DOCKET NO. 40

ORIGINAL

AN APPLICATION SUBMITTED BY THE SOUTHERN NEW ENGLAND TELEPHONE COMPANY FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR THE CONSTRUCTION, MAINTENANCE, AND OPERATION OF FACILITIES TO PROVIDE CELLULAR SERVICE IN THE HARTFORD AND MIDDLESEX COUNTIES.	:	CONNECTICUT SITING COUNCIL
	:	May 15, 1984

F I N D I N G S O F F A C T

1. Southern New England Telephone Company, (SNET), in accordance with provisions of sections 16-50g to 16-50z of Connecticut General Statutes (CGS), applied to the Connecticut Siting Council (Council) on January 30, 1984, for a certificate of environmental compatibility and public need (certificate) for the construction, maintenance, and operation of six telecommunications towers and associated equipment buildings in the towns of Middletown (alternate Berlin), Middlefield, South Windsor, Hartford, East Hartford, and Southington, Connecticut, to provide Domestic Public Cellular Radio Telecommunication Service (cellular service). (Record)
2. The fee as prescribed by section 16-50v-1 of the Regulations of Connecticut State Agencies (RSA) accompanied the application. (Record)
3. The application was accompanied by proof of service as required by section 16-501 of the CGS. (Record)
4. Affidavits of newspaper notice as required by Statute and section 16-501-1 of the RSA were also filed with the application. (Record)
5. Pursuant to section 16-50m of the CGS, the Council, after giving due notice thereof, held public hearings in the Middlefield Town Hall in Middlefield, Connecticut, at 7:15 P.M. on March 21, 1984, and in the South Windsor Town Hall in South Windsor, Connecticut, at 7:00 P.M. on March 22, 1984. (Record)

6. The parties to the proceeding are the applicant, SNET, and those persons and organizations whose names are listed in the Decision and Order which accompanies these findings. (Record)
7. The following state agencies filed written comments with the Council pursuant to section 16-50j of the CGS: the Department of Economic Development (DED), the Department of Environmental Protection (DEP), and the Department of Transportation (DOT). (Record)
8. The Council took administrative notice of its record in Docket 35, in which the application was rejected without prejudice. (Record)
9. The Council visited the Southington, Hartford, and East Hartford sites on September 27, 1983, and held public hearings on September 29 and 30, 1984, in New Britain. (Record)
10. On March 21, 1984, members of the Council and its staff made an inspection of the proposed sites in Middlefield, Middletown, and the alternate site in Berlin. On March 22, 1984, members of the Council and its staff made an inspection of the proposed and alternate sites in South Windsor. (Record)
11. On September 27, 1983, members of the Council and its staff made an inspection of the proposed sites in Southington, Hartford, and East Hartford. (Record)
12. Cellular service consists of small overlapping broadcast regions, 2-10 miles in diameter, known as cells. Each cell is served by a transmitter limited by the Federal Communications Commission (FCC) to no more than 100 watts effective radiated power per channel. Each cell has a central switching point containing electronic apparatus uniting the cells into a system. Mobile units are

limited to a maximum of seven watts of transmitted power by the FCC. In the proposed system each cell would have a maximum of 45 channels. (SNET 6, Exhibit 1-II, pp. 5-8; Tr. 4/21/84, p. 53)

13. Each proposed cell site would have approximately the same equipment. A single story masonry structure measuring 20'x24' would house electronic equipment on each site. Each building would have one door and no windows. As the equipment operates automatically, no personnel would be stationed on-site. (SNET 6, Exhibit 1-V, pp. 1-2)

14. Sites would each have a driveway and space for one vehicle, with no parking lots. Shrubs would be planted around each site to reduce the buildings' visibility. Fences would be constructed around the tower site with security and fire alarms inside. (SNET 6, Exhibit 1-V, pp. 1-2)

15. Each tower would be a self-supporting hollow steel pole. Towers would measure 36" in diameter at the base, tapering to 14" at the top. The towers would range from 75 to 150 feet. The masts would be 12-sided and would be painted blue-gray to blend in with the sky. (SNET 6, Exhibit 1-V, pp. 1-4)

16. Each mast would support a 10' wide triangular platform at the top, which would hold a minimum of four and a maximum of six whip-type omnidirectional antennas. (SNET 6, Exhibit 1-V, pp. 1-4)

17. Each triangular platform would have two functions: support of the transmit and receive antennas; and support of directional antennas in the future, if and when such antennas were required to subdivide the cells. (SNET 6, Tr. 9/30/83, pp. 42-43)

18. The omnidirectional antennas would be 12' long and 3" in diameter. These antennas and the support platform would add 17' to the overall tower structure heights. (SNET 6, Exhibit 1-V, pp. 1-4)

19. The Federal Aviation Administration (FAA) has determined that none of the tower structures would present a hazard to air navigation. Therefore, no lights would be necessary on any of the proposed towers. (SNET 6, Exhibit 1-V, p. 4)

20. The antenna tower structures would have a wind loading design of 40 lbs. per square foot, which would withstand a basic wind speed of 125 mph. This design includes the additional load which would be created by a 2" radial ice build-up on the structure. (SNET 6, Exhibit 3, Q. 6; SNET Exhibit 13)

21. SNET has no plans to place equipment not related to cellular communications, such as microwave dishes, on the towers. (SNET 6, Tr. 9/29/83, p. 73)

22. Transmitters at the tower sites would broadcast in the frequency band of 880-890 MHz. (SNET 6, Exhibit 1-IV, p. 3)

23. For the purposes of cellular service construction permit applications, the FCC has defined a New England County Metropolitan Area (NECMA) consisting of Hartford, Tolland, and Middlesex counties. This Hartford NECMA is part of SNET's planned Cellular Geographic Service Area (CGSA) in Connecticut, which includes three NECMAs. Fairfield County and New Haven County constitute the other NECMAs within SNET's planned Connecticut CGSA. The Connecticut CGSA

would include 17 cell sites as an integrated network. (SNET 6, Exhibit 1-III, pp. 2-3; SNET 6, CSC Exhibit 3; SNET 6, Tr. 9/29/83, p. 95)

24. SNET received FCC construction permits for the Hartford NECMA on December 8, 1983. (Tr. 3/21/84, p. 14)

25. The planned system contains the fewest number of towers and cells possible for adequate coverage of the Connecticut CGSA. (SNET 6, Tr. 9/30/83, p. 23)

26. The FCC requires that a licensee serve at least 75% of its licensed service area within three years of obtaining an operating license or risk losing the license. (SNET 6, Exhibit 1-VI(g), p. 2; SNET 6, CSC Exhibit 3; SNET 6, 9/30/83, pp. 30-34)

27. Cellular service would be an improved mobile telephone service. To date, mobile telephone service has been regulated by the Connecticut Department of Public Utility Control (DPUC). Eventually, cellular service could replace the existing simplex mobile service. Cellular service has been classified by the FCC as a form of basic local exchange service, which would also be subject to DPUC regulation. (SNET 6, Exhibit 2, Q. 4; SNET 6, Tr. 9/29/83, p. 58; SNET 6, Tr. 9/30/83, pp. 4, 84)

28. SNET has informed the FCC that it will seek DPUC direction regarding state franchise and/or other applicable state or local authorizations to implement and maintain a cellular service. (SNET 6, CSC Exhibit 3)

29. In the United States, cellular service is now provided in the cities of Chicago; Washington, D.C.; Baltimore; and Indianapolis. (Tr. 3/21/84, p. 18)

30. Nationally, a public need exists to improve the present mobile telephone service, due to the current system's limited capacity, long waiting lists nationally, and poor quality service, which have created congested channels and long waiting times. (SNET 6, Exhibit 1-I, pp. 3-4; SNET 6, Exhibit 1-II, pp. 2-3; DOT Comments of 3/22/84)

31. SNET has 675 mobile customers who are being served by only five radio channels in the present simplex system in Connecticut. There are no customers waiting to obtain the present simplex mobile system service in the State of Connecticut. (SNET 6, Tr. 9/30/83, pp. 62-63)

32. The proposed coverage for all three Connecticut NECMA's would encompass approximately 77% of all Connecticut residences and approximately 82% of all Connecticut businesses located within the three NECMAs. (SNET 1-IV, p. 12; SNET 6, CSC Exhibit 3)

33. Monthly service costs could range from $100 to $130 in the three Connecticut NECMAs. Average monthly charges would be approximately $150.00, including the leasing of mobile unit equipment. (SNET Exhibit 6, CSC Exhibit 3, Docket 35 Exhibit 3, Q. 33)

34. List prices for the mobile cellular automobile radio units generally range from $2500 - $3800 per unit. (Tr. 3/22/84, p. 162)

35. The greatest initial potential use of the cellular mobile system is in the business community. (SNET 6, Tr. 9/30/83, p. 60)

36. SNET has no plans to expand its system statewide but intends to apply to the FCC to expand into the Danbury and New London NECMAs

when they become available. Future expansion of the system would depend on demand. (SNET 6, Tr. 9/30/83, p. 57)

37. The FCC has established the technical standards for cellular service to insure the efficient use of the allotted frequency spectrum and to insure nationwide compatibility. (SNET 6, Exhibit 1-I, p. 4)

38. The FCC has preempted the states' regulation of cellular service in three major areas: technical standards, market structure, and state certification prior to federal application for a construction permit. (SNET 6, Exhibit 1-III, p. 4)

39. The FCC has reserved to the states jurisdiction with respect to charges, classifications, practices, services, facilities, and regulation of service by licensed carriers. (SNET 1-III, p. 8)

40. According to FCC rules, there will be two licenses awarded in each NECMA to provide competition. One will be awarded to a wireline company, the other to a non-wireline applicant. (SNET 1-I, p. 4)

41. The FCC defines a Reliable Service Contour as an area having a signal quality greater than or equal to 39 dbu as determined by the Carey method. This is the required method of estimating coverage for FCC permit applications. (SNET 6, Tr. 9/29/83, pp. 96-97)

42. Cell-splitting is a technique for accommodating the future growth of demand for cellular mobile service. It consists of adding a cell between existing cells, thus increasing the number of calls which can be handled in an area. Cell-splitting can be achieved

by the addition of cell sites containing lower power omnidirectional antennas, the conversion to directional antennas, or both. (SNET 6, Exhibit 1-II, p. 8)

43. Each new cell achieved by cell-splitting would require additional towers and/or associated equipment. (SNET 6, Exhibit 3, Q. 7)

44. An onmidirectional antenna is designed to radiate in 360 degrees, but may be blocked by part of the tower itself, thus causing an effect on its radio pattern known as shadowing. Terrain and buildings can also cause shadowing. (SNET 6, Tr. 9/30/83, pp. 14-18)

45. Shadowing in urban areas can be reduced by overlapping coverage from two cell sites. Such overlapping of coverage fills in holes from shadowing and increases the possible number of simultaneous conversations. (SNET 6, Tr. 9/30/83, pp. 18-19)

46. The potential for intermodulation interference and shadowing may be significant when antennas are located on the same tower. (SNET 6, Exhibit 1-IV, p. 7)

47. SNET investigated the possibility of mounting antennas on existing towers which were not identified. Such existing towers were deemed not suitable, generally because they were of insufficient height. SNET investigated roof tops as antenna sites. If other antennas are already on a roof top, antenna spacing and intermodulation interference are major concerns. (SNET 6, Exhibit 1-IV, pp. 6, 11; SNET 6, Tr. 9/29/83, pp. 74-75)

48. SNET is willing to consider sharing of the proposed facilities, on a case by case basis, with public or private entities including

competing cellular companies. (SNET 6, Tr. 9/30/83, pp. 59, 106; Tr. 3/22/84, p. 173)

49. If for some reason cellular mobile service is not provided or ceases, SNET would assume the responsibility of dismantling the proposed towers. (SNET 6, Tr. 9/30/83, p. 92)

50. The Hartford NECMA system could be constructed and operated even if SNET were unable to operate any other of the proposed NECMA systems. (Tr. 3/21/84, p. 48)

51. In order for the cellular mobile system to work, there must be a close inter-relationship between the cell sites. (SNET 6, Tr. 9/29/83, p. 67)

52. As the first step in the site selection process, SNET considered the state as a whole and determined where within the state cellular coverage was needed, where the population centers were located, and where cellular service should be offered first. The next step was the identification of locations for sites, given the restriction of the inter-relationships between sites. This resulted in a grid. (SNET 6, Tr. 9/29/83, pp. 91-92)

53. The cellular grid forms the foundation for the entire design of SNET's system. This design would also allow for an orderly expansion of the system in the future. SNET next identified areas which would be compatible with the grid design. (SNET 6, Exhibit 1-IV, p.4; SNET 6, Tr. 9/30/83, p. 92)

54. A search area was created around individual grid points. Within each search area SNET first looked for areas of higher terrain which would require the lowest antenna heights. The environmental

considerations for each tower site included local housing; population density; land use; and proximity of historic, scenic, and recreational areas. Other factors considered in site selection were the impact of construction on the environment, the number of trees to be cut, how much fill would be required, and degree of screening by trees. SNET's final determination was whether land was available at reasonable cost. (SNET 6, Tr. 9/29/83, pp. 92-93; SNET 6, Tr. 9/30/83, pp. 12-13)

55. Computer modeling was used by SNET to predict cell site coverages. Modeling was also used to establish the antenna mast heights necessary at each site. Tower heights shorter than those proposed would degrade the performance of the system. (SNET 6, Exhibit 1-IV, p. 5; Tr. pp. 47-48, 190)

56. SNET could not eliminate a cell and still maintain its desired level of performance. (SNET 6, Tr. 9/30/83, p. 24)

57. The location of each of the 17 cells in the planned system affects the position of other sites on the grid. Although the search areas allow some flexibility, any relocation of a site may cause deficiencies which may require adjustment in adjacent cells. (SNET 6, Exhibit 1-IV, p. 3; SNET 6, Tr. 9/29/83, pp. 65, 92-95; SNET 6, Metromedia A. p. 4; SNET 6, Exhibit 3, Q. 20)

58. Use of an alternate site which did not substantially affect the proposed coverage area would not require SNET to file a major application with the FCC. (SNET 6, Exhibit 3, Q. 28)

59. The deletion of a tower from a proposed service area system could have an effect not only upon the system for which a license is sought, but also on other adjacent systems because of technical

characteristics of cellular development. (SNET 6, Metromedia A, pp. 4-5)

60. The State Historic Preservation Officer concluded that the sites in this application would have no effect on the state's historic, architectural, or archaeological resources. (SNET 5; SNET 6)

61. The construction of the proposed facilities would not contribute any significant air, water, or noise pollution. (SNET 1-VI, pp. 7-9)

62. For the frequency range to be used by these proposed facilities, the American National Standards Institute (ANSI) advisory guideline for radiofrequency electromagnetic radiation (RFER) exposure is approximately 3 milliwatts per square centimeter. The exact standard is determined in this frequency range by dividing the frequency by 300. (SNET 6, CSC Exhibit 2; SNET 6, Tr. 9/30/83, pp. 76-77)

63. The future addition of directional antennas would not change the expected levels of electromagenetic power densities. (Docket 35 Tr. 9/30/83, p. 78)

64. The power densities at these tower sites would be approximately 100 times lower than the present American National Standards Institute (ANSI) standard. Figures calculated by SNET for power densities were the worst case, and such conditions are expected only intermittently, if at all. (SNET 6, Tr. 9/30/83, pp. 76-77; SNET 6, DEP Comments of 9/15/83)

65. None of the proposed or alternate sites in this application appear to be the preferred habitat of any rare and/or endangered species, according to the DEP. (SNET Exhibit 3, Q. 4)

66. Cell site construction would take place during normal daytime working hours. (Tr. 3/22/84)

67. The proposed Southington tower site is located on Shuttle Meadow Road and owned by Frank E. Rogers of Long Bottom Road in Southington, Connecticut. This proposed site is a 100'x75' parcel, wooded, primarily level, and borders an apple orchard. It is located in a Residence-80 Zoning District. (SNET 6, Exhibit 1-VI, p. 1)

68. There are no residences near the Southington site, and surrounding properties are owned by the New Britain Water Company and Rogers Orchards. (SNET 6, Exhibit 1-VI, p. 3)

69. The elevation of the Southington site is 483' above mean sea level (AMSL) and the height of the proposed tower structure is 167'. (SNET 6, Exhibit 1-VI, p. 2)

70. Calculated RFER power density at the Southington site would be .01488 mW/cm^2 or less at the antenna mast base. (SNET 6, Exhibit 1-VI, p. 2)

71. The western slope of a nearby ridge and trees would mask the view of the Southington tower from Flanders Road. The orchard and densely forested properties in the area would reduce any silhouetting effect. The top of the tower would be visible along Long Bottom Road, but the view would fade rapidly. (SNET 6, DEP Comments of 9/15/83; SNET 6, Tr. 9/30/83, pp. 45-48)

72. An entire section of the Southington search area was not considered for potential sites in order to preserve scenic qualities of Sunset Rock State Park. (SNET 6, Exhibit 1-VI, p. 2; SNET 6, Tr. 9/30/83, p. 45)

73. Construction at the Southington site would include an 8' chain link fence, a 12' wide gravel and stone driveway, a 14' wide gate, clearance of a 10' wide area for tower construction, and the addition of a 4" thick layer of washed stone within the fence. (SNET 6, Exhibit 1-IV, p. 2)

74. The proposed Southington site is within a regulated wetland. (SNET 6, Exhibit 3, Q. 9)

75. In its grading and drainage plan, SNET proposes to remove all trees, brush, boulders, topsoil, and organic matter from the Southington site. Diversion ditches would be constructed to lead water flow around the site. (SNET 6, Exhibit 3, Q. 9; SNET 6, Exhibit 14 & 18)

76. Top soil stabilization and improved appearance could be achieved by loaming and seeding the Southington site after construction. (SNET 6, Exhibit 1-VI, p. 2)

77. SNET conducted preliminary studies of two alternate sites in the Southington search area, as requested by the Council. The New Britain Water Company replied to SNET that it would be very reluctant to open water company property for any other use. Mr. Frank Rogers offered to make available a larger parcel of land which would offer less visibility than the proposed Southington site, but the use of this site would require the removal of more trees than would be necessary in the original site plan. The incremental benefits from the use of either alternate site would be slight. (SNET 6, Exhibit 6, Int. Set No. 3, Q. 1)

78. The proposed Hartford tower site is located off Mountain Street, on property owned by the Metropolitan District (MD). (SNET 6, Exhibit 1-IV, p. 1)

79. The proposed Hartford site is a 100'x100' wooded tract, on property used by the MD as a water storage facility. The site consists of dry level ground and the MD property is completely enclosed by fencing with a locked gate. (SNET 6, Exhibit 1-VI, p. 1)

80. The Hartford site is zoned Residential-5 and surrounded by single family housing. (SNET 6, Exhibit 1-VI, p. 1)

81. The elevation of the Hartford site is 286' AMSL, and the proposed tower structure height is 117'. (SNET 6, Exhibit 1-VI, p. 1)

82. Based on calculations using conservative consumptions, the RFER power density at the Hartford site would be .03112 mW/cm^2 or less at the antenna mast base. (SNET 6, Exhibit 1-VI, p. 2)

83. During times of foliation, trees would provide close range screening of the Hartford tower, but the structure would be easily discernible from six homes in the nearby Avery Heights development. The tower would also be visible along Mountain Street, but views from the south would be screened by the water storage facility and Cedar Mountain. The tower would not be visible along Newington Avenue. (SNET 6, DEP letter of 9/15/83)

84. The proposed Hartford tower would probably be visible from at least a short portion of I-84, since that relatively flat area provides no screening between the highway and the proposed site. (SNET 6, Tr. 9/30/83, pp. 45-46)

85. SNET proposes to construct an 8' chain link fence around the Hartford tower site, a 14' wide double gate, and a 12' wide washed stone driveway. (SNET 6, Exhibit 1-VI, p. 1)

86. The proposed construction would not adversely affect the water supply adjacent to the Hartford site. (SNET 6, Exhibit 1-VI, p. 1)

87. The Hartford site location is advantageous because it is close to downtown Hartford and major inter-state highways. It is also isolated from the residential area around it. (SNET 6, Exhibit 1-VI, p. 1)

88. The principal environmental effect of the Hartford facility at the proposed site would be its visibility. (SNET 6, Exhibit 1-VI, p. 1)

89. The proposed East Hartford site is located on Prestige Park Road and is owned by Tolland Enterprises of 183 Prestige Park Road in East Hartford, Connecticut. (SNET 6, Exhibit 1-VI, p. 1)

90. The proposed East Hartford site is located within an industrial park which contains manufacturing, storage, and warehouse buildings. (SNET 6, Exhibit 1-VI, p. 1)

91. The properties adjacent to the East Hartford site include single family homes, and an abandoned house on an adjacent piece of property. (SNET 6, Tr. 9/29/83, pp. 120-122)

92. The East Hartford site is zoned Industrial-3, while the adjacent residential area is zoned R-2. (SNET 6, Exhibit 1-VI, p. 1)

93. SNET investigated two alternate sites within Prestige Industrial Park in the East Hartford search area. Alternate site No. 1 would generally increase the visibility of the tower structure. No other environmental advantages or disadvantages have been determined. Alternate site No. 2 is 1600' west of the proposed site. The availability and cost of this site are uncertain. No environmental advantages or disadvantages would result from the use of either alternate site. (SNET 6, Exhibit 6, Q. 1, p. 5)

94. The proposed East Hartford tower would have a visual impact on the area. (SNET 6, Tr. 9/29/83, pp. 106, 119)

95. A border of trees on the east side of the East Hartford site would reduce visibility of the lower portion of the tower from most houses on Goodwin Street. The tower would be clearly visible from the residence north of the site in the winter, and intermittently visible when trees are in leaf. Beyond the intersection of Goodwin Street with Prestige Park Road, the tower structure would not be visible. (SNET 6, DEP Comments of 9/15/83)

96. As part of the specifications, SNET proposes to add 2½" of new concrete to the East Hartford site, with a 4" processed stone base. An addition to the existing industrial building would be constructed on level, paved ground next to a railroad spur line. (SNET 6, Exhibit 1-VI, p. 1)

97. Except for some minor limb trimming, trees on the East Hartford site would be preserved. (SNET 6, Exhibit 1-VI, p. 1; Tr. 9/30/83, p. 50)

98. The elevation of the East Hartford site is 70' AMSL, and the proposed tower structure height is 167'. (SNET 6, Exhibit 1-VI, p. 2)

99. Based on calculations using conservative assumptions, the RFER power density for the East Hartford tower site would be .01488 mW/cm^2 or less at the antenna mast base. (SNET 6, Exhibit 1-VI, p. 2)

100. The proposed Middletown tower site is located on Atkins Street and owned by William Shepard of North Wales, Pennsylvania. This proposed site is a 50'x115' parcel, presently used as a cornfield. It is located in a R-1 residential zoning district. (SNET 1-VI, pp. 1-15)

101. There are no residences within 1200' of the proposed Middletown site. The surrounding land contains cultivated farmland and a gas transmission line. (SNET 1-VI, p. 22)

102. The elevation of the proposed Middletown site is 223' AMSL, and the height of the proposed tower structure is 167'. (SNET 1-VI, p. 28)

103. Calculated RFER power density at the proposed Middletown site would be 0.01488 mW/cm^2 or less at the antenna mast base. (SNET 1-VI, p. 23)

104. The proposed Middletown site would be exposed in open farmland and would be visible to homes on Middle Street 2300 feet away. Proximity to the Aetna complex would reduce the tower's visual impact. There are no wetlands or water courses on the proposed site. The tower would be intermittently visible from residences

on Spruce Brook Road and Savage Hill Road. (DEP Comments, 3/20/84; SNET 3, Q. 12; SNET 1-VI, p. 32)

105. As an alternate to the Middletown site, SNET proposes a site on Beckley Road owned by John C. Matulis, 260 Beckly Road, Berlin. This site is a partially wooded, 1-acre lot at the edge of a grazing field, in an R-43 Residential Zone. (SNET 1-VI, p. 37)

106. The alternate Berlin site is 1200 feet from the nearest Berlin Fair building, near a CL&P transmission lines and a CL&P Substation. (SNET 1-VI, p. 44)

107. The elevation of this alternate site is 190 feet AMSL, and the height of the proposed tower structure is 167 feet. (SNET 1-Section VI, p. 37)

108. The RFER power density at the alternate Berlin site would be 0.01488 mW/cm^2 or less at the antenna mast base. (SNET 1-VI, p. 45)

109. Because it is less visible, SNET prefers the alternate Berlin site over the proposed Middletown site. (Tr. 3/21/84, p. 37)

110. The tower at the alternate Berlin site would be visible from Beckley Road, from homes west of a nearby ridge line, and from homes to the east at a greater distance. The top of the mast might be visible from the Berlin Fair Grounds but not conspicuous. CL&P transmission lines would provide additional screening. (DEP Comments, 3/20/84)

111. Construction might cause runoff to increase. Erosion control techniques would be used at the alternate Berlin site. Some trees and ground cover would be cleared, but SNET proposes to replant identical species. (SNET 1-VI, pp. 38-42)

112. Access to the alternate Berlin site would be adjacent to the existing transmission line right-of-way. (SNET 1-VI, p. 34)

113. The alternate Berlin site contains no wetlands although the access road would cross a designated inland wetland area. (DEP Comments, 3/20/84; SNET 12; Tr. 3/21/84)

114. The alternate Berlin site would provide coverage to major highways and intersections of I-91 with routes 9, 15, and 72. (SNET 1-VI, p. 50)

115. The proposed South Windsor site is located on Niederwerfer Road, on property owned by Kenneth E. Waldron, 2974 Ellington Road, South Windsor. This is a 120'x80' parcel of land containing some evergreen trees and is located within a Rural Residence zoning district. (SNET 1-VII, p. 14)

116. The proposed South Windsor site is flat and surrounded by agricultural lands, a wildlife sanctuary, and several residences. (SNET 1-VII, p. 14)

117. The elevation of the proposed South Windsor site is 370 feet AMSL, and the proposed tower structure height is 117'. (SNET 1-VII, p p. 28)

118. The RFER power density at the South Windsor site would be 0.03112 mW/cm^2 or less at the antenna mast base. (SNET 1-VII, p. 23)

119. The proposed South Windsor tower would be visible from Idlenot Farm Sanctuary and from Niederwerfer Road. The top of the mast would be clearly visible from the South Windsor Wildlife Sanctuary and intermittently visible from Ellington Road. (SNET 6, DEP Comments, 9/15/83)

120. The western portion of the proposed South Windsor site, which would contain an access road, is within a town designated inland wetland area. (SNET 1-VII, p. 14; SNET 3, Q. 3)

121. SNET has identified an alternate location within the South Windsor search area, which would be less visible than the originally proposed location. (SNET 1-VII, p. 1)

122. The alternate South Windsor site is on a ridge 600 feet west of Niederwerfer Road. This 100'x100' parcel is heavily wooded and owned by Clifford W. and Carol B. Slicer, 391 Niederwerfer Road, South Windsor. This alternate site is within a Rural Residence zone district and abuts a wildlife sanctuary. (SNET 1-VII, p. 36)

123. The elevation of the alternate South Windsor site is 410 feet AMSL, and the proposed tower structure height is 75 feet. Because of the higher elevation, this proposed tower is 25 feet shorter than the originally proposed South Windsor tower. (SNET 1-VII, pp. 45, 51; SNET 2, Attachment 1, p. 1)

124. The RFER power density at the alternate South Windsor site would be 0.05158 mW/cm^2 or less at the antenna mast base. (SNET 2-VII, p. 45)

125. There are no regulated wetlands on the alternate South Windsor site, although the access road would pass through a regulated wetland. Access would involve the clearing of more brush than at the original proposed site. This tower would be visible to about a dozen homes on Niederwerfer Road. Nearby transmission lines would help shield this structure's visibility. Only the top portion of the tower would be visible above the trees. The tower would be intermittently visible along Niederwerfer Road from the

junction with Ellington Road and Rockville Road. (DEP Comments, 3/20/84; SNET 3, Q. 3, 18)

126. The alternate South Windsor site would have less environmental impact and would be preferable to the original proposed South Windsor site. (SNET 1-VII, p. 51; Tr. 3/22/84, pp. 82, 94, 124)

127. The South Windsor cell location would provide coverage to major roadways such as I-84, I-91, and Routes 5, 20, 30, and 74, as well as Bradley International Airport. (SNET 1-VII, p. 50)

128. The proposed Middlefield site is located near the peak of Beseck Mountain on Kikapoo Road. The proposed site is owned by Joseph J. Vinci, Sr. of 1000 Neufield Street, Middletown, and is located in a residential zone. (SNET 1-VIII, pp. 13-14)

129. The proposed Middlefield site is a 110'x220' parcel of undeveloped woodland. It is one half mile west of Beseck Lake. (SNET 1-VIII, p. 14)

130. The elevation of the proposed Middlefield site is 778 feet AMSL. The proposed antenna mast height is 75 feet, a reduction of 25 feet from the original proposal. (SNET 1-VIII, pp. 1, 14, 23; SNET 2, Attachment 1, p. 1)

131. The RFER power density at the proposed Middlefield site would be 0.05158 mW/cm^2 or less at the antenna mast base. (SNET 2-VIII, p. 23)

132. Environmental impacts arising from the use of the proposed Middlefield site would be minimal. (DEP Comments, 3/20/84)

133. The proposed Middlefield tower would be visible from the eastern side of Beseck Lake and Sections of Route 147. On the westerly side of Beseck Lake, the tower would be difficult to see because

of tree screening. (Tr. 3/21/84, pp. 35-36; Tr. 3/22/84, pp. 177-178)

134. The proposed Middlefield site is near at least eight other antenna structures of various heights. (SNET 1-VIII, p. 22)

135. The proposed Middlefield site would provide radio coverage to major roadways such as I-91, Routes 5, 9, 10, 15, 17, 66, 68, and 77, as well as various major industrial and business centers. (SNET 1-VIII, p. 1)

136. The cost of constructing the facility at the Hartford site is estimated at $675,200. (SNET 6, Exhibit 1-VI(f), p. 1)

137. SNET has undertaken negotiations with the Hartford site owner granting the right to lease the site for 25 years, but lease costs have yet to be determined. (SNET 6, Exhibit 1-VI(f), p. 1)

138. The cost of the East Hartford site construction, including engineering, material, and installation of equipment, is estimated at $628,400. (SNET 6, Exhibit 1-VI(f), p. 1)

139. An alternate East Hartford site located in the same industrial park as the proposed mast location was estimated at $370,000 over a 25 year period. (SNET 6, Exhibit 6, Q. 1, p. 6)

140. Additional leasing and other costs would add $400,000 to the total cost of the alternate East Hartford site over a 25 year period. (SNET 6, Exhibit 6, Q. 1, p. 6)

141. A second alternate East Hartford site is possible with a 25 year lease with 5-year renewable options. The total 25-year rental costs would be $150,000. (SNET 6, Exhibit 6, p. 6)

142. The cost for the Southington site construction, including engineering, materials, and installation of equipment, is estimated at $562,300. (SNET 6, Exhibit 1-VI(f), p. 1)

143. An alternate site adjacent to the proposed Southington site would cost an additional $274,000 over the 25 year period of the lease. Other increased costs for this site would bring the total additional costs to $300,000. (SNET 6, Exhibit 6, Q. 1, pp. 3-4)

144. Total cost for engineering, material, and installation for the Berlin alternate site is estimated at $565,300, including

Radio equipment	$ 38,200;
Antenna equipment	$ 13,700;
Power and common equipment	$318,900;
Land, building, mast	$193,800; and
Miscellaneous	$ 400.

(SNET 1-VI, p. 46)

145. The comparative estimated costs of undergrounding vs aerial utility service from the nearest utility pole to the facility building in Berlin are

Aerial cost	$ 9,200; and
Underground cost	$136,300.

(SNET 9, p. 1)

146. The total cost to construct the facility in Middlefield is estimated at $554,100, including

Radio equipment	$ 45,100;
Antenna equipment	$ 11,000;
Power and common equipment	$318,900;
Land, building, mast	$178,700; and
Miscellaneous	$ 400.

(SNET 1-VIII, p. 24)

147. The comparative estimated costs of undergrounding vs aerial utility service from the nearest utility pole to the facility

building in Middlefield are

Aerial cost	$ 4,000; and
Undergrounding	$14,320.

(SNET 9, p. 1)

148. The total construction cost including estimated engineering, material, and installation costs for the Middletown facility is estimated at $565,300, including

Radio equipment	$ 38,200;
Antenna equipment	$ 13,700;
Land, building, mast	$193,800;
Power and common equipment	$318,900; and
Miscellaneous	$ 400.

(SNET 1-VI, p. 24)

149. The costs associated with the engineering installation, and material for masts of varying heights as used in the cellular system are as follows:

	Material	Installation	Total
1. 150'	$31,137	$29,000	$60,137
2. 100'	$22,879	$29,000	$51,879
3. 75'	$19,769	$29,000	$48,769
4. 60;	$17,686	$29,000	$46,686

(SNET 8, p. 1)

150. The total cost to construct the facility at the original South Windsor site is estimated at $619,300, including

Radio equipment	$ 62,400;
Antenna equipment	$ 12,800;
Land, building, mast	$179,300;
Power and common equipment	$364,200; and
Miscellaneous	$ 600.

(SNET 1- VII, p. 24)

151. The total cost to construct the facility at the alternate location in South Windsor is estimated at $624,300, including

Radio equipment	$ 62,400;
Antenna equipment	$ 12,800;
Power and common equipment	$364,200;
Land, building, mast	$184,300; and
Miscellaneous	$ 600.

(SNET 1-VII, p. 46)

152. The comparative estimated costs of undergrounding vs aerial utility service from the nearest utility pole to the facility building at the alternate South Windsor site are

Aerial	$ 6,000; and
Underground	$72,430.

(SNET 9, p. 1)

153. The Berlin, Middlefield, Middletown, South Windsor original, and South Windsor alternate sites would have aerial electric and telephone lines with secondary lines underground as proposed by SNET. (SNET 3, Q. 2)

154. Electric and telephone lines for the East Hartford, Hartford, Middletown, Southington, and South Windsor original sites would be underground as proposed by SNET. (SNET 9, p. 1)

155. List prices for the mobile cellular automobile radio units generally range from $2500 - $3800 per unit. (Tr. 3/22/84, p. 162)

156. The terms of the leases at all the SNET sites include a land use agreement for 25 years. (Tr. 3/22/84, pp. 166-167)