

ORDINANCE NO. 2018-

**AN ORDINANCE OF THE COUNTY OF PLUMAS, STATE OF CALIFORNIA, ADDING
ARTICLE 41 TO CHAPTER 2 OF TITLE 9 OF THE PLUMAS COUNTY CODE**

The Board of Supervisors of the County of Plumas, State of California, ORDAINS as follows:

SECTION 1. Article 41, "Telecommunications," is hereby added to Chapter 2 of Title 9 of the Plumas County Code to read as follows:

Sec. 9-2.4101. Purpose and Intent

The purpose of this article is to define a comprehensive set of standards for the design and placement of telecommunications facilities within the County of Plumas that are consistent with applicable federal standards, state standards, Plumas County Code, and Plumas County General Plan. The standards are intended to:

- (a) Protect and enhance the safety, health, and welfare of the public by minimizing adverse general, visual, and operational impacts from telecommunications facilities while providing telecommunications in an effective and efficient manner.
- (b) Maximize the use of new and existing telecommunications facilities through co-location of facilities in order to minimize the need for new facilities, and minimize the total number of facilities throughout the county.
- (c) Encourage the location of new monopoles, towers, and antennas in non-residential areas.
- (d) Encourage telecommunications providers to locate new monopoles, towers, and antennas in areas that minimize adverse impacts on agriculture and air navigation.
- (e) Recognize the diverse nature of telecommunications throughout the county and establish standards suitable to their specific site conditions and operating requirements.

Sec. 9-2.4102. Definitions

- (a) **"Abandoned Facilities"** means facilities ceasing to be utilized for a specified amount of time set forth in this article.
- (b) **"Airport"** means the publicly-owned property and improvements at Chester, Gansner, and Beckwourth Airports, as more particularly shown on Exhibits A through D, inclusive, on file in the office of the County Clerk.
- (c) **"Airstrip"** means a strip of land, typically privately owned, paved or not, used by aircraft, including rotorcraft, as a runway to take off or land, with or without normal airbase or airport facilities, such as fueling.
- (d) **"Antenna"** means any device and associated equipment mounted on a tower, building, or structure that receives and/or transmits any type of electromagnetic wave for the purpose of telecommunications.
- (e) **"Accessory Building(s)"** shall mean any building used as an accessory to residential, commercial, recreational, industrial, or educational purposes as defined in the California Building Code, 1989 Amendments, Chapter 11, Group M, Division 1, Occupancy that requires a building permit.
- (f) **"Associated Equipment"** means towers, utility poles, transmitters, repeaters, base stations, and other necessary equipment utilized in the operation of a telecommunications facility.

(g) “**Base Station**” has the same meaning as in Federal Communications Commission 47 C.F.R. § 1.40001(b)(1), as may be amended:

A structure or equipment at a fixed location that enables Commission-licensed or authorized wireless communications between user equipment and a communications network. The term does not encompass a tower as defined in this subdivision or any equipment associated with a tower.

- (i) The term includes, but is not limited to, equipment associated with wireless communications services such as private, broadcast, and public safety services, as well as unlicensed wireless services and fixed wireless services such as microwave backhaul.
- (ii) The term includes, but is not limited to, radio transceivers, antennas, coaxial or fiber-optic cable, regular and backup power supplies, and comparable equipment, regardless of technological configuration (including Distributed Antenna Systems and small-cell networks).
- (iii) The term includes any structure other than a tower that, at the time the relevant application is filed with the State or local government under this subdivision, supports or houses equipment described in subdivisions (b)(1)(i) through (ii) of this section that has been reviewed and approved under the applicable zoning or siting process, or under another State or local regulatory review process, even if the structure was not built for the sole or primary purpose of providing such support.
- (iv) The term does not include any structure that, at the time the relevant application is filed with the State or local government under this subdivision, does not support or house equipment described in paragraphs (b)(1)(i) through (ii) of this section.

(h) “**Building**” shall mean any structure used or intended for supporting or sheltering any use of occupancy that is defined in the California Building Code, 1989 Amendments, Chapter 11, except Group M, Division 1, Occupancy. For purposes of this article, building includes mobile homes and manufactured homes, churches, and day care facilities.

(i) “**Co-location**” means the placement or installation of telecommunications facilities, including antennas and related equipment, on, or immediately adjacent to, an existing telecommunications co-location facility.

(j) “**County**” means County of Plumas, a political subdivision of the State of California.

(k) “**Eligible Facilities Request**” has the same meaning as in Federal Communications Commission 47 C.F.R. § 1.40001(b)(3), as may be amended:

Any request for modification of an existing tower or base station that does not substantially change the physical dimensions of such tower or base station, involving:

- (i) Collocation of new transmission equipment;
- (ii) Removal of transmission equipment; or
- (iii) Replacement of transmission equipment.

(l) “**EMF**” means electromagnetic frequency radiation.

(m) “**Equipment**” or “**Accessory Equipment**” means all cables, conduits, wires, connectors, and devices, excluding antennas transmitting or receiving wireless telecommunications signals, necessary to make a telecommunications facility function properly.

(n) “**Existing**” has the same meaning as in Federal Communications Commission 47 C.F.R. § 1.40001(b)(5), as may be amended:

A constructed tower or base station is existing for purposes of this subdivision if it has been reviewed and approved under the applicable zoning or siting process, or under another State or regulatory review process, provided that a tower that has not been reviewed and approved because it was not in a zoned area when it was built, but was lawfully constructed, is existing for purposes of this definition.

(o) “**Façade-Mounted Facilities**” means any telecommunications device and associated hardware that is affixed to the face of a building.

(p) “**Facility**” or “**Telecommunications Facilities**” or “**Telecommunications Facility**” has the same meaning as in Federal Standard 1037C, as may be amended:

- (i) A fixed, mobile, or transportable structure, including (a) all installed electrical and electronic wiring, cabling, and equipment and (b) all supporting structures, such as utility, ground network, and electrical supporting structures.
- (ii) A network-provided service to users or the network operating administration.
- (iii) A transmission pathway and associated equipment.
- (iv) In a protocol applicable to a data unit, such as a block or frame, an additional item of information or a constraint encoded within the protocol to provide the required control.
- (v) A real property entity consisting of one or more of the following: a building, a structure, a utility system, pavement, and underlying land.

(q) “**FAA**” means Federal Aviation Administration.

(r) “**FCC**” means Federal Communications Commission.

(s) “**Height**” means the vertical distance measured upward from a surface determined by the structure’s exterior finished grade as projected across the construction site. In the case of a tower, it is the vertical distance measured from the finished grade to the highest point on the tower.

(t) “**Monopole**” is a type of tower regardless of composition or structure that is placed into the ground or attached to a foundation.

(u) “**Parcel**” means any parcel of real property that may be separately sold in compliance with the Subdivision Map Act (commencing with Section 66410 of the Government Code) and also means any parcel that is described, recorded, and kept in official County records specifically including documents and maps used by the County Assessor’s Office, the County Tax Collector’s Office, and the County Recorder’s Office.

(v) “**PCS**” means personal communications systems.

(w) “**Planning Commission**” means the Planning Commission of the County of Plumas.

(x) “**Repeater**” has the same meaning as in Federal Standard 1037C, as may be amended:

- (1) An analog device that amplifies an input signal regardless of its nature, *i.e.*, analog or digital.
- (2) A digital device that amplifies, reshapes, retimes, or performs a combination of any of these functions on a digital input signal for retransmission.

(y) “**Residential Zones**” means Single Family Residential (2-R, 3-R, 7-R), Multiple-Family Residential (M-R), Suburban (S-1), Secondary Suburban (S-3), and Rural (R-10 and R-20).

(z) “**RF**” means radio frequency electromagnetic radiation.

(aa) "Roof-Mounted Facilities" means multiple or a singular antenna directly attached to the roof of an existing building, tower, or other structure other than a telecommunications tower.

(bb) "Site" has the same meaning as in Federal Communications Commission 47 C.F.R. § 1.40001(b)(6), as may be amended:

For towers other than towers in the public rights-of-way, the current boundaries of the leased or owned property surrounding the tower and any access or utility easements currently related to the site, and, for other eligible support structures, further restricted to that area in proximity to the structure and to other transmission equipment already deployed on the ground.

(cc) "SMR" means specialized mobile radio.

(dd) "State" means the State of California.

(ee) "Stealth" or "Stealth Facility" means reducing the visibility of an object to appear as part of the structure or surrounding environment by screening, concealment, or camouflage.

(ff) "Structure" means anything for the establishment of which the Planning and Development Agency requires a building permit.

(gg) "Substantial Change" has the same meaning as in Federal Communications Commission 47 C.F.R. § 1.40001(b)(7), as may be amended:

A modification substantially changes the physical dimensions of an eligible support structure if it meets any of the following criteria:

- (i) For towers other than towers in the public rights-of-way, it increases the height of the tower by more than ten (10%) percent or by the height of one additional antenna array with separation from the nearest existing antenna not to exceed twenty (20') feet, whichever is greater; for other eligible support structures, it increases the height of the structure by more than ten (10%) percent or more than ten (10') feet, whichever is greater;
 - (A) Changes in height should be measured from the original support structure in cases where deployments are or will be separated horizontally, such as on buildings' rooftops; in other circumstances, changes in height should be measured from the dimensions of the tower or base station, inclusive of originally approved appurtenances and any modifications that were approved prior to the passage of the Spectrum Act.
- (ii) For towers other than towers in the public rights-of-way, it involves adding an appurtenance to the body of the tower that would protrude from the edge of the tower more than twenty (20') feet, or more than the width of the tower structure at the level of the appurtenance, whichever is greater; for other eligible support structures, it involves adding an appurtenance to the body of the structure that would protrude from the edge of the structure by more than six (6') feet;
- (iii) For any eligible support structure, it involves installation of more than the standard number of new equipment cabinets for the technology involved, but not to exceed four (4) cabinets; or, for towers in the public right-of-way and base stations, it involves installation of any new equipment cabinets on the ground if there are no pre-existing found cabinets associated with the structure, or else involves installation of found cabinets that are more than ten

(10%) percent larger in height or overall volume than any other ground cabinets associated with the structure;

(iv) It entails any excavation or deployment outside the current site;

(v) It would defeat the concealment elements of the eligible support structure; or

(vi) It does not comply with conditions associated with the siting approval of the construction or modification of the eligible support structure or base station equipment, provided however that this limitation does not apply to any modification that is noncompliant only in a manner that would not exceed the thresholds identified in § 1.40001(b)(7)(i) through (iv).

(hh) "SUP" means special use permit.

(ii) "Tower" means any structure designed and built for the purpose of supporting any type of antenna(s). Tower types include, but are not limited to, lattice towers, guyed towers, and monopole towers.

(jj) "Transmitters" means an electronic device which generates radio waves used for communication purposes.

(kk) "Utility Pole" means a structure owned and/or operated by a public utility, municipality, or rural electric cooperative that is used to carry lines, cables (television, telephone, etc.), electricity, and/or to provide lighting.

(ll) "Telecommunications Co-location Facility" means a telecommunications facility that includes co-location facilities.

(mm) "Zoning Administrator" means the Zoning Administrator of the County.

(nn) "Zoning Clearance Certificate" means, for purposes of this article; a ministerial over-the-counter certificate of zoning compliance provided by the Planning Department after verification that the proposed use is compatible with the parcel's zoning and the applicable development standards.

Sec. 9-2.4103. Applicability

(a) This article applies to all new telecommunications facilities for the transmission or reception of telecommunication signals.

(b) The standards set forth in this article apply to all telecommunications facilities and associated equipment.

(c) The requirements set forth in this article are in addition to any applicable state and federal laws or regulations.

Sec. 9-2.4104. Pre-Existing Facilities

All telecommunications facilities and accessory buildings that are subject to, but do not meet or comply with this article as of the date of adoption, may continue use as legal non-conforming telecommunications facilities and accessory buildings. All legal nonconforming telecommunications facilities are subject to the following:

(a) **Repair, maintenance, and alterations.** A lawful nonconforming structure may be repaired, maintained, or altered, including, the repair, removal, replacement, maintenance, and alteration of antennas in the same quantity and substantially the same size, unless otherwise restricted; so long as such work does not result in a substantial change of the structure as defined by this article.

(b) Restoration. A lawful nonconforming structure which is damaged to an extent which does not permit use for the intended purpose may be restored either within one (1) year after the occurrence of the damage or upon the issuance of a special use permit.

(c) Enlargement.

1. A structure, lawfully nonconforming as to yard requirements, height, or lot coverage, may not be added to or enlarged unless the additions and enlargements are made in conformance with the regulations of the applicable zone or upon the issuance of a variance.
2. A structure, lawfully nonconforming for reasons other than those set forth in subsection (1) of this subsection, may be added to or enlarged upon the issuance of a special use permit.

(d) Relocation. A lawful nonconforming structure shall not be moved to any other lot or to any other portion of the lot on which it is presently located unless, as a result of the move, the structure shall conform to the regulations of the zone in which the structure will be located after the move.

(e) Expansion.

1. A lawful nonconforming use may be expanded within the structure upon the issuance of a special use permit.
2. A structure containing a lawful nonconforming use may be added to or enlarged to expand the lawful nonconforming use upon the issuance of a special use permit.

Sec. 9-2.4105. Exemptions

Unless otherwise noted, the following are exempt from the standards set forth in this article:

(a) Telecommunications systems utilized as an accessory to residential or commercial uses, internal business, or household communications systems, such as two-way radio communications systems, citizen band radio systems, television antennas, radio antennas, and internet antennas, if compliant with the following requirements:

- (1) All antennas subject to setback and maximum height requirements set forth in Sec. 9-2.4108(a) and (b), except television antennas and internet antennas are not subject to Sec. 9-2.4108(a) and (b).
- (2) Exemptions subject to subdivision (a) of this section do not apply to facilities operated, leased to, or used by any FCC licensed commercial telecommunications provider, which includes, but is not limited to, telecommunications providers, specialized mobile radio (SMR) communications providers, personal communications systems (PCS) providers, and radio broadcast facilities.

(b) Telecommunications facilities issued a permit by the California Public Utilities Commission or Federal Communications Commission demonstrating exemption or exemption due to any state or federal law.

(c) Temporary telecommunications facilities providing public information coverage of a news event for a time period no greater than 30 days.

(d) Government-owned communications facilities utilized for a public purpose.

(e) Facilities exempted under federal or state law.

(f) Ordinary maintenance, repair, or replacement of a lawfully established (including lawful nonconforming) existing telecommunications facility or accessory building that does not result in a substantial change as defined by this article.'

- (g) Telecommunications facilities utilized for temporary use during an emergency or natural disaster.
- (h) Telecommunications facilities located in the Timberland Production Zone (TPZ).
- (i) Wireless access points mounted on new poles of any height and mounted at a height of thirty-five (35') feet or less. For exceptions to this exemption, refer to Sec. 9-2.4108(b)(2).
- (j) Telecommunications facilities meeting the definition of an “eligible facilities request.”

Section 9-2.4106. Permits Required

- (a) Permits required for telecommunications facilities shall be as specified in Table 1.

Table 1: Permits Required for Telecommunications Facilities

Key SUP Special Use Permit ZCC Zoning Clearance Certificate --- Use Not Allowed	Type of Telecommunications Facility			
	Co-Location Facilities	Building Mounted	Pole Mounted	New Tower or Pole
	Residential Zones			
Single Family Residential (2-R)	ZCC	ZCC	ZCC	SUP
Single Family Residential (3-R)	ZCC	ZCC	ZCC	SUP
Single Family Residential (7-R)	ZCC	ZCC	ZCC	SUP
Multiple-Family Residential (M-R)	ZCC	ZCC	ZCC	SUP
Suburban (S-1)	ZCC	ZCC	ZCC	SUP
Secondary Suburban (S-3)	ZCC	ZCC	ZCC	SUP
Rural (R-10)	ZCC	ZCC	ZCC	SUP
Rural (R-20)	ZCC	ZCC	ZCC	SUP
Commercial Zones				
Core Commercial (C-1)	ZCC	ZCC	ZCC	SUP
Periphery Commercial (C-2)	ZCC	ZCC	ZCC	SUP
Convenience Commercial (C-3)	ZCC	ZCC	ZCC	SUP
Recreation Commercial (R-C)	ZCC	ZCC	ZCC	SUP
Industrial Zones				
Heavy Industrial (I-1)	ZCC	ZCC	ZCC	SUP
Light Industrial (I-2)	ZCC	ZCC	ZCC	SUP
Recreational Zones				
Prime Recreation (Rec-P)	ZCC	ZCC	ZCC	SUP
Recreation (Rec-1)	ZCC	ZCC	ZCC	SUP
Recreation (Rec-3)	ZCC	ZCC	ZCC	SUP
Recreation (Rec-10)	ZCC	ZCC	ZCC	SUP
Recreation (Rec-20)	ZCC	ZCC	ZCC	SUP
Recreation Open Space (Rec-OS)	ZCC	ZCC	ZCC	SUP
Agricultural Zones				
Agricultural Preserve (AP)	ZCC	ZCC	ZCC	SUP
General Agriculture (GA)	ZCC	ZCC	ZCC	SUP
Timberland Production Zone				
Timberland Production (TPZ)	Exempt	Exempt	Exempt	Exempt
General Forest Zone				
General Forest (GF)	ZCC	ZCC	ZCC	SUP
Mining Zone				
Mining (M)	ZCC	ZCC	ZCC	SUP

Key SUP Special Use Permit ZCC Zoning Clearance Certificate --- Use Not Allowed	Type of Telecommunications Facility			
	Co-Location Facilities	Building Mounted	Pole Mounted	New Tower or Pole
Open Space Zone				
Open Space (OS)	---	---	---	---
Lake Zone				
Lake (L)	---	---	---	---

(b) Facilities Located Near Residential Zones or Near an Airport or Airstrip:

- (1) Excluding co-located facilities complying with Sec. 9-2.4109(d), a special use permit is required for telecommunications facilities in the following circumstances:
 - (i) A proposed telecommunications facility will be located within one thousand (1000') feet of a residential zone; or
 - (ii) A proposed telecommunications facility will be located within one thousand (1000') feet of an airport or airstrip; or
 - (iii) A telecommunications facility requiring Airport Land Use Commission (ALUC) review.
- (2) Co-located facilities complying with Sec. 9-2.4109(d) are exempt from the requirements set forth in this section.
- (3) The Zoning Administrator shall make the following findings from the documentation supplied by the applicant to approve the special use permit:
 - (i) Site is the least intrusive; and
 - (ii) A denial would be a violation of federal or state law.

(c) Amateur Radio Systems or HAM Radio Systems: Due to their critical role in the County's Office of Emergency Services (OES), an amateur radio system or ham radio system is required to obtain a zoning clearance certificate for a new tower or pole. See Section 9-2.4108(b)(6) for height requirements.

Sec. 9-2.4107. Permit Application Review and Terms

(a) Application Materials. Telecommunications facilities applicants are required to provide the following contents on, or as an attachment to, the application:

- (1) Zoning Clearance Certificate Requirements:
 - (i) Signature(s) of applicant(s) on the application form.
 - (ii) The applicant(s)' name, business address, and phone number(s).
 - (iii) If the applicant is not the record title holder, a copy of the lease (excluding financial terms) or letter of consent from the property owner demonstrating applicant's ability to pursue application.
 - (iv) The use being applied for, as well as a description of the proposed use detailing the following:
 - (aa) Facility operation.
 - (ab) Nature and type of facility, building(s), structure(s), and any associated equipment to be used.
 - (ac) Types of technology and consumer services that will be provided.
 - (ad) Number, size, material, and color of antenna(s).
 - (v) Facility plans which include:

- (aa) Facility height, elevations, and any other pertinent dimensions drawn to scale.
- (ab) Height, elevations, and any other pertinent dimensions of accessory building(s) drawn to scale.
- (vi) The following documentation signed and/or prepared by a licensed professional engineer shall be provided by the applicant:
 - (aa) A report prepared pursuant to Federal Communications Commission Office of Engineering and Technology Bulletin 65 (FCC OET Bulletin 65) demonstrating facility compliance with FCC regulations for general population exposure limits to RF radiation.
 - (ab) A report that demonstrates the support structure can accommodate all applicable loads.
- (vii) Documentation demonstrating that all reasonable efforts have been made to create a facility that is as visually appealing and inconspicuous as possible.
- (viii) In the event the applicant is subject to licensing by the FCC, documentation proving applicant is licensed by the FCC is required before a building permit is issued.

(2) Special Use Permit Requirements. In addition to all requirements and documentation listed in Sec. 9-2.4107(a)(1)(i)-(viii), the following requirements shall be included when applying for a special use permit:

- (i) Provide documentation evaluating the feasibility of alternative sites, and if available, co-location opportunities.
- (ii) Plans and graphic depictions, drawn to scale, detailing the following:
 - (aa) Site plans detailing easements, all surface water features, setbacks, facility location, and accessory structure(s)' location.
 - (ab) Preliminary grading and drainage plans, if applicable.
 - (ac) A graphic depiction of all technical criteria utilized to determine facility location.
 - (ad) Simulated photo(s) of proposed facility from public street viewpoint or other potential public viewpoint.
 - (ae) If applicable, a landscape plan detailing location and types of plants that will screen facility.

(b) Fees.

- (1) All application fees shall be paid in the amounts set forth in the Planning and Building Services Fee Schedule.
- (2) The County, at the expense of the applicant, may retain a consultant to provide advice on individual sections of, or all of, the application.

(c) Approval. Approval of all permits shall be in accordance with all applicable state and federal rules and regulations relating to the local authorization of telecommunications facilities and structures.

(d) Performance Security. As a condition of approval of a discretionary permit:

- (1) The applicant shall post a performance bond in an amount and form determined by the Planning Director that is sufficient to cover the cost of removal and site remediation in the event the facility is abandoned or subject to a revoked permit; or
- (2) The applicant shall deliver to the County an instrument of credit or letter of credit, indexed for inflation and in a form acceptable to County Counsel, issued by a financial institution subject to regulation by the state or federal government, guaranteeing payment to the County of the funds available pursuant to the instrument of credit or letter of credit,

upon demand of the County, to cover the County's cost of removal and site remediation in the event the facility is abandoned or subject to a revoked permit; or

(3) The permittee, operator(s), and, if on private property, the real property owner(s) shall enter into and cause to be recorded in the Official Records of Plumas County, a preliminary lien agreement against the facility, all related personal property, and, if applicable, all real private property on which the facility was located to cover the County's cost of removal and site remediation in the event the facility is abandoned or subject to a revoked permit. The last-known permittee or its successor in-interest, operator(s), and, if on private property, the real property owner(s) shall be jointly and severally liable for all costs incurred by the County in connection with removal and site remediation, if the County has to do so; or

(4) The applicant shall deliver to the County other security instrument, indexed for inflation and acceptable to County Counsel.

(e) **Indemnification.** As a condition of approval of a discretionary permit, the applicant(s) shall enter into a defense and indemnification agreement with the County in a form acceptable to the County.

(f) **Administrative Review.** At reasonable intervals, the County may initiate and conduct an administrative review to verify the facility's continued compliance with the conditions of approval under which the application was originally approved.

(g) **Permit Revocation.** If non-compliant facility is not remedied in a timely manner, the Planning Director shall commence with revocation procedures. The Planning Director will proceed with the following:

(1) Notices. The Planning Director shall schedule a public hearing before the Plumas County Board of Supervisors with notice given as set forth in Article 11.5 of Title 9 of this Code and given by certified mail to the person to whom the special use permit was issued.

(2) Revocation. The Plumas County Board of Supervisors may revoke such permit or modify the original conditions for failure to comply with any of the conditions imposed or upon evidence of misrepresentation in the issuance of the special use permit. The abatement and remediation of facilities, if required by such revocation, shall be at the expense of the permittee.

Section 9-2.4108. General Requirements

(a) **Setbacks.**

(1) The minimum setback from property lines, or if property line is in the middle of a roadway, the edge of the roadway, for all telecommunications facilities is one (1') foot of setback for every foot in facility height plus an additional twenty-five (25') feet. For example, a tower with a height of one hundred (100') feet shall have a minimum setback of one hundred (100') feet plus twenty-five (25') feet for a total setback from the property lines, or edge or roadway if applicable, of one hundred and twenty-five (125') feet.

(2) Accessory building(s) shall be set back from property lines according to the required setbacks of the primary zone.

(3) Reduced Setbacks.

- (i) In the agriculture zones (AP, GA), the Zoning Administrator may approve a reduced setback requirement if:
 - (aa) The telecommunications facility is located adjacent to an existing structure such as a barn, other existing facility, or to a proposed accessory structure aesthetically and architecturally compatible with the surrounding environment, thereby allowing the telecommunications facility to blend with the surrounding area; or
 - (ab) Adjacent property owners consent in writing to a reduced distance, no less than the minimum setback required in the underlying zone.
- (ii) Setbacks for telecommunications facilities within a non-residential zone and located within five hundred (500') feet of a residential zone, legally established residential dwelling, airport, or airstrip may have setbacks reduced with a variance if the Zoning Administrator finds that:
 - (aa) Setback distances for the facility are greater than or equal to setbacks for structures in the underlying zone.
 - (ab) The facility is not located within any Special Plan Combining Zone, such as Scenic Areas (SP-ScA), Scenic Roads (SP-ScR), Historical Areas (SP-HA), or Historical Buildings (SP-HB) zones unless the design of the facility will not adversely impact the underlying purpose of the zone.
 - (ac) The facility is not located within five hundred (500') feet of any building or feature located on a local or state historic or cultural significance list unless the design of the facility will not adversely impact the historic or cultural significance of such feature.
 - (ad) The facility does not present any impacts to the safety, health, and welfare of the public.
 - (ae) Reduced setback(s) would not interfere with other standards or requirements set forth in Title 9 of this Code.
 - (af) The facility and accessory building(s) are designed to be aesthetically and architecturally compatible with the surrounding environment. For example, the facility incorporates stealth techniques, such as screening, concealment, or camouflaging.
- (iii) Any telecommunications facility located within a non-residential zone at a distance greater than five hundred (500') feet to a residential zone, legally established residential dwelling, airport, or airstrip, and is seeking reduced setbacks, only has to comply with Sec. 9-2.4108(a)(3)(ii)(aa)-(ae).

(4) Facilities in Public or Private Utility Easements. Facilities located within public or private utility easements are exempt from meeting setback requirements.

(b) Height.

- (1) The maximum height for telecommunications facilities in all zones shall be two hundred (200') feet. Towers located within Military Training Routes (MTR) shall have a height no greater than one hundred and fifty (150') feet. Additional height may be approved by the Planning Director based upon justifiable need and consent from the Military within MTR. A variance application may be required for additional height.
- (2) Facilities proposed in residential zones and not meeting the exemption set forth in Sec. 9-2.4105(i), may not exceed thirty-five (35') feet in height. Height requirements may be increased through the approval of a variance. The Zoning Administrator shall make the following findings from the proof supplied by the applicant to approve the variance:

- (i) Site is the least intrusive; and
- (ii) A denial would be a violation of federal or state law.
- (3) The height for any facility shall be the minimum required to meet the technical requirements of the proposed facility.
- (4) A roof-mounted telecommunications facility shall be no more than fifteen (15') feet taller than the roof of the structure on which it is mounted. Height requirements may be increased through the approval of a variance. The Zoning Administrator shall make the following findings from the proof supplied by the applicant to approve the variance:
 - (i) Site is the least intrusive; and
 - (ii) A denial would be a violation of federal or state law.
- (5) A two-way radio antenna or television receiving antenna are subject to the maximum height requirement for the zone or no greater than fifty (50') feet.
- (6) An amateur radio system, also known as ham radio system, is subject to a maximum height of seventy (70') feet. Height requirements may be increased through the approval of a variance. The Zoning Administrator shall make the following finding from the proof supplied by the applicant to approve the variance:
 - (i) The design of the proposed antenna installation is the minimum necessary for the reasonable accommodation of the communication needs of the operator as set forth in Federal and/or State rules and regulations.

(c) Location Guidelines.

- (1) Telecommunications facilities shall not be located so as to cause obstruction of currently existing or proposed air navigation operations.
- (2) In residential zones, only one facility is permitted per parcel.
- (3) In residential zones, multiple facilities may be co-located on a single tower or pole.
- (4) Any facility located near a public right-of-way may not extend into, under, over, above, or upon a public right-of-way without obtaining an encroachment permit from the Public Works Department or Caltrans.

(d) Building and Electrical Codes.

- (1) Telecommunications facilities shall comply with all applicable building and electrical codes. Facilities shall comply with all applicable regulations adopted pursuant to Public Resources Code 4290.
- (2) Applicant(s) shall submit certification from a registered structural engineer to the Building Department for any tower in excess of thirty (30') feet in height to demonstrate tower will withstand sustained winds as required by the Uniform Building Code.
- (3) The facility shall be maintained in compliance with all applicable local and state building codes and any other applicable standards for telecommunications facilities.

(e) Lighting. All telecommunications facilities shall orient and shield lighting so as to not be intrusive to any residential surrounding areas. All shielding and orienting of lights shall comply with applicable authority's requirements, such as shielding for warning lights complying with FAA requirements.

(f) Signs. Telecommunications facilities are permitted to display warning and equipment information signs. Commercial displays or advertising of any kind on any portion of the facility or accessory building(s) shall not be permitted.

(g) Aesthetics. In residential zones, reasonable efforts shall be made to create a telecommunications facility with accessory buildings, whether new or co-located, that are

architecturally similar with existing structures or styles in the surrounding area including colors, textures, and ornamentation.

(h) **Deed Restrictions.** The installation of a facility shall not violate any existing deed restrictions.

(i) **Vehicle Access.** Per Plumas County Code Sections 9-4.501(b)-(d), all facilities shall have a road, the portion of which that is under the control of the applicant, with an unobstructed horizontal traveled surface not less than fourteen (14') feet in width, excluding shoulders, and a minimum unobstructed vertical clearance of fifteen (15') feet. All such roads shall be capable of supporting a minimum load of forty thousand (40000 lbs.) pounds and all culverts, bridges, and other appurtenant structures which supplement the roadway bed or shoulders shall be constructed to carry at least the maximum load and provide the minimum vertical clearance as required by Vehicle Code Sections 35250 and 35550 through 35796. Applicant shall provide engineering specifications to support design, if requested by the County Engineer. Federal lands shall be exempt from this subdivision.

(j) **Accessory Equipment Storage.** All telecommunications facilities and accessory buildings shall be used to store accessory equipment and supplies necessary for the support of the facility. Only in emergency cases may accessory equipment or vehicles be stored outdoors.

(k) **Federal and State Regulations.**

- (1) All facilities are subject to current regulations set forth by the FAA, the FCC, and all state and federal agencies with authority over telecommunications facilities.
- (2) All facilities shall maintain compliance with state and federal standards or regulations at all times. A facility out of compliance due to recent changes in state and/or federal standards or regulations shall be brought into compliance by the facility owner and/or operator within six (6) months of the effective date of such standards or regulations, unless the state or federal agency mandates a more stringent compliance timeline.
- (3) A facility not brought into compliance with federal and/or state regulations constitutes grounds for the County's commencement of permit revocation procedures set forth in this article.

(l) **Emissions.**

- (1) A biennial RF/EMF emissions report, prepared in accordance with FCC reporting standards, shall be submitted to the Plumas County Planning Department by the facility owner or operator demonstrating facility compliance with FCC OET Bulletin 65: provided however, if no changes have been made to the facility during the reporting period that would materially increase the RF/EMF emissions at the facility, a written certification of such shall be submitted in lieu of said report.
- (2) A facility shall not generate a hazard to the health, safety, and welfare of the public due to RF/EMF emissions greater than exposure limits allowed by FCC OET Bulletin 65. If exposure limits are exceeded, the facility owner or operator shall promptly determine the transmitter(s) of concern and shall cause such to cease operation until it(they) is(are) brought into compliance with FCC OET Bulletin 65.

(m) **Landscaping.** In residential zones, if visual impacts cannot be avoided, a screen of plant materials shall be utilized to obscure the facility from public view. The buffer shall consist of non-invasive/native plant material. The outside perimeter of the facility shall have a landscaped strip no less than five (5') foot in width. In locations where the visual impact of the facility would be minimal, the landscaping requirement may be reduced or waived. If a

facility is located on a large, wooded lot, the natural growth and trees shall suffice for the screen.

- (n) **Security and Fencing.** Facility, including accessory building(s) and equipment, shall be secured at all times and have a security fence of six (6') feet or more in height or other security measures appropriate to the site conditions to prevent access by the public.
- (o) **Maintenance.** Site and the facility, including accessory building(s), fencing, paint used to demonstrate caution, landscaping, lighting (aviation warning lights, etc.), and all related equipment shall be maintained in accordance with all approved plans and on a routine basis for the life of the facility. The following requirements shall be adhered to:
 - (1) In residential zones, maintenance hours shall be limited to 7:00 a.m. to 5:00 p.m., Monday through Saturday, excluding emergency repairs.
 - (2) In the case of failure or malfunction of an antenna structure identification or warning light system, all reporting and corrective work shall be accomplished in accordance with the then-current requirements established by the FAA.
- (p) **Cultural Resources.** Should development activities reveal the presence of cultural resources (i.e., artifact concentrations, including, but not limited to, projectile points and other stone tools or chipping debris, cans, glass, etc.; structural remains; human skeletal remains), work within 50 feet of the find shall cease immediately until a qualified professional archaeologist can be consulted to evaluate the remains and implement appropriate mitigation procedures. Should human skeletal remains be encountered, State law requires immediate notification of the County Coroner. Should the County Coroner determine that such remains are in an archaeological context, the Native American Heritage Commission in Sacramento shall be notified immediately, pursuant to State law, to arrange for Native American participation in determining the disposition of such remains.

Sec. 9-2.4109. Facility Design Standards

- (a) **Building Façade-Mounted Facilities in Commercial Zoning (Core Commercial (C-1), Periphery Commercial (C-2), Convenience Commercial (C-3), and Recreation Commercial (R-C)), Industrial Zoning (Heavy Industrial (I-1) and Light Industrial (I-2)), Residential Zoning (Single Family Residential(2-R, 3-R, and 7-R) and Multiple-Family Residential (M-R)), Recreational Zoning (Prime Recreation(Rec-P), Recreation(Rec-1, Rec-3, Rec-10, and Rec-20), Recreation Open Space (Rec-OS)), Agricultural Zoning (Agricultural Preserve (AP) and General Agriculture (GA)), General Forest (GF), and Mining (M).**
 - (1) **Visibility.** To minimize the appearance of facilities extending above the roofline of any structure, stealth techniques shall be utilized or facility shall be painted and textured to blend with the existing structure on which it is mounted.
 - (2) **Maximum Coverage.** Total facility coverage of a facility mounted to the face of an existing structure may not exceed ten (10%) percent of the square footage of the building face or thirty-two (32 ft²) square feet per façade, whichever is less.
 - (3) **Maximum Extension from Façade.** A facility shall not extend more than eighteen (18") inches from the building face.
 - (4) **Minimum Installation Height.** The lowest portion of all facilities shall be located a minimum of fifteen (15') feet above grade level.

(5) Accessory Buildings. Under no circumstances shall any structure utilized for a telecommunications facility be constructed or placed within a setback. Acceptable placements of accessory buildings are on the existing building's roof, within the existing building, or on the premises surrounding the existing building.

(b) **Roof-Mounted Facilities in Commercial Zoning (Core Commercial (C-1), Periphery Commercial (C-2), Convenience Commercial (C-3), and Recreation Commercial (R-C)), Industrial Zoning (Heavy Industrial (I-1) and Light Industrial (I-2)), Residential Zoning (Single Family Residential(2-R, 3-R, and 7-R) and Multiple Family Residential (M-R)), Recreational Zoning (Prime Recreation(Rec-P), Recreation(Rec-1, Rec-3, Rec-10, and Rec-20), Recreation Open Space (Rec-OS)), Agricultural Zoning (Agricultural Preserve (AP) and General Agriculture (GA)), General Forest (GF), and Mining (M).**

(1) Setback. The minimum setback for roof-mounted facilities is one (1') foot of setback for every foot in facility height. For example, a tower with a height of ten (10') feet shall have a minimum setback of ten (10') feet. The setback shall be measured from the roof's edge nearest the facility.

(2) Maximum Height. A roof-mounted facility shall not exceed the maximum building height of the underlying zone or ten (10') feet above the existing roofline, whichever is less. The height is measured from the base of the facility, which is affixed to the roof of the building, to the top of the facility. Additional height may be approved by the Zoning Administrator based upon justifiable need.

(3) Accessory Buildings. Under no circumstance shall any accessory building utilized for a facility be constructed or placed within a setback. Acceptable placements of accessory buildings are on the existing building's roof, within the existing building, or on the premises surrounding the existing building.

(c) **Existing Pole or Tower Mounted Facilities.**

(1) Setback. Facilities mounted on an existing pole or tower are not subject to setback requirements.

(2) Height. The overall height of an existing pole, tower, or co-location facility may increase by approval of a variance or other zoning approval as required for the zone in which the facility is located, based upon justifiable need.

(d) **Co-Located Facilities.**

(1) As set forth in California Government Code Section 65850.6, a co-location facility is permitted with the approval of a zoning clearance certificate if it complies with the following requirements:

(i) The telecommunications co-location facility on which the co-location facility is proposed on, or immediately adjacent to, was subject to a discretionary permit by the County and an environmental impact report was certified, or a negative declaration or mitigated negative declaration was adopted for the telecommunications co-location facility in compliance with the California Environmental Quality Act (Division 13(commencing with Section 21000) of the Public Resources Code), the requirements of Section 21166 do not apply, and the co-location facility incorporates required mitigation measures specified in that environmental impact report, negative declaration, or mitigated negative declaration.

(ii) State and local requirements, including the Plumas County General Plan, any applicable community plan or specific plan, and Title 9, Planning and Zoning, of this Code.

- (2) A telecommunications co-location facility proposed on, or immediately adjacent to an existing co-location facility that was not subject to a County discretionary permit pursuant to Sec. 9-2.4109(d)(1) shall require the approval of a special use permit, comply with all standards listed in Sec. 9-2.4109(d)(1)(ii), and shall comply with the California Environmental Quality Act through certification of an environmental impact report, or adoption of a negative declaration or mitigated negative declaration.
- (3) Telecommunications co-location facilities are permitted subject to the approval of a zoning clearance certificate if in compliance with the standards listed in Sec. 9-2.4109(d)(1) and the following standards:
 - (i) All co-location facilities are subject to the requirements set forth in Sec. 9-2.4108 General Requirements.
 - (ii) No facility shall extend from pole or tower greater than existing facilities mounted on pole or tower.
 - (iii) Co-location facility is compliant with RF exposure limits set forth by the FCC.
 - (iv) Accessory buildings are placed on the existing building's roof, within the existing building, or on the premises surrounding the existing building outside of setback, if located in Commercial Zoning (Core Commercial (C-1), Periphery Commercial (C-2), Convenience Commercial (C-3), or Recreation Commercial (R-C)), Industrial Zoning (Heavy Industrial (I-1) and Light Industrial (I-2)), Residential Zoning (Single Family Residential(2-R, 3-R, and 7-R) and Multiple Family Residential (M-R)), Recreational Zoning (Prime Recreation(Rec-P), Recreation(Rec-1, Rec-3, Rec-10, and Rec-20), Recreation Open Space (Rec-OS)), Agricultural Zoning (Agricultural Preserve (AP) and General Agriculture (GA)), General Forest (GF), and Mining (M)..

Sec. 9-2.4110. Facility Abandonment, Removal, and Remediation

- (a) A facility not maintained for ready use by telecommunications providers for a continuous period of twelve (12) months may be considered abandoned and designated as unlawful and as a public nuisance. To ensure a facility is not deemed abandoned and is being maintained, a written maintenance certificate shall be submitted to the Planning Department once per year.
- (b) Within ninety (90) days of receiving written notice from the County following its formal abandonment procedure, the facility owner and/or operator shall remove and remediate facility in its entirety, including accessory building(s) and associated equipment, returning the site to the original pre-construction state. If the abandoned facility is not removed and remediated within ninety (90) days, the County may have the facility removed and remediated, if necessary, and exercise its rights under Performance Security. Refer to Sec. 9-2.4107(e) regarding Performance Security.
- (c) All owners and/or operators with the intent to abandon a facility shall notify the County of such intentions no less than thirty (30) days prior to final day of use.
- (d) If two or more users are utilizing a single facility, the facility shall not be considered abandoned until operation from all users has ceased.
- (e) Facilities for which any permits have been revoked are subject to subdivisions (b)-(d) of this section.

SECTION 2 This ordinance shall be published, pursuant to Section 25124(a) of the

Government Code of the State of California, before the expiration of fifteen days after the passage of the ordinance, once, with the names of the supervisors voting for and against the ordinance, in a newspaper of general circulation in the County of Plumas.

SECTION 3 This ordinance shall become effective 30 days from the date of final passage.

SECTION 4 This ordinance shall be codified.

The foregoing ordinance was introduced at a regular meeting of the Board of Supervisors on the _____ day of _____, 2018, and passed and adopted on the _____ day of _____, 2018 by the following vote:

AYES: Supervisors:

NOES: Supervisors:

ABSENT: Supervisors:

Chair, Board of Supervisors

ATTEST:

Clerk of said Board of Supervisors

***INCREASED INCIDENCE OF CANCER NEAR A CELL-
PHONE TRANSMITTER STATION.***

RONNI WOLF MD¹

DANNY WOLF MD²

From:

**The Dermatology Unit, Kaplan Medical Center, Rechovot, and
the Sackler Faculty of Medicine, Tel-Aviv University, Tel-Aviv, ISRAEL.**

The Pediatric Outpatient Clinic, Hasharon Region, Kupat Holim, ISRAEL.

Running title: Cancer near a cell-phone transmitter station.

**Address for correspondence: Ronni Wolf, MD, Dermatology Unit, Kaplan
Medical Center, Rechovot 76100, ISRAEL.**

Fax 972-9-9560978. E-mail: wolf_r@netvision.net.il

International Journal of Cancer Prevention

VOLUME 1, NUMBER 2, APRIL 2004

Increased Incidence of Cancer near a Cell-Phone Transmitter Station
by Ronni Wolf and Danny Wolf

EXHIBIT 2

Abstract

Significant concern has been raised about possible health effects from exposure to radiofrequency (RF) electromagnetic fields, especially after the rapid introduction of mobile telecommunications systems. Parents are especially concerned with the possibility that children might develop cancer after exposure to the RF emissions from mobile telephone base stations erected in or near schools. The few epidemiologic studies that did report on cancer incidence in relation to RF radiation have generally presented negative or inconsistent results, and thus emphasize the need for more studies that should investigate cohorts with high RF exposure for changes in cancer incidence. The aim of this study is to investigate whether there is an increased cancer incidence in populations, living in a small area, and exposed to RF radiation from a cell-phone transmitter station.

This is an epidemiologic assessment, to determine whether the incidence of cancer cases among individuals exposed to a cell-phone transmitter station is different from that expected in Israel, in Netanya, or as compared to people who lived in a nearby area. Participants are people (n=622) living in the area near a cell-phone transmitter station for 3-7 years who were patients of one health clinic (of DW). The exposure began 1 year before the start of the study when the station first came into service. A second cohort of individuals (n=1222) who get their medical services in a clinic located nearby with very closely matched, environment, workplace and occupational characteristics was used for comparison.

In the area of exposure (area A) eight cases of different kinds of cancer were diagnosed in a period of only one year. This rate of cancers was compared both with the rate of 31 cases per 10,000 per year in the general population and the 2/1222 rate recorded in the nearby clinic (area B). Relative cancer rates for females were 10.5 for area A, 0.6 for area B and 1 for the whole town of Netanya. Cancer incidence of women in area A was thus significantly higher ($p<0.0001$) compared with that of area B and the whole city. A comparison of the relative risk revealed that there were 4.15 times more cases in area A than in the entire population.

The study indicates an association between increased incidence of cancer and living in proximity to a cell-phone transmitter station.

Key Words:

Radiofrequency radiation; Cell-phone transmitter station (cell-phone antenna);
Cancer incidence study; Netanya.

Introduction

Much concern has been expressed about possible health effects from exposure to radiofrequency (RF) electromagnetic fields, particularly following publication of scientific reports suggesting that residence near high voltage power lines may be associated with an increased risk of developing childhood leukemia. While interest tended to focus on microwave ovens and radar equipment in the past, it is now mobile telecommunication that attracts the most attention. The rapid introduction of mobile telecommunications systems, the exponential increase in the use of such phones, and the many base stations needed for serving them have engendered renewed concerns about exposure to RF radiation.

The biological effects of low level electromagnetic fields and a possible potential relation to cancer causation are controversial. There have been several epidemiological studies of the possible adverse health effects associated with environmental exposure to extremely low frequency (0-300 Hz) non-ionizing radiation, such as that emitted by power cables and electric substations, linking such exposure to leukemia, brain cancer, male breast cancer and skin and eye melanoma (1-11).

Far less attention has been paid to health hazards from environmental exposure to radiation in the RF range (100 kHz to 300 GHz), including the radiation emitted from cell-phone equipment, in the frequencies of 850 MHz, at field strengths much below those required to produce thermal effects. The few epidemiologic studies that did report on cancer incidence in relation to RF radiation (mainly from occupational exposure including microwave and radar and from living in proximity to TV towers) have generally presented negative or inconsistent results, or were subject to possible confounding from other exposures (12-20).

Laboratory studies in this area have also been confusing and conflicting. While some animal studies suggested that RF fields accelerate the development of cancers, other studies found no carcinogenic effect (21).

Obviously, there is an urgent need for extensive, well-conducted epidemiological and laboratory studies (21-24).

An opportunity for studying the effect of RF radiation presented itself in South Netanya, where a cell-phone transmitter station was located in the middle of a small area. We took advantage of the fact, that most of the population in the investigated area belong to one outpatient clinic (of DW), and undertook an epidemiologic assessment, in which we compared the cancer incidence of this area to those of a nearby clinic, to the national incidence rates of the whole country and to the incidence rates in the whole town of Netanya.

Material and methods

Radio-frequency radiation

The cell-phone transmitter unit is located at the south of the city of Netanya in an area called Irus (area A). It first came into service in 7/96. The people in this area live in half a circle with a 350 meter radius centered on the transmitter.

The antenna is 10 meters high. The antenna bears total maximum transmission power at frequencies of 850 MHz of 1500 watt when working at full power.

Both measured and predicted power density (for the frequencies of 850 MHz) in the whole exposed area were far below 0.53 $\mu\text{w}/\text{cm}^2$ thus the power density is far below the current guidelines which are based on *the thermal effects of RF exposure*. Exact measured power density in each house are described in table 1.

The current Israeli standard uses 50 packets/sec with Time-Division-Multiple-Access (TDMA) quadrature modulation. The antenna produces 50 packets/sec, using a 3:1 multiplexed Time-Division-Multiple-Access (TDMA) modulation with a 33% duty cycle.

Statistical analysis:

We conducted a cancer incidence study to investigate the incidence of cancer cases of individuals exposed to a cell-phone transmitter station, in comparison to those of a nearby clinic, to the national incidence rates of the whole country and to the incidence rates in the whole town of Netanya.

The cohort included 622 people living in the Irus area (area A) for at least 3-7 years and were patients of one health clinic (of DW). The exposure began in 7/96 which was 1 year before the start of our study.

Statistical analysis was based on the comparison of observed and expected numbers of cancer cases.

In order to compare incidence rates, 95% confidence intervals were computed.

The observed number of cancer cases is the number of all the cancer cases in the exposed cohort in the period between 7/97 - 6/98.

In order to estimate relative risk, rate ratios were computed using the rate of 3 different cohorts as the base (the expected values):

The rate in a nearby clinic (which serves a population of 1222 people, all of them living in area B) during the same period of time, i.e. 7/97 - 6/98. In order to compare area A and area B populations we used:

χ^2 test to compare origin and sex division

t- test to compare age means

The national incidence rates of the whole country.

The incidence rates in the whole town of Netanya where the 2 clinics (of area A and B) are located. The data of 2 and 3 were given to us by the Israel cancer registry and are updated to the years 91-94.

We also examined the history of the exposed cohort (of the A area) for malignancies in the 5 years before the exposure began and found only 2 cases in comparison to 8 cases detected one year after the transmitter station came into service.

Results

Of the 622 people of area A, eight cases of different kinds of cancer were diagnosed in a period of only one year (from July 1997 to June 1998). Details on these cases are presented in Table 1. Briefly, we found 3 cases of breast carcinoma, and one case of ovary carcinoma, lung carcinoma, Hodgkin's disease, osteoid osteoma, and hypernephroma.

This rate of cancers in the population of area A was compared both with the rate of 31 cases per 10,000 per year in the general population and the 2/1222 rate recorded in a nearby clinic. To each one of the rates, a 95 percent confidence interval was calculated (Table 2): the rates in area A were significantly higher than both those in area B, and the population as a whole.

A comparison of the relative risk revealed that there were 4.15 times more cases in area A than in the entire population.

The population characteristics of areas A and B were very similar (Table 2-5). The χ^2 test for comparing gender and origin frequencies showed no significant differences in these parameters between the two areas. Age means, as compared by t-test and age distribution stratum also showed no significant difference between the two groups.

Table 2a lists the rates of cancer incidence of areas A and B compared to data of the whole town of Netanya. The comparison clearly indicated that the cancer incidence of women in area A is significantly higher ($p<0.0001$) compared with that of the whole city.

Discussion

Our study indicates an association between an increased incidence of cancer and living in proximity to a cell-phone transmitter station.

Studies of this type are prone to biases. Possible methodological artefacts to explain our alarming results were considered:

Differences in socioeconomic class and employment status, and demographic heterogeneity due to differences in age, sex and ethnicity were excluded. The two areas that were compared have very closely matched environment, workplace and occupational characteristics.

Confounding variables affecting individuals could not be absolutely adjusted for, however, there was no ionizing radiation that could affect the whole community except the previously mentioned mobile antenna station. There is no traffic density in this area, neither is there any industry or any other air pollution. The population of area A

(on which adequate data could be gathered) did not suffer from uncommon genetic conditions, nor did they receive carcinogenic medications.

Differences in diagnosis and registration of cancer cases. Although we cannot altogether exclude the possibility that higher awareness of the physician responsible for area A led to an artificial increase in cancer cases in this area, this possibility seems to us very unlikely, since both are qualified family physicians.

Several findings are of particular interest:

The measured level of RF radiation (power density) in the area was low; far below the current guidelines based on the thermal effects of RF exposure. We suggest, therefore, that the current guidelines be re-evaluated.

The enormous short latency period; less than 2 years, indicates that if there is a real causal association between RF radiation emitted from the cell-phone base station and the cancer cases (which we strongly believe there is), then the RF radiation should have a very strong promoting effect on cancer at very low radiation!

Although the possibility remains that this clustering of cancer cases in one year was a chance event, the unusual sex pattern of these cases, the 6 different cancer kinds, and the fact that only one patient smoked make this possibility very improbable and remote. It should be noted that 7 out of 8 cancer cases were women, like in the work of Maskarinec (25) who found 6 out of 7 leukemia cases in proximity to radio towers to occur in girls. Such unusual appearances of cancer cases due to one accused factor on two completely different occasions is alarming.

We are aware of at least 2 areas in which a drastic increase in the incidence of cancer cases occurred near a cell-phone antenna, however, the setup was not suitable for a well design study of those cases. In one of them (which also got publication in the daily newspapers) there were 6 out of 7 cancer cases in women working in a store in close proximity to a cell-phone antenna.

In conclusion, the results of this study showed that there was a significantly greater incidence of cancers of all kinds within the vicinity of a cell-phone transmitter station.

It would be certainly too premature to draw any conclusions from our results before they are confirmed and repeated by other studies from other areas, particularly in view of the fact that a great majority of papers on this subject showed that RF fields and mobile telephone frequencies were not genotoxic, did not induce genetic effects in vitro and in vivo, and were not found to be teratogenic or to induce cancers (24). The results of this paper should, however, serve as an alarm and emphasize the need for further investigations.

Addendum

At one year following the close of the study, 8 new cases of cancer were diagnosed in area A and two cases in area B. Among the cases diagnosed in area A was one of osteoid osteoma, the second case from the beginning of the study.

References

1. Cartwright R (1989) Low frequency alternating electromagnetic fields and leukaemia: the saga so far. *Br J Cancer* 60:649-651.
2. Demers PA et al (1991) Occupational exposure to electromagnetic fields and breast cancer in men. *Am J Epidemiol.* 134:340-347.
3. Dolk H et al (1997) Cancer incidence near radio and television transmitters in Great Britain. *Am J Epidemiol* 145:1-9.
4. Elliott P et al (1992) The Small Area Health Statistics Unit: a national facility for investigating health around point sources of environmental pollution in the United Kingdom. *J Epidemiol. Community Health* 46:345-349.
5. Feychting M and Ahlbom A (1993) Magnetic fields and cancer in children residing near Swedish high-voltage power lines. *Am J Epidemiol* 138:467-481.
6. Goldsmith J (1995) Epidemiologic evidence of radio-frequency (microwave) effects on health in military broadcasting and occupational studies. *Int J Occup Med Environ Health* 1:47-57.
7. Guenel P et al (1993) Incidence of cancer in persons with occupational exposure to electromagnetic fields in Denmark. *Br.J Ind.Med* 50:758-764.
8. Hocking B et al (1996) Cancer incidence and mortality and proximity to TV towers. *Med J Aust* 165:601-615.
9. Kraut A et al (1991) Epidemiologic investigation of a cancer cluster in professional football players. *Environ.Res.* 56:131-143.
10. Lester J and Moore D (1982) Cancer mortality and Air Force bases. *J Bioelectricity* 1:77-82.

11. Maskarinec G et al (1994) Investigation of increased incidence in childhood leukaemia near radio towers in Hawaii: preliminary observations. *J Environ Pathol Toxicol Oncol* 13:33-37.
12. McGregor A (1998) WHO launches mobile-phone hazards study. *Lancet* 351:276.
13. Milham S Jr (1988) Increased mortality in amateur radio operators due to lymphatic and hematopoietic malignancies. *Am J Epidemiol.* 127:50-54.
14. Pollack H (1979) Epidemiologic data on American personnel in the Moscow embassy. *Bull N.Y.Acad.Med* 55:1182-1186.
15. Polsen P and Merritt J (1985) Cancer mortality and Air Force bases: a re-evaluation. *J Bioelectricity* 4:121-127.
16. Repacholi M (1997) Radiofrequency field exposure and cancer: what do the laboratory studies suggest. *Environ Health Perspect* 105 (Suppl 6):1565-1568.
17. Repacholi M (1998) Low-level exposure to radiofrequency electromagnetic fields: health effects and research needs. *Bioelectromagnetics* 19:1-19.
18. Robinette C, Silvermann C, and Jablon S (1980) Effects upon health of occupational exposure to microwave radiation (radar). *Am J Epidemiol* 112:39-53.
19. Savitz DA et al (1988) Case-control study of childhood cancer and exposure to 60-Hz magnetic fields. *Am J Epidemiol.* 128:21-38.
20. Savitz D, Ahlbom A (1994) Epidemiologic evidence of cancer in relation to residential and occupational exposure. In Carpenter D, Ayrapetyan S (eds) *Biological effects of electric and magnetic fields*. Sydney: Academic Press.
21. Savitz D and Calle E (1987) Leukaemia and occupational exposure to electromagnetic fields: review of epidemiologic surveys. *J Occup Med* 29:47-51.
22. Theriault, GP. Health effects of electromagnetic radiation on workers: epidemiologic studies. Bierbaum, PJ and Peters, JM. 91-124. 1991. Cincinnati, OH, US Department of Health and Human Services. Proceedings of the Scientific

Workshop on the health Effects of Electric and Magnetic Fields on Workers. Ref

Type: Conference Proceeding

23. Tornqvist S et al (1991) Incidence of leukaemia and brain tumours in some "electrical occupations". *Br.J Ind.Med* 48:597-603.
24. Verschaeve L and Maes A (1998) Genetic, carcinogenic and teratogenic effects of radiofrequency fields. *Mutat Res* 410:141-165.
25. Wertheimer N and Leeper E (1979) Electrical wiring configurations and childhood cancer. *Am J Epidemiol.* 109:273-284.

Acknowledgment

The authors are grateful to Aviva Zeer M.Sc from the Zinman College of Physical Education and Sport Sciences At the Wingate Institute, Israel, for help with the statistical analysis.

The opinions expressed herein are solely those of the writers and do not necessarily reflect the opinions of the institutions with which the writers are associated.

Table 1: Cancer cases in area A

NAME	AGE	SE X	ORI- GIN ¹	SMO - KIN G	CANCER TYPE	Measured power density in $\mu\text{w}/\text{cm}^2$
Hemda	52	f	ash	No	Ovary ca stage 1	0.3 $\mu\text{w}/\text{cm}^2$
Edna	42	f	sph	No	Breast ca in situ	0.4 $\mu\text{w}/\text{cm}^2$
Tania	54	f	ash	No	Breast ca	0.5 $\mu\text{w}/\text{cm}^2$
Neli	67	f	ash	Yes	Breast ca	0.4 $\mu\text{w}/\text{cm}^2$
Galit	24	f	ash	No	Hodgkins	0.5 $\mu\text{w}/\text{cm}^2$
Miriam	61	f	sph	No	Lung ca	0.3 $\mu\text{w}/\text{cm}^2$
Masal	37	f	sph	No	Osteoid osteoma	0.4 $\mu\text{w}/\text{cm}^2$
Max	78	m	ash	No	Hypernephroma	0.3 $\mu\text{w}/\text{cm}^2$

1. Origin: ash - Ashkenazien Jews sph - Spharadic Jews

Table 2: Cancer rates in area A, B and the total population.

	No. of cancer cases	population size	Rate per year per 10,000	confidence interval lower limit	ce (95%) upper limit	relative risk
Area A	8	622	129	40.1	217.2	4.15
Area B	2	1222	16	-6.3	39.0	0.53
total population	31	10,000	31	20.1	41.9	1.00

Table 2a: Cancer rates in area A, B and the whole town.

	Male		Female	
	rate	Relative rate	rate	relative rate
Area A	33	1.4	262	10.5
Area B	17	0.7	16	0.6
Whole town	24	1	25	1

Table 3: Comparing area A to area B by gender.

Gender	Area A		Area B	
	N	%	N	%
male	290	49	669	49
female	305	51	685	51

Table 4: Comparing area A to area B by origin.

Origin	Area		Area	
	N	%	N	%
Sfaradic	340	55	551	45
Ashkenaz	239	38	620	51
Russian	41	7	51	4

Table 5: Comparing age means in both areas.

	Area A		Area B	
	mean	Std	mean	std
age	26.5	17.9	25.5	12.4

Table 5: Age distribution by stratum.

	0-1	1-10	10-20	20-30	30-40	40-50	50-60	60-70	>70
IRUS	16	143	157	65	70	88	41	21	21
POLEG	31	285	257	139	180	158	83	55	34

Survey Study of People Living in the Vicinity of Cellular Phone Base Stations

R. Santini,^{1,*} P. Santini,² P. Le Ruz,² J. M. Danze,² and M. Seigne¹

¹Institut National des Sciences Appliquées, Laboratoire de Biochimie-Pharmacologie,
Bâtiment Louis Pasteur, Villeurbanne, France

²ABPE, Rennes, France

ABSTRACT

A survey study was conducted, using a questionnaire, on 530 people (270 men, 260 women) living or not in proximity to cellular phone base stations. Eighteen different symptoms (Non Specific Health Symptoms—NSHS), described as radiofrequency sickness, were studied by means of the chi-square test with Yates correction. The results that were obtained underline that certain complaints are experienced only in the immediate vicinity of base stations (up to 10 m for nausea, loss of appetite, visual disturbances), and others at greater distances from base stations (up to 100 m for irritability, depressive tendencies, lowering of libido, and up to 200 m for headaches, sleep disturbances, feeling of discomfort). In the 200 m to 300 m zone, only the complaint of fatigue is experienced significantly more often when compared with subjects residing at more than 300 m or not exposed (reference group). For seven of the studied symptoms and for the distance up to 300 m, the frequency of reported complaints is significantly higher ($P < 0.05$) for women in comparison with men.

*Correspondence: R. Santini, Institut National des Sciences Appliquées, Laboratoire de Biochimie-Pharmacologie, Bâtiment Louis Pasteur, 20, Ave. Albert Einstein 69621 Villeurbanne, Villeurbanne, France; Fax: 33-472-43-85-24; E-mail: roger.santini@insa-lyon.fr.

EXHIBIT 3

Significant differences are also observed in relation to the ages of subjects, and for the location of subjects in relation to the antennas and to other electromagnetic factors.

Key Words: Cellular phone base stations; Bio-effects.

INTRODUCTION

Chronic exposure to ultra-high-frequency electromagnetic fields or microwaves brings on bioeffects in man such as headaches, fatigue, sleep, and memory disturbances (Bielski, 1994; Santini, 1999). These biological effects, associated with others (skin problems, nausea, irritability) constitute what is known as "Non Specific Health Symptoms" (NSHS) that characterize radiofrequency sickness (Johson Liakouris, 1998). Cellular mobile phone technology uses microwaves (frequencies of 900 or 1800 MHz in France) pulsed with extremely low frequencies (frequencies <300 Hertz) (Linde and Mild, 1997). However many of the biological effects resulting from mobile phone use are relatively well-known and bring to mind those described in radiofrequency sickness (Mild et al., 1998; Santini et al., 2002).

We are reporting here the results concerning 530 people living in France, in the neighborhood or not, of cellular phone base stations, in relation to their exposure conditions to antennas, their sex, and their age.

MATERIALS AND METHODS

Questionnaire Used

A questionnaire similar to that developed for the study on mobile phone users (Santini et al., 2002) was sent to people wishing to participate in the study. Subjects were enrolled through information given by press, radio, and web sites, about the existence of a study on people living near cellular phone base stations. The questionnaire was filled out by subjects without the presence of a person in charge of the study and was returned (generally by mail) to a person responsible for the study.

General questions pertained to age, sex, estimated distances from base stations (less than 10 m, 10–50 m, 50–100 m, 100–200 m, 200–300 m, more than 300 m) and their location in relation to the antennas (facing, beside, behind, beneath in the case of antennas placed on rooftops). The exposure conditions of subjects were also defined by the length of time living in the neighborhood of base stations (less than 1 year, 1–2 years, 2–5 years, more than 5 years).

Participants were asked to indicate the presence or not of electrical transformers (at less than 10 m), high or very high tension electric power lines (at less than 100 m) and radio and television transmitters (at less than 4 km). The questionnaire sought information on computer use (more than 2 hours per day) and cellular telephone use (more than 20 minutes per day).

The level of complaints for the studied symptoms was expressed by the study participants using a scale of: 0 = never, 1 = sometimes, 2 = often, and 3 = very often. Of 570 questionnaires received, 40 were not used because of lack of information

on the distance from the base stations or on the level of the complaints experienced. Among the 530 questionnaires studied, 270 came from men (45 years \pm 20) and 260 from women (47 years \pm 19). Eighteen symptoms referenced in the NSHS were found in the questionnaire; one of which, premature menopause, concerned only women.

Analysis of Results

The results obtained, concerning the frequency of the complaints experienced in relation to responses with 0 = never, were analyzed by the chi-square test with Yates correction (Dabis et al., 1992) by means of a software program (STATITCF, 1987, France). Results were compared with the frequency of complaints of the reference group (subject exposed at >300 m or, living in the vicinity of nonoperating base stations) for incidences of distance and age. The comparisons were done with the frequency of complaints expressed by subjects exposed up to 300 m for length of exposure (comparison to <1 year), for location of subjects (comparison of locations among themselves) and for sex. A $P < 0.05$ was considered significant.

We are presenting here the results tallied with: (1) the influence of subject's exposure conditions to base stations (distance, length of exposure, location in relation to the antennas other electromagnetic factors), and (2) the influence of sex and age of subjects.

RESULTS

Influence of Exposure Conditions

Distance

The 530 study subjects were distributed in the following manner: 19.6% were less than 10 m from cellular phone base station antennas, 26.2% between 10 and 50 m, 13.8% between 50 and 100 m, 9.6% between 100 and 200 m, 10.1% between 200 and 300 m, and 20.7% were at more than 300 m or not exposed; these last subjects were chosen as the reference group.

In comparison with the reference group, the complaints are experienced in a significantly higher way by the subjects located in the distance zones of <10 m to 300m from base stations. Certain symptoms are experienced significantly more often ($P < 0.05$) only in the immediate vicinity of base stations (up to 10 m) and not beyond that: Nausea, loss of appetite, visual disturbances, and difficulty in moving. Significant differences ($P < 0.05$) are observed up to 100 m from base stations for symptoms such as: Irritability, depressive tendencies, difficulties in concentration, loss of memory, dizziness, and lowering of libido. In the zone 100 m to 200 m from base stations, the symptoms of headaches, sleep disruption, feelings of discomfort, and skin problems are again experienced significantly more often ($P < 0.05$) in comparison with the reference group. Beyond 200 m, only the symptom of fatigue is reported at a significantly high frequency ($P < 0.05$) (Table 1). By contrast, no significant effect is demonstrated in relation to distance for the symptom of premature menopause. A significant lowering of libido was reported by subjects living at the distances of less than 10 m, 10–50 m, and 50–100 m from base stations.

Table 1. Influence of distances from cellular phone base stations on the percentages of complaints

Symptoms	Distances from base stations in meters (m)						>300 m	
	<10 m		10–50 m		50–100 m			
	2	3	2	3	2	3		
Fatigue	76*	72*	63.5*	50.9*	60.6	56.6*	64.2	
Irritability	32.8	23.2*	41.7*	25.7*	47.2*	44.1*	41	
Headaches	51*	47.8*	40*	26.1*	40.6*	36.7*	60.7*	
Nausea	14.5*	6.9	8.4	3	5.7	3.8	4.6	
Loss of appetite	20.4*	8.3	8	5.5	5	5	6.9	
Sleep disturbances	41.3*	57.1*	41.4*	57.5*	46.9*	58.5*	45.8*	
Depressive tendencies	16.9	26.8*	21.6	19.7*	11.6	24*	16.2	
Feeling of discomfort	28*	45.4*	25.2*	18.9	30.6*	12.8	15.7*	
Difficulties in concentration	39.3	28.8*	37.5	16.6	34.2	26.4*	25	
Memory loss	27.8	25.4*	29.4	26.6*	37.1*	29*	25	
Skin problems	18.1*	17.1*	6.6	10.8	11.1*	11.1	13.9*	
Visual disturbances	14.5	24.3*	23	13.5	22	7.1	7.5	
Hearing disturbances	33.3*	17.4	17.7*	12	8.3	15.5	7.7	
Dizziness	10	12.5*	17.3*	7.5*	9.6	9.6*	12.2	
Movement difficulties	5.6	7.7*	8.2	1.7	3	3	0	
Cardiovascular problems	10.1*	13*	15.3*	9.6	12.3*	7.4	8.7	

* = $P < 0.05$ in comparison to the reference group (>300 m) for the responses 2 = often and 3 = very often.

for 16 non Specific Health Symptoms experienced by 530 people (270 men + 260 women).

Length of Exposure

There is no significant difference in the frequency of symptoms expressed by subjects living up to 300 m from cellular phone base station, according to the length of time (<1 year to more than 5 years) they have lived in the neighborhood of base stations.

Location of Subjects

The location of subjects in relation to the antennas (facing, beside, behind, beneath) taken alone has little impact on the frequency of symptoms reported. When comparisons are made in relation to the different distance zones, significant increases of complaints ($P < 0.05$) are observed for some distances and for some symptoms in the facing position: visual disturbances for distance <10 m as compared with beneath, fatigue for distance 10 to 50 m as compared with beneath, headache for distance 10 to 50 m as compared with beside, memory loss for distance 50 to 100 m as compared with beside. When comparisons are made for all subjects exposed at a distance of up to 300 m from base stations, it is only observed a significant increase in headaches ($P < 0.05$) for subjects in the beneath position as compared with subjects in the facing position.

Table 2. Influence of sex on the percentages of complaints

Symptoms	Men (%)	Women (%)
Fatigue	41.4	57.5
Irritability	17.9	28.3
Headaches (3)	14.4	45.6*
Nausea (3)	0	5.9*
Loss of appetite (3)	1.9	8*
Sleep disturbances (3)	45.4	61*
Depressive tendencies (3)	9.8	26.7*
Feeling of discomfort (3)	15	25.4*
Difficulties in concentration	18.4	21.6
Memory loss	18	27.7
Skin problems	8	13.1
Visual disturbances (2)	12.2	22*
Hearing disturbances	9.6	19
Dizziness	6	9.8
Movement difficulties	3.3	2.7
Cardiovascular problems	8.3	8.8
Lowering of libido	18	12

for 17 Non Specific Health Symptoms reported by 420 people (205 men vs. 215 women) living in the vicinity of cellular phone base stations (all distances from <10 m to <300 m).

* = $P < 0.05$ for level of complaints in parenthesis, 2 = often and 3 = very often.

Exposure to Other Electromagnetic Factors

The presence of factors such as an electrical transformer, very high tension electric power lines, radio-television transmitters, the use of computers, or cellular phones has little influence on the frequency of symptoms reported by subjects living at a distance of up to 300 m from base stations. However, a significant decrease of sleep disturbance for cellular phone users, and significant increases of discomfort and dizziness with the presence of an electrical transformer, and of difficulties in concentration with the presence of a radio-television transmitter, are observed in comparison with subjects living at a distance of up to 300 m, but not exposed to those factors.

Table 3. Influence of age on the percentages of complaints

Symptoms	Distances of subjects from antennas (in meters)							
	≤ 20 years		21–40 years		41–60 years		> 60 years	
	≤ 300	> 300	≤ 300	> 300	≤ 300	> 300	≤ 300	> 300
Fatigue	56.7	62.5	82.4*	25	81.4*	57.8	73.3*	40
Irritability	16.2	11.1	46.2	18.2	50.5	35.3	52.1*	21
Headaches	42.4	26.3	57.6*	18.2	52*	13.3	49.5*	10
Nausea	2	0	12.9	0	9.9	0	15.6	15.7
Loss of appetite	13.3	8.8	12.7	0	11.8	0	15.9	15
Sleep disturbances	26.1	14.8	53*	12.5	73.9	52.6	68.5*	44.4
Depressive tendencies	10.2	5.7	14	5.8	36	20	41.7	27.7
Feeling of discomfort	4.4	2.9	26.3	6	41.6	16.6	45*	19
Difficulties in concentration	30.3	40	42.1	18.7	45.8	36.8	53.3*	20
Memory loss	7.5	8	21.8	6.6	43	40	64	36.8
Skin problems	16.6	9.3	24.2	6.6	18.3	0	20.4	5.2
Visual disturbances	16.3	12.5	14.7	12.5	26.6	26.3	36.8	17.6
Hearing disturbances	9.4	5.1	15.4	0	29.8	21.7	43.8	31.5
Dizziness	6.2	5.2	3.2	6.6	15.4	4.5	39.3*	9.5
Movement difficulties	0	2.3	0	0	3.5	4	21.4	10.5
Cardiovascular problems	0	2.3	5.1	0	19.2*	0	36.4	15

for 16 Non Specific Health Symptoms experienced by 530 people (270 men + 260 women) in relation to their distances from cellular phone base stations (≤ 300 m vs. > 300 m [reference group]).

* = $P < 0.05$ for levels of complaints 2 + 3 pooled.

Influence of Sex and Age

Sex

In terms of the different distance zones, two complaints were experienced significantly more often for women ($P < 0.05$): nausea in the zone of less than 10 m, headaches in the zones of 10–50 m, 50–100 m, 100–200 m, and 200–300 m. Men complain significantly more often ($P < 0.05$) than women about lowering of libido in the zone of 50 to 100 m from cellular phone base stations.

When the men/women comparison is made for all subjects exposed at a distance up to 300 m, seven symptoms (i.e., headaches, nausea, loss of appetite, sleep disturbances, depressive tendencies, feeling of discomfort, and visual disturbances) are experienced significantly more often in women ($P < 0.05$) (Table 2). On the contrary, for the subjects of the reference group, there appears to be no significant difference related to sex in the frequency of complaints reported for the different symptoms.

Age

Significant differences are observed in relation to the age of the subjects (from 21 to >60 years) for symptoms such as fatigue, irritability, headaches, sleep disturbances, feeling of discomfort, dizziness, cardiovascular problems when comparisons are made between subjects living up to 300 m vs. subjects of the reference group. For subjects younger than 20 years of age, there is no significant difference in the frequency of symptoms between subjects living at up to 300 m vs. subjects of the reference group (Table 3).

DISCUSSION

This study gives evidence of the fact that NSHS are reported by people at distances up to 200 m to 300 m from cellular phone base stations. The significant increase in the frequency of complaints in relation to the reference group (people exposed at >300 m or not exposed) goes in the direction of the observation found in an Australian governmental report, which had signaled that at 200 m from a base station, some people exposed in their homes are complaining of chronic fatigue and sleep disturbances (Australian Report, 1996). Our results agree with those of a Spanish preliminary study on people living in the vicinity of cellular phone base stations, where symptoms as irritability, headaches, nausea, and sleep disturbances are experienced in a significantly higher way by the subjects located at a distance up to 150 m vs. subjects at a distance >250 m (Gomez-Perretta Cl, personnel communication, 2002).

The number of reported symptoms is higher close to base stations, and that number decreases with increased distance from them, in relation to the fact that some symptoms such as nausea, loss of appetite, visual disturbances, and difficulties in movement are no longer experienced in a significant way beyond 10 m.

Symptoms such as fatigue, headaches, and sleep disturbances, which are experienced significantly at considerable distances from base stations, exhibit no notable

diminishment in the percentages of complaints experienced with increased distance. But the measurements of electromagnetic fields in the neighborhood of cellular phone base stations show a reduction in strength over distance (Petersen and Testagrosa, 1992; Santini, 1999). One could expect that human sensitivity to electromagnetic waves is such that increased distance from cellular phone base stations has no significant effect on certain NSHS symptoms up to a distance of 200 to 300 m (difference in receptors sensibility to microwaves?). It is also possible that the measurements of electromagnetic fields found around base stations may not be the true representation of populations exposure. In fact, different parameters are likely to interfere to modify the measurements and in particular fluctuations in emission strengths relating to the number of calls handled by base stations, the reflection of electromagnetic waves, etc. (Santini et al., 2000).

No significant decrease was observed in the frequency of symptoms in relation to the length of time living in the neighborhood of base stations (from <1 year to >5 years). This result shows that there is no acclimation of subjects to microwave bioeffects with duration of exposure.

This study shows that for some distances and for some symptoms, the facing location is the worst position, especially for distances of <100 m from cellular phone base stations. This result can be related to the fact that antennas emit microwave at a higher level in front than in other directions (Petersen and Testagrosa, 1992).

The results obtained demonstrate the greater sensitivity of women for 7 of the studied NSHS. One earlier study related to cellular phones users demonstrated an increase in women's sensitivity for the symptom of sleep disturbances (Santini et al., 2002). This sex-related difference is parallel to the particular sensitivity of women to electromagnetic fields (Loomis et al., 1994; Santini, 1998). The results obtained in this study also show the existence of a greater sensibility for some NSHS symptoms, in relation to age, in subjects older than 20 years. This sensibility is particularly high in subjects older than 60 years. This last results agrees with the greater sensibility of the elderly to radiofrequencies (Tell and Harem, 1979).

CONCLUSION

From these results and in applying the precautionary principle, it is advisable that cellular phone base stations should not be sited closer than 300 m to populations and most significantly because exposed people can have different sensitivities related particularly to their sex and their age. The facing position appears to be the worst one for distances from cellular phone base stations <100 m.

ACKNOWLEDGMENTS

The authors gratefully acknowledge Janet Newton, President of the EMRNetwork, for her help in editing this article. The authors also thank the participants in the study.

REFERENCES

Australian Report. (1996). A local government and community resource document: mobile phone and their transmitter base stations—the evidence for health hazards. *EmFacts Inf. Serv.* 240 pp.

Bielski, J. (1994). Bioelectrical brain activity in workers exposed to electromagnetic fields. *Ann. N.Y. Acad. Sci.* 724:435–437.

Dabis, F., Drucker, J., Moren, A. (1992). *Epidémiologie d'intervention*. Editions Arnette 589 pp.

Johnson Liakouris, A. G. (1998). Radiofrequency (RF) sickness in the Lilienfeld study: an effect of modulated microwaves? *Arch. Environ. Health* 53:236–238.

Linde, T., Mild, K. H. (1997). Measurement of low frequency magnetic fields from digital cellular telephones. *Bioelectromagnetics* 18:184–186.

Loomis, D. P., Savitz, D. A., Ananth, C. V. (1994). Breast cancer mortality among female electrical workers in the United States. *J. Natl. Cancer Inst.* 86:921–925.

Mild, K. H., Oftedal, G., Sandströms, M., Wilen, J., Tynes, T., Haugsdal, B. (1998). Comparison of symptoms experienced by users of analogue and digital mobile phones. *Arbetsligrapp.* 23:1–47.

Petersen, R. C., Testagrosa, P. A. (1992). Radiofrequency electromagnetic fields associated with cellular radio cell-site antennas. *Bioelectromagnetics* 13:527–542.

Santini, R. (1998). Breast cancer in women, high voltage power lines and melatonin. *Bioelectromagn. Newsrl.* 144:5.

Santini, R. (1999). Cellular telephones and their relay stations: a health risk? *La Presse Médicale* 28:1884–1886.

Santini, R., Seigne, M., Bonhomme-Faivre, L. (2000). Danger of cellular phones and their base stations. *Pathol. Biol.* 48:525–528.

Santini, R., Seigne, M., Bonhomme-Faivre, L., Bouffet, S., Defrasme, E., Sage, M. (2002). Symptoms experienced by users of digital cellular phones: a study of a French engineering school. *Electromagn. Biol. Med.* 21:81–88.

Tell, R. A., Harem, F. (1979). A review of selected biological effects and dosimetric data useful for development of radiofrequency standards for human exposure. *J. Microw. Power* 14:405–424.

Reprinted in part from
Volume 21, Number 6, July 2011
(Article starting on page 569 in the actual issue)

ARTICLE

LOCAL MATTER OR FEDERAL CASE? THE NETWORK OF CELL TOWER REGULATION IN CALIFORNIA

By Arthur F. Coon and Sean Marciniak*

I. INTRODUCTION.

Few planning and zoning decisions generate more controversy than the placement of cellular phone antennas.¹ If the proposed site lies near a residential area, neighbors often will organize for purposes of challenging the proposal and, more often than not, they are sophisticated. In the City of San Francisco, one resident successfully challenged the placement of a tower after he switched his mobile device into “field test” mode, systematically recorded his carrier’s signal strength in the vicinity, demonstrated signal strength was good to excellent in most of the area, and thereby convinced the City that his carrier did not need another tower.²

These contests will continue to grow in complexity and in number. Population growth means more users,³ and more users will sustain demand for more towers.⁴ Moreover, the newest technology that is capable of handling the many functions that consumers now demand and expect—pictures, movies, video conferencing—utilizes higher

* Arthur F. Coon a shareholder and Sean Marciniak is an associate and in the Walnut Creek office of Miller Starr Regalia. Both concentrate in the areas of land use and environmental law. Arthur Coon is also the author of Chapter 25, Subdivisions, Land Use Planning, and Approvals, and Chapter 25A, CEQA of Miller & Starr, California Real Estate 3d.



WEST®

frequencies, which translates into smaller coverage areas. Thus, more towers will prove necessary to serve the existing user population.⁵

Numerous questions surface in this type of land use decision. To what extent may a local city or county regulate the process? What are the bounds of its discretion? What is an agency to make of community concerns about electromagnetic energy associated with an antenna? The issues that emerge in siting cell phone antennas are among the many that the federal government has sought to address through regulation. And the government has been attempting to perfect the regulation of telecommunications for some time.

A. Overview of Federal Telecommunications Act of 1996.

The U.S. government first attempted to regulate the telecommunications industry during the Great Depression, when it created a statutory framework, known as the Communications Act of 1934, in order to promote competition among telephone companies and radio broadcasters.⁶ But as decades passed, it became clear that monopolies were continuing to form.⁷ Moreover, technology was advancing in unanticipated ways, such that laws designed to regulate the invention of Alexander Graham Bell now had to accommodate creatures such as the Internet and wireless phone service. Another problem that surfaced was that technology, particularly digital innovations, began allowing certain carriers—e.g., a telephone company—to offer services usually associated with a different industry—e.g., cable television service. As a result, several different industries began offering the same services, but remained subject to the distinct regulatory regimes that governed them at their formation.⁸

In 1996, the U.S. Congress undertook its “first major overhaul” of the telecommunications law in 62 years.⁹ Lawmakers intended the Federal Telecommunications Act of 1996 (“1996 Telecommunications Act,” or “Act”)¹⁰ primarily to encourage competition, but also to contemplate and regulate the provision of new technologies. In terms of competition, for instance, the Act obligated telecommunications carriers to interconnect directly or indirectly with the facilities and equipment of other carriers, subject to reciprocal compensation agreements.¹¹ Meanwhile, existing carriers had to accommodate new entrants in that these “incumbents” had a duty to provide newcomers with interconnection for the transmission and routing of telephone and other services.¹²

In terms of new technologies, the Act now contemplated the Inter-

net,¹³ the proliferation of wireless services, and the development of the facilities that delivered them—e.g., cell phone towers.¹⁴ Regulating the latter posed a particularly difficult challenge, as the U.S. Congress had to balance two somewhat contradictory purposes affecting these facilities. First, Congress had expressed an intention “to promote competition and reduce regulation in order to secure lower prices and higher quality services for American telecommunications consumers and encourage the rapid deployment of new telecommunications technologies.”¹⁵ This policy, in turn, contemplated that various states had “longstanding practice of granting and maintaining local exchange monopolies.”¹⁶ On the other hand, Congress sought “to preserve the authority of State and local governments over zoning and land use matters except in the limited circumstances set forth in the conference agreement.”¹⁷

B. Overview of cell phone tower regulation under the Act.

Section 332 of the Act contains the byproduct of Congress’ effort to balance local and federal control in the siting of wireless facilities. In terms of delegation, state or local governments can be extremely flexible in their decisions. For instance, a city may adopt an ordinance that regulates the placement of towers according to open-ended considerations such as “necessity” and “community character.”¹⁸ Nor are considerations such as property values and aesthetics impermissible.¹⁹ Moreover, the jurisdictions’ decisions need only be supported by “substantial evidence,” which is not a difficult standard to satisfy—i.e., it is more than a scintilla and less than a preponderance of evidence.

As described in this article, however, Congress did restrict local authorities in some important respects.²⁰ For instance:

- State and local governments may not reject the siting of a tower on the basis of radio frequency emissions—i.e., radiation—unless a tower exceeds standards set forth by the Federal Communications Commission (“FCC”).²¹
- State or local governments may not ban, either outright or *de facto*, the siting of towers in their jurisdiction. Similarly, a jurisdiction may not cause a provider to have a “significant gap” in its coverage.²²
- State and local governments may not unreasonably discriminate among providers of functionally equivalent services, but can treat facilities differently where they create different visual, aesthetic, or safety concerns.²³

Aside from these more substantive restrictions, there are procedural considerations at work. For instance, a jurisdiction's decision must be in writing and consist of a certain amount of detail.²⁴ Time also is of the essence, as a jurisdiction must process tower applications in 90 to 150 days, depending on whether the equipment is merely an addition to an existing facility—a process known as "collocation"—or constitutes an entirely new facility.²⁵

This article discusses the 1996 Telecommunications Act primarily as it has been applied in California courts and the Ninth Circuit Court of Appeals. However, where another jurisdiction has explored an issue that California authority does not address, or has influenced a California opinion, such authority also is discussed. Also warranting attention are some California state regulations that have developed that address a local agency's ability to consider an application for a cell phone tower.

Section II of this article discusses the flexibility that local jurisdictions enjoy in regulating the siting of cell phone towers; Section III discusses federal limitations and preemptions that local jurisdictions face; Section IV discusses federal procedural regulations concerning findings and timing; and Section V discusses limitations on, and the preemption of, actions by local jurisdictions imposed by statewide legislation in California.

II. THE BOUNDS OF LOCAL AUTHORITY

A. Local control preserved.

Section 332(c)(7)(A) of the 1996 Telecommunications Act preserves local governments' authority over zoning decisions regarding placement and construction of wireless service facilities, subject to enumerated limitations in §332(c)(7)(B).²⁶ In accordance with this statutory mandate, courts have approved a wide variety of grounds upon which a local jurisdiction may regulate the siting of a cell phone tower, and require only that local decisions be supported by "substantial evidence."

1. Substantial evidence.

The Act mandates that a state or local government's cell phone tower decision be "supported by substantial evidence contained in a written record."²⁷ Such a standard is not difficult to meet, and there appears to be universal agreement among the circuits as to the substantive content of this requirement. In sum, the "substantial evidence" quantum implies "less than a preponderance, but more than a scintilla

of evidence. ‘It means such relevant evidence as a reasonable mind might accept as adequate to support a conclusion.’”²⁸ Review under this standard is essentially “deferential,” such that courts may “neither engage in [their] own fact-finding nor supplant [a local government’s] reasonable determinations.”²⁹

This standard of review is a familiar one in California insofar as planning and zoning decisions are concerned.³⁰

2. Bases of decision are broad.

A local agency need not muster any great quantum of proof to support its decision, nor does the agency face any great restrictions in picking the substantive grounds for decision on which it may rely. For instance, the agency may adopt ordinances that regulate the placement of towers according to broad considerations such as “necessity” and “community character,”³¹ which demand a considerable amount of discretion. An agency also may base decisions on property values, aesthetics, and environmental concerns.³² Moreover, an agency may structure an ordinance according to a “tiered” framework, such that towers proposed in certain areas (e.g., industrial or commercial zones) face lesser substantive and procedural restrictions than those placed in more sensitive communities (e.g., residential zones).³³ What follows is a non-exclusive list of considerations that courts have approved:

Necessity. A city is permitted to regulate a tower application on the basis of whether “the proposed use...is necessary or desirable for, and compatible with, the neighborhood or the community.”³⁴ “Necessity” can focus on the existing adequacy of a given carrier’s service; in one case, a single consumer did in fact manage to defeat an application where he used a “field test” mode on his cellular phone to systematically record his carrier’s signal strength and show its adequacy.³⁵ “Necessity” also may concern the cumulative need for service in light of multiple providers—i.e., the circumstance where competitors of a tower proponent have a proliferation of towers in a given area. However, even if an agency complies with the substantial evidence test in showing such a proposed tower is unnecessary because competitors have the area well-covered, it will be difficult for that locality to pass the “discrimination” and “substantial gap” tests discussed further below in Section IV.³⁶

Aesthetics. Numerous decisions from the Ninth Circuit approve a

local agency's consideration of how a cell phone tower affects the visual resources of a community, such as a scenic viewshed.³⁷ Requiring visual impact studies, screening, and other types of camouflage has met court approval.³⁸

Community character. A number of decisions from the Ninth Circuit approve a local agency's consideration of how a cell phone tower harmonizes with the surrounding neighborhood.³⁹ From a practical standpoint, a cell phone tower is less likely to be deemed compatible with a residential neighborhood than with a commercial or industrial neighborhood.

Height, setbacks, and other traditional zoning considerations. A number of decisions from the Ninth Circuit approve a local agency's decision to subject cell phone antennas to traditional zoning considerations like the above.⁴⁰

Property values. It appears that California courts recognize property values as a legitimate consideration in regulating the siting of cell phone towers, though such values may not support rejection of a facility if the fear of property value depreciation is based on concern about the health effects caused by radio frequency emissions.⁴¹ It would appear a proponent of property value evidence must adhere to some rigor in its analysis, and show not only radio frequency energy levels, but also how such levels would affect market appraisals.⁴² At the same time, this consideration is likely to generate controversy due to a California Supreme Court decision holding that electromagnetic radiation from power lines does not damage property, and that evidence supporting its contribution to health risks is unreliable.⁴³ Of course, that decision was published in 1996, and it is unclear, and beyond the scope of this article, what supplemental evidence has arisen in the past 15 years. At the same time, another California decision has held that, where a taking is established, a party's fears of electromagnetic energy, regardless of their reasonableness, may affect the calculus of what amount of just compensation is due.⁴⁴

Historic considerations. Historic considerations concern the impact of a cell phone tower on historic resources, such as the impacts of construction or operation of a facility on a historic building or historic neighborhood. For instance, many cell phone facilities are collocated on building tops, and proposing

to do so on an historic structure would raise the prospect that the tower could destroy the cultural value of that resource. The Ninth Circuit has not expressly adopted this as a factor that agencies may consider in accepting or rejecting a facility application, but other circuits have.⁴⁵

Environment. It does not appear a California court has addressed the issue of environmental conditions, but courts in other jurisdictions have recognized that cell phone towers may have impacts in areas such as slope stability, soil erosion, hydrology, and interference with flood management.⁴⁶ Cell phone towers also have been shown to impact biological resources, such as birds and migration routes, and the FCC acknowledges that species and habitat concerns may warrant the preparation of an environmental document.⁴⁷ It should be noted that any application for a cell phone tower also may need to undergo review under the National Environmental Policy Act (“NEPA”)⁴⁸ and the California Environmental Quality Act (“CEQA”).⁴⁹ Unless consideration of an environmental concern is specifically preempted by the 1996 Telecommunications Act (e.g., consideration of radio frequency emissions outside specific limitations), it would appear that any environmental topic arising through these review processes would qualify as adequate criteria in evaluating the siting of a cell phone tower. Providers and agencies may consider whether smaller facilities would be eligible for exemption from these environmental review frameworks under specific provisions in each act or their implementing regulations.⁵⁰

Cumulative impact. It appears that if evidence shows a proposed tower, when considered in combination with other existing, proposed, or foreseeable towers, has a cumulative effect on a community resource, such an evidentiary showing could support an agency’s decision to reject the proposed tower. However, the record must contain evidence of such a cumulative impact.⁵¹ Note that the radiofrequency emission standards, set by the FCC, do address cumulative concerns, and that compliance with such standards will preempt further consideration of this issue by a local government agency, as is discussed further below.

The individual considerations listed above may be mixed and combined in a variety of frameworks, such that a state or local agency may

vary requirements in certain areas or zones so as to provide incentives or disincentives for proposals in that vicinity. The Ninth Circuit approved such a framework in *Sprint Telephony PCS, L.P. v. County of San Diego*.⁵²

In that case, the City of San Diego enacted an ordinance that categorized applications for wireless telecommunications facilities into four “tiers,” depending primarily on the visibility and location of a proposed facility. Depending on the tier, different requirements would apply. For example, an application for a low-visibility structure in an industrial zone generally had to satisfy lesser requirements than an application for a large tower in a residential zone.⁵³ While the court did not identify and itemize the requirements, it appeared they were substantive in nature. Presumably, an agency could also vary its procedural requirements in a like fashion; for instance, it likely could streamline review in industrial zones by delegating decisions to an administrator, but posit review authority in a planning commission or other advisory or legislative body where a tower is proposed in a residential zone.

3. Conclusion.

The above examples illustrate that a state or local government has great flexibility in deciding whether or not it may permit or reject an application to construct and operate a cell phone tower. Even such open-ended considerations as “necessity” and “community character” may guide an agency decision, and the decision-making body need only ensure there is “substantial evidence” in the record supporting its decision.

That said, the space in which an agency may exercise this considerable discretion is a bounded one. As the next section discusses, the 1996 Telecommunications Act establishes limits and controls that a local agency cannot escape with regard to certain topical areas.

III. LIMITATIONS ON AN AGENCY'S DISCRETION IN CONSIDERING TOWERS.

Though state and local governments enjoy a broad degree of discretion in approving or rejecting applications for cell phone towers, the 1996 Telecommunications Act provides for a number of limitations that preempt local decision making. Essentially, an agency cannot reject an application if:

- (1) The agency does so on the basis of radio frequency emissions where evidence shows the proposed power will meet federal standards;

- (2) Rejection would implement a ban on cell phone towers, effectively constitute a ban, or create a significant gap in a provider's service; or
- (3) Rejection would constitute unreasonable discrimination among providers of functionally equivalent services.

Per federal law, state and local agencies also must ensure their decision is in writing, though existing California law already contains such a requirement.⁵⁴ More significant is that agencies must make their decision within prescribed time limits (i.e., 90 to 150 days, depending on facility), or they will suffer a presumption that delay was unreasonable. At the same time, an agency can rebut that presumption, presumably through a showing of diligent efforts to complete environmental review or some other entitlement process.

A. Radio frequency emissions.

1. Factual background.

Aside from aesthetics, perhaps no aspect of a cell phone tower will raise more opposition than the prospect of exposing neighbors to radio frequency ("RF") emissions. Such emissions consist of electric and magnetic energy moving at the speed of light, and can be further characterized by their wavelength and frequency. As the FCC explains, "the wavelength is the distance covered by one complete cycle of the electromagnetic wave, while the frequency is the number of electromagnetic waves passing a given point in one second."⁵⁵ Opponents of cell towers simply call it radiation.

In theory, biological effects of exposure can result. Just as microwave ovens cook food by subjecting it to electromagnetic waves, RF energy can heat tissue rapidly when exposure levels are high. Under such conditions, tissue damage occurs because the human body cannot cope with or dissipate this excessive heat. However, the FCC acknowledges that at "relatively low levels of exposure to RF radiation... the evidence for production of harmful biological effects is ambiguous and unproven," including increases in the risk of cancer.⁵⁶ The uncertainties of RF energy levels associated with wireless antennae often spawn widespread opposition, and constitute the real motivation behind challenges to cell tower proposals.⁵⁷

2. FCC sets standards on RF emissions.

Section 332(c)(7)(B)(iv) of the Act provides that no state or local government may regulate the siting of a cell phone tower based on

“the environmental effects of radio frequency emissions to the extent that such facilities comply with the [FCC’s] regulations concerning such emissions.”⁵⁸ The FCC’s guidelines, adopted in 1996, have a two-fold purpose in that they: (1) identify acceptable exposure levels, and (2) identify which transmitting facilities, operations and devices will be “categorically excluded” from performing routine, initial evaluations.

The exposure levels are based on maximum RF exposure and the FCC asserts they “are designed to protect the public health with a very large margin of safety.”⁵⁹ The Environmental Protection Agency and the Food and Drug Administration have endorsed this calculus, and a federal court of appeals upheld the adoption of these standards, under the “substantial evidence” standard of review discussed above.⁶⁰ The actual requirements can be found in the following regulations and policy documents: Sections 1.1307(b) and 1.1310 of the FCC’s Rules and Regulations [47 C.F.R. §§1.1307(b), 1.1310]; the FCC’s OET Bulletin 65, “Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields,” August 1997 (“Bulletin 65”); and an interpretive guide of Bulletin 65 the FCC published in 2000, entitled “A Local Government Official’s Guide to Transmitting Antenna RF Emission Safety: Rules, Procedures, and Practical Guidance.” (“LSGAC Guide”).

The FCC standards also identify cellular facilities that will qualify for a “categorical exclusion” from further review. These generally include low-powered, intermittent, or inaccessible RF transmitters and facilities. For instance, facilities that qualify include conventional cellular facilities which generate 1,000 watts of power or less; conventional cellular facilities that are not mounted on a building and sit 10 meters above ground level; PCS facilities that generate 2,000 watts of power or less; or PCS facilities that are not mounted on a building and sit at least 10 meters above ground.⁶¹

Per FCC regulation, an Environmental Assessment (“EA”), pursuant to NEPA, must be prepared where a tower proponent cannot show the facility in question will qualify for a categorical exclusion or otherwise comply with the exposure standards.⁶² An applicant should have little difficulty determining whether a categorical exclusion applies because the FCC provides a number of tables designed to streamline this process; however, determining exposure levels for non-qualifying facilities is not always a simple matter. Several factors govern this calculus, including the frequency of the RF signal, the operating power of the transmitting station, the actual power radiated from the antenna, the duration

of exposure at a given distance from the antenna, and the number and location of other antennas in the vicinity.⁶³

This latter factor—what neighboring towers exist—raises the prospect of a cumulative analysis, and the FCC regulations appear to require it. Where more than one antenna is collocated, an applicant “must take into consideration *all* of the RF power transmitted by all of the antennas when determining maximum exposure levels.”⁶⁴ Bulletin 65 states that “*all* significant contributors to the ambient RF environment should be considered, including those otherwise excluded from performing routine RF evaluations, and applicants are expected to make a good-faith effort to consider these other transmitters.”⁶⁵ In defining a “significant” contributor, the FCC contemplates those producing more than 5 percent of the applicable exposure limit.⁶⁶ And while the regulations focus on single towers with multiple antennas, Bulletin 65 also contemplates receptors situated between two towers.⁶⁷

However, note that qualifying for a categorical exclusion would appear to make further cumulative analysis unnecessary; Bulletin 65 provides a decision tree meant to help agencies and carriers navigate the RF evaluation process, and qualifying for a categorical exclusion obviates further discussion.⁶⁸ Thus, it appears that qualifying for a categorical exclusion is synonymous with making a determination that, borrowing California state environmental law terminology, a facility will make no cumulatively considerable contribution to a cumulative impact.⁶⁹

3. Where a proposed tower complies with FCC regulations, a state or local government is preempted from considering the issue further.

Section 332(c)(7)(B)(iv) of the Act provides that no state or local government may regulate a cell phone tower on the basis of “the environmental effects of radio frequency emissions to the extent that such facilities comply with the Commission’s regulations concerning such emissions.” In other words, agencies may not regulate cell phone towers to the extent their radiation complies with FCC standards, as set forth in Sections 1.1307(b) and 1.1310 of the FCC’s Rules and Regulations and the FCC’s OST/OET Bulletin Number 65. This prohibition covers even “indirect” environmental effects of RF emissions.⁷⁰

Only a handful of cases that treat the issue have emerged in California, and they provide little guidance beyond the Act’s statutory language.⁷¹ Courts in other jurisdictions, too, generally have been respectful of the

statutory mandate, holding that an agency's authority is limited to verifying compliance with FCC rules.⁷² But it may be the case that, where an agency is faced with alternative sites, it may select one over another on the basis of exposure levels.⁷³

B. Interference with other transmissions.

Aside from affecting human health, RF emissions also have the potential to interfere with the operation of other radio waves, including those emanating from emergency communications, consumer electronic equipment, and other wireless services. However, while state and local governments may regulate cell phone towers on the basis of public safety considerations, an agency may not reject an application on the basis it will interfere with the radio frequencies of emergency communication devices and other systems.⁷⁴ The FCC since has ruled that local agencies are preempted from regulating in this area.⁷⁵

C. Prohibition against unreasonable discrimination.

The Act mandates that “[t]he regulation of the placement, construction, and modification of personal wireless service facilities by any State or local government or instrumentality thereof...shall not unreasonably discriminate among providers of functionally equivalent services.”⁷⁶ Conversely, “the Act explicitly contemplates that some discrimination ‘among providers of functionally equivalent services’ is allowed. Any discrimination need only be reasonable.”⁷⁷

As the Ninth Circuit has observed, almost all federal courts have held that providers alleging unreasonable discrimination must show that they have been “treated differently from other providers whose facilities are ‘similarly situated’ in terms of the ‘structure, placement or cumulative impact’ as the facilities in question.”⁷⁸ With regard to justifying a rejection based on a cumulative impact, the only federal district court case from the Ninth Circuit on this issue held that a mere increase in the number of wireless antennas in a given area over time can justify differential treatment of providers.⁷⁹

To demonstrate that an agency has unreasonably discriminated against a carrier, the carrier must make some “systematic comparison” of other sites that have received approvals.⁸⁰ Merely demonstrating there are competing facilities in the area, without a detailed inquiry into the similarity of those existing facilities in terms of structure, placement, and cumulative impact, will not suffice.⁸¹

D. Agency cannot ban or effectively prohibit provision of wireless service; agency cannot create a substantive gap in service.

1. Bans and moratoriums.

a. Bans.

The Act provides that the “regulation of the placement, construction, and modification of personal wireless service facilities by any State or local government or any instrumentality thereof...shall not prohibit or have the effect of prohibiting the provision of personal wireless services.”⁸² In other words, an agency may not institute a general ban on new service providers or otherwise effectively prohibit the provision of wireless services.⁸³

The courts have not been particularly receptive to petitioners who make a facial challenge to an ordinance. Where the plain language of an ordinance does not make obvious an outright prohibition, a challenger must meet a high burden of proving that “no set of circumstances exists under which the [ordinance] would be valid.”⁸⁴ That an agency theoretically could exercise its discretion to reject every proposed facility has no bearing on this calculus. Thus, where the City of San Diego set forth a number of requirements and considerations for siting cell phone towers, the Ninth Circuit, in validating the ordinance, held: “It is certainly true that a zoning board *could* exercise its discretion to effectively prohibit the provision of wireless services, but it is equally true (and more likely) that a zoning board would exercise its discretion only to balance the competing goals of an ordinance—the provision of wireless services and other valid public goals such as safety and aesthetics.”⁸⁵ In a different opinion, the Ninth Circuit provided examples in which a ban might be established. “If an ordinance required, for instance, that all facilities be underground and the plaintiff introduced evidence that, to operate, wireless facilities must be above ground, the ordinance would effectively prohibit it from providing services. Or, if an ordinance mandated that no wireless facilities be located within one mile of a road, a plaintiff could show that, because of the number and location of roads, the rule constituted an effective prohibition.”⁸⁶

It appears a party also can use an agency’s permitting history to show that a ban has or has not been instituted; for instance, the Ninth Circuit held no ban existed where evidence showed a city authorized the installation of some 2,000 antennas at about 450 sites, including 30 of the complaining carrier’s own facilities.⁸⁷

b. Moratoria.

An agency may institute a moratorium on the approval of cell phone towers as it contemplates the adoption of planning and zoning rules that address their siting, but only in a limited manner. Any moratorium must comply with the Act's requirement that local officials must evaluate applications for wireless facilities "within a reasonable period of time."⁸⁸ In fact, Congress implemented the Act's "reasonable period of time" provision to "stop local authorities from keeping wireless providers tied up in the hearing process through invocation of state procedures, moratoria, or gimmicks."⁸⁹

A leading case on this issue is *Sprint Spectrum, L.P. v. City of Medina*, in which the United States District Court for the Western District of Washington held that a city's six-month moratorium did not constitute an illegal ban.⁹⁰ However, other courts have rejected different moratoria in different circumstances.⁹¹ On August 5, 1998, a committee of the FCC composed of state and local government officials entered into an agreement with industry groups that established guidelines that (1) encouraged the parties to cooperate to facilitate the siting of wireless facilities, and (2) established that 180 days constituted a reasonable period for moratoria.⁹² The guidelines recognize that moratoria sometimes may need to endure beyond 180 days, but that these devices "should not be used to stall or discourage the placement of wireless telecommunications facilities within a community...."⁹³ Where disputes arise, the parties agreed to an informal dispute resolution process that involves the participation of local government experts and industry representatives, who consider the circumstances and make non-binding recommendations.⁹⁴

It is unclear to what extent this informal dispute resolution process has been successful, or utilized. However, in the past ten years, there appears to have been only one case addressing moratoria.⁹⁵

c. Courts no longer allow more relaxed standard for challenge under section 253.

In previous years, carriers had challenged state and local regulations on the basis of Section 253 of the Act, rather than Section 332.⁹⁶ Whereas Section 332 concerns itself with local zoning and cellular facilities, Section 253(a) more broadly preempts regulations which "may prohibit, or have the effect of prohibiting the ability of any entity to provide any interstate or intrastate telecommunications ser-

vices.” The reason that carriers preferred a challenge under Section 253 is because the Ninth Circuit had interpreted it as preempting not only regulations that “in fact” ban cellular services, but also regulations that “may have” the effect of prohibiting service.⁹⁷ However, this distinction has been erased.

In an en banc 2009 decision, the Ninth Circuit overruled its previous decision and explained that, under both provisions, “a plaintiff must establish either an outright prohibition or an effective prohibition on the provision of telecommunications services; a plaintiff’s showing that a locality could *potentially* prohibit the provision of telecommunications services is insufficient.”⁹⁸ The court explained that it had misread the plain language of the statute in rendering its previous decision, and that its new ruling correctly harmonized this section with Section 332, and better implemented the motivating policies of the Act.

2. Agency may not create “significant gap” in service.

Several courts—including the Ninth Circuit—have held that even in the absence of a “general ban” on wireless services, a locality can violate the Act where it prevents a wireless provider from “closing a ‘significant gap’ in service coverage.”⁹⁹ The inquiry generally “involves a two-pronged analysis requiring (1) a showing of the existence of a ‘significant gap’ in service coverage and (2) some inquiry into the feasibility of alternative facilities or site locations.”¹⁰⁰

a. What constitutes a significant gap.

The test employed by some circuits holds that a “significant gap” in service exists only if *no provider* is able to serve the “gap” area in question.¹⁰¹ This test is sometimes referred to as the “one provider” rule since, “if any single provider offers coverage in a given area, localities may preclude other providers from entering the area (as long as the preclusion is a valid, nondiscriminatory zoning decision that satisfies the other provisions of the [Act]).”¹⁰² The Ninth Circuit does not follow this thinking, and has held that that a local regulation creates a “significant gap” if “the *provider in question* is prevented from filling a significant gap *in its own service network*.”¹⁰³

Courts have held the inability to cover “a few blocks in a large city” does not, as a matter of law, constitute a “significant gap,” and that small “dead spots” are permissible.¹⁰⁴ The Ninth Circuit has declined to create a blanket rule, and has held that “significant gap” determinations are extremely fact-specific.¹⁰⁵

b. Alternatives analysis.

Once a carrier has established the existence of a “significant gap,” it must then make some showing as to the intrusiveness or necessity of its proposed means of closing that gap.¹⁰⁶ The Ninth Circuit has adopted the test of other circuits which requires the carrier to show that “the manner in which it proposes to fill the significant gap in service is the *least intrusive on the values that the denial sought to serve.*”¹⁰⁷

The court adopted the “least intrusive” test because it felt this approach “allows for a meaningful comparison of alternative sites before the siting application process is needlessly repeated. It also gives providers an incentive to choose the least intrusive site in their first siting applications, and it promises to ultimately identify the best solution for the community, not merely the last one remaining after a series of application denials.”¹⁰⁸

The “least intrusive” test hinges on the availability and technological feasibility of the alternatives.¹⁰⁹ Per decisional law, the carrier has the burden of showing the proposed site is the least intrusive, which it does through submission of a “comprehensive application.”¹¹⁰ An agency is not compelled to accept the provider’s representations but, should the agency reject a *prima facie* showing, it must show that there are some potentially available and technologically feasible alternatives.¹¹¹ The carrier should then “have an opportunity to dispute the availability and feasibility of the alternatives favored by the locality.”¹¹²

The decision in *T-Mobile USA, Inc. v. City of Anacortes* is the leading case addressing this issue in the Ninth Circuit. In that opinion, the carrier satisfied its burden by submitting a detailed analysis of eighteen alternative sites, but the city contended that a half dozen alternative sites remained available.¹¹³ The city, however, had failed to take into account evidence in the record that the school sites it had counter-proposed were not viable because the school district had rejected such overtures. Moreover, the city had failed to rebut evidence that an additional alternative, which would have required two towers, would pose heightened environmental and cost concerns.¹¹⁴ Thus, while the test adopted by the Ninth Circuit focuses on the availability and technological feasibility of alternative sites, it appears that environmental and economic considerations can inform the calculus.

Finally, while a state or local agency is extremely restricted in rejecting a cell tower application on the basis of RF emissions, there is some persuasive authority that an agency may select an alternative based on exposure levels where “no other factor differentiate[s] the two finalists.”¹¹⁵

IV. PROCEDURAL REQUIREMENTS AND REMEDIES

A. Writing requirement.

Under the Act, any “decision by a State or local government...to deny a request to place, construct, or modify personal wireless service facilities shall be in writing.”¹¹⁶

The writing requirement is not onerous. Recognizing that local agencies often are staffed with lay-persons who are ill-equipped to draft complex legal decisions, the Ninth Circuit held that a written decision need not contain detailed findings of fact or conclusions of law, but must only “be robust enough to facilitate meaningful judicial review.”¹¹⁷ Under this standard, citations to specific evidence in the record are unnecessary.¹¹⁸

B. Timing.

The Act provides that a state or local government “shall act on any request for authorization...within a reasonable period of time after the request is duly filed....”¹¹⁹ Originally, no definite timetables were provided or intended.¹²⁰ But that is no longer the case.¹²¹

The FCC ruled that a state or local government has 90 days to process a personal wireless service facility siting application requesting a collocation, and 150 days to process all other applications. If the government does not act upon applications within those timeframes, then the carrier may seek redress in a court of competent jurisdiction within 30 days, as provided in Section 332(c)(7)(B)(v). The government, however, will have an opportunity to rebut the presumption of reasonableness.¹²² Presumably, diligence, pursuance of entitlement processes, and environmental review procedures pursuant to NEPA or CEQA would be sufficient to rebut the presumption.

If a telecommunications provider believes that the zoning board is using its procedural rules to delay unreasonably an application, or is using its discretionary authority to deny an application unjustifiably, the Act provides an expedited judicial review process in federal or state court.¹²³

C. Injunction, not damages as remedy.

Where a state or local government fails to comply with the Act, the appropriate remedy is an injunction compelling the local authority to act.¹²⁴ Damages and attorney's fees are not available as a remedy.¹²⁵

V. STATE PREEMPTION: CALIFORNIA'S STREAMLINING PROVISIONS REGARDING COLLOCATION FACILITIES, FACILITIES IN A STATE RIGHT OF WAY, AND LIMITATIONS ON CONDITIONS OF APPROVAL.

A. Regulating towers in a right of way.

Some controversy has arisen with regard to the extent to which a city or county may regulate a cell phone tower proposed for construction in a public right of way. The "ground zero" for such disputes focuses on section 7901 of the California Public Resources Code, which permits telephone corporations to construct facilities along any public road or highway in such a manner as not to "incommode" the public use of the road or highway. Carriers have argued this provision pre-empts local regulation in public rights of way.

The Ninth Circuit first considered the issue in 2006, and initially held that section 7901 occupied the field of regulation and preempted local ordinances except to the extent that they protected against telecommunications equipment interfering with use of a roadway.¹²⁶ However, the Ninth Circuit then amended the opinion and removed the preemption discussion from the published opinion, instead placing it in an unpublished memorandum disposition.¹²⁷

Later in 2006, in an opinion that was subsequently vacated by the California Supreme Court, a California Court of Appeal reached an opposite conclusion, finding that section 7901 did not preempt local regulation of the placement of telecommunications equipment on public rights of way.¹²⁸ Instead, the court found that local governments continued to possess a limited ability to regulate the placement and appearance of wireless facilities.¹²⁹

Perhaps settling the controversy (though perhaps not), the United States District Court for the Northern District of California most recently has sided with the now-vacated state court decision. It held there is no evidence that section 7901 "fully and completely" occupies the field, because the section is not "couched in terms to indicate clearly that a paramount state concern will not tolerate further or additional local action."¹³⁰ The court noted that related provisions of state law confer on localities a great

measure of control over the time, place, and manner on which roads or highways are accessed.¹³¹ The court held it was not bound by the Ninth Circuit decision since the federal appellate court had relegated its contrary holdings to an unpublished memorandum.¹³²

For its part, California's executive branch has authority over utility approvals, but in fact does not appear to exercise its authority over wireless facilities.¹³³ The California Public Utilities Commission ("CPUC") has adopted a general order in which it relinquished authorization powers in most circumstances, reserving the right to preempt a local determination only where "there is a clear conflict with the Commission's and/or statewide interests." Otherwise, the CPUC merely requires a carrier to notify the commission by mail when the carrier has obtained all applicable local land use entitlements, and do so within 15 days of issuance.¹³⁴

B. California streamlining provisions for collocation facilities.

In 2006, the California Legislature sought to streamline the local entitlement process for collocated wireless facilities. "Collocated facilities" is a term describing situations where multiple antennas and other wireless equipment are sited in the immediate vicinity of each other. The streamlining provisions essentially require that cities and counties administratively approve—i.e., refrain from exercising discretionary review over—the placement of new transmitters on already approved wireless towers.¹³⁵ In doing so, the state declared that "a collocation facility...has a significant economic impact in California and is not a municipal affair ..., but is a matter of statewide concern."¹³⁶

The streamlining provisions apply in limited circumstances. The new facilities must be consistent with specified local and state requirements that apply to the existing structure.¹³⁷ Further, the existing tower or facility must:

- Have been entitled pursuant to a discretionary permit;
- Have undergone CEQA review to the extent that either a negative declaration, a mitigated negative declaration, or environmental impact report was prepared (and circumstances surrounding the new facility must not trigger the preparation of a subsequent CEQA document);¹³⁸
- Be consistent with local requirements addressing the nature, height, location, size, design, and other aspects of the facility; and

- Be consistent with the State Planning and Zoning Law.¹³⁹

In addition, the city or county must have held at least one public hearing on the discretionary permit for the existing facility. Note that these state enactments do not conflict with the federal prohibitions on consideration of RF emissions.¹⁴⁰

C. California limitations on conditions of approval.

In addition to the streamlining provisions, the California Legislature also sought to restrict the conditions of approval that a local agency may impose on wireless facilities. Government Code section 65964 provides that a locality may not:

- Require an escrow deposit for removal of the facility or any component thereof. However, the local government may require a performance bond or other surety if the amount is “rationally related to the cost of removal;”
- Unreasonably limit the duration of any permit for the facility; a limit of less than 10 years is presumed to be unreasonable absent public safety or substantial land use reasons; or
- Require that all wireless facilities be limited to sites owned by particular parties within the jurisdiction of the city or county.

VI. CONCLUSION

A state or local government may regulate cell phone towers on numerous bases, and exercise considerable discretion in doing so. However, the 1996 federal law imposes several clear rules in terms of what a local agency *cannot* do, such as discriminate among carriers or cause a carrier to suffer a significant gap in its service. Perhaps the most significant limitation, from a practical standpoint, is the federal preemption that prohibits local and state governments from considering RF emissions in evaluating a siting proposal, given that such emissions have the greatest likelihood of generating community opposition to a wireless facility.

NOTES

1. This article repeatedly uses the terms “cell phone antenna,” “cell phone tower” or some analog. In fact, current law more broadly regulates “the placement, construction, and modification of personal wireless service facilities,” which means “commercial mobile services, unlicensed wireless services, and common carrier wireless exchange access services.” 47 U.S.C.A. §332(c)(7)(C)(i). For narrative convenience, the terms cell phone “antennae” or “tower” will be used to signify all “personal wireless facilities” contemplated by the Federal Telecommunications Act of 1996.

2. *T-Mobile West Corp. v. City and County of San Francisco*, 52 Communications Reg. (P & F) 606, 2011 WL 570160 (N.D. Cal. 2011) (Carrier did not dispute information, and other data showed that less than one quarter of one percent of calls were dropped).
3. Whereas some 34 million U.S. citizens used mobile phones in 1995, nearly ten times that number of individuals utilizes the technology today. That usage translates to 2.2 trillion minutes of use, not to mention 2.1 trillion text messages—a concept unknown during the mid 1990s. International Association for the Wireless Telecommunications Industry, http://www.ctia.org/consumer_info/index.cfm/AID/10323.
4. Whereas there were some 23,000 towers in 1995, that number had expanded to 253,000 by December 2010. *Id.*
5. Wireless phone, paging, messaging, and data service can be bundled in a technology known today as “Personal Communications Services” (“PCS”). But while technology has expanded the variety of services available to consumers, it has not managed to reduce the number of facilities required to deliver these services. PCS technology operates at a higher frequency than traditional cellular equipment, resulting in a smaller sphere of coverage from any given transmitter. While actual coverage will depend on factors such as population, density, and topography, PCS towers have a range—generally—of 0.5 to 2 miles, compared to the 3- to 15-mile halo emanating from conventional cellular facilities.
6. 47 U.S.C.A. §§151 *et seq.*
7. For instance, in 1984, AT&T had a long distance market share of 85 percent. Nicholas Economides, *The Telecommunications Act of 1996 and its Impact* (September 1998) (available at <http://www.stern.nyu.edu/networks/telco96.html>). The reason for the failures of the Communications Act of 1934 to address monopolies in the telecommunications industry is beyond the scope of this article.
8. CRS Report for Congress, *Telecommunications Act: Competition, Innovation, and Reform*, p. 1 (January 13, 2006), available at <http://net.educause.edu/ir/library/pdf/EPO0635.pdf>.
9. FCC, description of the Act, available at <http://transition.fcc.gov/telecom.html>.
10. Pub. L. No. 104-104, 110 Stat. 56 (1996), codified throughout Title 47 of the United States Code (“47 U.S.C.A.”).
11. 47 U.S.C.A. §251(a)(1), (b)(5).
12. 47 U.S.C.A. §251(c)(2).
13. *E.g.*, 47 U.S.C.A. §230.
14. 47 U.S.C.A. §332.
15. *Id.*
16. *Sprint Telephony PCS, L.P. v. County of San Diego*, 543 F.3d 571, 576 (9th Cir. 2008), cert. denied, 129 S. Ct. 2860, 174 L. Ed. 2d 576 (2009) (“Sprint II”).
17. *Sprint II*, 543 F.3d at 576; 47 U.S.C.A. §332(c)(7); *T-Mobile USA, Inc. v. City of Anacortes*, 572 F.3d 987, 991-92 (9th Cir. 2009) (“Anacortes”).
18. *E.g.*, *MetroPCS, Inc. v. City and County of San Francisco*, 400 F.3d 715, 723 (9th Cir. 2005).
19. *Id.* at 727.
20. *Id.* at 725.
21. 47 U.S.C.A. §332(c)(7)(B)(iv).
22. 47 U.S.C.A. §332(c)(7)(B)(i)(II).
23. 47 U.S.C.A. §332(c)(7)(B)(i)(I).
24. 47 U.S.C.A. §332(c)(7)(B)(i)(I).
25. 47 U.S.C.A. §332(c)(7)(B)(ii); FCC, Declaratory Ruling, Nov. 18, 2009, WT Docket No. 08-165. FCC 09-00. Paragraph 4, 32.
26. 47 U.S.C.A. §332(c)(7)(A), (B).
27. 47 U.S.C.A. §332(c)(7)(B)(iii).
28. *MetroPCS, Inc. v. City & County of San Francisco*, 400 F.3d at 725; *Cellular Telephone Co. v. Town of Oyster Bay*, 166 F.3d 490, 494 (2d Cir. 1999) (“Town of Oyster Bay”).

29. *MetroPCS, Inc. v. City and County of San Francisco*, 400 F.3d 715, 723 (9th Cir. 2005) (quoting *Town of Oyster Bay*, 166 F.3d at 494).
30. See, e.g., *Harris v. City of Costa Mesa*, 25 Cal. App. 4th 963, 969, 31 Cal. Rptr. 2d 1 (4th Dist. 1994) (applying substantial evidence standard to the denial of plaintiff's application for a conditional use permit); *AT&T Wireless Services of California LLC v. City of Carlsbad*, 308 F. Supp. 2d 1148, 1158 (S.D. Cal. 2003) ("Carlsbad").
31. *MetroPCS, supra*, 400 F.3d at 723.
32. See footnotes 36, 39-42, and 45-48, *infra*.
33. *Sprint II*, 543 F.3d at 574.
34. *Id* at 725.
35. *T-Mobile West Corp. v. City and County of San Francisco*, 52 Communications Reg. (P & F) 606, 2011 WL 570160 (N.D. Cal. 2011) (Carrier did not dispute information, and other date showed that less than one quarter of one percent of calls were dropped).
36. *MetroPCS, supra*, 400 F.3d at 724, 726, 732-33 (zoning decisions explicitly based on redundancy of service are not *per se* invalid, but they are subject to discrimination and significant gap tests).
37. *MetroPCS, supra*, 400 F.3d at 727; *AT & T Wireless PCS, Inc. v. City Council of City of Virginia Beach*, 155 F.3d 423, 427 (4th Cir. 1998) (rejected by, *PrimeCo Personal Communications, L.P. v. Village of Fox Lake*, 26 F. Supp. 2d 1052 (N.D. Ill. 1998)); *Anacortes*, 572 F.3d at 994-95 (residents testimony that tower would not be completely screened and would interfere with views constituted substantial evidence); *Sprint II, supra*, 543 F.3d at 574, 580 (requiring camouflage under certain circumstances and visual impact analysis; aesthetics not too "malleable and open-ended").
38. *Id.*
39. *Airtouch Cellular v. City of El Cajon*, 83 F. Supp. 2d 1158, 1166 (S.D. Cal. 2000) ("El Cajon") (sevenfold increase in facilities changed character of neighborhood); *MetroPCS, supra*, 400 F.3d at 727; *AT & T Wireless PCS, Inc. v. City Council of City of Virginia Beach*, 155 F.3d 423, 427 (4th Cir. 1998) (rejected by, *PrimeCo Personal Communications, L.P. v. Village of Fox Lake*, 26 F. Supp. 2d 1052 (N.D. Ill. 1998)); *Sprint II, supra*, 543 F.3d at 574-580 (harmony in scale, bulk, coverage, and density; community character not too "malleable and open-ended"); *but see Town of Oyster Bay*, 166 F.3d at 496 (generalized expressions of concern cannot serve as substantial evidence).
40. *Sprint II, supra*, 543 F.3d at 574 (height and setback restrictions applying in residential zones).
41. *Carlsbad, supra*, 308 F. Supp. 2d at 1159.
42. See *Town of Oyster Bay, supra*, 166 F.3d at 496 (generalized concerns about potential decrease in property values may not qualify as substantial evidence); *U.S. v. 87.98 Acres of Land More or Less in the County of Merced*, 530 F.3d 899, 904-07 (9th Cir. 2008) (in eminent domain action, probative value of testimony on diminution in property value due to specific levels of electromagnetic energy was substantially outweighed by unfairly prejudicial effect of misleading or confusing jury by inviting unsupported inferences about radiation levels that were not tied to public perceptions, making testimony excludable; developer perceptions based on levels, while probative, represented a small segment of population and also was outweighed by prejudicial effect, and was excludable).
43. See *San Diego Gas & Electric Co. v. Superior Court*, 13 Cal. 4th 893, 935-42, 55 Cal. Rptr. 2d 724, 920 P.2d 669 (1996). In that case, the California Supreme Court held that concerns about cancer from electromagnetic radiation from power lines cannot sustain an action for personal injury, trespass, nuisance, or inverse condemnation. In denying the viability of a trespass cause of action, the Court held there is no evidence electromagnetic radiation causes any physical damage to property. In denying the nuisance cause of action, the Court held the available evidence did not support a reasonable belief that electric and magnetic fields presented a substantial risk of physical harm. Finally, regarding the inverse condemnation claim, the court held no action would lie because

plaintiffs could not show electric and magnetic fields cause physical damage, or that such fields resulted in a burden on the property that is direct, substantial, and peculiar. At the same time, where plaintiffs directly raised the issue of property value, the Court did not consider this factor because it construed it as an element of the measure of damages or just compensation where plaintiffs managed to prove the elements of the cause of action.

44. *San Diego Gas & Electric Co. v. Daley*, 205 Cal. App. 3d 1334, 1346-49, 253 Cal. Rptr. 144 (4th Dist. 1988) (disapproved of by, *Los Angeles County Metropolitan Transportation Authority v. Continental Development Corp.*, 16 Cal. 4th 694, 66 Cal. Rptr. 2d 630, 941 P.2d 809 (1997)) (considered but undisturbed by the California Supreme Court's decision in *See San Diego Gas & Electric Co. v. Superior Court*, 13 Cal. 4th 893, 55 Cal. Rptr. 2d 724, 920 P.2d 669 (1996)).

45. E.g., *Town of Amherst, N.H. v. Omnipoint Communications Enterprises, Inc.*, 173 F.3d 9, 16 (1st Cir. 1999).

46. *360 degrees Communications Co. of Charlottesville v. Board of Sup'r's of Albemarle County*, 211 F.3d 79, 85 (4th Cir. 2000); 47 C.F.R. §1.1307(a).

47. 47 C.F.R. §1.1307(a).

48. As explained in the FCC's NEPA compliance guide (<http://wireless.fcc.gov/siting/npaguid.html>): 47 C.F.R. §1.1305 says that the Commission "has found no common pattern which would enable it to specify" any particular Commission action as a "major action" under NEPA. Thus, 47 C.F.R. §1.1306 "categorically excluded from environmental processing" all Commission actions except for those specifically identified in 47 C.F.R. §1.1307. If a licensee's proposed action falls within one of the categories of section 1.1307, section 1.1308(a) requires the licensee to consider the potential environmental effects from its construction of antenna facilities or structures, and disclose those effects in an environmental assessment (EA) which is filed with the Commission for our review. 42 U.S.C.A. §§4321 *et seq.*; Pub. L. No. 91-190, 83 Stat. 852 (1969).

As summarized on the FCC's NEPA compliance guide, Section 1.1307 is divided into four parts:

- (1) 1.1307(a): Lists eight areas or situations which are considered environmentally sensitive and requiring preparation of an EA prior to construction, such as facilities located in wilderness areas, facilities that may affect endangered species of habitats, facilities that may affect historical or cultural resources, and others.
- (2) 1.1307(b): Requires an EA if the antenna transmitter would cause exposure of workers or the general public to levels of radiofrequency (RF) radiation in excess of certain guidelines. These guidelines were recently revised. See *Report and Order in ET Docket No. 93-62, FCC 96-326 (released Aug. 1, 1996)*.
- (3) 1.1307(c): Allows "an interested person" to petition the Commission to require environmental consideration in its decision-making process where such analysis would not otherwise be required by the rules. The petition must be in writing and detail the reasons justifying such an analysis. The Commission then reviews the petition and will either require an EA or it may proceed with an environmental analysis.
- (4) 1.1307(d): Allows the Bureau responsible for processing an action which may otherwise be excluded from an EA, to require environmental consideration of that action upon its own motion.

49. Pub. Resources Code, §§21000 *et seq.*

50. 40 C.F.R. §1508.4 (NEPA categorical exclusion set by federal agencies); 47 C.F.R. §§1.1301 to 1.1319 (FCC rules implementing NEPA; all FCC actions categorically excluded except those listed in section 1.1307, including situations where radiofrequency radiation exceeds FCC guidelines); 14 Cal. Code Regs. §15303 (categorically exempting from CEQA new construction or conversion of small structures, including utility exemptions); 14 Cal. Code Regs. §15061(b)(3) (common sense exemption).

51. *Carlsbad*, 308 F. Supp. 2d at 1162-63 (rejecting cumulative argument in which petitioners claims area would transform into "antenna alley," as record showed no evidence that

multiple carriers planned to propose towers, and otherwise that no aesthetic or character impacts would occur).

52. *Sprint II*, *supra*, 543 F.3d at 574.
53. *Id.*
54. See, e.g., *Topanga Assn. for a Scenic Community v. County of Los Angeles*, 11 Cal. 3d 506, 513-17, 113 Cal. Rptr. 836, 522 P.2d 12 (1974).
55. Radio Frequency Safety FAQ, <http://www.fcc.gov/oet/rfsafety/rf-faqs.html#Q1>.
56. *Id.*; see *San Diego Gas & Electric Co. v. Superior Court*, 13 Cal. 4th 893, 908, 55 Cal. Rptr. 2d 724, 920 P.2d 669, 677 (1996) (discussing effect of radiation in tort context).
57. See e.g., *Carlsbad*, *supra*, 308 F. Supp. 2d at 1165 (no substantial evidence supporting city's rejection of tower, "especially in light of the high degree of attention drawn to the concern over the health effects of RF emissions by the residents, planning commission, and city council").
58. 47 U.S.C.A. §332(c)(7)(B)(iv).
59. FCC, "A Local Government Official's Guide to Transmitting Antenna RF Emission Safety: Rules, Procedures, and Practical Guidance" ("LSGAC Guide"), p. 1. http://wireless.fcc.gov/siting/FCC_LSGAC_RF_Guide.pdf.
60. *Cellular Phone Taskforce v. F.C.C.*, 205 F.3d 82 (2d Cir. 2000).
61. More exclusions are set forth in Table 1 of Section 1.1307(b)(1) of the FCC's rules and Appendix A of the LSGAC Guide.
62. 47 C.F.R. §1.1307.
63. LSGAC Guide, p. 4.
64. LSGAC Guide, p. 8 (emphasis added).
65. Bulletin 65, pp. 33 (emphasis added).
66. Bulletin 65, pp. 33.
67. Bulletin 65, pp. 37-38.
68. Bulletin 65, pp. 34-35; LSGAC Guide, p. 8.
69. See 14 Cal. Code Regs. §15130.
70. *Carlsbad*, 308 F. Supp. 2d at 1159.
71. *Id.* (indirect effects of RF emissions cannot be a basis of consideration); *MetroPCS, Inc.*, *supra*, 400 F.3d at 736-737 (though mention of RF emissions existed in the record, challenger to carrier's application clarified his appeal to granting of use permit was not based on environmental concerns, and extraneous information in record not sufficient to overturn city's decision).
72. *Sprint Spectrum, L.P. v. Township of Warren Planning Bd.*, 325 N.J. Super. 61, 737 A.2d 715 (Law Div. 1999) (an agency can inquire about RF emissions and require an explanation of the applicant's RF study to ensure the FCC's standards are followed).
73. *New York SMSA Ltd. Partnership v. Town of Clarkstown*, 99 F. Supp. 2d 381 (S.D. N.Y. 2000) (one tower over multiple towers on basis of "prudent avoidance") ("Town of Clarkstown").
74. See Paul M. Valle-Riestra, *Telecommunications The Governmental Role in Managing the Connected Community*, §VII.C (Solano Press 2002); *Southwestern Bell Wireless Inc. v. Johnson County Bd. of County Com'rs*, 199 F.3d 1185 (10th Cir. 1999) (FCC has exclusive jurisdiction over radiofrequency interference).
75. In the Matter of Cingular Wireless L.L.C for a Declaratory Ruling that Provisions of the Anne Arundel County Zoning Ordinance are Preempted as Impermissible Regulation of Radio Frequency Interference Reserved Exclusively to the Federal Communications Commission, WT Docket No. 02-100, Memorandum Opinion and Order, Released July 7, 2003 (citing *Southwestern Bell Wireless*, 199 F.3d 1185).
76. 47 U.S.C.A. §332(c)(7)(B)(i)(I).
77. *MetroPCS, Inc.*, *supra*, 400 F.3d at 726-27; *AT & T Wireless*, 155 F.3d at 427; see also *Omnipoint Communications Enterprises, L.P. v. Zoning Hearing Bd. of Easttown Tp.*, 331 F.3d 386, 395, 33 Envtl. L. Rep. 20218 (3d Cir. 2003) (citing *AT & T Wireless*, 155 F.3d

at 427), cert. denied, 540 U.S. 1108, (2004)); *Nextel West Corp. v. Unity Township*, 282 F.3d 257, 267 (3d Cir. 2002) (rejected by, *Independent Wireless One Corp. v. Town of Charlotte*, 242 F. Supp. 2d 409 (D. Vt. 2003)) (same); *Sprint Spectrum L.P. v. Willoth*, 176 F.3d 630, 638 (2d Cir. 1999) ("Willoth").

78. *MetroPCS, Inc.*, *supra*, 400 F.3d at 727-28 (citing *APT Pittsburgh Ltd. Partnership v. Penn Tp. Butler County of Pennsylvania*, 196 F.3d 469, 480 (3d Cir. 1999) (rejected by, *Independent Wireless One Corp. v. Town of Charlotte*, 242 F. Supp. 2d 409 (D. Vt. 2003)); *Willoth, supra*, 176 F.3d at 643 ("[I]t is not unreasonably discriminatory to deny a subsequent application for a cell site that is substantially more intrusive than existing cell sites by virtue of its structure, placement or cumulative impact."); *Omnipoint*, 331 F.3d at 395 ("Permitting the erection of a communications tower in a business district does not compel the [zoning board] to permit a similar tower at a later date in a residential district."); *Unity Township*, 282 F.3d at 267 (discrimination claim requires a showing that the other provider is similarly situated)).

79. *El Cajon, supra*, 83 F. Supp. 2d at 1166 (S.D. Cal. 2000) (evidence of "over-intensification" of facilities associated with sevenfold increase).

80. *MetroPCS, supra*, 400 F.3d at 729.

81. *Id.*

82. 47 U.S.C.A. §332(c)(7)(B)(i)(II).

83. *MetroPCS, supra*, 400 F.3d at 730.

84. *Sprint II, supra*, 543 F.3d at 580; *U.S. v. Salerno*, 481 U.S. 739, 745, 107 S. Ct. 2095, 95 L. Ed. 2d 697 (1987).

85. *Sprint II, supra*, 543 F.3d at 580; *see also Anacortes*, 572 F.3d at 993-94.

86. *Sprint II, supra*, 543 F.3d at 574.

87. *MetroPCS, supra*, 400 F.3d at 731.

88. 47 U.S.C.A. §332(c)(7)(B)(ii).

89. *Masterpage Communications, Inc. v. Town of Olive, NN*, 418 F. Supp. 2d 66, 77 (N.D. N.Y. 2005) ("Olive") (citations omitted).

90. *Sprint Spectrum, L.P. v. City of Medina*, 924 F. Supp. 1036, 1040 (W.D. Wash. 1996) ("City of Medina").

91. See Jonathan Kramer and John Pestle, *Current Issues in Cell Tower Regulation*, pp. 30-31 (Lorman Education Services 2008) (providing for a compendium of cases addressing moratoria); *Lucas v. Planning Bd. of Town of LaGrange*, 7 F. Supp. 2d 310 (S.D. N.Y. 1998); *Sprint Spectrum L.P. v. Jefferson County*, 968 F. Supp. 1457 (N.D. Ala. 1997), as amended, (Aug. 1, 1997); *Sprint Spectrum, L.P. v. Town of West Seneca*, 172 Misc. 2d 287, 659 N.Y.S.2d 687 (Sup 1997); *Sprint Spectrum L.P. v. Town of Farmington*, 1997 WL 631104 (D. Conn. 1997).

92. FCC Moratorium Guidelines, Paragraphs A & B, <http://www.fcc.gov/statelocal/agreement.html>.

93. *Id.*, paragraph B.

94. *Id.*, paragraph C.

95. *Olive, supra*, 418 F. Supp. 2d at 78 (N.D. N.Y. 2005) (ruling that consideration of a two-year ban was moot given it had expired prior to adjudication).

96. 47 U.S.C.A. §§253, 332.

97. *City of Auburn v. Qwest Corp.*, 260 F.3d 1160 (9th Cir. 2001) (overruled by, *Sprint Telephony PCS, L.P. v. County of San Diego*, 543 F.3d 571 (9th Cir. 2008)).

98. *Sprint II, supra*, 543 F.3d at 577-78; *see also Anacortes*, 572 F.3d at 990-91.

99. *MetroPCS, supra*, 400 F.3d at 731.

100. *Id.*; *Anacortes, supra*, 572 F.3d at 995.

101. *MetroPCS, supra*, 400 F.3d at 731.

102. *Id.*

103. *Id.* at 732.

104. *Id.* at 733.

105. *Id.*

106. *Id.* at 734.

107. *Id.*; *Penn Township, supra*, 196 F.3d at 480 (emphasis added); *see also Omnipoint*, 331 F.3d at 398; *Unity Township, supra*, 282 F.3d at 266; *Willoth*, 176 F.3d at 643. By contrast, the First and Seventh Circuits require a showing that there are “no alternative sites which would solve the problem.” *Second Generation Properties, L.P. v. Town of Pelham*, 313 F.3d 620, 635 (1st Cir. 2002); *see also VoiceStream Minneapolis, Inc. v. St. Croix County*, 342 F.3d 818, 834-35 (7th Cir. 2003) (adopting the First Circuit test and requiring providers to demonstrate that there are no “viable alternatives”) (citing *Second Generation Properties*).

108. *MetroPCS, supra*, 400 F.3d at 734-35.

109. *Anacortes, supra*, 572 F.3d at 996; *Sprint II*, 543 F.3d at 579; *MetroPCS*, 400 F.3d at 734.

110. *Anacortes, supra*, 572 F.3d at 998; *Sprint II*, 543 F.3d at 579.

111. *Anacortes, supra*, 572 F.3d at 998.

112. *Id.*

113. *Id.* at 995-996.

114. *Id.* at 998.

115. *New York SMSA Ltd. Partnership v. Town of Clarkstown*, 99 F. Supp. 2d 381, 392 (S.D. N.Y. 2000).

116. Gov. Code, §65850.6, subd. (f); *see MetroPCS, supra*, 400 F.3d at 721.

117. *MetroPCS, supra*, 400 F.3d at 722.

118. *T-Mobile West Corp. v. City and County of San Francisco*, 52 Communications Reg. (P & F) 606, 2011 WL 570160 (N.D. Cal. 2011).

119. *Sprint II, supra*, 543 F.3d at 579; *MetroPCS*, 400 F.3d at 734.

120. *City of Medina, supra*, 924 F. Supp. at 1040.

121. *Sprint II, supra*, 543 F.3d at 579; *MetroPCS*, 400 F.3d at 734.

122. FCC, Declaratory Ruling, Nov. 18, 2009, WT Docket No. 08-165. FCC 09-00. Paragraph 4, 32.

123. *See* 47 U.S.C.A. §332(c)(7)(B)(ii) & (v).

124. *Carlsbad, supra*, 308 F. Supp. 2d at 1166-67 (S.D. Cal. 2003); *Town of Oyster Bay*, 166 F.3d at 497 (noting that a majority of district courts have held injunction appropriate to remedy a violation of the Act and holding injunction imposed by district court appropriate since this best serves the purpose of the “TCA’s stated goal of expediting this type of action.”).

125. *Kay v. City of Rancho Palos Verdes*, 504 F.3d 803, 813-14 (9th Cir. 2007) (no damages available under 42 U.S.C.A. §1983; *Sprint Telephony PCS, L.P. v. County of San Diego*, 543 F.3d 571, 580-81 (9th Cir. 2008), cert. denied, 129 S. Ct. 2860, 174 L. Ed. 2d 576 (2009)).

126. *Sprint PCS Assets, L.L.C. v. City of La Canada Flintridge*, 435 F.3d 993, 997-98, (9th Cir. 2006), opinion amended and superseded on denial of reh’g, 448 F.3d 1067 (9th Cir. 2006), for additional opinion, see, 182 Fed. Appx. 688, 250 Pub. Util. Rep. 4th (PUR) 420 (9th Cir. 2006).

127. *See Sprint PCS Assets L.L.C. v. City of La Cañada Flintridge (amended)*, 448 F.3d at 1069; *see GTE Mobilnet of Cal. Ltd. Partnership v. City and County of San Francisco*, 440 F. Supp. 2d 1097, 1104 (N.D. Cal. 2006).

128. *Sprint Telephony PCS v. County of San Diego*, 44 Cal. Rptr. 3d 754 (Cal. App. 4th Dist. 2006), review granted and opinion superseded, 49 Cal. Rptr. 3d 653, 143 P.3d 654 (Cal. 2006) and review dismissed, cause remanded, 71 Cal. Rptr. 3d 251, 175 P.3d 1 (Cal. 2008) (“[W]e believe the federal ipse dixit is wrong and should not be followed.”).

129. *Id.* at 768-69 (“[T]here is no general state law regulating the siting or appearance of [telephone equipment].”).

130. *GTE Mobilnet, supra*, 440 F. Supp. 2d at 1104 (citing *Sprint Telephony, supra*, 140 Cal. App.4th at 768-69).
131. *Id.*
132. *Id.* at n. 4.
133. See *San Diego Gas & Elec. Co., supra*, 13 Cal. 4th at 924 (the California Public Utilities Commission has comprehensive jurisdiction over questions of public health and safety arising from utility operations)
134. CPUC General Order No. 159-A (May 8, 1996); <http://162.15.7.24/PUBLISHED/Graphics/611.PDF>.
135. Gov. Code, §§65850.6, 65964.
136. Gov. Code, §§65850.6, subd. (e).
137. Gov. Code, §65850.6, subd. (a)(1).
138. Pub. Resources Code, §21166.
139. Gov. Code, §65850.6, subds. (a)(2), (b).
140. Gov. Code, §65850.6, subd. (f).

Miller & Starr Real Estate Newsalert

Managing Editor:	Karl E. Geier
Executive Editor:	Karen Turk
Editor Emeritus:	Edmund L. Regalia
Founding Editors:	Harry D. Miller & Marvin B. Starr
Attorney Editor:	John Frey
Production Assistant:	Cortney Carter
Design & Layout:	Specialty Composition/Rochester DTP

Miller & Starr Real Estate Newsalert (USPS # pending) is issued six times per year, published and copyrighted by Thomson Reuters, 610 Opperman Drive, P.O. Box 64526, St. Paul, MN 55164-0526. Application to mail at periodic rate is pending as St. Paul, MN. POSTMASTER: Send address changes to: Miller & Starr Real Estate Newsalert, 610 Opperman Drive, P.O. Box 64526, St. Paul, MN 55164-0526.

The law firm of Miller Starr Regalia, founded by Edmund Regalia, Marvin Starr, and Harry Miller is headquartered in Walnut Creek. Members of the firm have been writing and editing the treatise, Miller & Starr, since shortly after the firm was founded in 1964. Karl E. Geier, a shareholder of the firm, is the current editor-in-chief of the treatise.



MILLER STARR
REGALIA

This publication was created to provide you with accurate and authoritative information concerning the subject matter covered; however, this publication was not necessarily prepared by persons licensed to practice law in a particular jurisdiction. The publisher is not engaged in rendering legal or other professional advice and this publication is not a substitute for the advice of an attorney. If you require legal or other expert advice, you should seek the services of a competent attorney or other professional.

Nothing contained herein is intended or written to be used for the purposes of: 1) avoiding penalties imposed under the Federal Internal Revenue Code; or 2) promoting, marketing, or recommending to another party any transaction or matter addressed herein.

Subscription information can be obtained by calling (800) 328-4880.

© 2011 Thomson Reuters