DOCKET NO. 125 - An Application of Metro Mobile CTS of Hartford, Inc., for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of cellular telephone antennas and associated equipment in the City of Middletown, Connecticut.

Connecticut Siting Council

April 9, 1990

FINDINGS OF FACT

1. Metro Mobile CTS of Hartford, Inc. (Metro Mobile), in accordance with the provisions of Section 16-50g to 16-50z of the Connecticut General Statutes (CGS), applied to the Connecticut Siting Council (Council) on September 28, 1989, for the installation, maintenance and operation of a telecommunications facility, consisting of antennas and associated equipment to provide increased domestic public cellular radio telecommunications service (cellular service) in the City of Middletown, Connecticut, within the Hartford, Connecticut, New England County Metropolitan Area (Hartford NECMA). The facility would be located in and on the existing Middlesex Mutual Assurance Company (MMAC) building, 213 Court Street, Middletown, Connecticut. (Record)

2. The application was accompanied by proof of service as required by CGS Section 16-501. (Metro Mobile 1, Exhibit 5; Record)

3. Public notice of the application, as required by CGS Section 16-501, was published in the Middletown Press on September 27 and 28, 1989. (Metro Mobile 1, Exhibit 4; Record)

4. The Council and its staff made an inspection of the proposed Middletown site on January 8, 1990. The inspection was publicly noticed in the Hartford Courant, on October 24, 1989, and the Middletown Press on October 25, 1989. (Record)

5. Pursuant to CGS Section 16-50m, the Council, after giving due notice thereof, held a public hearing for the proposed facility on January 8, 1990, beginning at 4:00 p.m. and reconvening at 7:00 p.m. in Room C506, Snow Hall, Middlesex Community College, 100 Training Hill Road, Middletown, Connecticut. (Record)

6. The parties in the proceeding are the applicant and the persons and organizations whose names are listed in the Decision and Order, which accompanies these Findings of Fact. (Record)

7. The Department of Environmental Protection (DEP) filed written comments with the Council pursuant to CGS Section 16-50j in a letter dated December 26, 1989. (Record)

8. In 1981, the Federal Communications Commission (FCC) recognized a national need for technical improvements, wide area coverage, high quality service, and competitive pricing in mobile telephone service. (Metro Mobile 1, pp. 5, 8)

9. Conventional mobile telephone service has been limited by insufficient frequency availability, inefficient frequency use, and poor quality of service. These limitations have resulted in call congestion, transmission blocking, interference, lack of coverage, and high costs. (Metro Mobile 1, p. 5)

10. The FCC has promulgated regulations for cellular service in the following areas: technical standards to assure technical integrity of systems for nationwide compatibility, market structure, and state certifications prior to federal application for a construction permit. (Metro Mobile 1, pp. 5-6)

11. The FCC has pre-empted state regulations in determining that a public need currently exists for cellular service, setting technical standards for that service, and establishing a competitive market. Applicants for FCC cellular system authorizations are not required to demonstrate a public need for the service. (Metro Mobile 1, pp. 5-6)

12. The FCC has determined that the public interest requires two licenses for cellular service be made available in each market area, or NECMA, to provide competition. One license is awarded to a wireline company, the other to a non-wireline company. In the Hartford NECMA, the FCC has authorized Metro Mobile to be the non-wireline service provider. (Metro Mobile 1, pp. 3, 5, 8; Metro Mobile 1, Exhibit 6)

13. Metro Mobile currently operates cellular systems in the Bridgeport, New Haven, Hartford, and New London NECMA's in Connecticut. The FCC's Rules permit a cellular licensee to modify its system, including the addition of new cell sites, as long as the licensee's authorized service area is not enlarged. The proposed facility would not enlarge Metro Mobile's authorized service area. (Metro Mobile 1, pp. 6-7, Metro Mobile 3, Q-15)

14. Cellular service consists of small, overlapping broadcast regions. These regions or cells are limited in coverage by the FCC's technical standards governing

transmitting power. The maximum effective radiated power allowed is 100 watts per channel, as measured at the tower site. The transmitting power cannot be increased to improve geographical coverage. The system design provides coverage for frequency reuse and call transfer, orderly expansion, and compatibility with other cellular systems. (Metro Mobile 1, Exhibit 9, pp. 3-7; Docket 107, Finding of Fact, Number 13; Tr. pp. 17, 18, 21)

15. The proposed cellular facility would operate in 870-890 megahertz (MHz) frequency range with a maximum of 90 channels. (Metro Mobile 1, p. 12; Metro Mobile 1, Exhibit 6; Metro Mobile 1, Exhibit 8, p. 2; Metro Mobile 1, Exhibit 10)

16. The electromagnetic radio frequency power density emissions of the proposed site, assuming all 90 channels are operating simultaneously at maximum allowable power of 100 watts per channel, would be 0.0399 milliwatts per square centimeter (mW/cm^2) as calculated for the street level at the base of the building. This would be below the American National Standards Institute (ANSI) safety standard of 2.92 mW/cm^2 as adopted by the State in CGS 22a-162a, for frequency ranges to be used in the proposed cellular system. (Metro Mobile 1, pp. 10-11; Metro Mobile 1, Exhibit 8, p. 2; Docket 107, Finding of Fact No. 13; Tr. p. 27)

17. Cell sites require a 10 percent to 20 percent overlap of coverage between adjacent cell sites. This overlap allows an uninterrupted transfer, or hand-off of calls in progress from one frequency to another and from one cell to another cell. (Metro Mobile 1, pp. 9-13; Metro Mobile 1, Exhibit 1, p. 12; Metro Mobile 1, Exhibit 9, p. 7)

18. Cell site call handling capability can be increased by adding more channels until the maximum is reached, or by reassigning frequencies to new facilities within existing cells or in adjoining areas. (Metro Mobile 1, Exhibit 9, pp. 2-10)

19. As part of Metro Mobile's overall system, the proposed Middletown facility is planned to overlap existing cellular coverage from presently operating sites in Portland and Rocky Hill. Metro Mobile projects that the proposed site would provide additional channels to transfer or off load calls from the Portland and Rocky Hill cell sites which are expected to begin to exceed their call carrying capabilities during 1990. (Metro Mobile 1, p. 9; Metro Mobile 1, Exhibit 1, p. 12; Metro Mobile 1, Exhibit 9, pp. 7-10; Metro Mobile 3, Q-10; Tr, pp. 18, 25, 26)

20. During business hours, (7:00 a.m. to 7:00 p.m.) the existing Portland and Rocky Hill facilities' call handling experience has been as follows:

Portland - 200 calls/peak hours;
- 150 calls/average hours;

Rocky Hill - 300 calls/peak hour;
- 225 calls/average hour.

Each facility is currently an omnidirectional site with approximately 45 channels which can handle about 1200 calls during a peak hour. (Metro Mobile 3, Q-3, Q-8)

21. The maximum number of calls that could be handled by the existing Portland and Rocky Hill facilities when both are sectorized, during the latter part of 1990, would be 3,600 calls per site during a peak hour or 600 calls for each of six sectors. (Metro Mobile 3, Q-8; Tr. p. 18)

22. The proposed Middletown site would be a secondary sectorized facility when it commences operation. This would allow additional simultaneous calls within the Middletown service area above what is currently provided by the existing Portland and Rocky Hill facilities. The Middletown facility would have six sectors with 12-15 channels per sector and would have a capability of handling 3,600 calls per hour or 600 calls per hour for each of the six sectors. (Metro Mobile 1, pp. 7, 9; Metro Mobile 3, Q-8; Metro Mobile 5, Q-9; Metro Mobile 1, Exhibit 9, pp. 2, 9-10)

23. The combined service areas that the two existing Portland and Rocky Hill facilities and the proposed Middletown facility would cover include Routes 9, 66, 72, and Interstate 91 (I-91). The proposed facility would provide additional channels to these heavily traveled routes. Metro Mobile has experienced dropped calls, blocked calls, and interference from certain coverage areas of the existing cellular sites. In addition, channels have been unavailable for the completion of a hand-off between cells. (Metro Mobile 1, pp. 7, 9, 13; Metro Mobile 1, Exhibit 1, p. 12; Metro Mobile 1, Exhibit 9, pp. 9-10; Metro Mobile 3, Q-7; Tr. p. 26)

24. No currently acceptable signal hand-off overlap in coverage exists between the Portland, Rocky Hill, and Haddam cell sites. The proposed facility would improve the overlapping coverage between the Portland and Rocky Hill facilities. The proposed facility would extend coverage along Route 9 to the Middletown-Haddam town line but would not substantially improve the overlapping coverage with the Haddam facility. (Metro Mobile 5, Q-5; Tr. pp. 19, 25)

25. The minimum antenna height for proper coverage, off loading, and frequency reuse is based on the ground level at a potential cell site and how far above mean sea level (AMSL) the antennas would be placed. Metro Mobile determined in its cell site search, that the minimum height needed for a Middletown cell site would be 230 feet above AMSL. The antennas installed on the roof of the MMAC building would be between 244 feet AMSL (177 AGL) and 281 feet AMSL (214 AGL). (Metro Mobile 1, Exhibit 1, p. 8; Metro Mobile 5, Q-9)

26. Metro Mobile considered six sites including two existing towers within the theoretical 0.6 mile radius search area for the proposed facility, rejecting five. Actual site selection was based on several factors including availability, area coverage, environmental impact, technical capability, site access, and reasonable leasing or purchase terms. (Metro Mobile 1, Exhibit 1, pp. 2, 11; Metro Mobile 1, Exhibit 9, pp. 3-11)

27. Each of the rejected sites was not acceptable for one or more of the following reasons: the existing tower structures could not support the required cellular antennas, owners of existing tall buildings were unwilling to lease space, and buildings were deemed not acceptable. (Metro Mobile 1, Exhibit 9, Attachment A, Attachment B)

28. No alternative site was proposed by Metro Mobile because the proposed site would provide the necessary coverage without constructing a new tower and equipment building elsewhere. (Metro Mobile 1, Exhibit 9, p. 11)

29. Metro Mobile consulted with City of Middletown officials regarding its cell site search effort. These officials suggested the MMAC building would be a suitable site location. (Metro Mobile 1, Exhibit 9, pp. 11-12)

30. The parcel on which the proposed site is located is zoned B-1 (Central Business). The surrounding areas within a one quarter mile radius around the site are zoned B-1 (Central Business), RF (Riverfront Recreation), ID (Institutional Development), and PL (Parkland). The proposed site is used for commercial offices. The surrounding land uses include retail establishments, restaurants, commercial offices, small businesses, residences, and recreation areas. (Metro Mobile 1, Exhibit 1, pp. 4, 7)

31. The distance from the proposed antennas to the nearest residence, located to the west of the site, would be 239 feet. The simultaneous operation of all 90 channels at maximum output would create a electromagnetic radio

frequency power density at this location of 0.0221 mW/cm^2, 132 times below the ANSI safety standard of 2.92 mW/cm^2. (Metro Mobile 1, Exhibit 1, p. 5; Metro Mobile 5, Q-13; Tr. pp. 27, 28)

32. The proposed Middletown cell site would comprise about 700 square feet (2 rooms) located on the mechanical level of the MMAC building. Access to the MMAC building would be from Court Street over an existing driveway and parking area. (Metro Mobile 1, pp. 7-8; Metro Mobile 1, Exhibit 8, p. 1)

33. Metro Mobile would install a total of eight cellular telecommunications antennas, consisting of two omnidirectional six and a half-foot long by two inches in diameter, whip signal processing transmit antennas on the roof of the building, next to a beacon required by the Federal Aviation Administration (FAA); and six eleven-inch by twenty-inch directional panel receive/transmit antennas on the vertical copper roof of the building. The panel antennas would be attached to a two- to three-foot facade, set back two to three feet from the vertical part of the building's copper dome at 177 feet AGL. The total overall height of the whip antenna would be about 214 feet AGL. The beacon is at 207 feet AGL. (Metro Mobile 1, Exhibit 1, pp. 5-8; Metro Mobile 1, Exhibit 8, p. 2; Metro Mobile 1, p. 8; Metro Mobile 1, Exhibit 10)

34. The proposed panel antennas would be designed to withstand the equivalent of 125 miles per hour (MPH) wind pressure with 0.5 inch radial ice accumulation. The omnidirectional whip antenna would be designed to withstand the equivalent of 130 MPH wind pressure with 0.5 inch ice accumulation. (Metro Mobile 1, Exhibit 10)

35. The 177-foot and 207-foot levels of the MMAC building are accessible by maintenance personnel and not to the public or tenants of the building. Due to the shielding characteristics of the building, the power density level on the uppermost occupied floor (12th floor) of the building would be 0.0005 mW/cm^2. Occupants on this floor would be about 20 feet below the antennas. (Metro Mobile 5, Q-13, Q-15; Tr. pp. 28-30)

36. The required changes to the building to accommodate the cell site equipment would not substantially change the external appearance of the building. The six panel antennas would be painted to match the surface color of the roof's mounting area. The whip antennas would also be painted to match the mounting area. (Metro Mobile 1, Exhibit 8, pp. 12; Metro Mobile 1, Exhibit 9, p. 11)

37. The cable lines connecting the antennas to the equipment room would enter the building through weatherproof penetrations in the roof. No strengthening of the roof

would be necessary. (Metro Mobile 5, Q-11, Attachment 6 and 7)

38. The cellular transmission equipment located in the MMAC building would not affect any other electronic equipment located in the building. (Metro Mobile 3, Q-12)

39. Utility connections would be available from within the existing building. The proposed facility would not require sanitary connections. There would be no substantial air, water, or noise emissions or discharges from the proposed facility except from high volume air conditioning (HVAC) units. Metro Mobile would not use a permanent emergency generator at the site. Some noise would be anticipated during cell site construction. (Metro Mobile 1, p. 10; Metro Mobile 1, Exhibit 8, p. 1; Metro Mobile 3, Q-14)

40. The proposed facility would be equipped with an intrusion alarm system. The equipment rooms would be unmanned except for periods of maintenance work. (Metro Mobile 1, p. 8)

41. To date, the proposed cellular facility would represent state-of-the-art technology, and Metro Mobile is aware of no technically viable alternatives to its system design. There is no currently licensed or experimental mobile satellite telephone service. (Metro Mobile 1, p. 16)

42. The topography at the proposed site would remain unchanged after construction is complete. No water flow and/or quality changes would result from the construction and operation of the proposed facility. (Metro Mobile 1, Exhibit 8, p. 1)

43. The Department of Environmental Protection (DEP) states that given the nature of this proposal and the lack of any environmental or aesthetic impacts associated with it, the DEP has no comments to offer on this application. (DEP letter dated December 26, 1989)

44. Following regulatory approval, approximately six weeks would be needed for site preparation, engineering, system construction, and testing. (Metro Mobile, Exhibit 1, p. 10)

45. Total estimated construction cost for the proposed cell site is as follows:

1. Radio equipment	$483,400
2. Antennas	$ 12,800
3. Power system	$ 12,000
4. Building renovation	$ 5,000
5. Miscellaneous including site preparation and installation	$ 34,000
Total equipment and construction	$547,200.

(Metro Mobile 1, Exhibit 1, p. 9)