

**D'AGOSTINE, LEVINE & GORDON, P.C.**

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August 14, 1998

FEDERAL EXPRESS - 806195348944

Zoning Board of Appeals

Town of Leicester

Town Hall

3 Washburn Square

Leicester, MA 01524

RE: Special Permit Application

Petitioner: Southwestern Bell Mobile Systems, Inc., d/b/a Cellular One

Site Locus: 180 Paxton Street a/k/a Route 56, Leicester, MA

Assessors' Reference: Map #15, Lot #A-19.2

Dear Members of the Board:

On behalf of Cellular One, we are pleased to enclose in support of the above-referenced application the following materials:

1. Memorandum to Leicester Board of Appeals from Ralph Colorusso, dated August 10, 1998, "Re: The Number and Type of Antennae Proposed and Direction of Maximum Lobes", with attached specifications (Exhibit 1)
2. Site Justification Statements, including:
  - a. Memorandum to Leicester Board of Appeals from Ralph Colorusso, dated June 23, 1998, "Re: Site Justification Statement" (Exhibit 2A)
  - b. Memorandum to Leicester Board of Appeals from Richard Lowery, dated June 23, 1998, "Re: Proposed Broadcasting and Relay Station Antenna Array and Tower on Paxton Street, Leicester, MA" (Exhibit 2B)
  - c. Memorandum to Leicester Board of Appeals from Richard Wesson, dated August 10, 1998, "Re: Additional potential sites in Leicester for consideration as a cell site, relative to radio frequency engineering" (Exhibit 2C)
  - d. Memorandum to Leicester Board of Appeals from Ralph Colorusso, dated August 10, 1998, "Re: Site Justification Statement" (Exhibit 2D)

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3. Form of proposed bond and certification by structural engineer (Exhibit 3).
4. Report by Full Spectrum Consulting, John M. Osepchuk, entitled "Analysis and Assessment of Environmental Electromagnetic Fields from the Proposed Cellular One Tower in Leicester," together with Mr. Osepchuk's qualifications (Exhibit 4).
5. Memorandum to Leicester Board of Appeals from Ralph Colorusso, dated August 10, 1998, "Re: Wireless Communications Facilities on or adjacent to school campus" (Exhibit 5)
6. Overlay of Assessors' Map showing distance from proposed facility to existing uses (Exhibit 6)
7. General information concerning siting of wireless facilities, including:
  - a. "Federal Communications Commission, Wireless Telecommunications Bureau, FACT SHEET #1, April 23, 1996, National Wireless Facilities Siting Policies," which includes the complete text of Section 704 of the Federal Telecommunications Act of 1996 (Exhibit 7A).
  - b. "Federal Communications Commission, Wireless Telecommunications Bureau, FACT SHEET #2, September 17, 1996, National Wireless Facilities Siting Policies" (Exhibit 7B).
  - c. Decision of the U.S. District Court for the District of Massachusetts in *Sprint Spectrum L.P. v. Town of Easton* (Exhibit 7C).

Cellular One respectfully submits that the proposed facility complies with all of the requirements of Section 5.4 of the Town of Leicester Zoning By-Laws (the "Bylaw") for the issuance of the requested special permit:

1. The number and type of antennae proposed.

Pursuant to Section 5.4 of the Bylaw, the number and type of antennae proposed are as follows:

- a. Maximum twelve (12) cellular panel antennas, at approximately 73 above ground level..
- b. One radio dish antenna, four feet in diameter, at approximately 95 feet above ground level.
- c. One radio dish antenna, four feet in diameter, at approximately 140 feet above ground level.

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See Exhibit 1 hereto for manufacturers' specifications of the proposed antennae.

2. A description of the proposed antenna and all related fixtures, structures and apparatus, including height, material, color and lighting.

Pursuant to Section 5.4 of the Bylaw, the following is a description of the proposed antenna and all related fixtures, structures and apparatus, including height, material, color and lighting.

The proposed personal wireless telecommunications facility will consist of the following:

- a. A 150 foot self-supporting lattice tower. It is anticipated that the Federal Aviation Administration ("FAA") will require the tower to be painted red and white and to have a beacon light or lights.
- b. A maximum of twelve panel antennae in three sectors, and two radio dish antennae, as described above, connected by co-axial cable, supported by a cable tray (ice bridge) to the equipment shed.
- c. One precast concrete equipment shed, gray, 12'W x 28'10"L x 9'10"H, containing electronic equipment for receipt and transmission of signals.
- d. One propane powered emergency generator, with one 500 gallon underground liquid propane storage tank. Cellular One recommends that the propane storage tank be underground to minimize any potential for vandalism. An above-ground storage tank can be substituted, but such a tank would be larger (1000 gallons) to accommodate temperature variations.
- e. All facilities will be surrounded by an 8 foot high chain link fence surmounted with three rows of barbed wire, gated and locked. The compound will be monitored by electronic systems. In order to minimize the visual impact of the compound, Cellular One will provide perimeter plantings of dark American Arborvitae.
- f. Five graveled parking spaces located adjacent to compound.
- g. One additional utility pole located adjacent to the compound for connection of electric service and telephone land lines.

Access to the proposed facility will be provided by the existing gravel drive which provides access to the water tanks, with a short extension. The site will require some minimal grading. The site will be stabilized with crushed stone over geotextile fabric. Site specifications are shown on the plan entitled "CellularOne Communication Facility, 180 Paxton Street, Leicester, MA Grading Plan and Details" by Tutela Engineering Associates, Inc., previously submitted to the Board.

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3. A description of the proposed antenna function and purpose.

Pursuant to Section 5.4 of the Bylaw, the following is a description of the proposed antenna function and purpose.

The proposed facility is intended to provide cellular coverage in the northern and central portions of Leicester including routes 9 and 56 and to provide point to point radio switching capability to other cell sites.

4. Direction of maximum lobes.

Pursuant to Section 5.4 of the Bylaw, the following information is provided as to the direction of maximum lobes.

The cellular antenna array will consist of a maximum of twelve panels in a triangular formation, with three sectors, each with an equal number of panel antennas. The panels within each sector will have an azimuth (direction in degrees from true north) of 30 (northeasterly), 150 (southeasterly) and 270 (westerly) degrees, respectively. Additionally, the array will include one radio dish antenna with an azimuth of 8.3 degrees north and one radio dish antenna with a westerly azimuth. Specifications are set forth in Exhibit 1 hereto.

5. An evaluation of the feasibility of attaching the proposed facility to existing buildings or utilizing existing facilities

Pursuant to Section 5.4 of the Bylaw, the following information is provided concerning the feasibility of alternative sites.

As set forth in the Federal Communications Commission Fact Sheet #2 (Exhibit 7B):

... low powered transmitters are an inherent characteristic of cellular radio  
... As these systems develop and more subscribers are added, the effective radiated power of the cell site transmitters is reduced. Channels are reused at closer intervals to increase the subscriber capacity of the system. ...

Accordingly, the proposed cellular facility must be sited in close proximity to the geographic area to be served. Siting of the proposed facility in this instance is further circumscribed by the need to maintain adequate distance from the WCRN AM radio antennae (which interfere with cellular transmissions) and by the proximity of the Worcester and Spencer airports to the target service area. Siting of the proposed facility is further constrained by the requirement of Section 5.4 of the Bylaw that the site be large enough to "avoid damage to adjacent properties from facility failure."

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Pursuant to Section 5.4 of the Bylaw, Cellular One considered the following existing structures as potential sites:

- a. Cherry Valley Water District - 2 Water tanks off West Street.
- b. Hillcrest Water District - 108' water tank off Rte. 56 at Memorial School
- c. Radio Station WCRN - off Rte.9 and Shady Lane
- d. Leicester Water Supply District - 2 water tanks off Paxton Street.
- e. Leicester High School and Elementary School off Paxton Street.
- f. Greenville Stand Pipe off Green Street
- g. Town Hall.
- h. Leicester Federated Church at Washburn Square.
- i. Unitarian Church at Washburn Square.
- j. Greater Media Cablevision Tower.

In general, these sites were of insufficient height or not geographically located so as to provide effective signal coverage for the target area. Please refer to Site Justification Statement, Exhibit 2A, for the reasons specific to each of the considered sites as to why they are inappropriate.

Additionally, pursuant to the request of the Board, Cellular one considered two additional sites: the Town landfill at Manville Street and the Leicester Rod & Gun Club at Whittemore Street. However, both of these sites would not provide sufficient effective signal coverage for the target area and would duplicate coverage provided by existing cell sites. Please refer to the Site Justification Statement, Exhibits 2C and 2D hereto for the additional reasons specific to each of these sites as to why they are inappropriate.

6. Copies of All Applicable Permits.

Pursuant to Section 5.4 of the Bylaw, Cellular One has obtained and/or applied for all other required permits. Other than the special permit which is the subject of this application, the following other permits are applicable:

- a. Leicester Planning Board Site Plan approval, previously submitted.
- b. Commonwealth of Massachusetts Board of Health Permit, previously submitted.
- c. FCC license, previously submitted.
- d. FAA license, to be submitted. This licence has been applied for but not yet received.

7. Site Justification Statement (s).

Pursuant to Section 5.4 of the Bylaw, Site Justification Statements are submitted herewith as Exhibits 2A, 2B, 2C and 2D. In summary, these show that:

- (a) Field investigations have not located any existing structures or buildings with the elevation, geographical location and capacity to support a wireless telecommunications facility that could provide effective signal coverage in the area requiring service (Exhibit 2A);
- (b) The proposed site has the elevation, topography, location and physical conditions for providing effective signal coverage in the area requiring service (Exhibit 2B);
- (c) The Town Landfill and the Leicester Rod and Gun Club sites do not have the elevation, topography, location and physical conditions necessary for providing effective signal coverage in the area requiring service (Exhibits 2C and 2D).

8. Visual Impact and Co-location.

Pursuant to Section 5.4 of the Bylaw, the proposed facility minimizes visual impact consistent with the requirement of the Bylaw to "minimize the overall number and height of such facilities to only what is essential [and] to encourage co-location on a single structure . . . ."

Because of the proximity of the proposed facility to the Worcester Airport, it is anticipated that the FAA will require that the proposed tower be painted in seven equal, alternating bands of red and white colors. Therefore, Cellular One respectfully submits that a 'see-through' lattice tower will result in less of a visual impact than a solid structure of equal height painted with solid bands of red and white.

Additionally, Section 5.4 of the Bylaw requires the facility to be designed and constructed:

. . . so it is reasonably capable of accommodating other users including other wireless communication companies and local police, fire and ambulance companies . . .

A self-supporting triangular lattice tower provides the greatest ability to accommodate other users as a monopole can only accommodate those antennas for which it is specifically designed and Cellular One cannot anticipate the specific needs of co-locators in advance.

Co-location requires ten feet of vertical spacing between antenna arrays. Accordingly, Cellular One proposes a 150 foot lattice tower, which will allow approximately twenty feet of vertical spacing between the cellular antennae and the lower dish antenna and forty five feet of vertical spacing between the proposed radio dishes available for co-location. Cellular One believes that this will be sufficient to handle the needs of all other foreseeable co-locators. In accordance with Section 5.4 of the Bylaw, Cellular One has agreed to provide space free of charge on the tower and in the proposed equipment shed for local police, fire and ambulance services.

In order to minimize visual impact of the compound, Cellular One will provide perimeter plantings of dark American Arborvitae (*Thuja Occidentalis* "Nigra").

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9. No interference to existing television, cable television or radio signals.

In accordance with Section 5.4 of the Bylaw, the proposed facility will not interfere with existing licensed television, cable television or radio signals. Should such interference occur, Cellular One will immediately remedy any interference caused by the proposed facility.

10. Color

Due to the proximity of the site to the Worcester Airport, it is anticipated that the FAA will require that the proposed tower be painted with seven equal bands of alternating red and white colors. In accordance with Section 5.4 of the Bylaw, the Tower will only be painted with contrasting colors if required by the Federal Communications Commission ("FCC") or the FAA.

11. Advertising or signage.

In accordance with Section 5.4 of the Bylaw, there will be no advertising or signage at the proposed facility other than a no trespassing sign on the compound fence and a sign providing information as to whom to contact in case of any problems.

12. Security fence

In accordance with Section 5.4 of the Bylaw, except as to the proposed parking spaces, the entire facility will be surrounded by an eight foot high, gated chain link fence, surmounted with three strands of barbed wire. The gate will be locked at all times that Cellular One personnel are not present and the facility will be alarmed and electronically monitored. Design details are shown on the plan entitled "CellularOne Communication Facility, 180 Paxton Street, Leicester, MA Grading Plan and Details" by Tutela Engineering Associates, Inc., previously submitted to the Board.

13. Night lighting

It is anticipated that the FAA will require a beacon light or lights on the proposed tower. In accordance with Section 5.4 of the Bylaw, night lighting of the proposed tower will be provided only to the extent required by the FAA and the tower will otherwise be unlit.

14. Bond

In accordance with Section 5.4 of the Bylaw, prior to the issuance of a building permit, Cellular One will post a bond with the Town of Leicester to secure removal of the facility within one year of cessation of use or condemnation by the Building Inspector. The amount of the bond will be certified as adequate to cover the cost of such removal by a structural engineer. A proposed form of bond and certification is submitted herewith as Exhibit 3.

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In addition to complying with the requirements of Section 5.4 of the Bylaw, Cellular One respectfully submits that the proposed facility also complies with the provisions of Section 6.4.02.3 of the Bylaw.

1. The site is an appropriate location for the proposed personal wireless service telecommunications facility.

In accordance with Section 6.4.02.3 of the Bylaw, the site is an appropriate location for the proposed personal wireless service telecommunications facility.

The site is located in a suburban-agricultural district and has been determined by the Leicester Planning Board to comply with all of the applicable provisions of the Leicester Zoning Bylaw for the proposed use. See Leicester Planning Board site plan approval, previously submitted to the Board.

Pursuant to Section 5.4 of the Leicester Zoning Bylaws, the proposed use is permitted by special permit in the suburban agricultural district, and is consistent with other similar uses allowed in the suburban agricultural district, including the WCRN radio towers off Route 9 and Shady Lane.

The proposed facility is consistent and compatible with the existing use of the site by the Leicester Water District for two 40' high water tanks.

The proposed facility is approximately 725 feet from the nearest existing residence which is screened from the site by trees and the site is in an area of relatively low density residential development. Because of the proximity of the site to the New England Power Company electric lines (supported by high tension towers) and because of the existing water tanks on the site, the proposed facility will not impair the visual character of the neighborhood. See Exhibit 6 hereto.

The location, topography and elevation of the site allows Cellular One to provide effective service coverage in the target area with its cellular antenna array at approximately 73 feet above ground level, whereas other sites considered, even if otherwise appropriate, would likely require cellular antenna arrays substantially higher above ground level.

The site provides an adequate fall zone for safety purposes.

2. Adequacy of public sewage and water facilities

In accordance with Section 6.4.02.3 of the Bylaw, the proposed facility does not require any public sewage or water facilities.

3. The proposed use will not have any adverse effect on the neighborhood



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In accordance with Section 6.4.02.3 of the Bylaw, the proposed facility will not adversely affect the neighborhood.

Although not a permissible basis for regulation under the Leicester Zoning Bylaw,<sup>1</sup> Cellular One submits herewith the report of John M. Osepchuk entitled "Analysis and Assessment of Environmental Electromagnetic Fields from the Proposed Cellular One Tower in Leicester" (Exhibit 4). In summary, using worst case assumptions, Mr. Osepchuk concludes that the highest possible power level of radio frequency emissions from the proposed antennae on the ground is a power level at least one thousand times below applicable regulatory limits. Mr. Osepchuk points out that the regulatory limits themselves incorporate a safety factor of at least 50.

Mr. Osepchuk concludes:

If we recall that we used worst case assumptions, then the solid conclusion from comparison with health standards is that the predicted environmental electromagnetic fields from the proposed Cellular ONE facility in Leicester are SAFE - - by very large factors of thousands to millions. There is no reason for concern.

The safety of the proposed facility is emphasized by the fact that cellular radio facilities are frequently located on or in close proximity to school campuses and hospital buildings. Partial lists of such facilities are submitted herewith as Exhibit 5.

The proposed facility will not have any impact on water resources. The proposed plan shows adequate and proper measures for site stabilization, both during construction and permanently. The proposed facility will not raise or lower the water table, is not expected to alter surface water runoff, will not cause flooding of other properties and will not involve any pollution of surface or groundwater. The proposed use does not involve any chemicals or pesticides and the only fuel on site will be liquid propane. Any unintended release of propane will escape into the air in gas form with no danger of groundwater contamination. The proposed use will not make any demands on town services and will not generate any refuse, sewage or other wastes or drainage. The proposed use will not increase the density of population or intensity in the neighborhood. The proposed use will not have any significant impact on the natural environment and will not have any impact on public health

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<sup>1</sup>The Federal Telecommunications Act of 1996 preempts both state and local government regulation on the basis of health effects of radio frequency emissions. 47 U.S.C. 332(c)(7)(B)(iv) provides: "No State or local government or instrumentality thereof may regulate the placement, construction, and modification of personal wireless facilities on the basis of the environmental effects of radio frequency emissions to the extent such facilities comply with the Commission's regulations concerning such emissions."

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4. The proposed use will not create an undue nuisance or serious hazard to vehicles or pedestrians

In accordance with Section 6.4.02.3 of the Bylaw, the proposed use will not create any nuisance or hazard to vehicles or pedestrians. The site will be accessed by the existing gravel drive and the only traffic associated with the facility be the occasional maintenance vehicle, approximately three times per month.

5. Adequate and appropriate facilities to ensure proper operation of the proposed use will be provided.

In accordance with Section 6.4.02.3 of the Bylaw, adequate and appropriate facilities to ensure proper operation of the proposed use will be provided. The proposed facility will be surrounded by an eight foot high chain link fence surmounted with three strands of barbed wire and will be equipped with an electronic monitoring and alarm system to ensure safety and security. As part of normal, routine maintenance, the facility will be visually inspected at least once per month.

In conclusion, Cellular One respectfully submits that the proposed facility is in compliance with all of the applicable standards of the Bylaw.

Additionally, the proposed facility serves social and community needs. The proposed facility will provide to the Town of Leicester, free of charge, space for local fire, police and emergency services on the tower and in the equipment shed for their communications equipment, thereby improving communications and response time for emergency services. The proposed facility will also provide revenue to the Water Department which will enable it to keep water rates down.

Enclosed for your information are two "Fact Sheets" prepared by the FCC concerning national wireless facilities siting policies. These Fact Sheets explain some of the provisions of the Telecommunications Act of 1996 (the "Act") and provide some general information concerning cellular radio services. Also enclosed for your information is a copy of the decision of a recent decision of the U.S. District Court for the District of Massachusetts in *Sprint Spectrum L.P. v. Town of Easton*, further explaining the provisions of the Act. The Act, codified in 47 U.S.C. §332(c)(7), recognizes the importance and obligation for communities to permit the development of mobile communications. The Act provides, in part, that:

The regulation of the placement, construction, and modification of personal wireless service facilities by any state or local government or instrumentality thereof . . . shall not prohibit or have the effect of prohibiting the provision of personal wireless services.

47 U.S.C. §332(c)(7)(B)(i)

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The term "personal wireless services" is defined in Section 704 of the Act to include "commercial mobile services" such as Cellular One.

Therefore, consistent with the Bylaw and the Act, as well as G. L. c. 40A, §3, it is respectfully requested that the Board grant Cellular One's application for a special permit for the proposed facility.

Respectfully submitted,  
SOUTHWESTERN BELL MOBILE SYSTEMS, INC.  
The Petitioner  
By its Attorneys  
D'AGOSTINE, LEVINE & GORDON, P.C.

By:   
F. Alex Parra


cc: Board Members - Via Federal Express  
Southwestern Bell Mobile Systems, Inc.

FAP/hs  
s:/letter/boaleice.wp  
cc: Ralph Colorusso

**Corporate Office**  
100 Lowder Brook Drive  
Westwood, MA 02090  
(617)462-4000

**MEMORANDUM**

To: Town of Leicester, Board of Appeals

From: Ralph Colorrisso, Real Estate Consultant as Agent for Cellular One 

Date: August 10, 1998

Re: The Number and Type of Antennae Proposed, and  
Direction of Maximum Lobes

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Cellular One proposes to utilize a maximum of twelve panel antennas and 2 dish antennas (see attached product description sheets). The antenna array will be situated in a triangular formation equating to three (3) sectors with an equal number of panel antennas per sector. The panels within each sector will have an azimuth (direction in degrees from True North) of:

30° Alpha face pointed in a Northeasterly direction  
150° Beta face pointed in a Southeasterly direction  
270° Gamma face pointed in a Westerly direction

Additionally, the antenna array will include one dish antenna with an azimuth of 8.3° North and a second dish antenna with a West azimuth.

## ALP 6014-N

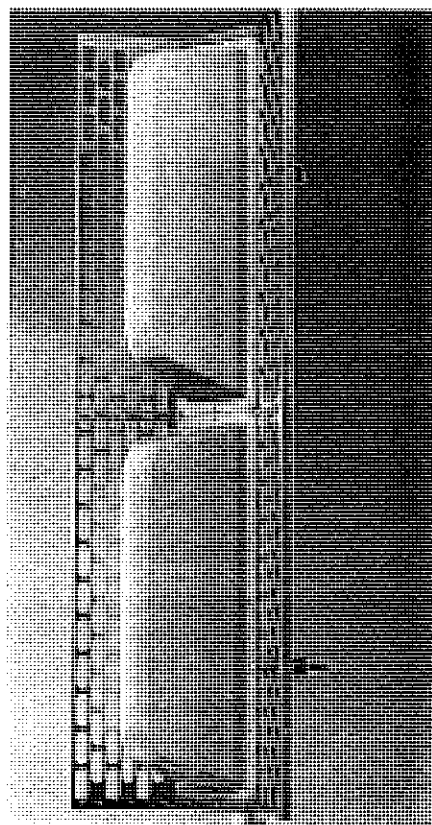
Log-Periodic Reflector Antenna

60 Degrees 14 dBd

### Features:

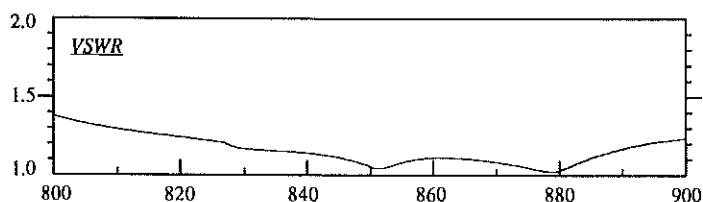
- ☐ Broadbanded. (800-900 MHz)
- ☐ Low backlobe radiation. Front-to-back ratio better than 30 dB
- ☐ Low Intermodulation Products.
- ☐ Low Wind-load.
- ☐ Low weight.
- ☐ Small size.
- ☐ Rugged design.

Please see the following pages including radiation patterns/tables for ALP 6014-N.



### Electrical Specifications:

Frequency range:	806-896 MHz
Impedance:	50 ohm
Connector:	N-female or 7/8" EIA
VSWR:	Typ. 1.3:1 max 1.5:1
Polarization:	Vertical
Gain:	14 dBd
Front to back ratio:	>30 dB
Side-lobe suppression:	>17 dB
Intermodulation: (2x25W):	IM3 >146 dB IM5 >153 dB IM7 & IM9 >163 dB
Power Rating:	500 W
H-Plane: -3 dB	60 °
E-Plane: -3 dB	15 °
Lightning Protection:	DC Grounded



### Mechanical Specifications:

Overall Height:	52 in	(1320 mm)
Width:	17.3 in	(440 mm)
Depth:	11.4 in	(290 mm)
Weight including brackets:	28.9 lbs	(13 Kg)
Rated wind velocity:	113 mph	(180 Km/h)
Wind Area (CxAVFront):	5.4 sq.ft	(0.5 sq.m)
Lateral thrust at rated wind		
<b>Worst case:</b>	780 N	

### Materials:

Radiating elements:	Aluminum
Element housing:	Grey PVC
Back-plate:	Aluminum

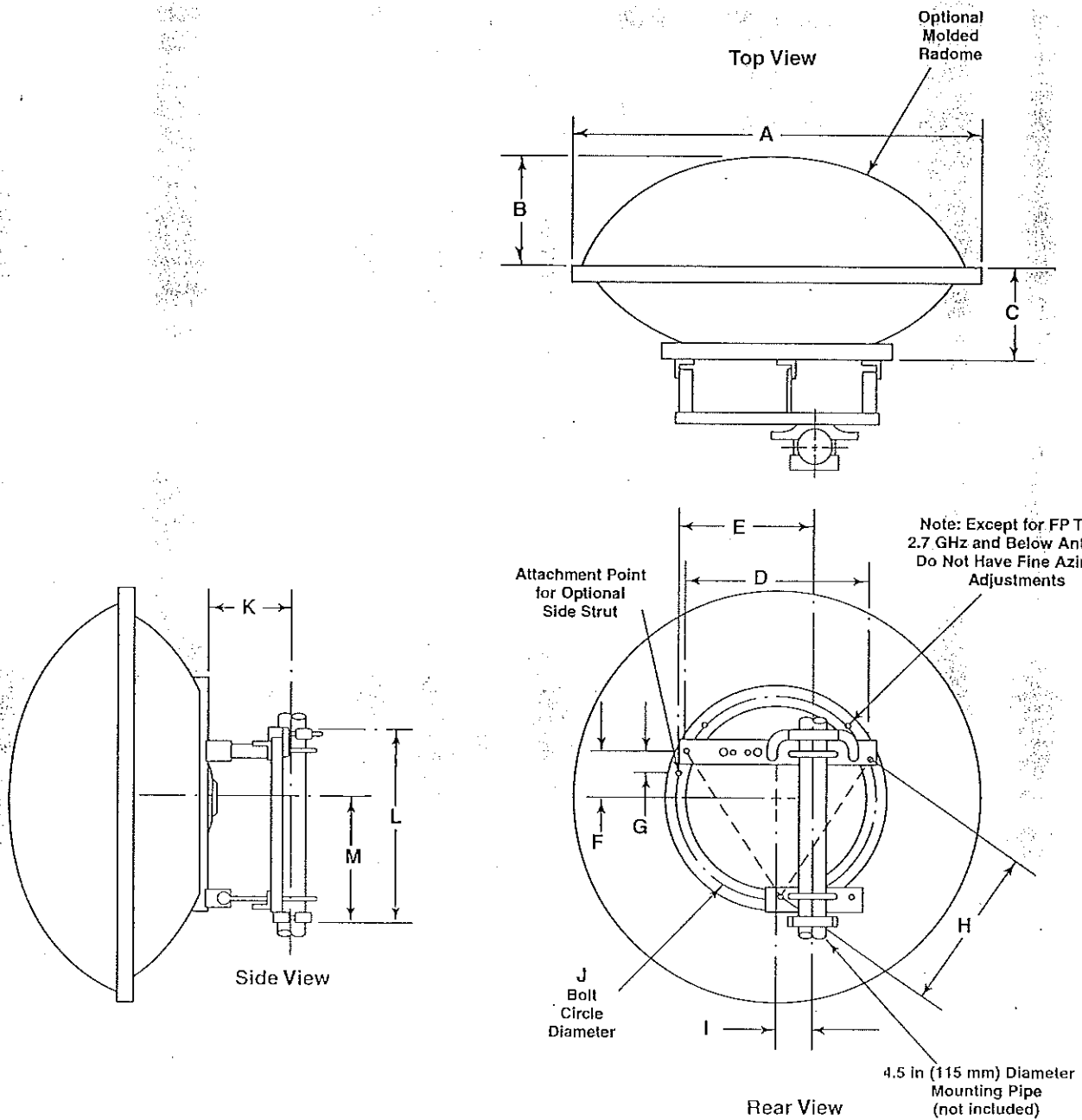
Mounting hardware  
clamps:  
bolts:

Hot dip galvanized steel  
Stainless steel

Manufactured by: Allgon System AB



## 4 and 6 ft Standard and Focal Plane



**Corporate Office**  
100 Lowder Brook Drive  
Westwood, MA 02090  
(617)462-4000

To: Leicester Board of Appeals

From © Southwestern Bell

From: Ralph Colorusso, Real Estate Consultant, as Agent for Cellular One

Date: June 23, 1998

Re: Site Justification Statement

The siting process for any Cellular One Wireless Antenna Facility (antenna array and/or tower structure) begins with the Radio Frequency Engineers determining where there are coverage gaps within the network. Once these holes are identified, a search area is established. Then the assigned real estate consultant identifies potential candidates within the search area based upon the following criteria;

- Locate and identify existing structures suitable to accommodate an antenna array. Consideration given to height above ground, structural integrity, proximity to usable ground space for supporting electronic equipment, electrical power and telephone services.
- Consideration of surrounding properties, overall neighborhood characteristics, topography (above mean sea level elevation), vegetation (tree height, etc.), physical features (powerlines, bridges, etc.) at the site and the surrounding area.
- Sites conformity or lack thereof to various governing authorities criteria;
  - local zoning by-laws (both current and pending)
  - conservation regulations (rivers act and wetland issues and wildlife habitat concerns)
  - historical regulations (esthetic issues, etc.)
  - Federal (FCC) regulations - proximity to existing licensed signals.
  - Federal (FAA) regulations - proximity to air fields and flight paths.
- Property Owner(s) willingness to enter into a lease agreement.
- Overall permitting process.
- Overall timeframe per site from acquisition to antenna signal operation.

— EXHIBIT 2A —

The following is a list of potential sites in Leicester that have received siting consideration, but were rejected based upon the previously mentioned criteria;

Cherry Valley Water District; 2 water tanks off West St.  
outside search area (inappropriate location)  
requires RFP to be issued (not time effective)

Hillcrest Water District; 108' ht. water tank off Rte. 56 at Memorial School  
outside search area (inappropriate location)  
requires RFP to be issued (not time effective)

Radio Station WCRN - off Rte. 9 and Shady Lane  
AM broadcast signal prevents mobile radio signal broadcast  
outside search area (inappropriate location)

Leicester Water Supply District; 2 - 40' ht. water tanks off Paxton Street (Rte. 56)  
insufficient structure height of existing water tanks

Leicester High School and Elementary School of Paxton Street (Rte. 56)  
insufficient structure height  
inferior ground elevation relative to abutting site at Leicester Water Supply tanks  
proximity to existing residences

Greenville Stand Pipe; off Green Street  
insufficient structure height (23' ht.)  
outside search area (inappropriate location)

Town Hall: 3 Washburn Square  
requires RFP to be issued (not time effective)  
insufficient structure height  
ground space concerns (lack of equipment area)

Leicester Federated Church at Washburn Square  
Historical concerns due to chronological age of building.  
insufficient structure height

Unitarian Church - 5 Washburn Square  
Historical concerns due to chronological age of building.  
insufficient structure height  
structural concerns  
ground space concerns (lack of equipment area)



## Potential sites


### Page 2

Greater Media Cablevision Tower: Auburn Street  
outside search area (inappropriate location)  
redundant signal coverage with Oxford site (per RF Engineer's analysis)



To: Leicester Board of Appeals

Corporate Office  
100 Lowder Brook Drive  
Westwood, MA 02090  
(617)462-4000

From: Richard Lowery, RF Engineer 

Date: June 23, 1998

From © Southwestern Bell

Re: Proposed Broadcasting and Relay Station Antenna Array and Tower on  
Paxton Street, Leicester, MA


- 1) My name is Richard Lowery. I am a radio frequency engineer employed by Cellular One - Boston.
- 2) The proposed radio broadcasting and relay station antenna array and tower at the Paxton Street site will consist of a maximum of twelve (12) panel antennas and two (2) dish antennas, so as to accommodate the requirements of Cellular One.
- 3) The following are several radio frequency engineering reasons for the proposed location of Cellular One's tower structure.
  - a) The proposed tower will be of sufficient height to provide the radio frequency coverage and capacity needed by Cellular One in this area.
  - b) The location was chosen because the primary coverage objective is the areas of the northern and central portions of the Town of Leicester including routes 9 and 56. The ultimate objective of Cellular One is to provide seamless wireless communication services throughout the town of Leicester and adjacent communities.
  - c) The proposed tower height of 150 feet will provide sufficient vertical spacing (distance between each antenna array at standard 10 feet) so as to accommodate, via co-location, other wireless service providers, and Town of Leicester public safety communication systems (Police, Fire, Ambulance Service, etc.).
  - d) Insure a clear, clean radio signal by minimizing reflections and interference.
- 4) Locating Cellular One's tower and antenna array at the proposed location is appropriate for the following reasons:
  - a) By siting the proposed tower at this location, there will not be a need for additional towers or monopoles to facilitate other wireless carriers needs within the areas previously stated. 

EXHIBIT 2B

- b) The visual impact of the tower will be somewhat minimized at the proposed location, due to the adjacent water tanks.
- c) No other suitable existing structure with the appropriate combination of above mean sea level elevation and structure height and strength (structural integrity) was identified via field investigation.
- d) The proposed tower location will be sufficiently distanced from the AM radio broadcasting towers currently operating within the community.



**Corporate Office**  
100 Lowder Brook Drive  
Westwood, MA 02090  
(617)462-4000

To: Leicester Board of Appeals

From @ Southwestern Bell

From: Richard Wesson

Date: August 10, 1998

Re: Additional potential sites in Leicester for consideration as a cell site,  
relative to radio frequency engineering.

- 1) My name is Richard Wesson. I am a radio frequency engineer employed by Cellular One - Boston.
- 2) The analysis of additional potential sites as alternatives to the proposed Paxton Street site, involved the same 150 foot lattice tower structure, as a minimum height, for the proposed radio broadcasting and relay station antenna.
- 3) The Town landfill site was determined to be an inappropriate location due to the following radio frequency engineering reasons:
- a) redundant signal coverage as currently provided by an existing cell site located in Paxton, MA
  - b) signal coverage would be insufficient along portions of Route 9 (Main St.) and Route 56 (Pleasant St.) in Leicester
- 4) The Leicester Rod & Gun Club site was determined to be an inappropriate location due to the following radio frequency engineering reasons:
- a) 2+ miles from target area, equating to an inappropriate location
  - b) redundant signal coverage as currently provided by an existing cell site located in Paxton, MA.
  - c) signal coverage would be insufficient along portions of Route 9 (Main St.) and Route 56 (Pleasant St.).

EXHIBIT 2C



**Corporate Office**  
100 Lowder Brook Drive  
Westwood, MA 02090  
(617)462-4000

To: Leicester Board of Appeals

From: Ralph Colorusso, Real Estate Consultant, as Agent for Cellular One From © Southwestern Bell

Date: August 10, 1998

Re: Site Justification Statement

Pursuant to the Boards request, during the initial Special Permit public hearing of June 24, 1998, regarding additional potential sites in Leicester for consideration as a cell site. The analysis of these additional sites as alternatives to the proposed Paxton Street site, involved the same 150 foot lattice tower structure, as a minimum height, for the proposed radio broadcasting and relay station antenna.

Town Landfill: Manville Street

redundant signal coverage with Paxton, MA site (per RF Engineer's analysis)  
insufficient signal coverage  
requires RFP to be issued (not time effective)  
environment concerns (may contain hazardous substance)  
structural concerns (load bearing capacity of soil is suspect)  
inferior ground elevation (requires additional 90+ feet of tower structure to equate with Paxton St. facility)  
FAA concerns (extended study required, as tower would have to exceed 200' AGL per Aviation Consultant's analysis).

Leicester Rod & Gun Club: Whittemore Street

redundant signal coverage with Paxton site (per RF Engineer's analysis)  
insufficient signal coverage  
outside search area (inappropriate location)  
environment concerns (may contain endangered species habitat)  
FAA concerns (exceeds obstruction standards of FAR Part 77,  
FAA will issue a Determination of Hazard unless  
proposed structure is reduced by 12 feet, per  
Aviation Consultant's analysis).

EXHIBIT 2D





**DRAFT**

June 15, 1998

Ralph Colorusso  
CellularOne  
100 Lowder Brook Drive  
Westwood, MA 02090

RE: **CELLULARONE - SOUTH BOSTON, MA**  
**15 WIDETT CIRCLE**  
**(DEI PROJECT NO. 98755)**

Dear Ralph:

Per your request, we have prepared this statement for the above referenced site as required by the City of Boston Zoning Code. This statement includes the estimated useful life of the proposed telecommunication equipment and the antenna support hardware depicted on the contract drawing (DEI drawings S-1 and S-2 dated 6/2/98). In addition, we have prepared a cost estimate to remove the equipment and materials from the site at the end of the useful life. This information is as follows:

Estimated Useful Life	20 years
-----------------------	----------

**Removal Cost:**

General labor	\$1,500.00
Disposal of electrical components	\$ 200.00
Disposal of steel, hardware, etc.	\$ 400.00
Miscellaneous restoration costs	\$ 300.00

**Estimated Total Removal Cost (1998 Dollars \*)= \$2,400.00 (twenty four hundred).**



Page 2 of 2  
June 16, 1998

**DRAFT**

Please note that this cost is associated with the removal of the proposed work depicted on the contract drawing only and not for the removal of any portions of the existing structure. To the best of our knowledge this estimate reflects the true cost associated with decommissioning the site. Due to ever changing economic conditions, we make no guarantee that this estimate will assure that all costs will be covered. We have not included disposal costs for the omni antennas nor the microcell units since it is expected that this equipment will be salvaged or retained by CellularOne.

We trust that this will satisfy your needs at this time. Please call if you should need further assistance on this matter.

Very truly,

DAIGLE ENGINEERS INC

A handwritten signature in cursive script, reading "Paul M. Redfern".

Paul M. Redfern  
Structural Engineer

A handwritten signature in cursive script, reading "Jonathan M. Longchamp MSPE".

Jonathan M. Longchamp, M.S., P.E.  
Vice President/Lead Structural Engineer



PMR/cim

\* To modify this estimate to account for inflation throughout the 20 year useful life, multiply the figures provided by a factor of 2.19 (assuming a 4% average annual rate of inflation).

**Bond TO 042626842**

(CELLULAR ONE)

, a corporation duly organized under the laws of the State of

PENNSYLVANIA

(hereinafter called the Surety), as Surety, are held and firmly bound unto

The Town of Northborough, Massachusetts

, (hereinafter called the Obligee), in the sum of

(\$ ) Dollars,

Sealed with our seals and dated this \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_.

for a personal wireless communications transmission facility

special permit

in accordance with the terms and conditions of said ~~Contract~~ Contract, which is hereby referred to and made a part hereof as if fully set forth herein;

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, That if the above bounden Principal shall well and truly keep, do and perform each and every, all and singular, the matters and things in said <sup>special</sup> permit set forth and specified to be by said Principal kept, done and performed, at the times and in the manner in said <sup>special</sup> permit specified, or shall pay over, make good and reimburse to the above named Obligee, all loss and damage which said Obligee may sustain by reason of failure or default on the part of said Principal so to do, then this obligation shall be null and void; otherwise shall remain in full force and effect.

SOUTHWESTERN BELL MOBILE SYSTEMS, INC.

Principal

By \_\_\_\_\_

INDEMNITY INSURANCE COMPANY OF NORTH AMERICA

By \_\_\_\_\_  
Attorney-in-Fact





# **Full Spectrum Consulting**

## **ELECTROMAGNETIC ENERGY**

### **Analysis and Assessment of Environmental Electromagnetic Fields from the**

### **Proposed Cellular ONE Tower in Leicester**

John M. Osepchuk, Ph.  
248 Deacon Haynes Roc  
Concord, MA 017  
Tel./Fax: 508 287-58  
E-Mail: 75754.3663@COMPUSERVE.CC

#### **1.0 Abstract:**

An estimate of the environmental electromagnetic fields is made for the case of a proposed Cellular ONE transmitting tower in Leicester, Massachusetts--located off Paxton Road (Route 56). Worst-case assumptions are made, namely that the maximum available number of channels (16) are used per sector and that ground reflections contribute the theoretical maximum increase of fields at a height of 6 feet (head level) above the ground. In addition though the antenna properties are frequency-dependent it is assumed that the worst-case value in the assigned frequency band applies--i.e. the value that causes the ground field level to be the maximum possible at any frequency. The calculations include not only the cellular frequency transmissions (i.e. between 860 and 890 MHz) but also the higher frequency (~10 GHz) transmissions from two dish antennas (radio antennas) located on the tower.

The highest level on the ground is a power level 1000 times below applicable safety limits issued by the FCC, the Commonwealth and other authorities such as the IEEE (the Institute of Electrical and Electronic Engineers) and ANSI (the American National Standards Institute). At most places the level will be much lower--i.e. many thousands of times below safety limits.

Furthermore, these predicted levels are far below, as much as a factor of 100, the levels already existing in suburban environments from sources such as broadcasting, amateur radio,

mobile radio (e.g. police, fire, taxis etc.), CB radio and microwave ovens.

Therefore the proposed Cellular ONE tower in Leicester will present no health hazard to residents of Leicester with regard to the potential effects of environmental electromagnetic fields from the tower.

## **2.0 Brief Description of the Proposed System:**

The proposed tower has a height of 150 feet with cellular antennas (12) located 73 feet above ground level and 2-4 foot diameter dish antennas (radio antennas) located at heights of 95 and 140 feet above ground level.

The antennas for the cellular frequencies are of the ALP 6014-N type, manufactured by Swedcom Corporation. Each is of about 4.2 feet in height and exhibits an antenna gain of 24 dBd. Each channel will operate with a maximum of 40 Watts ERP (effective radiated power). This means the true power per channel is only about 1.2 Watts. There are a maximum of 16 channels per sector. The vertical gain pattern of this antenna is available and permits our calculation of electromagnetic field levels on the ground at any distance from the tower.

## **3.0 Calculation of Environmental Energy Levels:**

The environmental energy (field) levels can be calculated in terms of power density at any point on the ground at a distance of D feet from the tower. We will use the units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ) for power density. A microwatt is one-millionth of a Watt. To give some idea of what a Watt signifies, consider that the total power which could radiate from a hand-held cellular phone is about 0.6 Watt---or 600,000 microwatts. Or an ordinary CB radio emits 5 Watts or 5,000,000 microwatts. Even a child's walkie-talkie emits about 0.01 to 0.04 Watts or 10,000 to 40,000 microwatts. Clearly a microwatts is a very small power level and a power density of 1 microwatt per square centimeter ( $1\mu\text{W}/\text{cm}^2$ ) means about one microwatt is passing through a small area of the size of the area of a fingernail.

The power density emitted at cellular frequencies in the range of 850 to 900 MHz at a distance D (feet) from the tower, under the worst-case assumptions listed above, is given by the formula:

$$P = 6396 \cdot G(\theta)/R^2 \quad (1)$$

where  $G(\theta)$  is the numerical gain of the antenna as a function of  $\theta$ , the angle of the radiated beam from the horizontal, and R is the distance (point to point) from the antenna to the point on the ground. The distance D is related to R by the cosine of the angle  $\theta$ . Again the formula (1) applies for the maximum power anticipated in the future.

If one applies the formula (1), one obtains the results shown in Table 1, which lists the power-density levels on the ground as a function of distance D (feet) from the tower. At some points on the ground, the levels are variable, depending upon the frequency of the transmissions, which could vary in the allocated band. For simplicity, we list only the worst case--assuming all channels are operating at that frequency--which, of course, is not really possible.

Table 1 shows that the ground levels are at a maximum at a distance of about 500 feet and are well below  $1\mu\text{W}/\text{cm}^2$ . levels at a mile (5000 feet) are 50 times below the maximum. The levels anywhere on the ground are at least 1000 times below the applicable safety limits, as shown in the next section.

The two dish antennas (radio antennas) are of the Model PL4-107 Model, manufactured by Andrew Corporation. They exhibit 40 dB gain at operate in the 10.7 to 11.2 GHz band. Each antenna operates with only about 0.16 Watt . Thus in the beam at levels of 95 or 140 feet above the ground the power densities at a distance from the tower of 100 feet are of the order of  $10\mu\text{W}/\text{cm}^2$ . At a distance of 1000 feet the beam level is down to less than  $0.1\mu\text{W}/\text{cm}^2$ . Since the beam width is only  $1.6^\circ$ , the level on the ground will be far lower, e.g. more than 100 times lower than in the beam or less than  $0.1\mu\text{W}/\text{cm}^2$ . One can conclude that the most significant contribution to energy at the ground is from the cellular antennas, as computed in Table 1. Even if the emissions from all antennas are summed the total will always be far below limits and approximated in the worst-case by the values in Table 1. In most directions there is no significant contribution from the radio antennas in view of their small beam width.

**Table 1**  
**Power Density on the Ground: Worst-Case**

<b>D(feet)</b>	<b>Power Density (<math>\mu\text{W}/\text{cm}^2</math>)</b>
0	0.08
100	0.02
200	0.05
300	0.18
400	0.34
500	0.42
600	0.34
750	0.30
1000	0.19
2000	0.06
3000	0.03
4000	0.014
5000	0.009

#### **4.0 Assessment of Environmental Levels:**

##### **A. Safety Standards:**

In the United States, applicable safety standards are those issued by the FCC. These are documented in:

*Report and Order, FCC-326,; August 1, 1996*

*First Memorandum Opinion and Order, FCC-487,  
December 23, 1996.*

*Second memorandum Opinion and Order and Notice of  
Proposed Rulemaking, FCC 97-303; August 25, 1997.*

The Commonwealth of Massachusetts also requires that the operator of any wireless facility obtain its approval by demonstrating that the facility complies with the above FCC Rules. This requirement is described in the recently issued revised Commonwealth Regulations: viz.:

*105 CMR 122.000; Non-Ionizing Radiation Limits for:  
The General Public From Non-Occupational Exposure  
to Electromagnetic Fields; Employees From Occupational  
Exposure to Electromagnetic Fields; and, Exposure From  
Microwave Ovens. Department of Public health, the  
Commonwealth of Massachusetts; Effective; 10/31/97.*

The FCC Rules specify a limit on the ground of 580 microwatts per square centimeter (  $580 \mu\text{W}/\text{cm}^2$ ) in the cellular-frequency range. This limit is the same as that set by other authorities such as the IEEE or the NCRP (National Council on Radiation Protection and measurement). (cf. IEEE C95.1-1991, reaffirmed in 1997 by the IEEE and ANSI).

By comparison, the maximum predicted level on the ground from the proposed tower in Leicester is less than  $0.5 \mu\text{W}/\text{cm}^2$ , a level more than one thousand times lower than the safety limits cited above. Since the safety limits incorporate a safety factor of at least 50. we can say that the maximum predicted levels from the proposed tower in Leicester are at least a factor of 50,000 times below hazardous levels that can cause biological harm or effect on human health.

In other parts of the world applicable limits vary from hundreds to thousands of microwatts per square centimeter. So even by other standards, the total safety factors are at least in the thousands for this case. We can rely, however, on the U. S. limits



since they represent the broadest consensus of scientists and engineers in the world.

If we recall that we used worst-case assumptions, then the solid conclusion from comparison with health standards is that the predicted environmental electromagnetic fields from the proposed Cellular ONE facility in Leicester are SAFE---by very large factors of thousands to millions. There is no reason for concern.

## **B. Existing Background Levels:**

Another viewpoint which supports the conclusion that the Cellular ONE environment levels are safe is gained from comparison of those levels with what we already are exposed to---and which we have concluded are safe. Environmental levels from broadcast towers are as much as one microwatt per square centimeter in towns like Needham and as much as 0.001 to 0.05  $\mu\text{W}/\text{cm}^2$  in typical suburbs. Thus levels from the cellular tower are comparable to but generally smaller than levels from broadcast towers.

Levels well above 1  $\mu\text{W}/\text{cm}^2$  are found near mobile radios, CB radios, amateur radios, cordless phones and even a child's walkie-talkie. These levels near such sources are even higher than suburban broadcast levels.

In tall buildings on higher floors, levels of up to 100  $\mu\text{W}/\text{cm}^2$  have been found and certainly the order of a million people in cities are exposed in such buildings.

Almost every home has a microwave oven. The predicted level five feet from a microwave oven, which is allowed under FDA regulations is about 10  $\mu\text{W}/\text{cm}^2$ . This is roughly 20 times the predicted maximum level on the ground from the tower.

## **5.0 Conclusions:**

We have calculated the potential environmental fields from the proposed Cellular ONE tower in Leicester. They are far below safety limits--i.e. the order of at least 1000 below applicable limits and at least 50,000 times below levels that could possibly lead to health effects.

In addition we show that these levels are far below levels we are already exposed to from various devices and systems in our modern society, which are considered safe.

Our conclusions here are consistent with the opinions of expert bodies throughout the world from the IEEE to the World Health Organization (WHO) and the International Radiation Protection Association (IRPA).



---

John M. Osepchuk

July 20, 1998

### *Biographical Sketch*

OSEPCHUK, John M.; Independent consultant; Full Spectrum Consulting, 248 Deacon Haynes Road, Concord, MA 01742.

Education: A.B.('49), Harvard College; A.M.('50), Ph. D. ('57), Harvard University  
Dr. Osepchuk worked for Raytheon Co. in microwave R&D( ferrites, plasmas, tubes and heating systems). He also consulted on microwave bioeffects, hazards, standards and litigation. He played a leadership role in founding and operating many activities in the IEEE ( life member, COMAR; SCC28 , chairman; MTT-S and SIT-S), IMPI ( JMP editor and President), EEA (organizer and officer) and BEMS (early member). He is a Fellow of the IEEE and IMPI , a member of  $\phi\beta\kappa$  and  $\Sigma\xi$ , and authored many patents and publications, including a key patent on microwave-oven door-choke seal design. His present activities include studies of the microwave auditory effect, microwave heating (for Amana) and safety (for Cellular One and others).

John M. Osepchuk  
*Independent Consultant*  
Full Spectrum Consulting  
248 Deacon Haynes Road  
Concord, MA 01742  
978 Tel/Fax: 508-287-5849  
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Dr. Osepchuk received his A, B, , magna cum laude from Harvard College in 1949. He received A.M. and Ph. D. degrees in engineering science and applied physics from Harvard University in 1950 and 1957, respectively.

After joining Raytheon in 1950, he conducted research on ridge-waveguides and magnetrons , and helped design the first high-power backward-wave oscillator in the United States. During 1956 and 1957, he was technical liaison for Raytheon at the microwave-tube research laboratories of Compagnie Générale de Telegraphie sans Fils at Paris, France. From 1957 to 1962 he was head of several research projects on crossed-field devices.

From 1962 to 1964 Dr. Osepchuk was chief microwave engineer for Sage Laboratories, in Natick, Massachusetts.

In 1964, Dr. Osepchuk returned to the Raytheon Research Division in Waltham, Massachusetts. He directed various projects in the field of microwaves (tubes, ferrites, plasmas ) image tubes, and physical electronics. Since 1968 he consulted for Amana and other Raytheon Divisions on radiation hazards and investigated various aspects of Radarange Technology, especially those involving leakage and safety. He held a key patent on microwave-oven choke door-seal design (U.S.Pat. Re. 32,664, May 10, 1988; reissue of U.S. Pat. 3,767,884 , Oct. 23, 1973.) of considerable value to Amana in marketing and royalties. He was appointed Consulting Scientist at Raytheon in December 1974.

Dr. Osepchuk has published and presented many papers in the fields of microwaves and radiation hazards and held over fifteen patents. He was the guest editor for the special issue (February 1971) on Biological Effects of Microwaves in the IEEE Transactions on Microwave Theory and Techniques. He was editor of the Journal of Microwave Power (1970-1971) and is the editor of the IEEE Press volume of reprints; Biological Effects of Electromagnetic Radiation, published in 1983.

Dr. Osepchuk was National Lecturer (for 1977-1978) of the MTT Society (IEEE) on "Microwave Radiation Hazards in Perspective." In addition, he was General Chairman of the 1978 Symposium on Electromagnetic Fields in Biological Systems which was co-sponsored by the IEEE MTT-S and IMPI. He was on the Program Committee and a Session Chairman for a Symposium on "Health Aspects of Non-Ionizing Radiation" which was held on April 9-10, 1979 under the sponsorship of the New York Academy of Medicine.

Dr. Osepchuk is a Life Fellow of the IEEE and the International Microwave Power Institute (IMPI), and a member of Phi Beta Kappa, Sigma Xi and the Bioelectromagnetics Society. He is a past chairman of the Boston Section of the IRE Professional Group on Electron Devices, a past member of the National Administrative Committees of two IEEE societies; those on Microwave Theory and Techniques as well as Social Implications of Technology. He has held various offices in the standards community (C95 and IEEE SCC28 committees), the appliance industry (Association of Home Appliance Manufacturers) and the microwave power profession, including President of IMPI for 1992-1995.

In the early 1980's, he helped organize seminars for medical, legal and executive personnel on effects and hazards of electromagnetic energy (the Homestead Seminars). In 1983 Dr. Osepchuk chaired a committee which led to the formation of the Electromagnetic Energy Policy Alliance (EEPA). This Alliance was founded by eight leading manufacturers and users of electromagnetic energy and was aimed at technical and public information activities which enhance a rational perspective towards electromagnetic energy associated with electricity and electronics. The Alliance (now the Electromagnetic Energy Association) publishes a newsletter, fact sheets and position statements, operates in collaboration with Rutgers University an annual short course, and holds an annual meeting and symposium.


In 1995, Dr. Osepchuk retired from Raytheon Company. Since then he has been an independent consultant practicing under the name of Full Spectrum Consulting with office and laboratory in Concord, Massachusetts. Presently he conducts research on the microwave auditory effect, microwave ovens and magnetrons and microwave hazards and interference. He is presently an advisor to the Board of Directors of EEA, a corresponding Board Member of IMPI, a life member of IEEE COMAR, the Chairman of the IEEE SCC28 Standards Committee and the U. S. Task Force on Microwave Oven Noise. His clients include Amana Refrigeration, Inc. and Cellular One. In addition Dr. Osepchuk lectures on occasion at university courses and professional meetings on the general area of bioeffects and hazards of electromagnetic energy. He also consults in some cases of litigation involving siting or liability aspects of systems using electromagnetic energy.

Corporate Office  
100 Lowder Brook Drive  
Westwood, MA 02090  
(617)462-4000

## MEMORANDUM

From @ Southwestern Bell

To: Town of Leicester, Board of Appeals

From: Ralph Colorusso, Real Estate Consultant - As Agent for Cellular One 

Date: August 10, 1998

Re: Wireless Communications Facilities on or adjacent to school campus

Pursuant to the Boards request, during the initial Special Permit public hearing of June 24, 1998, regarding the above referenced issue, the attached list is respectfully submitted.

Understand, that all licensed (FCC authorized) wireless carriers operating within the Commonwealth of Massachusetts are regulated by both the Occupational Safety and Health Administration (OSHA) and the Massachusetts Department of Public Health (MDPH). Consequently, each of these telecommunications providers must comply with the stringent requirements that these governmental "watch dog" agencies apply to radio frequency transmissions.

Furthermore, as additional proof attesting to the lack of need for concern regarding radio frequency emissions and health issues, a second list is attached and represents cell sites that Cellular One maintains at hospital rooftops in Eastern Massachusetts. All of these healthcare facilities have found no need to be concerned about health issues relative to wireless communications facilities on site and near to sickly patients, etc.

Note: The following Leicester school buildings have been identified by Tutela Engineering Associates and a measurement determined from the proposed wireless facility at the Paxton St., Water Tanks to each school.

Leicester Elementary School	= 360 feet
Leicester High School	= 700 feet
Former Leicester High School	=1,350 feet

These findings are provided, so as to compare with the attached two pages of data.

# Wireless Communications Facilities on or Adjacent to School Campus

Site Name and Address	Contact	Antenna Structure	Wireless Carrier	Distance to School Building
Newton Theological Newton, MA	Andover-Newton Theological School 210 Herrick Road Newton Centre, MA 02158 c/o Vice President Finance & Business Administration	Rooftop	Cellular One	Within building
Boston University 25 Buick St. Boston, MA	AAT Communications Corp. c/o Vice Pres., New England Region 2A Woodland Street Lawrence, MA 01841	Rooftop	Cellular One	Within Admin. Building
Boston University 775 Commonwealth Ave. Boston, MA	AAT Communications Corp. c/o Vice. Pres., New England Region 2A Woodland Street Lawrence, MA 01841	Rooftop	Cellular One	Within Sherman Union Hall
Wynn Middle School Victor Drive Tewksbury, MA	Town of Tewksbury Town Hall 1009 Main Street Tewksbury, MA 01876 c/o David Cressman, Town Manager	120' Monopole	Sprint Cellular One (pending) Nextel (proposed)	265 feet
Plymouth South High School Long Pond Road Plymouth, MA	Plymouth School Department Plymouth, MA c/o Bernard Sidman, Ph.D Superintendent of Schools	2 x 100' Stadium lighting poles with antennas proposed	RFP issued June 1998 no respondents	300 feet and 360 feet
Wellesley College Fiske Path Wellesley, MA	Asst. V.P. & Dir. of Physical Plant 106 Central Street Wellesley, MA 02181	50' Water Tank	Cellular One Bell Atlantic Nextel	425 feet



# Wireless Communications Facilities on or Adjacent to School Campus

Site Name and Address	Contact	Antenna Structure	Wireless Carrier	Distance to School Building
Norwell High School Norwell, MA	Norwell School Department c/o Superintendent of Schools 322 Main Street Norwell, MA	150' Lattice Tower	AT & T Omnipoint	1000 feet
Great Hill Bridgewater, MA	Town of Bridgewater c/o Exec. Secretary Town Hall Central Square Bridgewater, MA 02324	190' Lattice Tower adjacent to water tank	Cellular One Nextel ADT Metro Media Paging	2300 feet to Bridgewater State College

**CELLULAR ONE SITES AT HOSPITALS**

**FAULKNER HOSPITAL**

1153 CENTER STREET

JAMAICA PLAIN, MA

CONTACT: HENRY WHITE (617-983-7400)

**SOMERVILLE HOSPITAL**

HIGHLAND AVENUE

SOMERVILLE, MA

CONTACT: CARL ZACK (617-666-4400 XT 234)

**CHILDREN'S HOSPITAL**

400 BROOKLINE AVENUE

BOSTON, MA

CONTACT: EMILY INGALLS (617-735-8308)

**EMERSON HOSPITAL**

111 OLD NINE ACRE CORNER

CONCORD, MA

CONTACT: GLENN SMITH (508:369-1400 XT 1109)

**BRIGHAM & WOMEN'S HOSPITAL**

75 FRANCIS STREET

BOSTON, MA

CONTACT: STEVEN DENSMORE (617-732-6721)

**CARNEY HOSPITAL**

2100 DORCHESTER AVENUE

BOSTON, MA

CONTACT: DENNIS GADA (617-296-4000 XT 2480)

**WHIDDEN HOSPITAL**

103 GARLAND STREET

EVERETT, MA 02149

CONTACT: RALPH PELOSI (781-381-7105)

**JEWISH MEMORIAL HOSPITAL**

59 TOWNSEND STREET

ROXBURY, MA 02119

CONTACT: DONALD SCHWARTZ (617-442-8760 XT 306)

**BOSTON REGIONAL MEDICAL CENTER**

5 WOODLAND ROAD

STONEHAM, MA 02180-9102

CONTACT: BRUCE E. MOORE (781-979-7000)

**MELROSE/WAKEFIELD HOSPITAL**

585 LEBANON STREET

MELROSE, MA 02176

CONTACT: ROBERT BIGGIO (781-979-3290)

