DOCKET NO. 75

AN APPLICATION OF THE SOUTHERN NEW ENGLAND TELEPHONE COMPANY FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR CELLULAR TELEPHONE FACILITIES IN THE CITY OF DANBURY AND EITHER THE TOWN OF BROOKFIELD OR TOWN OF NEWTOWN, CONNECTICUT.	:	CONNECTICUT SITING COUNCIL
	:	May 13, 1987

FINDINGS OF FACT

1. Southern New England Telephone Cellular, Inc., (SNET) in accordance with provisions of sections 16-50g to 16-50z of the Connecticut General Statutes (CGS), applied to the Connecticut Siting Council (Council) on December 1, 1986, for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a rooftop antenna tower in the City of Danbury, and the construction, maintenance, and operation of an antenna tower in either the Town of Brookfield or the Town of Newtown, Connecticut, to expand domestic public cellular radio telecommunications service (cellular service) in the Fairfield New England County Metropolitan Area (Fairfield NECMA).
2. The fee as prescribed by section 16-50v-1 of the Regulations of State Agencies (RSA) accompanied the application. (Record)
3. On September 14, 1984, the Council issued a Certificate to SNET for Fairfield NECMA in Docket 45. (Record)
4. The Council took administrative notice of its record in Docket 45. (Tr., p. 14)
5. The Council and its staff made an inspection of the proposed Danbury and Brookfield sites and the alternative Newtown site on March 12, 1987. (Record)

6. Pursuant to section 16-50m of the CGS, the Council, after giving due notice thereof, held a public hearing on this application in the Brookfield Municipal Center in Brookfield Center, beginning at 7:00 P.M. on March 12, 1987. (Record)

7. The parties to the proceeding are the applicant and those persons and organizations whose names are listed in the Decision and Order which accompanies these findings. (Record)

8. The following state agency filed written comments with the Council pursuant to section 16-50j of the CGS: the Department of Environmental Protection (DEP). (Record)

9. Cellular service consists of small, overlapping broadcast regions, two to ten 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 units to a maximum of seven watts of transmitted power. In the proposed system, each cell would have a maximum of 45 channels. (Docket 45, Finding 11)

10. Transmitters at the tower sites would broadcast in the frequency band of 880-890 MHz. (Docket 45, Finding 21)

11. The Federal Communications Commission (FCC) requires that a licensee serve at least 75 percent of its licensed service area within three years of obtaining an operating license or risk losing the license. SNET requested radio station authorization for two sites in the Fairfield NECMA on November 18, 1986. These applications are still

pending before the FCC. (Docket 45, Finding 24; SNET 1, Section I, p. 3; SNET 1, Section VI, p. 24; SNET 1, Section VII, p. 29)

12. Cellular service is an improved mobile telephone service. Prior to the introduction of cellular service, mobile telephone communication was provided by simplex mobile service, which was regulated by the Connecticut Department of Public Utility Control (DPUC). Eventually, cellular service will replace simplex mobile service. (Docket 45, Finding 25)

13. Nationally, a public need exists to improve the present mobile telephone service, due to the simplex system's limited capacity, congested channels and long waiting times. (Docket 45, Finding 28)

14. The greatest initial potential use of the cellular mobile system is in the business community. (Docket 45, Finding 33)

15. The FCC has established the technical standards for cellular service to ensure the efficient use of the allotted frequency spectrum and to ensure nationwide compatibility. (Docket 45, Finding 35)

16. 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. (Docket 45, Finding 36)

17. The FCC has reserved to the states jurisdiction with respect to charges, classifications, practices, services, facilities, and regulation of service by licensed carriers. (Docket 45, Finding 37)

18. 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. (Docket 45, Finding 38)

19. 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. (Docket 45, Finding 39)

20. 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. (Docket 45, Finding 40)

21. An omnidirectional 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. (Docket 45, Finding 42)

22. 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. (Docket 45, Finding 43)

23. In order for the cellular mobile system to work, there must be a close inter-relationship between the cell sites. (Docket 45, Finding 48)

24. 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 identificatin of locations for sites, given the inter-relationships between sites. This resulted in a grid. (Docket 45, Finding 49)

25. 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. (Docket 45, Finding 50)

26. 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. 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 number of trees to be cut, how much fill would be required, and the degree of screening by trees. SNET's final determination was whether land was available at reasonable cost. (Docket 45, Finding 51)

27. 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. (Docket 45, Finding 52)

28. The proposed Danbury site is the roof of a building at 39 West Street in Danbury, owned by SNET. This building is within an area zoned Light Commercial. (SNET 1, Section VI, p. 1, p. 11)

29. SNET proposes to construct a 20-foot, self-supporting lattice tower atop this two-story building. A four-foot platform and whip antennas would extend the height of this structure an additional 13 feet. The proposed lattice structure would total 37 feet in height and be three and one-half feet in width on each side. The distance of this structure to the nearest edge of the building would be 55 feet. A six-foot microwave dish is presently mounted on this roof top. (SNET 1, Section VI, p. 9, p. 13, p. 25; SNET 2, Q. 3, Q. 6)

30. The rooftop of the proposed Danbury site is 38 feet above ground level (AGL). The cellular transmit antennas would be mounted at an elevation of 485 feet above mean sea level (AMSL). (SNET 1, Section VI, p. 9)

31. SNET would locate its radio electronics equipment in the basement of the building on which the tower would be located. (Section VI, p. 13)

32. The proposed Danbury site would provide coverage to nearby portions of Routes 6, 7, 37, 39, 53, 202, 302, and I-84; to the center of Danbury; and to portions of the towns of Bethel, Ridgefield, and New Fairfield. (SNET 1, Section VI, p. 1)

33. The proposed Danbury tower and antennas would be visible along West Street as far as Stevens Street, with slight visibility along New Street. Approximately 25 feet of the tower and antennas would be visible from the nearby German Immanuel Lutheran Church, approximately 32 feet from the Danbury City Hall, and approximately 17 feet from the American Red Cross building. (SNET 2, Q. 11; Tr., pp. 71-72)

34. SNET considered and rejected ten potential alternative sites in the Danbury area. The Barden Corporation property off of Park Avenue was considered, but SNET received no response to its inquiries about this site. The owner of the Hilton Hotel was contacted, but SNET received no response. SNET considered the rooftop of the Danbury Hospital, but determined this site would be too close to the proposed Brookfield site, and might cause interference. SNET contacted the City of Danbury regarding the use of property at the Danbury Water Treatment Plant, but was notified that the site was not available. The roof of Kimberly Place on Main Street was considered less appropriate then the proposed location because of the residential use of the building. The Danbury Executive Tower was investigated, but its low elevation would require a 75-foot tower on its rooftop. The Martha Hotel is equal in height to the proposed site, but was considered less appropriate than the proposed site because of its residential use. The Danbury City Hall, the Danbury Tower on William Street, and the Putnam Tower on Beaver Street were considered, but offered no advantage in location, height, or availability, compared to the proposed site, and were therefore rejected. (SNET 1, Section VI, p. 3; SNET 2, Q. 1, Q. 2)

35. The proposed Brookfield site is a 100-foot by 100-foot parcel of land located 1,000 feet south of West Whisconier Road. The property is 600 feet from the Whisconier Middle School, and is owned by the Town of Brookfield. SNET has an option to lease the property. (SNET 1, Section VII, p. 1, p. 4, p.12, p. 17)

36. The proposed Brookfield site is 570 feet AMSL, wooded, and adjacent to a baseball field. The area is zoned R-80 residential. (SNET 1, Section VII, p. 17, p. 24, p. 25)

37. SNET would construct a 150-foot, self-supporting lattice tower at the proposed Brookfield site. Whip antennas, 3 inches in diameter, would extend the height of the structure an additional 13 feet, resulting in an overall tower height of 163 feet. (SNET 1, Section VII, p. 14, p. 30)

38. SNET has proposed a lattice tower at the proposed Brookfield site to accommodate four antennas for the Town of Brookfield. Three of the antennas would be used by the Brookfield Police Department, the Brookfield Fire Department, and the Brookfield Public Works Department; one antenna would be reserved for future use by the Town of Brookfield. These antennas would be mounted at no cost to the Town. (SNET 1, Section VII, p. 14)

39. A 1,200-foot access road would be required for the proposed Brookfield site. All utilities would be buried under this access road. (SNET 1, Section VII, p. 17)

40. SNET would construct a single-story, 21-foot by 21-foot equipment building at the base of the proposed Brookfield tower. A 15-foot fence would surround the building and tower, as requested by the Brookfield Board of Education. (SNET 1, Section VII, p. 16)

41. The proposed Brookfield tower would provide coverage to nearby portions of Routes 6, 7, 25, 133, 202, 302, and I-84. Coverage would be provided to the towns of Brookfield and Newtown, as well as to portions of the towns of Southbury and New Fairfield, and the City of Danbury. (SNET 1, Section VII, p. 1)

42. If SNET reduced its proposed Brookfield tower height to 130 feet, the following coverage losses would occur: one-half mile along Route 84 east, three-fourths of a mile on Route 84 west, one-half mile along Route 7 north, one-half mile along Route 7 south, one and one-half miles along Route 39 north, and one-half mile along Route 53 south. (Tr., pp. 68-69)

43. Approximately 110 feet of the proposed Brookfield tower would be visible from the vicinity of the Whisconier Middle School. The proposed tower would be intermittently visible along Route 25 and High Meadow Lane. The top 75 feet of the tower would be visible from Fawn Ridge. Visibility would extend one-eighth mile along either side of the intersection of West Whisconier Road and Squire Court. The tower would be visible from Squire Court and Red Barn Lane, with solid visibility beyond Fox Trail Lane. The top 25 feet of the proposed tower would be visible from Lexington Drive. (Tr. pp. 72-74)

44. SNET considered ten other potential alternative sites in the Brookfield area. The Berkshire Industrial Park property in Bethel was considered, but the owner declined to lease the property. Property off Woodlawn Drive in Bethel was investigated, but the site is small, and within a heavily residential area. Property in a gravel pit off Vail Road in Brookfield would have provided poor coverage along Route I-84 if used as a cell site, as would property off of High Meadow Road. A 180-foot tower owned by the Department of Transportation and used by the State Police is in poor condition and not capable of supporting the proposed SNET antennas. A site at the intersection of Route 25 and West Whisconier Road in

Brookfield was rejected because it is in an open field offering little screening. Property adjacent to the proposed Brookfield site would have been pursued further if the proposed site were not available, as would have property on West Whisconier Road across from the proposed site. Industrial-zoned property off Fairfield Drive in Brookfield was rejected because the owner declined to enter into a lease agreement. SNET investigated and proposed an alternative site in Newtown. (SNET 1, Section VII, pp. 3-4; SNET Late File 12)

45. The alternative Newtown site is a 150-foot by 150-foot parcel of land which is under option to SNET. The alternative site is 200 feet south of Fairfield Drive on the Brookfield-Newtown town line, within a farming and residential one acre zoning district. (SNET 1, Section VIII, p. 1, p. 5, p. 10)

46. The alternative Newtown site has no residences in the vicinity of the tower and is located between an office building development and I-84. The property is owned by Photronics Labs of Newtown. (SNET 1, Section VIII, p. 5, p. 10)

47. The alternative Newtown site abuts the Brookfield Industrial Park, and has an elevation of 420 feet AMSL. (SNET 1, Section VIII, p. 10, p. 11)

48 SNET would construct a 150-foot monopole at the alternative Newtown site. The monopole would be painted blue-grey to blend with the sky. Omnidirectional vertical whip antennas would be mounted on top of the monopole, adding 17 feet to the height of the tower and resulting in a total structure height of 167 feet. Coverage from

this alternative site would be essentially equivalent to that provided by the proposed Brookfield site, although the proposed Brookfield site would provide better coverage because of its somewhat higher elevation and greater distance from I-84. (SNET 1, Section VIII, p. 8, p. 11)

49. A 21-foot by 21-foot equipment building would be constructed at the base of the tower. Utilities would be brought in by an overhead line from Fairfield Drive. (SNET 1, Section VIII, p. 3; p. 7; Tr., p.69)

50. Access to the alternative site would be from Fairfield Drive. (SNET Section VIII, pp. 11-12)

51. Approximately 50 feet of the alternative Newtown tower would be partially visible through the trees along I-84. From the intersection of Secor Road and Fairfield Drive, 70 feet of the alternative tower would be visible through the tree tops. From the cul-de-sac on Fairfield Drive, approximately 60 feet of the tower would be partially visible. (SNET 2, Q. 11)

52. The Town of Brookfield would not use the alternative Newtown site as a location for its antennas, due to problems in the coverage of Brookfield from that site. (SNET Late File 14)

53. The proposed Danbury site has 498 residences within a 2,000-foot radius, the nearest of which is 110 feet in distance. The proposed Brookfield site has 91 homes within a 2,000-foot radius, the nearest of which is 700 feet. The alternative Newtown site has 71 homes within a 2,000-foot radius, the nearest of which is 500 feet. (SNET 2, Q. 7; SNET Late File 10)

54. No residents living within a 2,000 foot radius opposed the proposed Danbury or alternative Newtown sites. (Record)

55. For the cellular frequency of 900 MHz, the standard exposure limit recommended by the American National Standards Institute (ANSI) is 2.933 mW/cm^2. The electromagnetic radio frequency power densities at the sites in this application would be several orders of magnitude below this standard. (SNET 1, Section IV, pp. 8-9)

56. Based on conservative assumptions of all 45 channels operating simultaneously and propagating horizontally and vertically, the power density levels at the proposed sites would be as follows: Danbury, 0.4153 mW/cm^2 on the sidewalk at West Street; Brookfield, 0.1052 mW/cm^2 at the base of the proposed tower; and Newtown 0.1000 mW/cm^2 at the base of the proposed tower. (SNET 1, Section VI, p. 20; SNET 1, Section VII, p. 25; SNET 1, Section VIII, p. 11; Tr. p. 49)

57. The Federal Aviation Administration has determined that obstruction marking and lighting would not be required for any of the three sites in this application. (SNET 1, Section V, p. 3)

58. The proposed Brookfield and alternative Newtown sites do not have regulated inland wetlands on them. (SNET 2, Q. 12)

59. There are no known existing or historic records of species classified by the United States government as endangered or threatened, or of species classified by the State of Connecticut as being of special concern, occurring at the proposed Brookfield or alternative Newtown sites. (SNET Late File 5)

60. The DEP expressed no major concerns or objections to the three sites in this application. (DEP letter of 3/16/87; SNET Late File 6)

61. Proposed Danbury facility construction, equipment, and improvement costs are estimated as follows:

Radio equipment,		$175,100;
Antenna equipment,		20,000;
Power and common equipment,		131,300;
Land and building,		50,000;
Miscellaneous,		73,100;
	TOTAL	$449,500.

(SNET 1, Section VI, p. 21)

62. Proposed Brookfield facility construction, equipment, and improvement costs are estimated as follows:

Radio equipment,		$175,100;
Antenna equipment, and mast		39,900;
Power and common equipment,		131,300;
Land and building,		180,600;
Miscellaneous,		73,100;
	TOTAL	$600,000.

(SNET 1, Section VII, p. 26)

63. Alternative Newtown facility construction, equipment, and improvement costs are estimated as follows:

Radio equipment,		$175,100;
Antenna equipment and mast,		39,900;
Power and common equipment,		138,800;
Land and building,		191,000;
Miscellaneous,		71,500;
	TOTAL	$616,300.

(SNET Late File 11)