DOCKET NO. 62

AN APPLICATION OF 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 TOWN OF CANTON, CONNECTICUT.	:	CONNECTICUT SITING COUNCIL
	:	August 4, 1986

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 the Connecticut General Statutes (CGS) applied to the Connecticut Siting Council (Council) on March 21, 1986, for a certificate of environmental compatibility and public need (certificate) for the construction, maintenance, and operation of a telecommunications tower and associated equipment building in the Town of Canton, Connecticut, to provide Domestic Public Cellular Radio Telecommunications service (cellular service) as an addition to the Hartford New England County Metropolitan Area (NECMA). (Record)
2. The fee as prescribed by section 16-50v-1 of the Regulations of 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. The Council and its staff made an inspection of the proposed Canton tower site on May 15, 1986. (Record)
6. Pursuant to section 16-50m of the CGS, the Council, after giving due notice thereof, held public hearings on this application in the

Canton Town Hall in Canton, Connecticut, on May 15, 1986, at 7:00 P.M.; on June 6, 1986, at 10:30 A.M.; and on June 16, 1986, at 10:00 A.M. (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. The Council took administrative notice of its Findings of Fact, Opinion, and Decision and Order in Docket 45.

10. Exhibits in this application are as follows:

SNET Exhibits: 1) Application of March 21, 1986; 2) Responses to questions of April 24, 1986; 3) Responses to questions of May 1, 1986; 4) Late File on investigation of Canton industrial site; 5) Late File describing power density levels within one half mile of proposed site; 6) Late File naming manufacturer of proposed tower; 7) Late File on results of DEP inquiry into power densities; 8) Late File on FCC construction permit; 9) Late File depicting distance of Canton Congregational Church from proposed tower.

Town of Canton Exhibits: 1) Hoffman option, late file; 2) Draft of lease, late file; 3) EPA information on proposed microwave standards, late file; 4) Russian microwave standards, late file. (Record)

11. 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 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. (Docket 45, Finding 11; SNET 1, Section II, pp. 2-3; Tr. 6/6/86, p. 54)

12. A nationwide 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. (Docket 45, Finding 28; SNET 1, Section IV, p. 10)

13. The FCC has pre-empted the state's 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; SNET 1, Section IV, p. 1)

14. 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. (Docket 45, Finding 35; SNET 1, Section IV, p. 1)

15. 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)

16. According to FCC rules, there are two licenses awarded in each NECMA to provide competition. One is awarded to a wireline company, the other to a non-wireline applicant. (Docket 45, Finding 38; SNET 1, p. 3)

17. 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. (Docket 45, Finding 24)

18. Cell-splitting is a technique for accommodating the future growth of demand for cellular service. It adds 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; SNET 1, Section II, p. 6)

19. In order for the cellular system to work, there must be a close inter-relationship between the cell sites. (Docket 45, Finding 48; SNET 1, Section II, pp. 1-2)

20. An omnidirectional antenna is designed to radiate 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)

21. The potential for intermodulation interference and shadowing may be significant when antennas are located on the same tower. (Docket 45, Finding 44)

22. 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. (Docket 45, Finding 49; SNET 1, Section IV, p. 3)

23. The cellular grid forms the foundation for the design of the cellular system. This design would also allow for the orderly expansion of the system in the future. (Docket 45, Finding 50; SNET 1, Section IV, pp. 3-4)

24. A search area for an individual site is established in accordance with the cellular grid in order to define limits of usable real estate. Factors considered for locations within a search area are higher elevations, visibility of the proposed tower, and proximity to scenic, historic, forest, park, and recreation areas. (Docket 45, Finding 51; SNET 1, Section IV, p. 5)

25. Computer modeling was used to predict the coverage that would result from any combination of cell sites. (Docket 45, Finding 52; SNET 1, Section IV, p. 5)

26. For the purposes of cellular service construction permit applications, the FCC has defined a New England County Metropolitan Area (NECMA). Hartford County is a NECMA. (SNET 1, Section I, p. 3)

27. The proposed Canton tower site would provide cellular service to areas of the Hartford NECMA not presently served by the existing system in the towns of Canton, Burlington, New Hartford, Avon,

and Simsbury. The proposed site would extend service to the west of Talcott Mountain, which blocks cellular service at present. (SNET 1, p. 6; SNET 1, Section VI, p. 1; Tr. 5/15/86, p. 26)

28. The proposed Canton tower site is a leased parcel of land owned by Herman A. Hoffman, and located 200' east of the intersection of Hoffmann Road and East Hill Road. (SNET 1, Section VI, p. 4)

29. The proposed Canton site measures 100'x100', is zoned AR-3 residential, and has an elevation of 786'. (SNET 1, Section VI, p. 13)

30. Access to the proposed site would be via a new 150' driveway 20' in width and covered with 8" of compacted gravel fill. (SNET 1, Section VI, p. 10, pp. 13-15; SNET 2, Q. 4)

31. The proposed tower would be 150' in height. The omnidirectional whip antennas mounted atop the tower would be 12' long and 3" in diameter. The four antennas and their triangular support structure would add 17' to the tower, resulting in an overall height of 167'. (SNET 1, Section V, pp. 3-4; Tr. 5/15/86, p. 99)

32. The proposed tower or monopole is a hollow, steel, self-supporting pole which is 36" in diameter at its base and tapers to 14" in diameter at the top. The entire tower would be painted a mixed blue grey color to blend in with the background of the sky. (SNET 1, Section V, pp. 2-3)

33. The proposed tower is designed to withstand 125 mph winds with 2" radial ice. (Tr. 5/15/86, p. 46)

34. A 21'x21' one-story equipment building would be constructed near the base of the proposed tower. (SNET 1, Section V, p. 1; SNET 1, Section VI, p. 10; Tr. 5/15/86, p. 103)

35. The base of the proposed tower would be 184' from the paved portion of East Hill Road, and 325' from the nearest house. (Tr. 5/15/86, p. 59; SNET 2, Q. 14)

36. Ten homes are located within a 1000' radius of the proposed tower site. (SNET 2, Q. 5)

37. To determine the visibility of the proposed tower, SNET flew a 4' diameter weather balloon at a height of approximately 160' on four occasions. (SNET 1, Section IV, p. 18; Tr. 5/15/86, p. 107; Tr. 6/16/86, p. 85)

38. The proposed tower would be visible from the Anderson property across the road from the proposed site. The proposed tower would be visible along East Hill Road a distance of 1,000' in both directions. Six homes within a 1,000' radius would have direct visibility of the tower in both winter and summer. There would be direct visibility from Hoffmann Road. The proposed tower would be visible from a portion of Gracey Road and intermittently visible from Uplands Drive. The proposed tower would be visible in summer from portions of Orchard Hill Road, but it would not be visible from Woodridge Road or Canton Road. (Tr. 6/6/86, pp. 15-16, p. 71; Tr. 6/16/86, p. 13, p. 28)

39. The proposed site is .9 miles northwest of the Nepaug State Forest, but visibility of the proposed tower would be limited by topography, trees, and distance. (DEP letter, 5/13/86)

40. The proposed tower would not be visible from Roaring Brook Nature Center, 6,080' from the proposed site. (SNET 1, Section VI, p. 18; SNET 2, Q. 2)

41. A buffer of trees would be left intact near the proposed site to serve as screening. SNET would be willing to plant additional evergreens for screening. (Tr. 6/6/86, p. 16)

42. SNET evaluated and rejected a number of alternate sites in the Canton area. The elevation of a potential site on Bristol Drive was too low. The summit of Mount Horr had too steep a grade for access and a high degree of visibility. A site on High Hill Road would have been visible to many new homes. The owner of the summit of East Hill was not interested in leasing this site, which would have been more visible than the proposed site. A site in the Dowd Avenue industrial area was determined to be 250'-300' lower than the proposed site, and would therefore have required a 400'-450' tower in order to provide the same coverage. (SNET 1, Section VI, p. 3; Tr. 6/6/86, pp. 21-22; Tr. 5/15/86, p. 71)

43. There were no privately-owned towers within the search area. No existing state or public service towers were found within the applicant's search area. (Tr. 5/15/86, pp. 42-43)

44. SNET investigated Onion Mountain as an alternate site, at the request of an East Hill Road resident. SNET found this site has no existing access, has a very steep slope, and is located adjacent to property owned by the Nature Conservancy. The Town of Simsbury owns adjacent property used as a recreation area. This site would be visible to many more homes than the proposed site. (Tr. 6/16/86, pp. 80-82)

45. Reducing the height of the proposed tower from 150' to 130' would result in coverage losses of one mile along Route 202, one mile on Route 44, and two and one half miles on Route 10. This reduction

would also decrease the area of overlapping coverage with the existing Southington cell site. The resulting coverage would be unacceptable to SNET. (Tr. 6/6/86, p. 17)

46. The Federal Aviation Administration has determined that no obstruction marking or lighting would be required on the proposed tower. (SNET 2, Q. 8)

47. SNET used very conservative assumptions in its radiofrequency electromagnetic power density calculations. The calculations assumed a broadcast over flat terrain with all antennas omnidirectional in both horizontal and vertical planes, that all 45 channels were transmitting at 100 watts simultaneously, and that there was a 100% ground reflection of signal strength, resulting in a four-fold increase in power density. The result is a much higher calculated power density than would be expected to occur. (Tr. 6/6/86, pp. 24-25)

48. Calculated power densities for the proposed site would be 0.09635 mW/cm^2 at the antenna mast base and 0.01821 mW/cm^2 at the nearest home. The American National Standards Institute (ANSI) standard for the 880 MH_Z frequency is 2.933 mW/cm^2, and therefore the power densities would be within the generally accepted standards for public health and safety. The calculated power densities would be well below one tenth of the ANSI standard, which is under consideration as an Environmental Protection Agency standard. (SNET 1, Section VI, p. 22; DEP letter, 5/13/86)

49. SNET would be willing to negotiate with public and private entities to share space on the proposed tower if legally, technically, economically, and environmentally feasible. (SNET 2, Q. 12; Tr. 5/15/86, pp. 43-45)

50. There are no regulated wetlands on or near the proposed tower site. (SNET 2, Q. 7)

51. There are no known populations of federally listed endangered or threatened species or state-listed species of special concern occurring at or near the proposed site. (SNET 2, Q. 6)

52. The State Historic Preservation Officer has determined the proposed tower would have no effect on historical, architectural, or archaeological resources listed on or eligible for the National Register of Historic Places. (SNET 2, Q. 9)

53. SNET received a construction permit for the proposed site from the FCC on May 8, 1986. (SNET Late File 8)

54. SNET has over 4,000 customers using its cellular service in Connecticut at this time. (Tr. 5/15/86, pp. 112-113)

55. Utilities would be brought in underground to the proposed site at an estimated cost of $14,000. This estimate includes the cost of trenching, sand base, conduit, cable, and electric utility hook-up charges. (SNET 1, Section VI, p. 13; SNET 2, Q. 16)

56. The estimated acquisition and construction costs, including first year lease, engineering, materials, and installation costs would be as follows:

Radio equipment,	$ 28,400.00;
Antenna equipment,	$ 14,000.00;
Power and common equipment,	$311,050.00;
Land, building, and mast,	$215,600.00;
Miscellaneous,	$ 250.00;
Total	$569,300.00.

(SNET 1, Section VI, p. 23)

57. SNET's option to lease the proposed cell site extends to December 31, 1986, with the right to extend the option for an

additional six months. The terms of the agreement have been fully negotiated and allows the use of the proposed site by the applicant, including free access to the proposed site at all times. (SNET 1, Section VI, p. 1; p. 24; Canton 1)

58. The final leasing agreement would be completed when all approvals are final. The lease agreement includes renewal options every five years for twenty-five years. (Tr. 5/15/86, pp. 57-58; Canton 1; Canton 2)