DOCKET NO. 169 - An application of Bell Atlantic NYNEX Mobile, for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a telecommunications tower and associated equipment located within a 56± acre parcel at 56 East Hampton Road, in Marlborough, Connecticut. The proposed alternatives are located within a 21.7± acre parcel at North Main Street and within a 2.5± acre parcel at 9-11 South Main Street, in Marlborough, Connecticut.	}	Connecticut
	}	Siting
	}	Council
	}	September 27, 1995

FINDINGS OF FACT

Introduction

1. Metro Mobile CTS of Hartford, Inc. (Metro Mobile) in accordance with provisions of General Statutes §§ 16-50g through 16-50aa applied to the Connecticut Siting Council (Council) on April 7, 1995, for a Certificate of Environmental Compatibility and Public Need for the construction, operation, and maintenance of a telecommunications facility in the Town of Marlborough, Connecticut. The purpose of the proposed facility is to provide increased cellular service to certain sections of Hartford, Middlesex, and Tolland Counties within the Hartford New England County Metropolitan Area (NECMA). (Bell Atlantic NYNEX Mobile, Inc. (BANM) 1, pp. 1-2)

2. On July 7, 1995, Metro Mobile, a subsidiary of Bell Atlantic Enterprises International, Inc., (Bell Atlantic), notified the Council that the applicant has changed from Metro Mobile to Cellco Partnership, a joint venture of Bell Atlantic and NYNEX Corporation, and that this application is made on behalf of Cellco Partnership by the managing general partner, Bell Atlantic NYNEX Mobile, Inc. (BANM 1, p. 4; BANM letter of July 7, 1995).

3. Public notice of the application, as required by General Statutes § 16-50l (b) was published in The Hartford Courant on April 5, 1995, and April 6, 1995. (BANM 1, p. 6)

4. Pursuant to General Statutes § 16-50m, the Council, after giving due notice thereof, held a public hearing on May 30, 1995, beginning at 3:00 p.m. and reconvening at 7:00 p.m. in the multipurpose room of the Elmer Thienes Elementary School, School Drive, Marlborough, Connecticut. The hearing was continued on June 28, 1995, at 10:00 a.m. in the same location. The hearing was further continued at 11:00 a.m. on July 6, 1995, and at 10:00 a.m. on July 25, 1995, in the meeting room of the Council, 136 Main Street, New Britain, Connecticut. (Council Hearing Notice of April 26, 1995; Tr., June 28, 1995; Tr., July 6, 1995; Tr., July 25, 1995)

5. The Council and its staff made an inspection of the prime tower site and the two alternate tower sites proposed in this application on May 30, 1995. During the field inspection, the applicant flew a balloon at each of the three proposed tower sites to simulate the heights of the towers proposed at these locations. (Council Hearing Notice, p. 2; Council Notice to Parties and Intervenors, May 11, 1995, p. 2)

Need

6. Metro Mobile received an operating license (Radio Station Authorization) from the Federal Communications Commission (FCC) to construct and operate cellular radio telecommunications sites in the Hartford NECMA, within which the Town of Marlborough (Town) is located. The FCC license to construct and operate a cellular system in the Hartford NECMA has been transferred to Cellco Partnership with FCC approval. (BANM 1, Section 12; BANM letter of July 7, 1995)

7. The FCC has determined that there is a general public need for cellular service and that applicants for cellular facilities are not required to demonstrate a general public need for cellular service to state regulators. The FCC has also pre-empted state regulation of cellular telephone service in the areas of technical standards and market structure. (BANM 1, pp. 7-8)

8. Cellular service consists of low power transmitter/receiver stations known as cell sites. The cellular system design allows for the configuration of cell sites so that the same frequencies can be used at the same time in different cells (frequency reuse) and to provide uninterrupted service throughout a service area (hand-off). (Docket No. 126, Finding of Fact 12)

9. The FCC designates certain frequencies for wireline and non-wireline carrier use. The applicant has been allocated 25 megahertz (Mhz) of frequency spectrum. (Docket No. 126, Finding of Fact 10; BANM 1, Section 12)

The Cellular System Design

10. The applicant has been using -90 dbm as a standard design criteria for analog cellular coverage for several years. The -90 dbm signal threshold is representative of reliable coverage for a vehicle with a mobile unit with 3 watts of transmit power. A signal below -90 dbm may result in calls which are dropped or not completed. (Tr., June 28, 1995, pp. 21-23, 35, 153-154; FCC Docket No. 79-318)

11. Coverage for portable units, which have a transmit power of 0.6 watts, require a more aggressive design than mobile units. A coverage level of -75 dbm is used as a design criteria to establish reliable coverage for portable units. Portable units represent the fastest growing portion of the cellular market, with portables comprising one-third of the applicant's market share of existing users. (Tr., June 28, 1995, pp. 27, 132; BANM I, Section 6, pp. 8-9)

12. Additional cell sites may be required to increase signal strength levels and capacity of existing facilities. New facilities may be added through cell-splitting, which places additional cells between existing sites. (BANM 1, Section 6, pp. 17-18)

13. Dominant signals from sites provide the strongest coverage in areas with overlapping coverage. Dominant signals are established to avoid marginal coverage, which may result in signal static with a high potential for a call to be handed off to another site, or to be dropped at the time of hand-off. BANM now considers the strength of the dominant signal in an area as one of its design criteria. (Tr., June 28, 1995, p. 195)

14. Signal quality would be degraded if a call were handed off repeatedly between sites. Each hand-off of a call represents an opportunity for a dropped call. BANM now considers the minimization of hand-off as one of its design criteria for a cell site. (Tr., June 28, 1995, p. 90, p. 195)

Tower and Antenna Specifications

15. Each proposed tower would be designed to withstand pressures equivalent to a 90 mph wind with one-half inch solid ice accumulation in accordance with the specifications in Electronic Industries Association, EIA/TIA 222-E, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures. (BANM 1, Section 1, p. 8, Section 2, p. 8, Section 3, p. 9)

16. The proposed sites would be sectorized using directional antennas with three separate arrays arranged at 30°, 150°, and 270° off true north. These 9-12 dbm high gain antennas have about 120° beam widths with equal coverage in all directions. (Tr., June 28, 1995, pp. 207-208)

Cellular Coverage

17. Cellular customers are experiencing levels of ineffective call attempts in the Marlborough area at a rate more than three times that of the BANM system as a whole. The Marlborough area rate of lost calls is twice that of the system average. (BANM 19, p. 2)

18. BANM identified coverage gaps using propagation modeling which were later verified through field testing. Field testing was undertaken by using signal strength detection equipment driven along roads where potential gaps had been identified. (BANM 1, Section 4, p.2)

19. Coverage predictions have been found to be accurate through verification after tower construction and operation. (Tr., June 28, 1995, p. 86)

Site Search

20. Metro Mobile began the search for a cellular site in the Marlborough area approximately four years ago, and eventually investigated 41 sites, including the three sites proposed in the application. (Tr., May 30, 1995, 7:00 p.m., p. 82; BANM 1, Section 4, p. 2)

21. Reasons the remaining 38 sites were rejected include limited available space, low ground elevation, unwillingness by site owners to negotiate a lease, location within a populated residential area, location too far from the Marlborough search area, and deed restrictions on the property. (BANM 1, Section 4, pp. 2-10)

22. Metro Mobile first met with Town officials on October 15, 1991, to discuss the need for a cell site within Marlborough. Other meetings with Town officials were held on February 7, 1994, March 29, 1994, and March 21, 1995. After the March 29, 1994, meeting, Town officials asked Metro Mobile to consider seven sites. After coverage evaluations, three of these were determined to be acceptable, including property owned by the Horowitz family. The owners of the Horowitz property were unwilling to lease the land at that time, as were the owners of the second property. Title encumbrances were found on the third property, which was rejected. On July 25, 1994, the Town asked Metro Mobile to consider three additional sites: a property owned by the East Glastonbury Fish and Game Club; the Marlborough Town Hall on North Main Street; and the Zirkenbach property on North Main Street. On March 27, 1995, the Marlborough Board of Selectmen voted to recommend against all three sites proposed by Metro Mobile in the application. (BANM 1, pp. 25-28)

23. The Zirkenbach parcel was submitted as alternate number one in this application after the applicant finalized negotiations with the property owner. (BANM 1, p. 28)

24. Metro Mobile first made a lease offer on the Horowitz property in April 1994, as the site would offer an acceptable level of coverage based on a 180-foot tower. BANM sought to reach agreement on a lease for this site in 1995, but due to the uncertain legal status of this property was unable to enter into a lease agreement. BANM therefore does not view this property as a viable option for a tower site. (BANM 15; Tr., May 30, 1995, 3:00 p.m., p. 52; Tr., July 6, 1995, pp. 61-63; Tr., July 25, 1995, pp. 11-12)

25. Existing and future planned towers were investigated to consider how service from such towers would operate in conjunction with the proposed tower. No existing towers were found within the search area which could provide the proposed cellular service. (BANM 1, pp. 23-24)

26. The Town of Marlborough requested information on future BANM tower sites in Glastonbury, Connecticut. This information was provided to the parties and intervenors requesting this information and to the Council under a Protective Order. (Council Protective Order, June 26, 1995)

Proposed Prime Site

27. The proposed prime site is a 100-foot by 100-foot leased parcel of land within a 56± acre parcel of land at 56 East Hampton Road, Marlborough, owned by Robert and Ida Farley. The proposed prime site has an elevation of 640 feet above mean sea level (AMSL) and is zoned General Commercial. (BANM 1, Section 1, pp. 1, 6)

28. The proposed prime site is on Carter Hill, a moderately westward-sloping undeveloped property with a forest cover consisting of black oak, white oak, hickory, black birch, and red maples up to 75 feet in height. This property is currently classified as forest land for the purpose of encouraging the growth and cutting of timber crops under General Statutes § 12-96. (Department of Environmental Protection (DEP) Comments, May 19, 1995, p. 3; BANM 20, Q. 13; Tr., June 28, 1995, p. 218)

29. If the proposed tower were constructed on the Farley property, it would constitute a change in the use of the land and consistent with the long-standing practice of the State Forester; the State Forester would cancel the Certificate of Classification of Forest Land for the entire 56 acre parcel. (NEAT 9)

30. Access to the proposed prime site would be via a 1,310-foot easement 25 feet in width along the western boundary of the lessor's parcel. A new gravel driveway would extend from the end of an existing paved driveway from East Hampton Road for a distance of approximately 600 feet. Utilities would be brought in above ground from the Birchwood Water Association property from an existing utility line. The access road would pass within 40 feet of the nearest homeowner's property boundary, while crossing two other properties. (BANM 1, Section 1, pp. 1, 5, 14; BANM 7, Q. 6)

31. There are 25 homes and six undeveloped lots within a 1,000-foot radius of the prime site, the nearest of which would be approximately 275 feet southwest of the prime tower. A home at 43 Sherwood Lane is visible from the proposed site location and a neighboring home is marginally visible. The upper portion of the proposed tower would be visible to homes along Sherwood Lane. (BANM 1, p. 32; BANM 1, Section 1, p. 5; DEP Comments, May 19, 1995, pp. 1-2; Tr., July 6, 1995, p. 148)

32. The prime site would be approximately 30 feet from the nearest homeowner's property boundary. Moving the proposed prime leased parcel location to the northeast, in a direction farther removed from Sherwood Lane, would require the construction of a higher tower, due to a drop in ground elevation on the property. The owner of the property has insisted that the proposed leased area remain along the property's western boundary, and has refused to consider an alternative location on the property, farther away from the residential neighborhood. (BANM 7, Q. 11; BANM I, Section 1, p. 5; Tr., July 6, 1995, p. 109, pp. 113-114)

33. The applicant would construct a 100-foot self-supporting lattice tower at the prime site. A 21-foot by 30-foot single story equipment building would be constructed approximately 10 feet north of the base of the tower. Both the tower and equipment building would be surrounded by an eight-foot security fence. An

emergency generator would be installed on an eight-foot by ten-foot concrete pad approximately 10 feet north of the equipment building. The base of the proposed tower would be approximately 120 feet from the nearest homeowner's property boundary. The fall zone of the tower would be approximately 20 feet from the nearest property boundary. (BANM 1, Section 1, p. 5; BANM 7, Q. 4)

34. The proposed lattice tower would be approximately 25 feet from leg to leg at the base, tapering to four feet six inches in width at the top. The tower would support 15 antennas each 52 inches by 11.4 inches with a center of radiation 98 feet above ground level (AGL). The Federal Aviation Administration (FAA) has determined that a recommendation of tower marking and lighting is not required for this tower. (BANM 1, Section 1, pp. 8, 12)

35. Construction of the proposed prime tower site would not require blasting. The tower would be approximately 715 feet from the nearest well owned by the Birchwood Water Association. (BANM 14; Tr., May 30, 1995, 3:00 p.m., pp. 64-66)

36. An estimated 30 trees three inches or more in diameter would be cleared to construct the proposed prime site access road and compound. (BANM 7, Q. 6)

37. The estimated cost of construction for the proposed prime site would be:

Cell site radio equipment	$306,400.00
Tower and antenna	25,480.00
Power systems	43,500.00
Building costs	61,000.00
Miscellaneous	157,800.00
TOTAL	**$594,180.00**

(BANM 1, p. 21)

Proposed Alternate One Site

38. The proposed alternate one site is a 100-foot by 100-foot leased parcel of land within a 21.7± acre parcel at North Main Street, Marlborough, owned by Carl D. Zirkenbach and Deborah Z. Leonard. The alternate one site has an elevation of 580 feet AMSL, and is zoned Residential. (BANM 1, pp. 2-3; BANM 1, Section 2, p. 6; Tr., May 30, 1995, 7:00 p.m., p. 100)

39. The proposed alternate one site is approximately 900 feet from the prime site, which is on an adjacent parcel of land. The alternate one site is on the northern side of Carter Hill in a wooded area which has recently been used for cordwood harvesting. Trees found on this site include black birch, red maple, and oaks, reaching heights of 75 to 80 feet. (BANM 7, Q. 4, Ex. B; DEP Comments, May 19, 1995, p. 2)

40. Vehicles and utilities would use an existing driveway for access at the Marlborough Country Barn property off North Main Street, then extend through the Zirkenbach property over existing driveways and parking areas. A new gravel access road approximately 800 feet in length would extend from the Marlborough Country Barn property to the alternate one site, following the route of an existing logging road. The access road within a 20-foot easement would total approximately 1,325 feet in length and 12 feet in width. Utilities would be brought in underground from North Main Street to the Marlborough Country Barn property and then overhead along a four-foot wide section along the access road to the site. (BANM 1, pp. 2-3; BANM 7, Q. 6; Town 2, p. 7)

41. There are 12 homes and four undeveloped lots within a 1000-foot radius of the alternate one site, the nearest of which is 800 feet to the southwest on Sherwood Lane; no homes are visible from the tower site. The nearest commercial buildings at the Marlborough Country Barn are approximately 950 feet from the tower site. The nearest homes on Keirstead Circle north of the proposed alternate one site would be slightly over 800 feet away. A pond on the Marlborough Country Barn property would be approximately 750 feet from the tower site. A town beach on the northern shore of Lake Terramuggus would be approximately 5,000 feet north of the alternate one site. (BANM 1, p. 33; BANM 7, Q. 4, Ex. B; DEP Comments, May 19, 1995, p. 2; Tr., July 25, 1995, p. 233; BANM 1, Section 2, p. 18)

42. The proposed alternate one site tower would be a 160-foot self-supporting lattice tower. A 21-foot by 30-foot single story equipment building would be constructed adjacent to the base of the tower. Both the tower and equipment building would be surrounded by an eight-foot security fence. An emergency generator would be installed on an eight-foot by ten-foot concrete pad adjacent to the equipment building. The base of the tower would be approximately 725 feet from the nearest homeowner's property line. The fall zone of the tower would extend approximately 112 feet onto the adjacent wooded Farley property, the location of the proposed prime site. (BANM 1, Section 2, pp. 1, 5, 8, 14; BANM 7, Q. 4, Ex. B)

43. The proposed tower would be approximately 25 feet from leg to leg at the base, tapering to approximately four feet, six inches in width at the top. The tower would support 15 antennas each fifty-two inches by 11.4 inches with the center of radiation at 158 feet AGL. The FAA has determined that a recommendation of tower marking and lighting is not required for this tower. (BANM 1, Section 2, pp. 8, 12)

44. An estimated 22 trees of three inches in diameter or greater would be cleared to construct the gravel access road and tower compound. (BANM 7, Q. 6)

45. The estimated cost of construction for the proposed alternate one tower site would be:

Cell site radio equipment	$306,400.00
Tower and antenna	34,720.00
Power systems	43,500.00
Building costs	61,000.00
Miscellaneous	207,800.00
TOTAL	**$653,420.00**

(BANM 1, pp. 21-22)

Proposed Alternate Two Site

46. The proposed alternate two site is a 7,500 square foot leased area within a 2.5± acre parcel of land at 9-11 South Main Street, Marlborough, owned by Douglas and Nathalie Thibodeau. The alternate two site has an elevation of 470 feet AMSL and is zoned General Commercial. (BANM 1, Section 3, pp. 1, 6)

47. The proposed alternate two site is located within a northward sloping field behind a commercial property adjacent to the south side of Route 2. Vegetation on the site includes ash, sumac, autumn olive, and multiflora rose. (DEP Comments, May 19, 1995, pp. 2-3)

48. Vehicle access to the alternate two site would be along an existing driveway from South Main Street over an existing parking area, a distance of approximately 630 feet. Utilities would be extended underground from South Main Street. Approximately 22 trees four inches in diameter or greater would be cleared for

the utility easement; no trees would be cleared for the vehicle access. Two trees would be removed to construct the tower compound. (BANM 1, Section 3, p. 7; BANM 7, Q. 6)

49. There are 20 homes and 13 commercial or public buildings within a 1,000-foot radius of the alternate number two site, the nearest of which would be approximately 550 feet south of the tower. There are six buildings within approximately 600 feet of the tower site. (BANM 1, p. 33; BANM 7, Q. 4)

50. The applicant would construct a 180-foot monopole at the alternate number two site. The monopole would be 3.5 feet in diameter at the base, tapering to 1.5 feet in diameter at the top. Fifteen antennas each fifty-two inches by 11.4 inches would be side-mounted on the tower with a center of radiation at 180 feet AGL. A 21-foot by 30-foot single story equipment building would be constructed approximately 10 feet west of the base of the tower. An emergency generator would be installed on an eight-foot by ten-foot concrete pad east of the equipment building. An eight-foot high security fence would surround the tower, equipment building, and emergency generator. (BANM 1, Section 3, pp. 1, 5, 9)

51. The fall zone of the proposed tower would include approximately 150 feet of Route 2; property owned by the State of Connecticut; property owned by Burton C. Ryan; and property owned by Southern New England Telephone. The nearest building would be 150 feet from the fall zone. (BANM 7, Q. 4, Ex. B; BANM 8, Q. 14)

52. A monopole was proposed at the alternate number two site at the request of the property owner. A monopole would not necessarily preclude tower sharing, but would limit the applicant's ability to share tower space with Springwich Cellular Limited Partnership (Springwich). (BANM 8, Q. 13; Tr., May 30, 1995, 3:00 p.m., p. 88)

53. The Elmer Thienes School is approximately 1750 feet from the alternate number two site. The Marlborough Congregational Church, recently added to the National Register of Historic Places, is 1200 feet to the south. The Marlborough Clinic helipad used by Life Star helicopters is located approximately 275 feet from the tower site. (BANM 1, Section 3, p. 19; BANM 7, Q. 9; BANM 1, Section 5)

54. The Aviation Site Manager for the Life Star helicopters stated the construction of the alternate number two tower would not interfere with helicopter use of the helipad; however, BANM has been requested by the Aviation Site Manager to light the top of the proposed tower to identify and locate the tower at night. Although no official FAA determination has been received by BANM, the applicant believes lighting will be recommended, based on telephone communications with the FAA. (BANM 6; Tr. June 28, 1995, pp. 66-68; Tr., July 25, 1995, p. 59)

55. The estimated cost of construction for the proposed alternate two tower site would be:

Cell site and radio equipment	$306,400.00
Tower and antenna	64,000.00
Power systems	43,500.00
Building	61,000.00
Miscellaneous	107,800.00
TOTAL	**$582,700.00**

(BANM 1, p. 22)

Proposed Coverage

56. The East Glastonbury Fish and Game Club site is 4.5 miles in distance from the center of the search area. A tower of over 200 feet in height would be required to provide coverage comparable to the proposed prime site. (BANM 1, pp. 27-28; BANM 18, Q. 1, Q.2)

57. The Town landfill site would require a tower in excess of 200 feet in height to provide coverage comparable to the proposed prime site. With antennas mounted at 197 feet AGL, the site would provide very little coverage to portable units near the center of the Town, at the intersection of Route 2 and Route 66. (BANM 1, Section 4, p. 8; Town 12 E; Tr., June 28, 1995, p. 200)

58. The Marlborough Commons, a parcel of land north of Route 66, was originally investigated and rejected due to low ground elevation and inability to cover existing coverage gaps in the Marlborough area, based on a 160-foot tower. A tower of 200 feet would be required to transmit over Carter Hill, which would obstruct the signal path along Route 66. (BANM 1, Section 4, p. 5; BANM 18, Q. 1; Tr., June 28, 1995, p. 62; Tr., July 25, 1995, p. 31; Town 12 D; Tr., May 30, 1995, 3:00 p.m., pp. 49-50)

59. The Marlborough Commons site has been proposed by Neighbors Endorsing an Appropriate Tower (NEAT) and an independent developer who is seeking to construct a 180-foot tower at this location. This proposal is before the Marlborough Zoning Commission. (Tr., July 25, 1995, pp. 260-264; NEAT 1, pp. 1-2)

60. The Marlborough Commons tower would be visible to travelers on Route 2, and to travelers along Route 66 to the northeast towards Hebron. It would not be generally visible from the center of Marlborough. (Tr., July 25, 1995, p. 141, pp. 235-237; Tr., June 28, 1995, pp. 61-62)

61. A tower of over 240 feet in height on the Town Hall property would be required to provide coverage comparable to the proposed prime site. Thereafter, the Town informed the applicant that it was no longer interested in making this property available. (BANM 7, Q. 5; BANM 18, Q. 1)

62. An existing 80-foot tower owned by the DEP on Route 66 in Marlborough has low ground elevation, is distant from the search area, and is of insufficient tower strength. A 180-foot tower at this location would not provide coverage equivalent to the three sites proposed in the application. (BANM 1, Section 4, p. 6; BANM 7, Q. 3)

63. The proposed prime site would provide coverage to portable units at a -75 dbm level along Route 2 northwest and southeast of the intersection with Route 66. A coverage gap would occur on Route 2 approximately four miles northwest of the intersection of Routes 2 and 66, but this gap would be covered by a future planned BANM site in East Glastonbury. (Town 12 A; Tr., June 28, 1995, p. 131; Tr., July 6, 1995, pp. 128-131)

64. The proposed alternate one tower site would provide coverage to portable units at a -75 dbm level along Route 2 northwest and southeast of the intersection with Route 66. The only coverage gaps encountered along Route 2 northwest of the Route 66 intersection would be in that portion of the applicant's service area expected to be covered by a future planned East Glastonbury site where a gap of less than two miles in length would occur. The only coverage gaps expected along Route 66 would be approximately 1.6 miles in length encountered approximately six miles southwest of the intersection of Route 2. (Town 12 B; Tr., July 6, 1995, pp. 130-131)

65. The proposed alternate two tower would provide less total coverage to portable units at a -75 dbm level along Routes 2 and 66 than the proposed prime and alternate one towers. This tower would provide the applicant with the bare minimum of coverage. There would be a coverage gap approximately one mile in length along Route 2, approximately two miles southeast of the intersection of Route 66. Due to two coverage gaps of approximately $^{3}/_{8}$ mile each, there would be a potential for dropped calls along Route 66 from Marlborough southwest to East Hampton. A coverage gap approximately $^{3}/_{8}$ of a mile in length would occur along Route 66 approximately four miles northeast of the center of Marlborough. (Town 12A, 12B, 12C, 12D, 12E, 12F; Tr., May 30, 1995, 7:00 p.m., p. 48; Tr., June 28, 1995, pp. 28, 34-35, 39, 41, 185, 188)

66. Existing and proposed coverage for the proposed sites and certain alternatives within an approximate four mile radius of the intersection of Route 2 and Route 66 would be as follows:

Existing Coverage
(approximate length in miles)

Roads	-75 dbm	-90 dbm	-120 dbm (gap)
Route 2 [1]	0	4.8	4.0
Route 66 [1]	0	2.8	6.0

Proposed Coverage
(approximate length in miles)

Site and Roads	-75 dbm	-90 dbm	< -90 dbm (gap)
Prime Tower (100 ft) [2]			
Route 2	2.7	4.9	1.2
Route 66	3.4	5.4	0
Alt. One Tower (160 ft) [2]			
Route 2	2.7	5.7	.4
Route 66	3.4	5.4	0
Alt. Two Tower (180 ft) [2]			
Route 2	2.6	4.8	1.4
Route 66	2.9	4.7	1.2
Marlborough Commons Tower (197 ft)[2]			
Route 2	2.7	4.5	1.6
Route 66	2.3	5.0	1.5
Marlborough Landfill Tower (197 ft)[2]			
Route 2	0	7.2	1.6
Route 66	2.9	5.5	.4
East Glastonbury Fish & Game Tower (197 ft) [2]			
Route 2	2.3	5.7	.8
Route 66	0	8.0	.8

[1]Approximate distance of coverage measured from a depiction of a field test made October 5, 1993
[2]Approximate distance of coverage measured from depictions of propagation modeling submitted June 28, 1995

(BANM 1, Section 7; Town 12A, 12B, 12C, 12D, 12E, 12F)

Sharing of Proposed Towers

67. The Town has not indicated an interest in sharing space on any of the towers proposed in this application, although BANM has agreed to provide space on the tower to public entities such as police, fire, and civil preparedness agencies free of charge. (BANM 1, p. 25; Tr., May 30, 1995, 3:00 p.m., p. 90)

68. Springwich could technically share any of the three towers proposed in this application. Springwich's preferences of towers for sharing, in descending order of desirability, are as follows: alternate number two tower at 165 feet AGL; Horowitz site at 170 feet AGL; Marlborough Commons at 180 feet AGL; Town Hall at 200 feet AGL; alternate number one tower at 145 feet AGL; prime site tower at 100 feet AGL. A tower in excess of 300 feet would be required for Springwich to use the Town landfill site. The East Glastonbury Fish and Game Club site would offer coverage which duplicates Springwich's existing Glastonbury site. BANM has not formalized any arrangement with Springwich. (Tr., July 6, 1995, pp. 14-16)

Environmental Considerations

69. There are no wetlands on any of the three leased parcels in the application. There is a pond approximately 184 feet east of the proposed prime site. The Marlborough Country Barn parcel, through which the access leading to the proposed alternate number one site would pass, has wetland areas surrounding a pond; however, the applicant would use existing driveways and parking lots for access. (BANM 1, p. 37; Town Wetlands Map, BANM I, Ex. 1; Tr., July 25, 1995, pp. 35-36, 49)

70. There are no known or existing populations of federal or State endangered, threatened, or special concern species occurring at the proposed prime, alternate number one or alternate number two sites. (BANM 1, p. 31; BANM 1, Section 5)

71. The emergency back-up generator at each proposed site would require a DEP Air Bureau permit for air emissions. The generator would only operate during interruption of utility service to the tower site and periodically for maintenance purposes. (BANM 1, p. 31; Tr., May 30, 1995, 3:00 p.m., p. 74)

72. A 500 gallon liquid propane tank would be installed at the tower site to fuel the emergency generator. No defoliants or herbicides would be used at the tower sites. (BANM 7, Q. 10; BANM 20, Q. 6)

73. Construction of a tower at the proposed prime, alternate number one, or alternate number two sites would have no effect on historic, cultural, or archaeological resources listed on or eligible for the National Register of Historic places, including the Marlborough Congregational Church. (BANM 1, p. 32; BANM 1, Section 5, letter of February 13, 1995)

74. The American National Standards Institutes (ANSI) standard for a cellular telephone frequency of 874.5 Mhz is 0.583 milliwatts per centimeter squared (mW/cm^2) which has been adopted by the State of Connecticut as the State standard pursuant to General Statutes § 22a-162. Using FCC guidelines, OST Bulletin No. 65, the electromagnetic radio frequency power density at the proposed tower base, with all 56 channels transmitting simultaneously at full power of 100 watts per channel, would be as follows:

Site (Antennas AGL)	Power Density (mW/cm^2)	Percent of ANSI Standard
Prime 98 feet	0.068	11.6
Alternate One 158 feet	0.027	4.6
Alternate Two 180 feet	0.022	3.7

(BANM 1, pp. 15-16; Section 1, p. 15; Section 2, p. 15; Section 3, p. 16; OST Bulletin No. 65, Evaluating Compliance with FCC Specified Guidelines for Human Exposure to Radio Frequency Radiation, FCC, Office of Science and Technology; October 1985; IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 Ghz, approved by the American National Standards Institute, November 18, 1992)