Docket No. 130 - An application of Metro Mobile CTS of Fairfield County, Inc., for a Certificate of Environmental Compatibility and Public Need for the construction, operation, and maintenance of cellular telephone antennas and associated equipment in the City of Bridgeport, Connecticut.

Connecticut Siting Council

May 7, 1990

## FINDINGS OF FACT

1. Metro Mobile CTS of Fairfield County, Inc., in accordance with the provisions of Sections 16-50g to 16-50z of the Connecticut General Statutes (CGS), applied to the Connecticut Siting Council (Council) on September 29, 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 Bridgeport, Connecticut, within the Fairfield, Connecticut, New England County Metropolitan Area (Bridgeport NECMA). The facility would be located in and on the existing Remington Arms Shot Tower (RAST) building, 939 Barnum Avenue, Bridgeport, 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 Bridgeport Post-Telegram on September 27 and 28, 1989. (Metro Mobile 1, Exhibit 4; Record)

4. The Council and its staff made an inspection of the proposed Bridgeport site on January 11, 1990. The inspection was publicly noticed in the Bridgeport Post-Telegram on October 22 and 23, 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 11, 1990, beginning at 4:00 P.M. and reconvening at 7:00 P.M. in the Thomas Hooker School, Roger Williams Road, Bridgeport, Connecticut. (Record)

6. The parties in the proceeding are the applicant and the persons and organization 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 12, 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. 6, 9)

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. 6)

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. 6-7)

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. 6-7)

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 Bridgeport NECMA, the FCC has authorized Metro Mobile to be the non-wireline service provider. (Metro Mobile 1, pp. 3, 6, 9; 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. 7-8)

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 coverages for frequency reuse and call transfer, orderly expansion, and compatibility with other cellular systems.

(Metro Mobile 1, Exhibit 10, pp. 3-7; Docket 107, Finding of Fact, Number 13; Tr. pp. 20)

15. The proposed cellular facility would operate in the 870-890 megahertz (MHz) frequency range with a maximum of 90 channels. (Metro Mobile 1, p. 1; Metro Mobile 1, Exhibit 6; Metro Mobile 1, Exhibit 8, p. 2; Metro Mobile 1, Exhibit 10; Tr. pp. 20, 43)

16. The electromagnetic radio frequency power density emissions of the proposed site, assuming all 90 channels were operating simultaneously at maximum allowable power of 100 watts per channel and measured at street level, 155 feet from the antennas, would be 0.0526 milliwatts per square centimeter ($mW/cm^2$). 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. 11-12; Metro Mobile 1 Exhibit 8, p. 2; Docket 107, Finding of Fact No. 13; Tr. pp. 20, 43)

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 10, p. 7)

18. Cell site call handling capability can be increased by adding more channels until the maximum is reached, or by assigning frequencies to new facilities within existing cells or in adjoining areas. (Metro Mobile 1, Exhibit 10, pp. 2-10; Metro Mobile 3, Q-8)

19. As part of Metro Mobile's overall system, the proposed Bridgeport facility is planned to overlap existing cellular coverage from presently operating sites in Fairfield, Milford, and Trumbull. These facilities would begin to exceed their call carrying capabilities during 1990. (Metro Mobile 1, pp. 9-10; Metro Mobile 1, Exhibit 1, p. 12; Metro Mobile 1, Exhibit 10, pp. 7-10; Metro Mobile 3, Q-4; Tr, pp. 22-27, 50-54)

20. During business hours, (7:00 A.M. to 7:00 P.M.) the existing Fairfield, Milford, and Trumbull facilities call handling experience has been as follows:

| | | |
|---|---|---|
| Fairfield | - | 1,000 calls/peak hour; |
| | - | 700 calls/average hour; |
| Milford | - | 400 calls/peak hour; |
| | - | 300 calls/average hour; |
| Trumbull | - | 400 calls/peak hour; |
| | - | 275 calls/average hour. |

Each facility is currently an omnidirectional site with a maximum call handling capability of approximately 45 channels which could handle about 1200 calls during a peak hour. (Metro Mobile 3, Q-6; Tr. pp. 28-31)

21. Prior to the commercial operation of the proposed Bridgeport (East) site, the existing Fairfield, Milford, and Trumbull sites would become sectorized which would provide for maximum call handling capacity by dividing the geographic service area into six areas or sectors. This sectorization allows for additional frequency reuse through the use of directional antennas for call handling. Each sector would accommodate a maximum of 600 calls per hour over 12 to 15 channels per sector or 3600 calls per hour for all six sectors over 72 to 90 channels at each site. (Metro Mobile 3, Q-6)

22. The proposed Bridgeport (East) site would be a secondary sectorized facility with the same call handling capacities as the Fairfield, Milford, and Trumbull sites. This would allow additional simultaneous calls within the Bridgeport (East) site's service area above what is currently provided and allow additional cellular traffic handling capability through call transfers from one facility to another. The Bridgeport (East) facility would have six sectors, each handling 12 to 15 channels per sector, with a total site capability of 3600 calls per hour, or 600 calls per hour for each of the six sectors. (Metro Mobile 1, pp. 8-10; Metro Mobile 1, Exhibit 7; Metro Mobile 1, Exhibit 10, pp. 3, 10-11)

23. The combined service areas of the existing Fairfield, Milford, and Trumbull facilities and the proposed Bridgeport (East) site would include Interstate 95 (I-95), Route 15 (the Merritt Parkway), Route 8, and areas of Fairfield, Milford, Trumbull, and Bridgeport. Within this area, 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 has also experienced interference from a cellular system on Long Island. The proposed facility would provide additional channels to this area which will improve service within this territory. (Metro Mobile 1, pp. 3, 15; Metro Mobile 1, Exhibit 1, pp. 3, 12; Metro Mobile 1, Exhibit 7; Metro Mobile 1, Exhibit 10, p. 10; Metro Mobile 3, Q-3, Attachment 3; Metro Mobile 5, Q-5; Tr. pp. 28-37)

24. The addition of the proposed Bridgeport (East) site would not require lower power levels at the existing Fairfield, Milford, and Trumbull sites. Potential interference problems would be reduced by a reassignment of frequencies at these sites. (Metro Mobile 3, Q-8)

25. To date, the proposed cellular facility represents state-of-the-art technology, and Metro Mobile is not aware of any technically viable alternatives to its system design. There is no licensed or experimental mobile satellite telephone service. (Metro Mobile 1, p. 17)

26. The minimum antenna height for proper coverage, off loading, and frequency reuse is based on the ground level at a potential cell site and the height above mean sea level (AMSL) at which the antennas would be placed. Metro Mobile determined in its cell site search that the minimum height needed for a Bridgeport (East) cell site would be 167 feet AMSL. Since the ground elevation at the proposed site is 20 feet AMSL, the minimum required antenna height would be 147 feet above ground level (AGL). (Metro Mobile 3, Q-7)

27. Metro Mobile considered five possible cell sites, rejecting four in or near the 0.6-mile diameter theoretical cell site search area. Cell site selection was determined by cellular coverage requirements, site availability, environmental impact, surrounding land uses, technical compatibility, site access, and reasonable leasing or purchase terms. There are no existing towers located within the 0.6 mile diameter search area. (Metro Mobile 1, Exhibit 10, pp. 4-9; Metro Mobile 1, Exhibit 1, p. 11; Metro Mobile 1, Attachment A)

28. Each of the rejected sites was not acceptable for one or more of the following reasons: owners of an existing tall building were unwilling to negotiate terms, inadequate call coverage from an existing building, no equipment room availability, and the need to erect a new tower structure on an existing building. (Metro Mobile 1, Attachment A)

29. 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 10, p. 11)

30. Metro Mobile consulted with City of Bridgeport officials regarding its cell site search effort. These officials did not object to the use of the RAST building for the proposed facility and did not propose any alternate sites. (Metro Mobile 1, Exhibit 10, p. 12; Metro Mobile 3, Q.13)

31. The parcel on which the proposed site would be located is zoned light industrial. The surrounding areas within a one quarter mile radius around the site are zoned Light Industrial (light industrial operations and commercial business), C-Residence (single or multi-family), and Business No. 1 (commercial business and residences). The proposed site is used for industrial manufacturing purposes. The surrounding land uses include industrial, some residential use, and open space. (Metro Mobile 1, Exhibit 1, pp. 4, 7)

32. The proposed Bridgeport (East) facility would incude an approximately 20-foot by 30-foot equipment room on the fifth floor of the RAST building. The building is owned by Remgrit Realty, Inc., and is located on the southeast corner of Arctic Street and Helen Street, Bridgeport. Access to the RAST building would be from Arctic Street over existing drives and parking area. The RAST building is approximately 152 feet AGL. (Metro Mobile 1, p. 8, Metro Mobile 1, Exhibit 8, p. 1)

33. Metro Mobile would install a total of eight cellular telecommunications antennas, consisting of two omnidirectional ten and one-half foot long by two and three-quarters inches in diameter, whip signal processing transmit antennas on the roof of the building at a minimum distance of 12 feet apart and centered on the roof; and six 20 inches tall by ten and three-eighths inches wide and five inches deep, directional panel receive/transmit antennas attached to roof-mounted support pipes inside an ornamental railing surrounding the roof area. All antennas would be installed 154 feet above ground level (AGL), above the minimum required height. The top of the panel antennas would not be higher than four feet above the ornamental railing. The whip antennas would extend 11 feet above the railing and would be below an existing antenna which rises approximately 30 feet above the roof. The total overall height of the whip antennas would be 164.5 feet AGL. (Metro Mobile 1, pp. 8-9; Metro Mobile 1, Exhibit 1, pp. 4-8; Metro Mobile 1, Exhibit 8, pp. 1-2; Metro Mobile 5, Q-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 antennas would be designed to withstand the equivalent of 100 MPH wind pressure. (Metro Mobile 1, Exhibit 8, p. 8; Metro Mobile 1, Exhibit 11)

35. Additional strengthening of the ornamental railing would not be required. The cable lines would enter the building through weather-proof penetrations in the roof and be routed via existing ducts or attachments to vertical I - beams to the fifth floor equipment room, five floors below the roof. (Metro Mobile 5, Q-10; Tr. pp. 15-17, 39-40)

36. Metro Mobile would design and construct the equipment room to secure the room from intrusion by persons or dust. Air intakes would be vented from the exterior walls to provide dust-free air from outside the building. Final approval of the air ventilation system would be needed from the owner of the building. (Tr. pp. 16-17)

37. The required changes to the building needed to accommodate the proposed cell site would not substantially change the

external appearance of the building. The panel antennas would be painted a light color to blend with the background. Placement of the antennas inside the ornamental railing on the roof would reduce antenna visibility from the ground. (Metro Mobile 1, Exhibit 8, p. 2; Tr. pp. 41-42)

38. The distance from the proposed antennas to the nearest residence would be 230 feet. The simultaneous operation of all 90 channels at maximum output would create an electromagnetic radio frequency power density at this location of 0.0239 $mW/cm^2$. Due to the shielding characteristics of the building, the power density level on the uppermost occupied floor (eighth floor) of the building would be 0.0003 $mW/cm^2$, as measured 25 feet directly below the roof. (Metro Mobile 5, Q-14; Tr. pp. 20-21)

39. Metro Mobile has considered that there is sufficient space on the building's rooftop tower to accommodate another company's antennas on the roof. (Tr. pp. 42-43)

40. Metro Mobile has executed a long term lease to use the RAST building for the proposed facility. (Tr. p. 40)

41. The cellular transmission equipment located in the building would not affect any other electronic equipment located in the building. (Metro Mobile 3, Q-12; Metro Mobile 5, Q-11, Attachment 4)

42. 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. 9; Metro Mobile 1, Exhibit 8, p. 1; Tr. p. 19)

43. 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. 9)

44. 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)

45. Because the proposed facility would be in and on an existing building, Metro Mobile was not required to file an application with the Federal Aviation Administration for a permit to construct and operate the proposed facility. (Metro Mobile 3, Q-2)

46. The RAST building is listed in the Historic American Engineering Record Survey as possessing industrial significance. The State Historic Preservation Office stated that the proposed undertaking would have no effect upon the industrial integrity of the Remgrit "Shot Tower" (RAST) building. (Metro Mobile 1, Exhibit 9)

47. The Department of Environmental Protection offered no comments on this application because of the lack of any environmental or aesthetic impacts associated with it. (DEP letter dated December 12, 1989)

48. Following regulatory approval, approximately six weeks would be needed for site preparation, engineering, system construction, and testing. (Metro Mobile 1, Exhibit 1, p. 12)

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

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|---|---|---|
| 1. | Radio equipment | $ 701,100 |
| 2. | Antennas | 13,800 |
| 3. | Power systems | 18,000 |
| 4. | Building renovation | 10,000 |
| 5. | Miscellaneous including site preparation and installation | 60,200 |
| Total equipment and construction | | $ 803,100 |

(Metro Mobile 1, p. 16; Metro Mobile 1, Exhibit 1, p. 9)

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