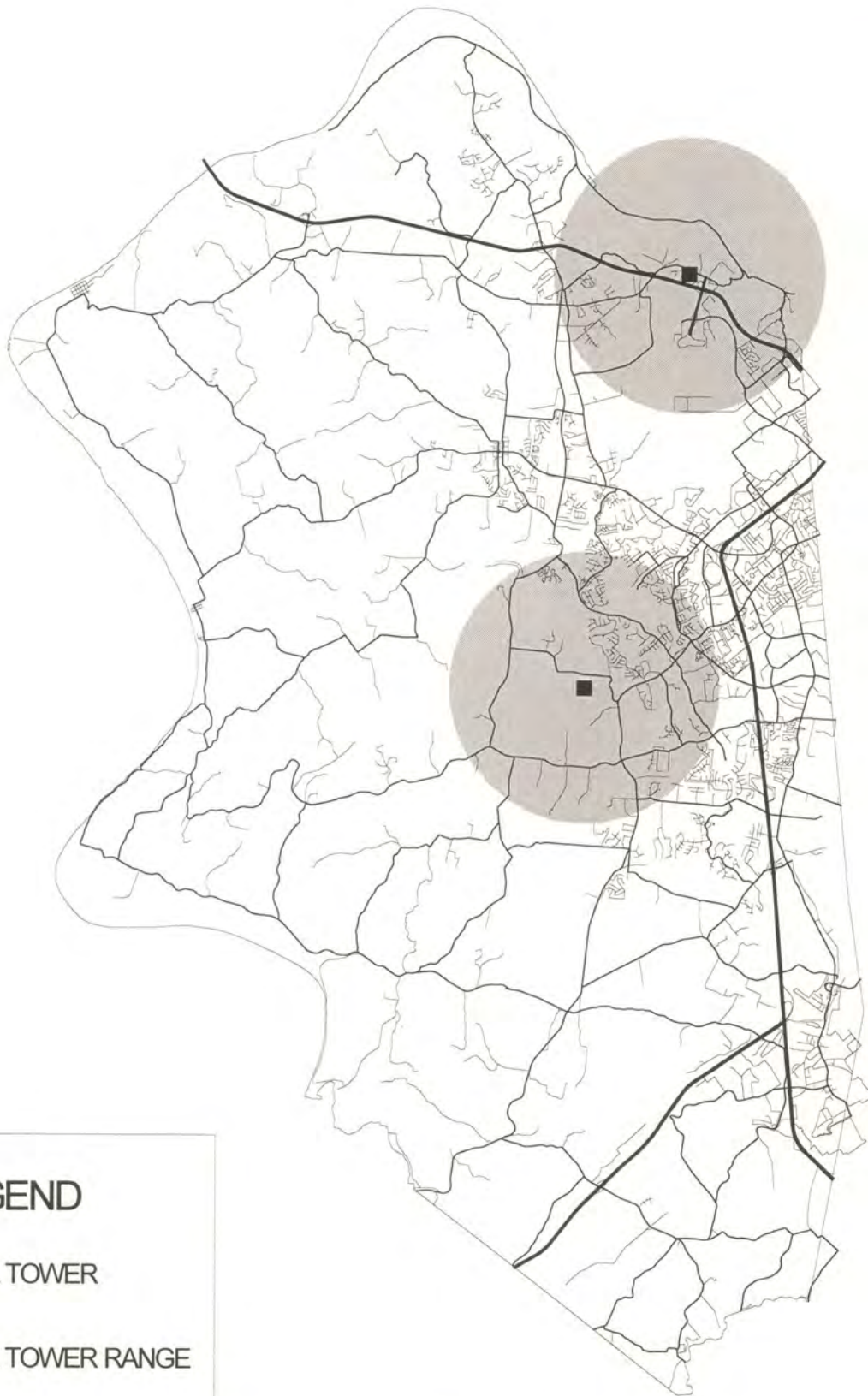
20000 0 20000 Feet



MAP 2 AIRTOUCH SERVICE RANGE

1 inch equals 16000 feet
Produced by the
Boone County Planning Commission
GIS Services Division
March 16, 1998





LEGEND



CELL TOWER



CELL TOWER RANGE

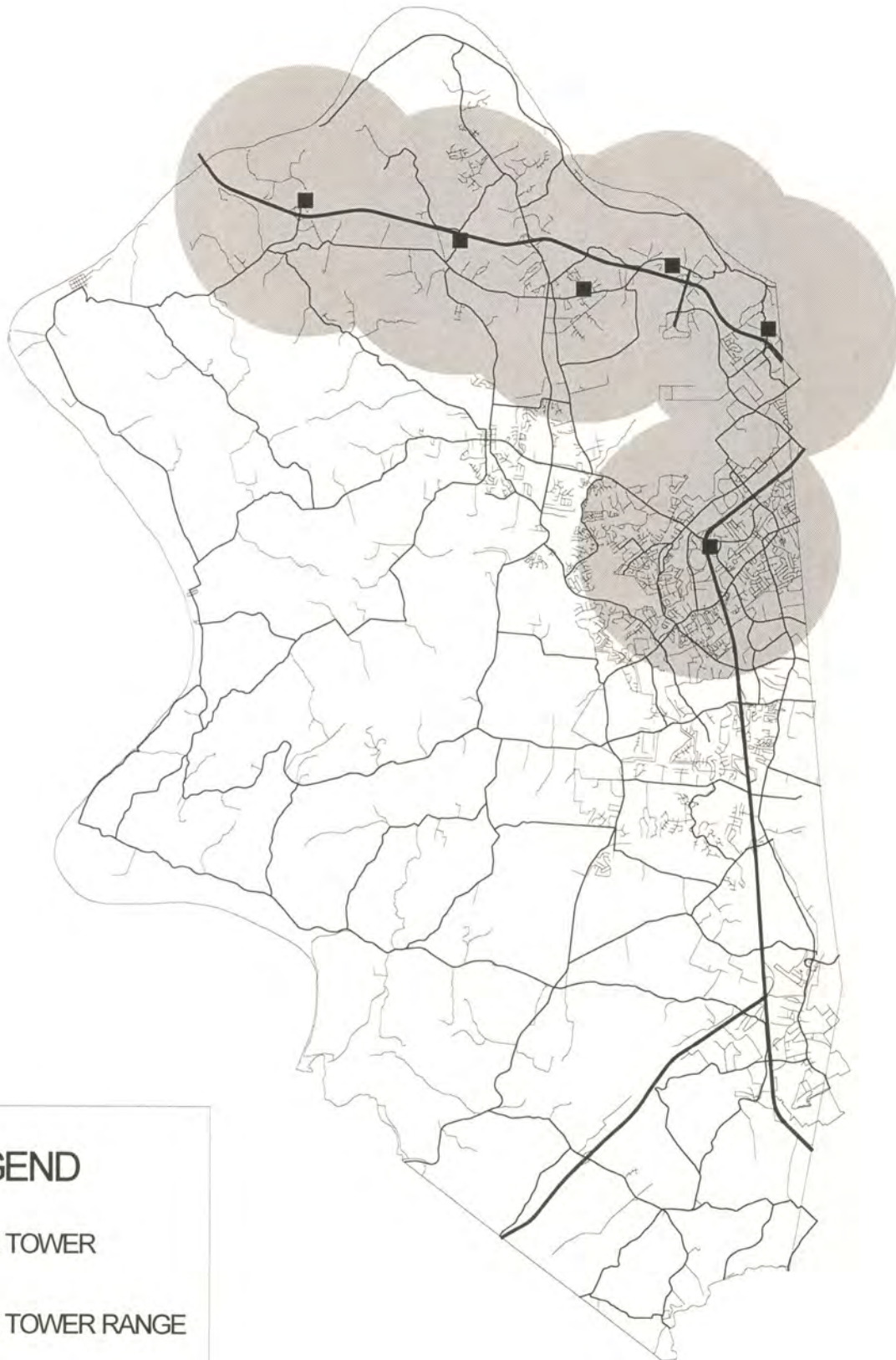
MAP 3 AMERITECH SERVICE AREA

20000 0 20000 Feet



1 inch equals 16000 feet
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March 16, 1998





LEGEND



CELL TOWER



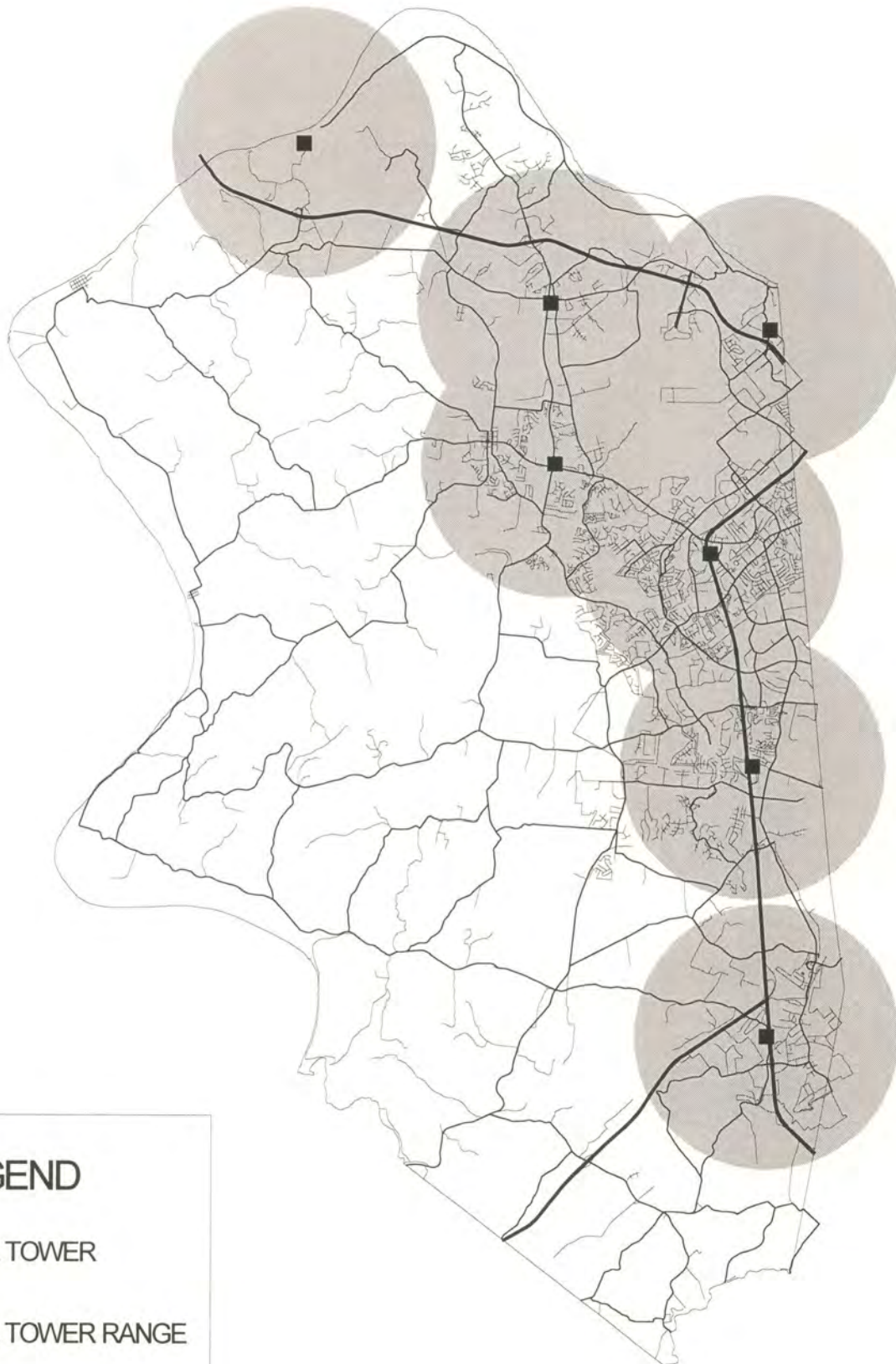
CELL TOWER RANGE

MAP 4 AT&T WIRELESS SERVICE AREA

16000 0 16000 Feet

1 inch equals 16000 feet
Produced by the
Boone County Planning Commission
GIS Services Division
March 16, 1998





LEGEND



CELL TOWER



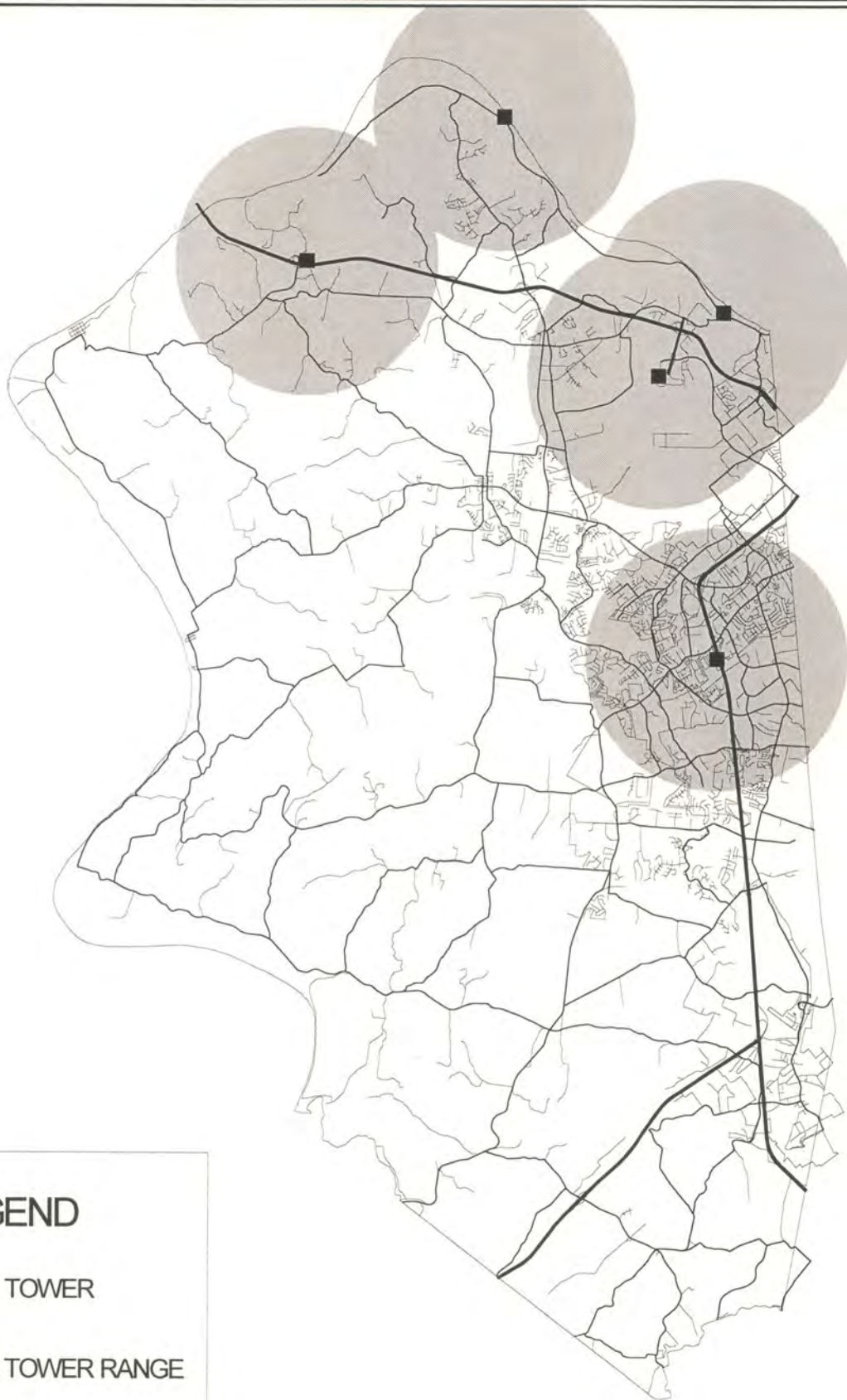
CELL TOWER RANGE

MAP 5 GTE MOBLINET SERVICE AREA

16000 0 16000 Feet

1 inch equals 16000 feet
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GIS Services Division
March 16, 1998





LEGEND



CELL TOWER



CELL TOWER RANGE

20000 0 20000 Feet

MAP 6 NEXTEL SERVICE AREA

1 inch equals 16000 feet
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GIS Services Division
March 16, 1998





LEGEND



CELL TOWER



CELL TOWER RANGE

MAP 7 SPRINTCOMM SERVICE AREA

16000 0 16000 Feet

1 inch equals 16000 feet
Produced by the
Boone County Planning Commission
GIS Services Division
March 16, 1998



Commission will deny any public request for the inspection of the information, whether submitted under Kentucky's Open Records Act or otherwise, except when ordered to release the information by a court of competent jurisdiction.

In general, the northern section of Boone County, including the I-275, KY 20 and KY 8 corridors, and the I-75 and Dixie Highway corridor, will be completely serviced. The cities of Florence and Walton, and the majority of Union, plus the Burlington and Hebron proper areas will be serviced. Western and southern Boone County, including the Petersburg, Belleview, McVile, Big Bone and Verona areas, are not planned to have service in the near future (see Map 8).



LEGEND



NON-SERVICE AREA

MAP 8 NON-SERVICE AREAS

20000 0 20000 Feet

1 inch equals 16000 feet
Produced by the
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GIS Services Division
March 17, 1998



IV. Recommendation

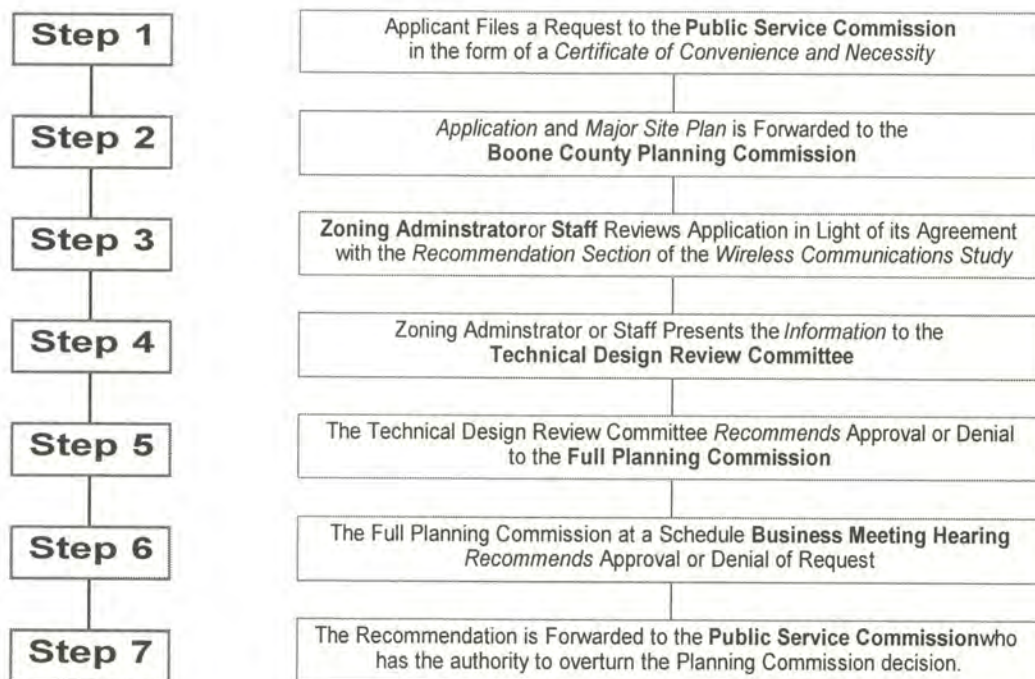
- Review Process
- Application Requirements
- Removal
- Desired Cell Tower Locations
- Relationship to the Boone County Zoning Regulations
- Definition

Review Process

As stated in House Bill No. 168, *The (Boone County) planning commission has sixty (60) days to review the uniform application in light of its agreement with the comprehensive plan and locally adopted zoning regulations.* The Boone County Comprehensive Plan will be considered for future and existing land uses in a service provider's search area and the impact on these land uses with cellular tower uses will be investigated. The Boone County Zoning Regulations will be changed to recognize cellular antennae towers and the related equipment as permitted uses in certain zone districts and subject to a newly created section in the Supplemental Performance Standards Section of that ordinance.

The Boone County Zoning Administrator or staff shall review the uniform application in light of its agreement with the Desired Cell Tower Location Section of this document and the Boone County Zoning Regulations and present the information to the Technical/Design Review Committee of the Boone County Planning Commission. The Technical/Design Review Committee shall then recommend approval or denial of the request to the Boone County Planning Commission. The Boone County Planning Commission shall then vote to approve or deny the request at a scheduled business meeting and forward the decision to the Public Service Commission. Figure 10 is a graphic representation of the full review process.

Figure 10 - Cell Tower Review Process



Application Requirements

As stated in House Bill No. 168:

The applicant shall submit a copy of the utility's completed uniform application within five (5) days of applying to the Public Service Commission for a certificate of necessity and convenience as required by KRS 278.020 (1). The uniform application shall include a grid map that shows the location of all existing cellular antenna towers (of that service provider) and that indicates the general position of proposed construction sites for new cellular antenna towers within an area that includes

- 1. All of Boone County, including the cities of Florence, Union and Walton; and*
- 2. A one-half (1/2) mile area outside the boundaries of the Boone County, if that area contains either an existing or proposed construction sites for cellular antenna towers.*

Furthermore, this document recommends that all applicants are required to submit for the major site plan review procedure and pay a fee as per the adopted fee schedule as part of the uniform application procedure. Applicants must address items 1-9, 12, 14, 15, 18 and 22 of Article 30 - Site Plan Review - in the Boone County Zoning Regulations. A pre-application meeting is recommended with the Boone County Planning Commission Staff before the uniform application submittal. The site plan shall indicate a buffer yard 'A' around all property lines that contain a new cell tower as referenced in Article 36 or Article 37 of the Boone County Zoning Regulations. This does not apply for the co-location of a new antenna on existing facilities.

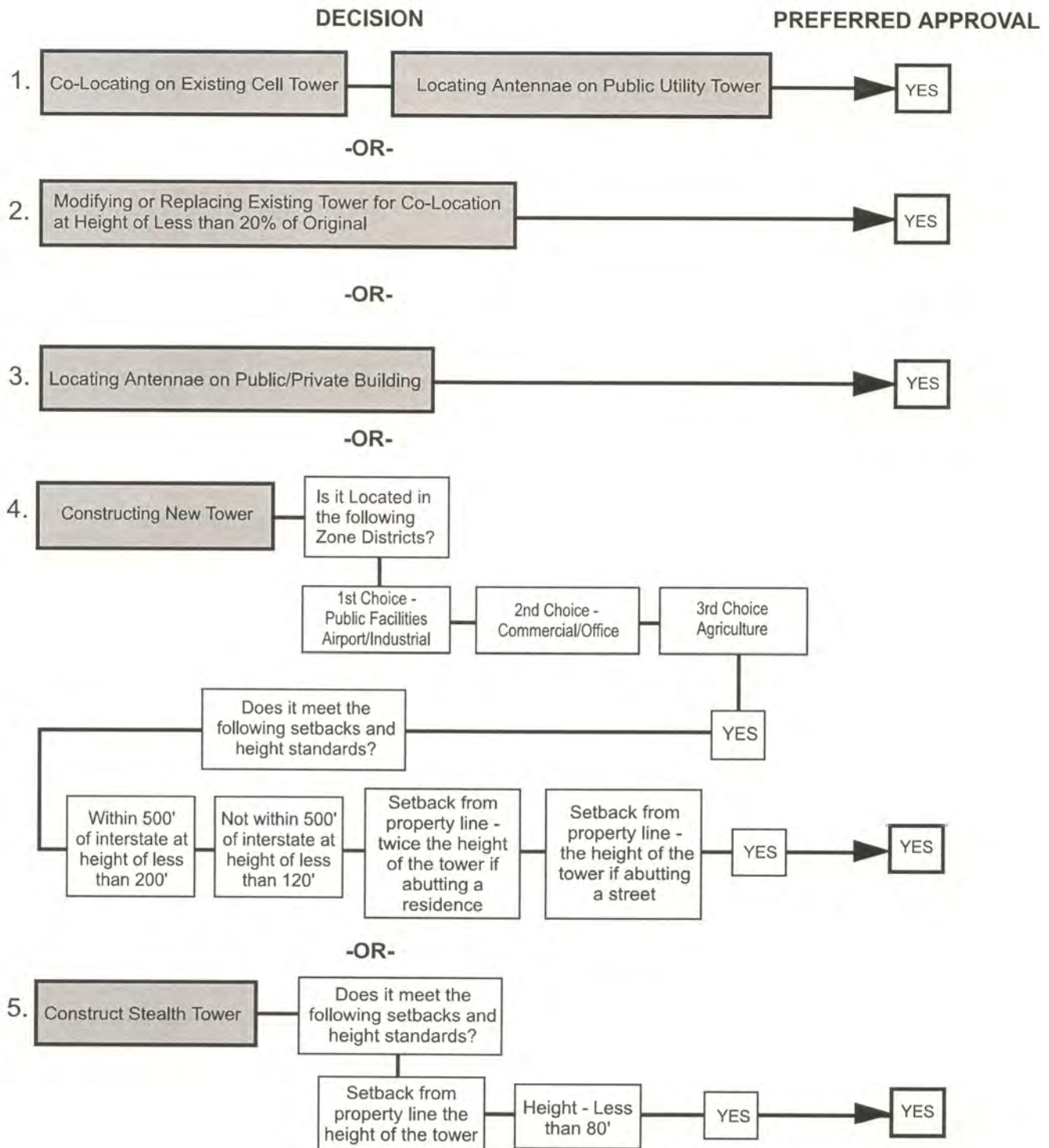
Removal

As stated in House Bill 168, *the applicant shall include in any contract with an owner of property upon which a cellular antenna is to be constructed, a provision that specifies, in the case of abandonment, a method that the utility will follow in dismantling and removing a cellular tower including a timetable for removal.*

Desired Cell Tower Locations

This section is created to set preferences as to where and how the Boone County Planning Commission finds to be the appropriate locations for new cellular towers or related antennae. Although the Boone County Zoning Regulations will be updated to reflect cellular towers as permitted uses in certain zone districts, this decision list will insure that alternate locations will be discussed when it is found by the Boone County Planning Commission staff that there are nearby sites in differing zones that may be more appropriate for cellular tower construction than what has been submitted. Figure 11 is a graphic representation of this decision list. At the top of this list, co-location and the use of public infrastructure, is ideally the best situations for the location of new cellular antennae. Realizing that these two options are not always possible, the construction of new cell towers is recommended and permitted in appropriate zone districts with the appropriate setbacks.

Figure 11 - Decision Flow Chart



Note: If Decision #1, #2 or #3 is reached, requirements in decisions #4 and #5 are void.

Co-Location

The Boone County Planning finds that co-location is the best scenario for the location of new cellular antennae. As stated in House Bill 168:

The Planning Commission may require the utility to make a reasonable attempt to co-locate additional transmitting or related equipment on any new or existing towers, if there is available space on the tower and the co-location does not interfere with the structural integrity of the tower and does not require the owner of the tower to make substantial alterations to the tower.

The applicant shall provide either of the following information:

1. *A statement indicating that the utility will co-locate on towers designed to host multiple wireless service providers' facilities or existing structures such as a telecommunications tower or another suitable structure capable of supporting the utility's facilities, and that identifies the location of the tower which the applying utility will co-locate its transmission and related facilities on; or*
2. *Unsuccessfully attempted to co-locate on towers designed to host multiple wireless service providers' facilities or existing structures such as a telecommunications tower or another suitable structure capable of supporting the utility's facilities and that:*
 - a. *Includes the documentation of corresponding efforts between service providers;*
 - b. *Identifies the location of the towers which the applying utility attempted to co-locate on; and*
 - c. *Lists the reasons why the co-location was unsuccessful in each instance.*



Note: Tables 1-3 and Maps 1-8 are provided herein to help service providers to locate existing towers that are built for co-location.

Public Infrastructure Use

This document recommends that the applicant supply a map and a list of all potential existing public infrastructure locations in the proposed area. The Cinergy Corporation has been talking with many of the Cellular Companies regarding their plans to serve the Greater Cincinnati area with new cellular telephone services. The discussions centered around co-locating proposed antennae facilities on CG&E's existing facilities including: microwave towers, radio antenna sites, tall buildings, electric substation sites and electric transmission tower lines. According to a letter written from James A. Piraino, Real Estate Services of CG&E to Kevin Costello,

Executive Director, Boone County Planning Commission, "CG&E has several thousand of these towers (electric transmission tower lines) in our service area. These towers average 150 feet tall and are located about 800 feet apart and have a proven track record of success for co-use in many communities throughout the Country that have already had their cellular facilities constructed." Map 9 locates all of the steel transmission and radio/microwave towers in the County.

Public/Private Building Use

This document recommends locating antennae on the top of public and private buildings.

New Tower Construction/Modification of Existing Tower for Single-User Purpose

Note: The Boone County Zoning Regulations will be updated to reflect the recommendations stated below.

Construction

The Boone County Planning Commission recommends monopole type construction over the lattice tower construction where feasible due to aesthetic reasons. Monopoles seem blend in with the surroundings especially if they are a shade of grey or of a pale blue color.

All new cellular towers or modifications to existing towers must be constructed to accommodate two (2) additional users. The owner of this new tower must participate in discussions with interested service providers and provide documentation agreeing to discuss co-location possibilities.

Acceptable Zone Districts

The Planning Commission finds that the three (3) most appropriate zones districts for the construction of new cellular towers in order of appropriateness are the:

1. Public Facilities (PF), Airport (A) and Industrial Two (I-2) Zones, then
2. Industrial One (I-1) and Light Industrial One (I-1A) Zones

The Planning Commission finds that the following zone districts are secondary zone districts that are also appropriate for new cellular tower construction but are subject to more restrictive height and setback standards. These zone districts are also in order of appropriateness including the:

4. Commercial Three (C-3)
5. Commercial Two (C-2)
6. Commercial One (C-1) and Commercial Four (C-4)
7. Office One (O-1), Professional Office One (O-1A), Office Two (O-2) and Employment Planned Development District (EPD)
8. Agricultural One (A-1) when the adjoining land uses are passive like Agriculture but not residential in nature
9. Agriculture Estate (A-2) when the adjoining land uses are passive like Agriculture but not residential in nature

The Planning Commission further finds that the following residential zone districts are appropriate for stealth cellular tower construction and subject to even more restrictive height and setback standards. These zone districts include RSE, RS, SR-1, SR-2, UR-1, UR-2, UR-3, MHP, and R-1F.

Map 10 is a graphic representation of these preferred zone districts.



MAP 9
TRANSMISSION/RADIO TOWERS





20000 0 20000 Feet

1 inch equals 16000 feet
Produced by the
Boone County Planning Commission
GIS Services Division
April 22, 1998





LEGEND

-  Preferred Zones (Airport, Industrial, Public Facilities)
-  Secondary Zones (Office, Commercial, Agricultural)
-  Stealth Tower Zones (Residential)
-  Prohibited Zones

MAP 10 PREFERRED ZONE DISTRICTS

16000 0 16000 Feet

1 inch equals 16000 feet
Produced by the
Boone County Planning Commission
GIS Services Division
April 22, 1998



The Planning Commission does recognize the effectiveness of stealth tower design if done effectively in appropriate areas. The Planning Commission finds that flag poles and church spires are effective ways to hide antenna and to blend into the surroundings. The key to stealth design is the height of the tower, the subtlety of the design and the ability to integrate into the overall environment. Shorter towers in the range of 80 feet or less are more likely to be successfully hidden with the surroundings.

In the future the wireless industry may move towards micro-cell technology. Micro-cell antennae utilize shorter towers and can be placed utility, flag and light poles. However, the service range is far less requiring more towers. Stealth design could become critical if the wireless industry moves towards the micro-cell technology. Furthermore, the technology of using satellites may totally eliminate the need for towers altogether.

Relationship to the Boone County Zoning Regulations

This document recommends that Article 5 of the Boone County Zoning Regulations be changed to allow new cellular tower construction and their related equipment as permitted uses in all zone districts excluding the following zone districts: Recreation (R), Conservation (CONS), Small Community Overlay District (SC), Historic Landmark/Historic District Overlay District (H), Houston-Donaldson Study Corridor Overlay District, Florence Main Street Zoning Study (FMS), and the Walton Downtown District (WD). Co-location on existing cellular and utility towers will be permitted in all zone districts. The location of antennae on existing buildings will also be permitted in all zone districts.

This document recommends that a new section be created in Article 31 - Supplemental Performance Standards - of the Boone County Zoning Regulations. This newly created section will regulate the height, setbacks, and design standards for new cell tower construction and the modification of existing towers.

Modification of existing cellular towers for co-location

An existing cellular tower can be constructed for the purpose of co-location at a height no greater than 20% of the existing tower. If it is not structurally feasible to increase the height of an existing tower for co-location, a new tower can be built in the exact location as the existing tower at a height not to exceed 20% of the existing tower. If the existing tower is a monopole, it must be replaced with a monopole. A lattice tower can be constructed if it is replacing an existing lattice tower.

New Cellular Tower Construction

All zone districts that list new cellular tower construction as a permitted use will be divided into three categories. The first category will include the following zones: Public Facilities (PF), Airport (A) Industrial Two (I-2) Industrial One (I-1) and Light Industrial One (I-1A) Zones and will regulate cell tower construction in the following manner:

Construction

Type - Lattice Tower, Monopole and Stealth Tower. **Color** - grey or blue. **Built** to accommodate two (2) additional users.

Setbacks

All cell towers shall be located at least 10 feet from all property lines. Cell towers shall be set back at least twice the height of the proposed tower when the site abuts a residence or residentially zoned property and setback the height of the tower when the site abuts a street.

Height

Cell Towers located within 500 feet of an Interstate Highway should not be taller than 200 feet. Cell towers located further than 500 feet of an Interstate Highway should not be taller than 150 feet

The second category will include the following zones: Industrial Three (I-3), Commercial Three (C-3), Commercial Two (C-2), Commercial One (C-1), Commercial Four (C-4), Office One (O-1), Professional Office One (O-1A), Office Two (O-2), Employment Planned Development District (EPD), Agricultural One (A-1), and Agriculture Estate (A-2) and will regulate cell tower construction in the following manner:

Construction

Type - Monopole and Stealth Tower. Color - grey or blue. **Built** to accommodate two (2) additional users.

Setbacks

All cell towers shall be located at least 10 feet from all property lines. Cell towers should be set back at least twice the height of the proposed tower when the site abuts a residence or residentially zoned property and setback the height of the tower when the site abuts a street.

Height

Maximum Height - 120 feet

The third category the following zones: Rural Suburban Estate (RSE), Rural Suburban (RS), Suburban Residential One (SR-1), Suburban Residential Two (SR-2), Urban Residential One (UR-1), Urban Residential Two (UR-2), Urban Residential Three (UR-3), Mobile Home Park (MHP) and Residential Planned Development District (RPD) and will regulate cell tower construction in the following manner:

Construction

Type - Stealth Tower Construction - subject to review by the Technical Design Review Committee

Setbacks

All cell towers shall be located at least 10 feet from all property lines. Stealth towers should be set back at least twice the height of the proposed tower when the site abuts a residence or residentially zone property and setback the height of the tower when the site abuts a street.

Height

Maximum Height - 80 feet

When reviewing a request for a new cellular tower, the Boone County Planning Commission can modify the setbacks or other standards to require a proposed tower to be placed in an alternate location than what is proposed. These areas may include the rear or corner of a site, an area where there is existing vegetation, or any area that the Planning Commission determines has less of an impact than what is proposed.

Definitions of Telecommunication Terms

Antenna. An Antenna is one or more rods, panels, discs or similar devices used for the transmission or reception of radio frequency signals, which may include omni-directional antenna, directional antenna and parabolic antenna but does not include the Support Structure.

Cellular Antenna Tower (Cell Tower). A tower constructed for, or an existing facility that has been adapted for, the location of transmission or related equipment to be used in the provision of cellular telecommunications services or personal communications services.

Cellular Communication Services. Personal Wireless Service accessed by mean of cellular equipment and services.

Cellular Telecommunications Service. A retail telecommunications service that uses radio signals transmitted through cell sites and mobile switching stations.

Collocation/Site Sharing. Collocation/Site Sharing involves the use of a common cell tower by two (2) or more wireless license holders or by one wireless holder for more than one type of communications technology and/or placement of antenna on a structure operated by a utility or other public entity. Collocation shall include the modification of an existing cellular tower, radio tower, transmission tower, light pole or similar structure at a height no greater than 25% of the existing tower or pole height.

Equipment Facility. An Equipment Facility is any structure used to contain ancillary equipment for a cellular antenna tower which includes cabinets, shelters, a build out of an existing structure, pedestals, and other similar structures.

Height Height is the distance measured from ground level to the highest point on the cellular antenna tower including the Antenna Array.

Lattice Tower. A tower consisting of a webbed network of support structures (see Figure 2).

Monopole. A tower consisting of one solid support structure from base to antenna (see Figure 1).

Personal Communication Services (Personal Wireless Services). Commercial mobile services, unlicensed wireless services, and common carrier wireless exchange services including pagers, cellular phones, and personal communications services.

Stealth Tower. A tower that is built to resemble a flag pole, tree, church spire, etc while blending in with the surroundings.

Support Structure. A Support Structure is a structure designed and constructed specifically to support an Antenna and may include a monopole, self supporting (lattice), guy-wire-support tower and other similar structures.

Temporary Wireless Communication Facility A support structure that is used for a period of less than ninety (90) days.

Uniform Application. An application for a certificate of convenience and necessity issued under KRS 278.020 submitted by a utility to the Public Service Commission to construct an antenna tower for cellular communications services or personal communications service in a jurisdiction, that has adopted planning and zoning regulations in accordance with KRS Chapter 100, except for any county that contains a city of the first class.

Wireless Communications. Wireless Communications are any personal wireless services as defined in the Telecommunication Act of 1996, which includes FCC licensed commercial wireless telecommunications services including cellular, personal communication (PCS), specialized mobile radio (SMR), enhanced specialized mobile radio (ESMR), paging, and similar services that currently exist or that may developed in the future.