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Attorney for Angela Sherick-Bright,
Petitioner

SUPERIOR COURT OF CALIFORNIA

COUNTY OF LOS ANGELES

Angela Sherick- Bright, Petitioner Vs. The County of Los Angeles, Respondent	**VERIFIED FIRST AMENDED PETITION FOR WRIT OF ADMINISTRATIVE MANDATE AND SUPPORTING EXHIBITS A – E**

INTRODUCTION AND FACTS PERTINENT TO ALL CAUSES OF ACTION

1. At some point in 2021, a new type of permit and process was implemented by the County of Los Angeles (the "county") to aid Crown Castle and other telecom companies seeking to place personal wireless service facilities and supporting structures throughout the unincorporated parts of the county. The prior process followed traditional Conditional Use Permit processes. That process affords public notice and requires a hearing. The new process is called "Ministerial" although that name is inapt since it still involves discretionary acts and decisions. There is no Notice or opportunity for hearing to those adversely affected by the project. This new process also purports to exempt itself from all mandated Due Process environmental and historic review.

2. In the case at bar, the county purports to have approved installation of a pole designed to accommodate wireless facilities in the front of her Petitioner's home at 5007 Escalon Avenue,

View Park CA 90043. Petitioner does not have access to this purported authorization but understands there is some such document. The county then purported to grant a permit allowing installation of a wireless facilities on the previously-approved pole. Exhibit A (Excerpted Wireless Facility "approval" and underlying Application).[1] No notice of the applications was given to nearby property owners or the public and no opportunity to contest at a hearing was provided for either the pole or the wireless facility.

3. Previous to the adoption of the County's unlawful "Ministerial" review process an Application for Conditional Use Permit would be submitted. Notice would be given to the landowner and adjacent landowners, followed by approval by the Planning Commission, where, having had notice, those interested in outcome could offer their positions. If they were not satisfied with the decision they could appeal to the Appeal Board and then, if necessary, to the courts. These processes have long been well known to the civil courts, public administrators, developers, and others engaged in the land development process at a professional level.

4. Final permits for construction upon a real estate tract are often recorded with the County Recorder because the permitted activity thereafter "runs with the land." *See* Los Angeles County Code of Ordinances ("LAC Code") Sections 22.02.090, 22.222.260.A. If the permit is the vehicle for a right of occupancy or use to privately-owned real estate owned by a different private party the permittee is effectively granted dominant tenement owner status. The real property owner now has a servitude and must bear additional duties and burdens. Under the county's new practice, however, the newly burdened real property owner has no notice, even though a taking has occurred. Any subsequent purchaser of the servient tenement will also not have any notice since the new burdens and new dominant tenement are not recorded in the real property records.

5. Petitioner does not know whether any party – the county or Crown Castle – intends to affect a recording in the local deed records that would effectively create a new burden and

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[1] The Application asserts the previously approved and "existing" pole is in right-of-way. Petitioner contests this assertion and asserts the pole and wireless facility are on her private property. This will be a fact issue to be determined by the Court.

dominant tenement within the underlying real property. Crown Castle's application wrongly contends that *it* is the "owner" even though all it truly "owns" is the pole. This could mean there is no intent to follow historical and Planning practice of recording the permit in land records office. This may be of no concern to the county if the facility is in right way, but it is a major issue to the relevant private property owner (Petitioner) when the facility is on private property.

6. Planning culture and practice in California is grounded on an understanding that the owner of the real estate upon which a conditional use is allowed is ultimately held responsible for compliance with Permits for construction upon the involved property. This is why Permits "run with the land" and are typically recorded in the land records. The ability to track and attach compliance responsibility to the owner by Permit enforcement is foundational to City Planning.

7. The county's "Ministerial Review" process that led to the purported approval of the pole and then the wireless facility on the pole are not lawful. The process and outcome deprives landowners (including Petitioner) of vested property rights, whether their land is the one holding the facility or they are nearby.

8. This is a particular problem when the pole and wireless facility are on private land. The new "Ministerial" process and associated forms only require permission from the owner of an involved "structure" (in this case a pole), not the actual fee owner of the involved real estate. The prior Conditional Use Permit (sometimes herein CUP) forms and process required permission from the landowner or from an authorized agent of the landowner. Any resulting Conditional Use Permit would then be Recorded at the Office of the County Recorder, which has always been a critical element of the Permit process. The Recordation of the CUP in the land records assured that in the instance of future title transfer, the obligations upon the Permit recipient would always 'run with the land." If this is not done subsequent purchasers will not be informed by a title review and there may be title insurance issues or failure to disclose litigation between the seller and purchaser. The new landowner could assert *Bone Fide* Purchaser For Value status and take the land clear of the encumbrance, which would result in Crown Castle's ejectment.

9. The Petitioner avers that this new practice, which frustrates the Recordation which is the tap root of Permit enforcement from owner to owner of any such Permit encumbered property, is

unlawful. In order to resolve this dispute between the Petitioner and the County the Petitioner requests Declaratory Relief from this Court that permission from the landowner, or in the instance of the absence of such permission, lawful acquisition of such permission by public means, is required so that any such Permit can be Recorded consistent with longstanding practice.

10. A nearby cell tower can significantly reduce property values. The landowner must now disclose its presence. The California Association of Realtors' Property Sellers Questionnaire specifically requires that "cell towers" be listed on the disclosure form for sellers of real estate. California Association of Realtors' Property Sellers Questionnaire, pp. 3-4 under K. Neighborhood. The U.S. Department of Housing and Urban Development (HUD) describes cell towers as "Hazards and Nuisances" that must be considered in any FHA appraisal.

11. The Petitioner seeks relief from the ongoing property taking and invasion. These actions were undertaken without notice or due process required by law. California statutes require notice to those who may be affected by the proposed land use, and an opportunity for hearing and then an option for Appeal. *See* Cal. Gov. code Secs. 65091-65095, 65905. Stated simply California state law requires notice, hearing and a right to appeal.

12. The County completely lacks authority to dispense with these requirements. The county's purported land user authorizations action deprived Petitioner valuable property rights without due process or compensation. Had Petitioner been given notice and an opportunity for hearing she could have appeared and asserted her vested property rights. She could have opposed the project as an unlawful effort to create a new burden on her land. She could have opposed the grant of the right to trespass under color of law. She could have demonstrated reduced property values. She could have shown the negative and adverse impact on the historic nature of her community and property and the environment.

13. Petitioner contends that the county's November 8, 2021 stamping of the plans "Approved" cannot represent full or final permission to proceed with construction under state and local law. LAC Code Chs. 22.186 and 22.226 do not apply, so the wireless facility permit application was not eligible for "Ministerial Site Plan Review"/"Type I Review." There has not

been a final decision under any fair reading of LAC Code Sections 22.158.050 and 22.230.050 and until that is done there is no final action and no effective permit.

14. View Park is a listed Registered National Historic Place because it contains the largest number of African American owned homes encompassed within any one subdivision, based upon generations of Black history and Black home ownership. It is an "Historic District" as defined in Cal. Public Resources Code § 5020.1(h), an "Historic Resource as defined in LAC Code Section 22.14.080 – H and a "Qualified Historic Property" as defined in LAC Code Section 22.14.130 – M. Los Angeles County General Plan Goal C/NR 14 requires mitigation of impacts to historic resources, inter-jurisdictional collaboration, preservation of historic resources and it mandates that "proper notification and recovery processes are carried out for development on or near historic … resources."

15. In California, those seeking to build visually incongruent structures have an obligation to consult with and consider the historical rights and obligations protected and enforced through the State of California's agency for historical preservation, which, in company with similar federal programs, seeks to preserve what of our history can be preserved.

16. Because the View Park development and neighborhood is a National Historic Place, the public should have received Notice of any Application for the two authorizations (the pole and then the wireless facility on the pole). In compliance with California policies and through the Office of Historical Preservation, and in compliance with the National Register of Historic Places including as in 36 CFR Part 800, both Crown Castle and the County should have reached out and evaluated, prior to the grant of Permit, the historical environmental consequences of the intended installations. They did not.

17. The county had specific procedural and substantive obligations arising under federal, state and local law that it did not follow. In specific, but without limitation, the county violated the California Environmental Quality Act ("CEQA"), Cal. Pub. Res. Code § 21000 *et seq*. An environmental assessment of some sort was required.

18. The county's disposition process for the application for land use authorization for the new pole and the application for the wireless facility on that pole were both "projects" as defined

in CEQA, or more precisely CEQA Guidelines, Cal. Code Regs § 15378(a)(3).[2] Therefore, the county was required to perform at least some type of Environmental Determination. There is no applicable Categorical Exemption as a result of Cal. Pub. Res. Code § 21084(e) and Cal. Code Regs Title 14, §15300.2(f). The county had to prepare and publish a Negative Declaration, Modified Negative Declaration or Environmental Impact study. It did not. There was no environmental determination at all.

19. The county will claim that the authorizations were "ministerial" and therefore exempt under Cal. Pub. Res. Code § 21080(b)(1). But this is incorrect for two reasons. First, these projects are not eligible for "Ministerial"/"Type I" review under LAC Code Chs. 22.186 and 22.226. The county purports to have used a "ministerial" process, but that is one of the errors Petitioner is raising in this matter. Second, even if the County Code somehow allows a process it calls "ministerial" that term has a specific and much different meaning under CEQA that does not fit what happened with these two purported authorizations. *See* Cal. Code Regs Title 14, §15002(i), 15369. These were, at least in significant part, discretionary acts and judgement was applied.

20. The county was also required to verify that the applicant had complied with all National Environmental Quality Act ("NEPA"), 42 U.S.C. Ch. 55 obligations, in this case the applicable aspects of an effective National Programmatic Agreement, 47 C.F.R. Part 1, Appx. B., Part VII.B. *See also* 47 C.F.R. 1.320(b) [some "replacement" poles excluded from review under 1.320(b)(3) and "Collocations on buildings and other non-tower structures" excluded from review under 1.320(b)(4) but new poles and new facilities on new poles not listed as exclusions from review]. The utility pole and wireless facility in issue meet the definition of "Antenna" and "tower" under 47 C.F.R. 1.320(d). Thus, each is an "undertaking" for purposes of the FCC rule

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[2] (a) "Project" means the whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment, and that is any of the following:

…

(3) An activity involving the issuance to a person of a lease, permit, license, certificate, or other entitlement for use by one or more public agencies.

and the underlying federal environmental statute. For historic properties some "replacement poles" are excluded from required review under section 106 of the National Historic Preservation Act, as amended, 54 U.S.C. 306108, but others are not. The subsequent placement of a new antenna on that pole is not expressly excluded from evaluation under 47 C.F.R. §1.1320(b). The current "National Programmatic Agreement" relating to Historic Properties" does address new wireless antennas "collocated" on utility poles. Only a specific limited class of antennas are excluded. 47 C.F.R. Part 1, Appx. B., Part VII.B. *See also* 47 C.F.R. 1.320 (c) ("Responsibilities of applicants. Applicants seeking Commission authorization for construction or modification of towers, collocation of antennas, or other undertakings shall take the steps mandated by, and comply with the requirements set forth in, Appendix C of this part, sections III-X, or any other applicable program alternative."). The utility pole and wireless facility in issue meet the definition of "Antenna" and "tower" under 47 C.F.R. 1.320(d). Thus, each is an "undertaking" for purposes of the rule and underlying statute. Thus, federal law also required an impact assessment and potential mitigating actions as well.

21. The FCC has expressly held that local jurisdictions are not preempted from exercising any federal or state law mandated environmental or historic review processes. They are just constrained to do so within the applicable FCC Shot Clock period.[3] Similarly, no FCC rule or decision preempts any state law requirement for notice and hearing. Again, it is simply that any pre-decision hearing must occur sufficiently in advance of the shot-clock deadline to allow for a final decision and issuance of *all* required permits. The outcome is the same for historical properties.

22. The county's efforts to evade legally-required environmental/historical evaluation and mitigation, notice and due process and its own code violated federal and California law and potentially resulted in an improper and uncompensated taking.

23. A Writ of Mandate is sought here for Declaratory and Injunctive relief. This Petition for

[3] *See In re Accelerating Wireless Broadband Deployment by Removing Barriers et al.*, 33 FCC Rcd 9088, 9147-9148, 9155-9159, ¶¶113-115, 132-137 (Sep. 2018) ("*Small Cell Order*").

Writ of Mandate includes four Causes of Action.

FIRST CAUSE OF ACTION - DECLARATORY RELIEF

24. Petitioner repeats the allegations of paragraphs 1 through 23.

25. First Issue: Stamp not final action. The county appears to believe that it can take final action approving a permit by placing a "Zoning Conforming Review" approval stamp on the applicant's planning document without other documentation or explanation of the purported action. In this case there is no document setting out "Findings and Decisions" in compliance with Los Angeles County Code ("LAC Code") Sections 22.158.050 and 22.230.050 for either the first pole permit or the second wireless facility permit on the pole.

26. Petitioner requests that Court declare that the county's "approval" stamp on an interim ZONING CONFORMANCE REVIEW containing applicant's plans for the pole application and the wireless facility application was not a final action that gave rise to an effective permit, and the county was required to follow the procedures and substance of LAC Code Sections 22.158.050 and 22.230.050. See Exhibit B.

27. Second Issue: Pole Owner Not Real Property Owner. The county and Crown Castle treated Crown Castle as the relevant "owner" for purposes of proving the right to occupy real property. Crown Castle, however, does not "own" the underlying real estate. In this case the real property owner is either the Petitioner if the pole is on her property as she contends or the county if the pole is in right of way as Crown Castle and the county appear to believe. The artifice of treating the applicant as the "owner" rationalizes not giving notice to the true owner – the one holding the real property in fee. The new fixation on the owner of personalty (the pole) rather than the real property on which it sits also provides a facial justification for not giving notice to nearby real property owners because it unreasonably minimizes the impact the new land use will have on them. Petitioner seeks a Declaratory Ruling that the county and land use applicants must ensure and affirm that the underlying landowner has consented, or at least give notice to that landowner that a new use (and new burden) is being contemplated for that land.

28. Third Issue: Purported Actions Impact Petitioner's Real Property Interest.

29. Petitioner has good and sufficient reasons to believe and assert that the pole and wireless facility are on her land. The county contends the pole and wireless facility are in public right of way. Petitioner seeks a Declaratory Ruling determining ownership of the land underneath the pole and associated wireless facility.[4]

30. The real property in issue was subdivided in the 1940s. Petitioner's good faith belief and due diligence inquiry indicates that the pole is placed in and on her real property. Since acquirement of her ownership of her property, Petitioner has maintained the sidewalk and lawn strip of her property all the way to the pavement. She has not located any prior private easements that could possibly allow occupation by any party, much less Crown Castle.

31. To the extent the pole is on Petitioner's property then Crown Castle mislead the county about its status and rights to occupy the land, thereby purposefully avoiding notice to Petitioner of the intent to impose new burdens on her land. Petitioner did not consent to the new use and burden. Crown Castle is trespassing, pursuant to an invalid and illegal purported grant of a real property interest by the county.

32. To the extent the pole were in right of way, Petitioner would still be adversely affected by the new use on adjoining land. Her property has been devalued. She must suffer the unsightly appearance of the pole and wireless facility. Radiofrequency radiation is flooding her land, her home and her body. As HUD notes, these towers are a Hazard and a Nuisance.

33. Plaintiff seeks a Declaratory Judgment that the county is required to provide notice and afford an opportunity for some kind of hearing to all those who may be adversely affected before it authorizes a new use on their land or proximate thereto.

34. Fourth Issue: County Avoided Required Environmental/Historic review. Plaintiff also seeks declaratory relief relating to the county's decision to unilaterally but unlawfully excuse

[4] Petitioner is not invoking the provisions in Cal. Code Civ. Pro. Tit. 10, Ch. 4. Arts. 1-6 (§§76.010-760.060). Cal. Civ. Proc. Code § 760.030(a) provides that a quiet title action under these provisions is "cumulative and not exclusive of any other remedy, form or right of action, or proceeding provided by law for establishing or quieting title to property."

itself of all state and federal environmental and historic property evaluations. Installation of new ***new*** utility poles and ***new*** wireless facilities on new utility poles are *not* categorically exempted from state or federal environmental and historic review.

35. Attached as Exhibit C to this Petition is an email which was sent to Petitioner by Mr. Mitch Glasser, an official of the planning department used by the County of Los Angeles. The email states: "**As I mentioned in my October 1 email, we do not conduct an environmental assessment, including a historical resource assessment, for by-right (Type 1) approvals, which are ministerial in nature, and do not have a discretionary component**." (bolding added). But as shown in Exhibit D, the California Office of Historic Preservation advises that an historic review is required for any permit.

36. Petitioner contends that the county did not comply with required federal, state, and county Environmental and Historical standards and procedures. Any authorizations purportedly granted by the county for the pole in Petitioner's front yard and the wireless facility on the pole are void *ab initio*. Petitioner seeks a declaratory ruling to this effect and a writ requiring removal of the offending pole and wireless facility unless and until a proper permit is obtained using lawful procedures.

SECOND CAUSE OF ACTION – INVERSE CONDEMNATION

37. Petitioner repeats the allegations of paragraphs 1 through 36.

38. Assuming that Petitioner's good faith belief that the pole and structure may be on her land is correct she has suffered inverse condemnation.[5] She has been deprived the beneficial use of a portion of her property, is suffering new burdens to which she did not consent and the value of her property has been diminished. She is presently obliged to watch a trespasser make good and valuable use of her land.

39. The county's unlawful grant of permission to occupy and use the Petitioner's land is a Taking under article I, section 19, subdivision (a) of the California Constitution. There was no

[5] Prior notice and presentment of a claim is not required under Cal. Gov. Code §905.1. The county, however, was made aware of the claim on many occasions through correspondence between the parties.

eminent domain proceeding and no compensation.

40. Petitioner seeks declaratory and appropriate injunctive relief requiring the removal of the offending pole and the attached wireless facility. Plaintiff does not seek damages; she wants her property to be fully restored.

THIRD CAUSE OF ACTION – FAILURE TO CONSIDER FULL ENVIRONMENTAL IMPACTS AS REQUIRED BY CEQA

41. Petitioner repeats the allegations of paragraphs 1 through 40.

42. This THIRD CAUSE OF ACTION somewhat overlaps the issues raised in the Fourth Issue to the FIRST CAUSE OF ACTION but is broader than the claims therein, which principally related to Historical resources environmental review.

43. As noted in the Introduction and the Fourth Issue to the FIRST CAUSE OF ACTION the county's disposition process for the application for land use authorization for the new pole and the application for the wireless facility on that pole were both "projects" as defined in CEQA. The county was required to perform at least some type of Environmental Determination. There was no applicable categorical exemption so the county had to at least prepare and publish a Negative Declaration, Modified Negative Declaration or Environmental Impact study. It did not.

44. This has implications beyond the aesthetic and cultural impact these facilities will have on the View Park Historical District. CEQA requires that the county inform itself of the more general health and environmental impact that will flow from installing and then operating the wireless facility.

45. 47 U.S.C. 332(c)(7)(B)(iv) provides that a state or local government may not "regulate the placement, construction, and modification of personal wireless service facilities 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." This provision speaks only to "radio frequency emissions" and does not in any way inhibit inquiry into the *other* environmental effects of the facilities – aesthetic impact, visual effects, greenhouse gas emissions, camouflage shedding of microplastics, lead and other carcinogenic materials and fire

risk. The county did not even try to determine those environmental impacts, nor did it allow the public to help it evaluate them. Had Petitioner been given notice and an opportunity for hearing she could have presented evidence on these topics during the CUP process as provided by law.

46. The county cannot regulate placement based on the environmental effects of radio frequency emissions but CEQA still requires that the county ***inform itself*** of them even if there is not much they can do about what they learn. Information gathering to produce required knowledge is not "regulation." Petitioner had a right to participate in this legally-required information-gathering and evaluation exercise but was denied any opportunity to do so. Had she been afforded a hearing she could have provided relevant and recent scientific publications and studies demonstrating the devastating impact FCC-authorized emissions are having on the environment – to *flora, fauna* and humans. For example, Petitioner could have provided the contents of Exhibit E, Scientific and Policy Developments in Radiofrequency Radiation, along with the referenced studies to a planning hearing. https://pubmed.ncbi.nlm.nih.gov/34047144/ so that there would have been a record the county would have used to make the appropriate environmental determination. But no data gathering occurred, no record was created and no determination was made. This was error.

47. .For these reasons the Petitioner seeks an Order from this Court vacating any purported authorizations for the pole and wireless facility in front of her Petitioner's home at 5007 Escalon Avenue, View Park CA 90043 and requiring that no further authorizations can be granted for that site unless and until the county follows all required notice and hearing procedures, the substantive mandates in the LAC code and, in particular, complies with all CEQA requirements.

FOURTH CAUSE OF ACTION – DECLARATORY RULING AND EQUITABLE RELIEF – PETITIONER CANNOT BE FORCED TO BE THE INSURER FOR OTHERWISE UNINSURED TELECOM INDUSTRY LIABILITIES

48. Petitioner repeats the allegations of paragraphs 1 through 47.

49. The FOURTH CAUSE OF ACTION seeks a Declaratory Ruling that Petitioner cannot be lawfully be forced to be the ultimate insurer for any tort liability that may flow from the

installation and operation of the pole and attached wireless facility on her property. Petitioner also seeks equitable relief in the form of an order requiring that Petitioner be entirely immunized and held harmless from any liability for damage or injury caused by the pole and wireless facility.

50. The purported authorizations do not have any indication that Crown Castle (or the county) have adequate insurance to cover potential tort liability that may flow from the installation and operation of the pole and attached wireless facility. Unlike traditional Conditional Use Permits and even Ministerial/Type I permits there are no apparent conditions requiring Crown Castle to have and maintain adequate insurance. LAC Section 22.222.290. For all we know Crown Castle does not even maintain a commercial General Liability policy with reasonable policy limits. It is almost certain, however, that Crown Castle does not have and will maintain any sort of Pollution coverage by way of a special rider or supplement to a General Liability policy that would sufficiently insure Crown Castle, and by extension, the county and Petitioner, for any tort claims resulting from injuries incurred as a result of radiofrequency exposure.

51. The telecommunications industry has been and remains generally unable to obtain insurance coverage for injuries caused by the electromagnetic and radiofrequency radiation that its equipment generates. See for example, the article on this subject titled: Electromagnetic Field Insurance Policy Exclusion Are The Standard. Crown Castle is no exception. Its February 22, 2022 Form 10-K to the Securities and Exchange Commission leaves no doubt:

> Public perception of possible health risks associated with cellular or other wireless connectivity services and wireless technologies (such as 5G) may slow or diminish the growth of wireless companies and deployment of new wireless technologies, which may in turn slow or diminish our growth. In particular, negative public perception of, and regulations regarding, these perceived health risks may slow or diminish the market acceptance of wireless services and technologies. If a connection between radio frequency emissions and possible negative health effects were established, our operations, costs, or revenues may be materially and adversely affected. **We currently do not maintain any significant insurance with respect to these matters**. (emphasis added)

52. Where the County owns the underlying real estate, it stands as landlord to the telecom

companies and on that separate basis is also potentially liable for the damages which telecom cannot insure. This ***will result in transfer of the industry's massive uninsurable liability exposure to the County of Los Angeles*** as a result of the straight-forward application of well-established jurisprudential traditions statutes and case law grounded in **Contracts**, **Landlord-Tenant** (Doctrine of Fixtures), **Joint Venture**, **Agency**, and liability from concurring the results from independent tortfeasors**)**. The county may want to consider this potential liability when preparing its own future annual financial reports and make sure that it is properly disclosed.

53. But where the underlying real property is in private hands, for example those of the Petitioner, then the private property owner is the landlord and the ultimate guarantor. The county and Crown Castle intruded on her land, placed the pole and then the wireless facility. When (not if) someone is injured from the placement or operation the injured party will look to Crown Castle, the county and the Petitioner and assert joint and several liability even though she has protested and tried to assert her objection since she first found out about these projects.

54. If, and to the extent, this Court does not require removal of the offending pole and attached wireless facility Petitioner requests a Declaratory Ruing that she cannot, ever, be held ultimately liable for the damage they will do or the harms they will cause despite the fact of their placement on her property. Crown Castle must be required to indemnify and then obtain and maintain a sufficient bond with reliable guarantors as necessary to fully indemnify and hold Petitioner harmless. This is required, indeed absolutely necessary, to ensure that justice is done.

REQUESTED RELIEF

Wherefore, premises considered, Petitioner respectfully requests the following relief from this Court:

DECLARATORY RELIEF

A. A Declaratory Ruling determining ownership of the land underneath the pole and associated wireless facility at 5007 Escalon Avenue, View Park CA 90043, and specifically that Petitioner is the landowner.

B. A Declaration that permission from the landowner, or in the instance of the absence of such permission, lawful acquisition of such permission by public means, is required before issuance of any land use so that any such permit can be recorded.

C. A Declaration the county and land use applicants must ensure and affirm that the underlying landowner has consented, or at least give notice to that landowner that a new use (and new burden) is being contemplated for that land.

D. A Declaration that the county is required to provide notice and afford an opportunity for some kind of hearing to all those who may be adversely affected by a proposed land use before it authorizes a new use on their land or proximate thereto.

E. A Declaration that the county's "approved" stamp on the applicant's plans for the pole application and the wireless facility application was not a final action that gave rise to an effective permit for land use at 5007 Escalon Avenue, View Park CA 90043, and the county was required to follow the procedures and substance of LAC Code Sections 22.158.050 and 22.230.050.

F. A Declaration that any purported land use authorizations for the pole and wireless facility at 5007 Escalon Avenue, View Park CA 90043 are void *ab initio*.

G. If and to the extent that the Court allows the pole and wireless facility to remain on Petitioner's property a Declaration that Petitioner cannot be lawfully forced to be the ultimate insurer for any tort liability that may flow from the installation and operation of the pole and attached wireless facility on her property.

WRITS

A. a writ vacating any purported authorizations for the pole and wireless facility in front of her Petitioner's home at 5007 Escalon Avenue, View Park CA 90043 and requiring that no further authorizations can be granted for that site unless and until the county follows all required notice and hearing procedures, the substantive mandates in the LAC code and, in particular, complies with all CEQA requirements.

B. A writ requiring removal of the offending pole and wireless facility unless and until a

proper permit is obtained using lawful procedures.

C. If and to the extent that the Court allows the pole and wireless facility to remain on Petitioner's property a write requiring that Petitioner be entirely immunized and held harmless from any liability for damage or injury caused by the pole and wireless facility.

D. Including due to the public service benefits from restoration of basic Due Process, Petitioner should be awarded legal remedies and reimbursements for fees and costs as available to persons successfully pursuing the public good including all remedies available in California Constitution and statute as recoverable expenses in Inverse Condemnation.

DATED: August 25, 2022

Respectfully submitted,

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Attorney for Angela Sherick-Bright, Petitioner

VERIFICATION

Declaration under Penalty of Perjury Form (Code Civ. Proc., §§ 446, 2015.5)

CASE TITLE: Angela Sherick-Bright v. The County of Los Angeles

I, Angela Sherick-Bright, declare:

I am the Petitioner in the above-entitled matter.

I have read the foregoing FIRST AMENDED PETITION FOR WRIT OF MANDATE and know the contents thereof.

The same is true of my own knowledge, except as to those matters which are therein stated on information and belief, and, as to those matters, I believe it to be true.

Executed on August 25, 2022, at Los Angeles County, California

I declare under penalty of perjury that the foregoing is true and correct.

Angela Sherick-Bright

Angela Sherick-Bright

EXHIBIT A TO PETITION FOR WRIT OF ADMINISTRATIVE MANDATE CLAIMED APPROVAL FOR WIRELESS FACILITY

(EXCERPT)

AND APPLICATION

CROWN CASTLE

SITE ID: ATTSME27m1

USID: 177701

NEAR: 5007 ESCALON AVEN VIEW PARK, CA 90043

POLE TYPE: COMMSCOPE SSC-760235355-24C

ZONING CONFORMANCE REVIEW

PROJECT #: PRJ2021-[illegible]

PERMIT #: RPPL202[illegible]

This APPROVAL is in compliance with the Los Angeles County Zoning Code and subject to the requirements noted hereon. This approval shall expire if it is not used by the expiration date and prior to any change in ordinance requirements. Such approval shall not be construed to permit the violation of any provision of any County Ordinance or State Law.

SIGNATURE

AGENT

APPROVAL DATE

EXPIRATION DATE

CROWN CASTLE

M SQUARED WIRELESS

PROJECT DESCRIPTION

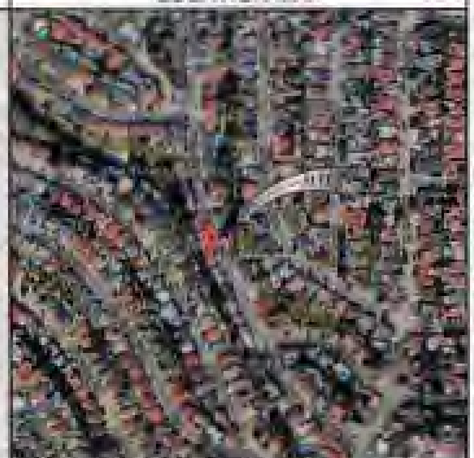
PROJECT SITE INFORMATION

PROJECT TEAM

AREA MAPS

VICINITY MAP

LOCATION MAP



CONSTRUCTION DRAWING

DRAWING INDEX

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APPLICABLE CODES

DRIVING DIRECTIONS

DIG ALERT

Dig Alert

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DEPARTMENT OF REGIONAL PLANNING APPROVED

AT&T CROWN CASTLE

5007 ESCALON AVENUE VIEW PARK, CA 90043

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GENERAL NOTES

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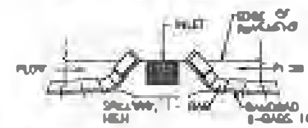
NOTES:

ROW GROUND CONSTRUCTION NOTES:

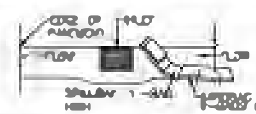
NORMAL LOCATION OF UNDERGROUND UTILITIES NOTES:

CALIFORNIA STATE CODE COMPLIANCE

STORMDRAIN INLET PROTECTION



TYPICAL PROTECTION FOR INLET WITH OPPOSING FLOW DIRECTIONS



TYPICAL PROTECTION FOR INLET WITH SINGLE FLOW DIRECTION

NOTES:

DEPARTMENT OF
REGIONAL PLANNING APPROVED

CROWN CASTLE

M SQUARED WIRELESS

GENERAL NOTES

GN-1

Los Angeles County Department of Regional Planning

Land Use Application

STAFF USE ONLY ▸	PLAN #:	PROJECT #:	WORK CLASS:

▾ Attach additional sheets where more space is needed for project or applicant/contact information.

STEP 1: SUBJECT PROPERTY

N/A - Public ROW
ASSESSOR'S PARCEL NUMBER(S)

5007 Escalon Ave.
PROPERTY ADDRESS (IF APPLICABLE)

Crown Castle - ATTSM[redacted]7m1
BUSINESS/ESTABLISHMENT NAME (IF APPLICABLE)

STEP 2: RECORD OWNER

Crown Castle Fiber LLC
NAME

200 Spectrum Center Drive, Suite 1700
ADDRESS

Irvine, CA
CITY/STATE

92618 (949) 936-0212
ZIP TELEPHONE

nancy.sheridan@crowncastle.com
EMAIL***

APPLICANT/AGENT

Crown Castle Fiber LLC
NAME

200 Spectrum Center Drive, Suite 1700
ADDRESS

Irvine, CA
CITY/STATE

92618 (714) 361-5192
ZIP TELEPHONE

nancy.sheridan@crowncastle.com
EMAIL***

Preferred contact: ☐ Owner ☒ Applicant/Agent

RECORD OWNER OR APPLICANT EMAIL MUST BE PROVIDED

STEP 3: PROJECT DESCRIPTION & PROPOSED USE

Installation of a small wireless facility on an existing Crown Castle steed pole in the public ROW

STEP 4: PROJECT & PROPERTY DATA

Existing use(s) and structure(s) (sq. ft.) and dwelling units:
Crown Castle owned pole

Existing structure(s) to be demolished (if applicable)?
☒ No ☐ Yes If yes, how many: ____ sq. ft.

Proposed use(s) structure(s) and additions (sq. ft.) and units:
Small wireless facility

Proposed Sign(s) (sq. ft.):
Only required RF signage

SECTION A

Are you proposing to subdivide land? ☒ No ☐ Yes

SECTION B

Is grading proposed? ☒ No ☐ Yes If yes, cubic yards:

CUT ____ + FILL ____ = TOTAL GRADING ____

Will grading be balanced on-site? ☒ No ☐ Yes
If no, complete the Export/Import fields below:

EXPORT ____ IMPORT ____

SECTION C

Are there slopes of 25% or more on the subject property?
☒ No ☐ Yes If yes, topographic lines must be depicted on the site plan

SECTION D

Are retaining walls proposed? ☒ No ☐ Yes
If yes, submit wall cross-sections and elevations with depictions of both natural and finished grade.

SECTION E

Are there any oak trees on or next to the subject property? ☒ No ☐ Yes

If yes, how many: ENCROACHMENTS ____ REMOVALS ____

SECTION F

Water Source:
☐ Public Water
☐ Private Well
☐ Shared Well

Sewer System:
☐ Public Sewer
☐ Private Septic or Equivalent

Water Source – Public Name: N/A

SECTION G

STEP 5: OWNER'S CONSENT

I hereby certify under penalty of perjury that I have read the information below and that:

1. I am the property owner or have obtained the property owner's/ owners' consent to the submittal of this application and contents therein; and
2. I have carefully reviewed and prepared the application and plans in accordance with the instructions; and
3. I provided information in this application including all attachments, which are accurate and correct; and
4. I understand that the submittal of inaccurate or incomplete information or plans, or failure to comply with the instructions may result in processing delays and/or denial of my application; and
5. I understand that it is the responsibility of the applicant to substantiate the request through the requirements of the application; and
6. I understand that upon further evaluation, additional information/ documents/reports/entitlements and fees may be required, including any referral fees; and
7. I understand that failure to submit any such required fees or information requested at a later time may result in processing delays and/or denial of my application; and
8. I understand that it is the responsibility of the applicant or property owner to notify the Department of any changes to the project including change in ownership, which may require additional information/documents/reports and fees and may cause delay to the processing of the project; and
9. I understand that if there is a zoning violation on the property, plan review may be delayed. Any unpermitted structures or uses must either be removed or legalized as part of this application; and
10. I am the property owner or have obtained the property owner's/ owners' consent and expressly allow, authorize, and permit the County of Los Angeles to enter and inspect the subject property with or without prior notice, to inspect, photograph, and/or process this application. No additional permission or consent to enter upon the subject property is necessary or shall be required. I further certify and warrant that I am authorized to and, hereby do, consent and allow such inspections on behalf of each and all owners of the subject property; and
11. I understand that all materials submitted in connection with this application may become public record subject to inspection and copying by the public. I acknowledge and understand that the public may inspect and copy these materials and that some or all of the materials may be posted on the Department's website. For any materials that may be subject to copyright protection, or which may be subject to sections 5500.1 and 5536.4 of the California Business and Professions Code, I represent that I have the authority to grant, and are granting, the County permission to make the materials available to the public for inspection and copying, in hardcopy or electronic format; and
12. I understand that denials will result in no refunds; and
13. I understand that Department staff is not permitted to assist the applicant or proponents and opponents of a project in preparing arguments for or against the project; and
14. I understand that there is no guarantee – expressed or implied – that an approval will be granted. I understand that such application must be carefully evaluated and after the evaluation has been conducted, that staff's recommendation or decision may change during the course of the review based on the information presented.

REQUIRED SIGNATURES

I, the owner of the subject property, have read, understand and consent to the submission of this application. If the applicant signs for the owner, please submit a letter of authorization from the owner with original ink signature(s):

SIGNATURE	PRINT NAME	DATE
	Nancy Sheridan	March 8, 2021

Lobbyist Statement Acknowledgement

The Los Angeles County Lobbyist Ordinance No. 93-0031, effective May 7, 1993, requires certification that each person who applies for a County permit is familiar with the requirements of Ordinance No. 93-0031 (Lobbyist Ordinance) and that all persons acting on behalf of the applicant have complied and will continue to comply with the requirements of said Ordinance through the application process. I hereby certify that I am familiar with the requirements of Ordinance No. 93-0031. I further understand that the making of such a certification, and compliance with this ordinance, shall be conditions precedent to the granting of the requested permit, license, contract or franchise.

SIGNATURE	DATE
	March 8, 2021

Lobbyist Permit #(s) if Applicable: N/A

Applications may be submitted in person or online: planning.lacounty.gov/apps
Appointments are required to submit three or more applications in person. Please call (213) 974-6438 for an appointment.
Incomplete applications will not be accepted. Please see checklist for required materials.

EXHIBIT B TO PETITION FOR WRIT OF ADMINISTRATIVE MANDATE

LOS ANGELES COUNTY 2010 MEMO – WIRELESS FACILITIES MUST SECURE CONDITIONAL USE PERMIT

DEPARTMENT OF REGIONAL PLANNING

Memorandum

July 26, 2010

TO: DRP Staff

FROM: Richard Bruckner
Director

Subject: Subdivision & Zoning Ordinance Policy No. 01-2010
Wireless Telecommunications Facilities

This memo establishes policies and guidelines regarding permits for the siting and maintenance of wireless telecommunications facilities (hereinafter titled *wireless facilities*). Currently, Regional Planning processes applications for a wireless facility, as conditional use permit (CUP) applications because they are deemed to be similar to radio and television towers, which are specifically identified as a type of use in the Zoning Ordinance, and which require a CUP. Rather than establishing an ordinance to deal specifically with wireless facilities while the FCC decision and there are potential court cases which may impact local land use decision cases, it is necessary to establish policies and guidelines to help interpret the broad and general parameters of the burden of proof set forth in the Zoning Ordinance for obtaining a CUP and to identify necessary application materials when reviewing and processing wireless facility applications. Guidelines allow for flexibility to change at a later time, pending the outcome of the decision challenges.

This memo is necessary for planners to accurately and consistently advise applicants regarding the processing and recommended development guidelines of wireless facilities. This memo provides definitions, permit requirements, additional application materials and development guidelines, including guidelines for wireless facilities within right-of-ways.

These guidelines shall apply to all proposals for new facilities and upon expiration of a conditional use permit for a wireless facility that was issued prior to this memorandum, the facilities shall be subject to these guidelines.

Definitions

Antenna - One or more rods, panels, discs or similar devices used for the transmission or reception of radio frequency signals, which may include omni-directional antennas (whip), directional antennas (panel), and parabolic antennas (dish), but excluding any support structure.

Camouflage - Concealment of a wireless facility through incorporation into architectural design of a building or structure or by utilizing design and siting techniques that disguise the wireless facility as a structure or object other than a wireless facility. The structure or object shall either be already present in the area or blend in with the existing environment. Examples of

camouflage techniques include, but are not limited to, bell or clock towers, bell steeples, monument signs, water tanks, light poles and flag poles. The use of monopines, monopalms or other monotree types shall not be considered appropriate camouflage unless integrated into the surrounding landscape with the use of live trees, new or existing structures or other design features.

Co-location - The placement of portions of two or more wireless facilities on the same building, tower, pole, freestanding sign, or other structure.

Ground-mounted - The placement of a wireless facility or its antennas upon the ground, or on a lattice tower, mono-pole, utility pole, tower or other structure such as, but not limited to, a freestanding sign, which is erected on the ground. Ground-mounted includes structures built solely or primarily for the purpose of housing or locating a wireless facility, or upon a foundation or platform that is three feet or less above ground.

Monopalm or monopine - A structure containing a wireless facility or antenna(s), disguised as a palm tree or a pine tree.

Monopole means a freestanding structure composed of a single pole without guy wires and ground anchors and used primarily to support a wireless facility.

Monorock means a wireless facility disguised to resemble one or a grouping of rocks.

Monotree - Any type of artificial tree used for disguising a wireless facility. Monotrees include monoshrubs, which are a wireless facility or antenna(s) disguised to resemble one or a grouping of shrubs or bushes.

Public right-of-way or right-of-way - Any street, local street or highway, currently laid out or dedicated, and the space on, above or below it, under the jurisdiction of the County.

Screen or screened – Concealment of a wireless facility from view at ground level from adjacent properties and the right-of-way. The placement of a stucco wall in front of a wireless facility generally shall not be considered an appropriate screen unless architecturally integrated into an existing structure as determined by the Hearing Officer or Planning Commission.

Structure-mounted - The placement of a wireless facility upon the roof or side of a building, or upon the top, side or inside of a fully enclosed structure such as, but not limited to, a steeple, tower, monument sign, or water tank. For purposes of this definition, the term "structure" shall exclude a foundation or platform that is three feet or less above ground or a structure built solely or primarily for the purpose of housing or locating a wireless facility – these are considered ground-mounted facilities.

Support structure - Any type of structure or pole on which a wireless facility, or a portion thereof, is mounted.

Wireless facility - A ground-mounted or structure-mounted antenna, with any necessary appurtenance, such as an equipment box, cabinet, pedestal or vault. The facility is used to send or receive radio frequency transmissions for mobile or fixed telephone or data transmission service to provide wireless telecommunication services to the public; as may be described in the

Communications Act of 1934, as amended by the Telecommunications Act of 1996, or as otherwise authorized by the Federal Communications Commission.

Permit Required

A wireless facility requires approval of a conditional use permit (CUP) in all zones and within the public right-of-way. A CUP requires public notification and a public hearing before the Hearing Officer or Planning Commission. The Director shall make the determination if the application will be heard by the Hearing Officer or Planning Commission.

Additional Application Materials

Section 22.56.030.A.11 of the Zoning Ordinance allows the Director to request application materials deemed necessary in addition to those listed in section 22.56.030. For wireless facilities, in addition to all application requirements for a CUP, the applicant shall provide a written explanation, and documentation of, the following:

A. That the proposed wireless facility is necessary to close a significant gap in coverage in the applicant's service;
B. Except where the wireless facility is proposed to be co-located with one or more existing authorized wireless facilities that the applicant has undertaken and completed a good-faith effort to inventory all wireless facilities within one-quarter mile of the proposed site and to co-locate the proposed facility on the site of another such facility;
C. That the proposed site is the least intrusive site that is available in the coverage area that is capable of closing the significant coverage gap in terms of visual and aesthetic impacts; and
D. Documentation that the wireless facility as proposed is expected to comply with FCC limits and guidelines on RF emissions.

Development Guidelines

Height

A. A structure-mounted wireless facility shall not exceed the maximum height allowed in the applicable zone, or 16 feet above the building roof line, whichever is higher.
B. If the proposed wireless facility is located in a CSD, the height shall not exceed the applicable height limit for the CSD, and any CSD area height standards that apply to the subject property. If the proposed facility is not within a CSD, Height A shall apply.
C. A ground-mounted wireless facility, not located on a public right-of-way, shall not exceed the maximum height allowed in the applicable zone. The maximum permitted height is 75 feet.
D. For wireless facilities located within public rights-of-ways, see Development Guidelines for Highways and Rights-of-Way below.

Setback Requirements for Structure-Mounted Facilities

A. Unless screened, the wireless facility and equipment boxes are to be set back from the roof's edges and parapet walls to the maximum extent possible to minimize their visual impact from public rights-of-way and adjacent properties.

Roof Coverage Limits for Structure-Mounted Facilities

A. Unless screened and not visible from ground level, the total of all structure-mounted wireless facilities (antennae and equipment) located on one roof shall not cover more

than 10 percent of the total area of the roof.

Design

A. All wireless facilities shall use camouflage techniques to minimize visual impacts and provide appropriate screening.

B. Depending on the proposed site and surroundings, certain camouflage techniques may be deemed by the Director as ineffective or inappropriate and alternate techniques may be required.

C. The following is a menu of camouflage techniques that should be considered; this list is not all inlusive: monopole, flagpole, monotree, monorock, bell or clock tower, steeple, penthouse, monument sign, finish, and underground placement of appurtenant equipment. A wireless facility that proposes to use one of these techniques as listed below shall comply with the following design standards:

1. *Monopole:* A monopole installation shall be situated so as to utilize existing natural or man-made features including topography, vegetation, buildings or other structures to provide the greatest amount of visual screening.
2. *Flagpole:* A wireless facility may be mounted upon a flagpole that bears the national, state, and/or local government flags. Flagpole wireless sites that fly the national flag shall comply with United States Code Title 4, Chapter 1 as to flag maintenance and lighting. All other flags, signs, pennants, banners, streamers, balloons, graphic markings, and other attention-getting devices on a wireless facility shall be prohibited, with the exception of public safety devices required by law.
3. *Monotree:* It shall be of a type of tree compatible with those existing in the immediate area of the installation. If no trees exist within the immediate area, the applicant shall create a landscape setting that integrates the monotree with added trees of similar height and type. Antennas shall be painted or covered to match their background (branches or trunk). The antennas shall not extend beyond the monotree branches or fronds. There shall be ample branch coverage to hide the antennas from view as effectively as possible. Faux bark cladding shall be provided from the ground to five feet beyond where the faux branches begin; above the faux bark shall be flat non-reflective brown paint to match the bark. Additional camouflage may be required, depending on the type and design of mono-tree proposed.
4. *Monorock:* The proposed screen shall match in color and scale other rock outcroppings in the general vicinity of the proposed project site. A monorock screen may not be considered appropriate in areas that do not have natural rock outcroppings.
5. *Finish:* The finished surface of the wireless facility shall not be glossy or reflective in nature unless such a finish is necessary to blend into existing design features. The finish shall be graffiti-resistant and shall have a color that blends in with the immediately surrounding environment.

D. *Structure-Mounted:* A structure-mounted wireless facility may be required to be integrated into the building's or structure's architecture through design, color, and texture and/or be fully screened.

E. *Ground-Mounted*: Appurtenant equipment boxes shall be screened or camouflaged.

Underground Requirement

A. Wireless facilities located along a scenic highway, in an SEA, within 250 feet of an SEA, or on a significant ridgeline are discouraged, however if they are to be placed in these locations, they shall be placed underground, unless the applicant provides documentation to the Director that undergrounding is infeasible. If undergrounding is infeasible, the facility shall be fully screened with landscaping and/or other camouflaging techniques and designed in a way not to impact biotic resources in the area.

Co-Location

A. Newly installed monopoles and towers shall be constructed so as to physically and structurally allow co-location of at least one other wireless facility.
B. On co-located wireless facilities, the electric meters for all of the facilities shall be placed on one pedestal or at one location, whenever possible.
C. Co-locations shall use screening methods similar to those used on the existing wireless facility.

Security

A. Provide fencing, gates, and/or locks to secure the wireless facility from access by all persons other than authorized personnel.

Fencing and Walls

A. All fencing or walls used for screen or securing a wireless facility shall be composed of wood, vinyl, stone, concrete, stucco or wrought iron. Chain links, chain link with slats, barbed and other types of wire fencing are prohibited.
B. When the wireless facility's fences or walls are visible from the public right-of-way, landscaping shall be provided to screen the fence or wall from the street. A minimum planter width of five feet shall be provided.

Lighting

A. Any exterior lighting for wireless facilities shall be fully shielded.
B. Antenna lighting is prohibited.
C. Beacon lights are prohibited unless required by the FAA.

Sensitive Use

A. Any wireless facility located on school grounds, a day care facility, or in a park or recreational area, shall be isolated from and not intrusive on the educational or recreational activities at such location. Whenever practicable, the facility shall be located the furthest distance from the center of activity of the use on the lot.
B. The applicant shall provide the name, address, and telephone number of the service provider, which shall be displayed on the grounds of the property of the sensitive use where the wireless facility is located.

Displacement of Required Parking

A. Placement of a wireless facility in a parking lot or parking structure may not cause a reduction in the required parking spaces to below the number required for the existing use on the subject property.

Maintenance

A. All wireless facilities shall be maintained in good condition and repair, and shall remain

free of general dirt and grease, chipping, fading, peeling or cracked paint, and free of cracks, dents, blemishes and discoloration.

B. Rust and corrosion shall not be visible on any unpainted metal areas.
C. All landscaping provided as screening shall be maintained at all times and shall be promptly replaced if needed.

Graffiti

A. The wireless facility shall remain free of graffiti. Any and all graffiti shall be removed by the operator or property owner within 48 hours.

Removal

A. The operator of a wireless facility shall remove such facility within six months after its lawful operation has ceased, and restore the site as nearly as practicable to its original condition.

Compliance Reports

A. The applicant shall submit on an annual basis, reports to the Department to show compliance with the maintenance and removal conditions.

Federal Communications Commission (FCC)

A. Upon completion of construction of all wireless facilities, the applicant shall submit written certification that the radio frequency electromagnetic emissions levels comply with adopted Federal Communications Commission (FCC) limitations for general population/uncontrolled exposure to such emissions when operating at full strength and capacity.

Development Guidelines in Highways and Public Right-of-Ways

In addition to the development standards listed above, wireless facilities located on, under, or projecting onto any highway or public right-of-way shall also comply with the following:

Ground-Mounted Facility

A. When installed in a parkway or other landscaped area, the wireless facility owner shall install drought-tolerant landscaping immediately surrounding the installation or restore any existing landscaping and irrigation system disturbed by the installation.
B. The installed or restored landscaping shall be consistent with the existing landscaping in the immediate vicinity.

Underground Requirement

A. All appurtenant wireless facility equipment that is not structure-mounted shall be placed underground, unless the applicant provides documentation to the Director that undergrounding is infeasible.
B. If the underground requirement is waived due to infeasibility:
    1. For wireless facilities in non-urban areas - the equipment shall be fully screened with or camouflaged to resemble locally existing natural materials.
    2. For wireless facilities in urban areas - concrete pads for the appurtenant equipment shall be a color that is consistent with adjacent surrounding sidewalks. Where there is no existing sidewalk, concrete pads shall be earth-tone color that is consistent with existing surrounding earth.

Height

A. The height of a wireless facility shall not exceed 50 feet, regardless of the height of any existing structure located within the public right-of-way.

Placement

A. The placement of wireless facilities shall not interfere with the public's unobstructed use of highways, sidewalks or trails, or unobstructed access from private property to highways and other public access.

Encroachment Permit

A. In addition to obtaining a conditional use permit from the Department of Regional Planning for a wireless facility, the applicant shall obtain an encroachment permit from the Department of Public Works.

Relocation

A. The Department of Public Works may require wireless facilities to relocate due to street improvement projects and undergrounding of utilities. The cost of relocation of wireless facilities due to such projects shall be fully borne by the owner, operator, or permittee of the wireless facilities involved.

RB:RCH:KMS:ASP

EXHIBIT C TO PETITION FOR WRIT OF ADMINISTRATIVE MANDATE

NOVEMBER 3, 2021 EMAIL TO PETITIONER – NO ENVIRONMENTAL ASSESSMENT FOR REGISTERED HISTORICAL PLACES NOT RECOGNIZED IN LAC CH. 22.124

From: Mitch Glaser <mglaser@planning.lacounty.gov>
Date: November 3, 2021 at 5:47:10 PM PDT
To: Angela Sherick <asherick@pacbell.net>, Jheath@uhawhvp.org, tabon@uhawhvp.org, dgrayson@uhawhvp.org, bsellers@uhawhvp.org, jmnfountain@yahoo.com, mhudson@uhawhvp.org, ruthcates@mac.com, misty@canterburyrealestategroup.org, vryancy@yancylaw.com, winyan64@yahoo.com, just4just@aol.com, hojolt2012@gmail.com, avi@rectangleent.com, sallyhamptool@gmail.com
Cc: Erica Gutierrez <EGutierrez@planning.lacounty.gov>, Carmen Sainz <csainz@planning.lacounty.gov>, "Simmons, Kwame" <KSimmons@bos.lacounty.gov>, "Gracian, Isela" <IGracian@bos.lacounty.gov>, "O'Brien, Lilly" <LOBrien@bos.lacounty.gov>, "Waldron, Jessalyn" <JWaldron@bos.lacounty.gov>, Roland Trinh <RTrinh@counsel.lacounty.gov>, David DeGrazia <DDegrazia@planning.lacounty.gov>
Subject: RE: Follow Up re: Meeting with United Homeowners Association II on July 19
Hi Angela:

I'm following up on the August 12 letter and these three small cell wireless facilities (SCFs) in general.

We (Regional Planning) did not receive your August 12 letter until you shared it with us on October 5. We noted it was addressed to Supervisor Mitchell and the other Supervisors were copied but not Regional Planning, which is why we did not receive it. To ensure we receive any future letters you would like us to see when you send them, please copy Regional Planning and/or send it to us directly.

Sections II and III of your August 12 letter relate to health effects, which as discussed at our meeting on July 19, are outside our purview.

Section I of your August 12 letter relates to County Code Chapter 22.124 (Historic Preservation). This Chapter only applies to properties within County Historic Districts and View Park is not located within a County Historic District. For reference, all existing County Historic Districts are listed here:
https://planning.lacounty.gov/preservation

Also, as I mentioned in my October 1 email, we do not conduct an environmental assessment, including a historical resource assessment, for by-right (Type 1) approvals, which are ministerial in nature and do not have a discretionary component, and are therefore not subject to compliance with the California Environmental Quality Act. In addition, the SCFs are located in the public right-of-way and are not attached to historically significant buildings and will not cause a substantial adverse change in the significance of a historical resource.

FCC regulations also include a "shot clock" that requires us to act on applications for wireless communications facilities, including applications for SCFs, within a specified timeframe. In order to comply with these "shot clock" regulations, we will approve the SCFs tomorrow. Although we have been able to provide more time for you to review my October 1 email, I understand you may want more time to review all of this information, but we cannot provide

more time.

Although we will approve the SCFs tomorrow, we can continue to respond to new, additional questions you may have that we did not previously address. We are committed to keeping open lines of communication with you and the others who attended our meeting on July 19 and/or have been copied on these emails, so feel free to reach out to us in the future.

Thanks,
Mitch

EXHIBIT D TO PETITION FOR WRIT OF ADMINISTRATIVE MANDATE

CALIFORNIA OFFICE OF HISTORIC PRESERVATION – HISTORICAL REVIEW REQUIRED FOR ALL REGISTERED HISTORICAL SITES

From: Messinger, Michelle@Parks <michelle.messinger@parks.ca.gov>
To: Angela Sherick <asherick@pacbell.net>
Sent: Monday, November 22, 2021, 03:03:38 PM PST
Subject: Re: Cell Tower Permit Issuance

Any undertaking that requires a federal license, permit or is funded with federal money, is required to undergo Section 106 review to take into account the views of the SHPO and Advisory Council in regard to historic properties. Physical work therefore on an undertaking should not commence until Section 106 is complete for any such project.

Michelle

Michelle C. Messinger

State Historian II

California Office of Historic Preservation

1725 23rd St., Ste. 100

Sacramento, CA 95816-7100

916-445-7005 phone

916-445-7053 fax

MichelleMessinger@parks.ca.gov

EXHIBIT E TO PETITION FOR WRIT OF ADMINISTRATIVE MANDATE

SCIENTIFIC AND POLICY DEVELOPMENTS IN RADIOFREQUENCY RADIATION, DECEMBER 2019 THROUGH NOVEMBER 29, 2021

Scientific and Policy Developments in Radiofrequency Radiation

December 2019 through November 29, 2021

Selected Research Publications Showing Adverse Effects Since the FCC Issued its Determination December 2019 Not to Update its 1996 Standards for Evaluating Wireless Radiation from Cell Phones, Electronic Devices and Networks

Table of Contents

New Scientific and Policy Developments in Radiofrequency Radiation

A Sampling of Research Publications Showing Adverse Effects Since the FCC Issued its Determination Not to Update its 1996 Standards for Evaluating Wireless Radiation from Cell Phones, Electronic Devices and Networks

More than 75 new important scientific developments, expert reports and recommendations have been published since the FCC issued its determination to not initiate a rulemaking proceeding to update its regulatory limits for human exposure to wireless radiofrequency radiation (RFR) in December 2019.

This report showcases a small sampling of the last two years of scientific publications that have documented adverse effects of RFR exposure. Studies include impacts to wildlife and the environment, the unique vulnerability of children and the fetus, DNA damage, oxidative stress, nervous system impacts and brain development. New experimental and epidemiological evidence for cancer tied to RFR has been published as well as papers detailing how cancers can arise from non-ionizing radiation.

Further, recent publications have documented significant health and environmental implications arising from 5G network related millimeter wave frequencies and all current and new wireless air interfaces' use of modulation, pulsation and other waveform manipulation. Wireless telecommunications signals are complex and FCC regulations do not address the biological impact of different modulations nor consider the numerous unique characteristics of real world telecommunication signals. We highlight how new landmark papers document the science indicating the urgent need to consider modulation and pulsation, rather than simply power density.

The evidence is now clear that RF emissions within the Commission's guidelines have significant adverse biological effects.

WILDLIFE/ENVIRONMENT

The FCC's current FCC radiofrequency radiation (RFR) emissions limits apply to human exposures.They do not address wildlife, plants or trees. Birds perch and nest on cell towers. Bats and bees and other airborne species occupy air space in close proximity to transmitting cell antennas. Wireless network densification increases RFR levels (El-Hajj & Naous, 2020) and with over 800,000 new cell sites projected[1] for the 5G buildout, environmental effects need to be properly examined because ambient RFR is increasing in wildlife habitat.

A landmark three-part research review on effects to wildlife was published in R*eviews on Environmental Health in 2021* by U.S experts, including former U.S. Fish and Wildlife senior biologist Albert Manville. The authors reviewed and cited more than 1,200 scientific references. These experts concluded that the evidence was adequate to trigger urgent regulatory action. The review found adverse biological effects to wildlife from even very low intensity non-ionizing

[1] Remarks of FCC Chairman Ajit Pai White House 5G Summit Washington DC, September 28, 2018

radiation emissions at multiple orders of magnitude below current FCC-allowed levels (Levitt et al., 2021a, Levitt et al., 2021b, Levitt et al., 2021c).

Comprehensive documentation of the biological effects of non-ionizing electromagnetic radiation to flora and fauna has never before been undertaken to this degree in any previous publication. These three experts divide their science and findings with urgent warnings into three parts: **Part 1** identifies ambient EMF adverse effects on wildlife, and notes a particular urgency regarding millimeter wave emissions and the pulsation/modulation used in 5G technologies. **Part 2** explores natural and man-made fields, animal magnetoreception mechanisms, and pertinent studies to all wildlife kingdoms. **Part 3** examines current exposure standards, applicable laws, and future directions. Their conclusions after this expansive review of the science are neither equivocal nor speculative. This environmental research review is a clarion call to develop regulations that ensure wildlife and its habitat are protected. The abstract summarizes the findings:

> "Numerous studies across all frequencies and *taxa* indicate that low-level EMF exposures have numerous adverse effects, including on orientation, migration, food finding, reproduction, mating, nest and den building, territorial maintenance, defense, vitality, longevity, and survivorship. Cyto-toxic and geno-toxic effects have long been observed. It is time to recognize ambient EMF as a novel form of pollution and develop rules at regulatory agencies that designate air as 'habitat' so EMF can be regulated like other pollutants. Wildlife loss is often unseen and undocumented until tipping points are reached. A robust dialog regarding technology's high-impact role in the nascent field of electroecology needs to commence. Long-term chronic low-level EMF exposure standards should be set accordingly for wildlife, including, but not limited to, the redesign of wireless devices, as well as infrastructure, in order to reduce the rising ambient levels."

Numerous individual studies on impacts to flora and fauna have been published over the last two years, notably several on pollinators and insects.

Two studies used scientific simulations to quantify the amount of power absorbed into the bodies of various insects for different RFR frequencies. In January 2020 researchers published "Radio-frequency electromagnetic field exposure of Western Honey Bees" in *Scientific Reports* on the absorption of RFR into honey bees at different developmental stages with phantoms simulating worker bees, a drone, a larva, and a queen (Thielens et al., 2020). The simulations were combined with measurements of environmental RF-EMF exposure near beehives in Belgium in order to estimate realistic exposures. They found absorbed RF-EMF power increases by factors of up to 16 to 121 when the frequency is increased from 0.6 GHz to 6 GHz for a fixed incident electric field strength. The implications of the impacts to such an ecologically and economically important insect species bees would be widespread and consequential.

In October 2021 a second simulation study with far-reaching implications "Radio-frequency exposure of the yellow fever mosquito (*A. aegypti*) from 2 to 240 GHz" published in *PLOS Computational Biology* simulated the far field exposure of a mosquito

between 2 and 240 GHz and found the power absorption into the mosquito is 16 times higher at 60 GHz than at 6 GHz at the same incident field strength. This increase is even larger (by a factor of 21.8) for 120 GHz when compared to 6 GHz. The authors conclude "higher absorption of EMF by yellow fever mosquitoes, which can cause dielectric heating and have an impact on behaviour, development and possibly spread of the insect."

In 2020, a report by Alain Hill of the biological effects of non-ionizing radiation on insects found that mobile communications was a critical factor in weakening the insect world along with pesticides and habitat loss. (Khan et al., 2021) found the Apis Cerana bee becomes very passive at a certain level of frequencies and power.

In May 2021, Spanish biologist Alfonso Balmori published "Electromagnetic radiation as an emerging driver factor for the decline of insects" in *Science of The Total Environment.* Balmori found that electromagnetic radiation threatens insect biodiversity worldwide. He documents the sufficient evidence of effects of non-thermal, non-ionizing radiation on insects, at well below the limits allowed by FCC guidelines, and warns that action must be taken now before significant new deployment of new technologies (like with 5G) is undertaken. He cautions that the loss of insect diversity and abundance will likely provoke cascading effects on food webs and ecosystem services.

A November 2021 review of the effects of millimeter waves, ultraviolet, and gamma rays on plants found many non-thermal effects specifically from millimeter waves (Zhong et al. 2021). (The paper examined the millimeter range 30 to 300 GHz which overlaps with FCC's limits 300 kHz to 100 GHz.) Millimeter-wave irradiation stimulated cell division, enzyme synthesis, growth rate, and biomass. The review highlights how different doses and durations provoked dynamic morphophysiological effects in plants. Seed pretreatment with weak microwaves or millimeter wave irradiation altered root physiology. Different effects were observed in different plants and the authors state that, "the discordance of proteomic changes in different plants is reasonable, since different plants have a distinct tolerance to stress. Moreover, the cell tissues from soybeans and chickpeas used for proteomic analysis were different, which implies that tissue-specific or organ-specific responses of plants under millimeter-wave irradiation might exist and require further investigation." This review adds to the published analysis confirming non thermal effects from RFR. While these frequencies may have beneficial uses in agriculture, the adverse impact to trees and plants in close vicinity to transmitting antennas must be addressed.

CHILDREN

Children are proportionally more exposed to RF-EMF than adults because their brain tissue is more conductive, their skulls are thinner, and their bodies are smaller. Children are known to be at greater risk than adults when exposed to any carcinogen because of their rapidly dividing cells. Because the average latency time between first exposure and diagnosis of a tumor can be decades, tumors induced in children from RFR may not be diagnosed until adulthood. Even more importantly, children and the developing fetus are more vulnerable to RFR because their brains and organs are still developing and more sensitive. Research over

the last two years has added critical new science on children's vulnerability to health impacts from RFR and supports the acute need to reduce exposure to children.

To start, the Environmental Working Group published a landmark study in *Environmental Health* analyzing the findings of increased tumors and heart damage from the National Toxicology Program study and concluded that FCC limits should be strengthened by 200 to 400 times to protect children according to current risk assessment guidelines (Uche, 2021). "The analysis presented here supports a whole-body SAR limit of 2 to 4 mW/kg for adults, an exposure level that is 20- to 40-fold lower than the legally permissible limit of 0.08 W/kg for whole-body SAR under the current U.S. regulations. A ten-fold lower level of 0.2–0.4 mW/kg whole-body SAR may be appropriate for young children. Both technology changes and behavior changes may be necessary to achieve these lower exposure levels. Simple actions, such as keeping the wireless devices farther away from the body, offer an immediate way to decrease RFR exposure for the user."

(Cabré-Riera et al., 2020) investigated RFR doses in preadolescents at 9 – 12 years old. In "Estimated whole-brain and lobe-specific radiofrequency electromagnetic fields doses and brain volumes in preadolescents" published in *Environment International* the authors reveal their findings that although whole-brain and lobe-specific RF-EMF doses from all RF-EMF sources together, from mobile and DECT phone calls and far-field sources were not associated with global, cortical, or subcortical brain volumes, a higher whole-brain RF-EMF dose from mobile phone use for internet browsing, e-mailing, text messaging, tablet use, and laptop use while wirelessly connected to the internet was indeed associated with a smaller caudate volume. The caudate nucleus plays an important role in procedural learning, associative learning and inhibitory control of action and it is also one of the brain structures comprising the reward system. Analysis of cognitive impacts in another analysis (Cabré-Riera et al., 2020) found higher overall whole-brain RF-EMF doses from all RF-EMF sources together and from phone calls were associated with lower non-verbal intelligence score in Dutch and Spanish preadolescents.

Yet another publication by the same group (Cabré-Riera et al., 2021) investigated the association of estimated all-day and evening whole-brain radiofrequency electromagnetic field (RF-EMF) doses with sleep disturbances and objective sleep measures in preadolescents. The researchers, publishing their findings in *Environmental Research*, found preadolescents with high evening whole-brain RF-EMF dose from phone calls had a shorter total sleep time compared to preadolescents with zero evening whole-brain RF-EMF dose from phone calls.

A 2020 research review from the Department of Pediatrics, Hanyang University School of Medicine, Seoul, Korea (Moon, 2020) recommends precaution and minimizing EMF exposure to children, cautioning that the nervous systems of children are more vulnerable to the effects of electromagnetic waves than those of adults.

PREGNANCY

Using a mobile phone for calls for more than 30 minutes per day during pregnancy was associated with a negative impact on fetal growth (Boileau et al., 2020). Mobile phone use during pregnancy was associated with night-wake of infants (Weng et al., 2020). (Bektas et al., 2020) concluded that mobile phone exposure during pregnancy could cause oxidative stress and DNA damage in cord blood and placenta. Finally, the combined effects of Wi-Fi plus mobile phone exposure could have a higher potential to cause synergistic effects.

Recent animal research includes a study that found Wi-Fi signals increase lipid peroxidation, SOD activity (oxidative stress), apoptosis and CDKN1A and GADD45a overexpression in mice placenta tissue (Vafaei et al., 2020). A study on pregnant rats found damage to cells in the cerebellum. The authors conclude that prenatal mobile phone radiation might lead to the damage of axon, the nerve fiber, and myelin, the sheath that forms around nerves, with activity of astrocytes in cerebellum of male rat offspring (Yang et al., 2020).

CHARACTERIZING RFR EXPOSURES DURING CHILDHOOD AND PREGNANCY

Current FCC exposure levels were set in 1996 without a complete understanding of how RFR is absorbed into the fetus, pregnant women or children. Research published in 2020 and 2021 adds critical new data regarding these exposures. For example, (Foroutan et al., 2020) studied the absorption of WiFi and LTE frequencies into a 43-year-old pregnant woman model carrying a 24-week baby to allow scientists to better understand health impacts due to the interaction between electromagnetic fields and human tissue. (Psenakova et al., 2020) states "numerical results have shown that the obtained maximal SAR values in AustiWoman model is higher than are maximum values determined according to maximum SAR in European standards limit."

In "Electromagnetic Field in Vicinity of Electronic Baby Monitor" published by IEEE, (Gombarska et al., 2020) found exposures from a baby monitor to be regulation-compliant but the authors warn, "Some caution should be exercised when using such devices, in particular regarding keeping a safe distance from the little children." These and other new studies confirm the urgent need to reduce exposures, especially for children and pregnant women.

FERTILITY

Environmental Research published "A meta-analysis of in vitro exposures to weak radiofrequency radiation exposure from mobile phones (1990–2015)" describing 1127 experimental observations in cell-based in vitro models on RFR. It found less differentiated cells such as epithelium and spermatozoa are more sensitive to RF (Halgamuge et al., 2020). This study also confirms observations from the REFLEX project, Belyaev and others that cellular response varies with signal properties.

Several reviews on RFR impacts to sperm and reproduction were published over the last two years analyzing the body of evidence. A systematic review and meta-analysis (Sungjoon et al., 2021) evaluated 18 studies and found exposure to mobile phones is associated with

reduced sperm motility, viability and concentration. (Yu et al., 2021) found mobile phone RFR exposure could decrease the motility and viability of mature human sperm *in vitro* and the pooled results of animal studies showed that mobile phone RF-EMR exposure could suppress sperm motility and viability. A systematic review on the effects of RFR to male reproductive hormones (Maluin et al., 2021) found that wireless can impact testosterone. The authors detail how testes are one of the most vulnerable organs to RF-EMR. Testicular tissues are more susceptible to oxidative stress due to a high rate of cell division and mitochondrial oxygen consumption.

(Okechukwu, 2020) reviewed human and animal studies published from 2003 to 2020 investigating RFR from cell phones and male fertility, publishing their findings "Does the Use of Mobile Phone Affect Male Fertility? A Mini-Review" in *Journal of Human Reproductive Sciences*. They found evidence in both animal and human spermatozoa of reduced motility, structural anomalies, and increased oxidative stress due to overproduction of reactive oxygen species after RFR exposure. The authors assert that scrotal hyperthermia and increased oxidative stress might be the key mechanisms through which EMR affects male fertility.

As an example of the experimental studies published over the last two years, an animal study on 4G found kidney inflammation and damage to the testes in mice (Hasan et al., 2021). The researchers concluded that fourth-generation cell phone radiation exposure may affect blood hemostasis and inflammation of mice's kidney and testis tissue and they warn that "based on these studies, it is important to increase public consciousness of potential adverse effects of mobile phone radiofrequency electromagnetic radiation exposure."

(Hassanzadeh-Taheri et al., 2021) assessed the effects of cell phone RFR on sperm parameters, DNA fragmentation, and apoptosis in normozoospermic and found higher apoptotic sperms and DNA fragmentation in the RFR exposed. The authors conclude: "it is recommended to keep the cell phone away from the pelvis as much as possible."

ELECTROSENSITIVITY

The International Journal of Molecular Sciences published "Electrohypersensitivity (EHS) as a Newly Identified and Characterized Neurologic Pathological Disorder: How to Diagnose, Treat, and Prevent It" (Belpomme & Irigaray, 2020). This paper documents the data and shows EHS is a neurologic pathological disorder which can be diagnosed, treated, and prevented. Utilizing a database of over 2000 electrohypersensitivity (EHS) and/or multiple chemical sensitivity (MCS) self-reported cases, they found EHS can be clinically characterized by a similar symptomatic picture to multiple chemical sensitivity by low-grade inflammation and an autoimmune response involving autoantibodies against O-myelin. According to the authors: "80% of the patients with EHS present with one, two, or three detectable oxidative stress biomarkers in their peripheral blood, meaning that overall these patients present with a true objective somatic disorder."

"The Critical Importance of Molecular Biomarkers and Imaging in the Study of Electrohypersensitivity. A Scientific Consensus International Report" in the *International Journal of Molecular Sciences* is a scientific consensus international report authored by 32 scientists. They call for the acknowledgement of electrohypersensitivity as a distinct neuropathological disorder and for inclusion in the WHO International Classification of Diseases (*e.g.*, distinct from the current grouping within other ICD codes addressing exposure to non-ionizing radiation) (Belpomme et al., 2021). The paper presents the French teams' EHS/MCS physiopathological model based on low-grade neuroinflammation and oxidative/nitrosative stress-induced blood–brain barrier disruption, which attempts to account for the mechanisms through which pathophysiological effects could take place in the brain of EHS and/or MCS patients and how EHS and/or MCS pathogenesis may consequently occur. The paper also documents the methodological defects that make provocation tests unsuitable for sham versus EMF exposure analysis in EHS-bearing patients. The paper documents how EHS patients' RFR exposure has been found to increase plasma glucose levels, affect heart rate variability and in multiple sclerosis-bearing patients RFR exposure can worsen symptoms, meaning that RFR can induce objective, bioclinical alterations in humans.

BRAIN/NEUROLOGY

(Hasan et al., 2021) found long-term exposure to 2400 MHz 4G impacted the structural integrity of the hippocampus and increased anxiety-like behavior in mice. (Hu et al., 2021) published "Effects of Radiofrequency Electromagnetic Radiation on Neurotransmitters in the Brain" in *Frontiers in Public Health,* offering a review that summarizes the effects of EMR on the neurotransmitters in the brain. The nervous system is an important target organ system and is sensitive to EMF. They document research that suggests that long-term exposure to EMR may lead to abnormal norepinephrine and epinephrine contents in the brain, metabolic disorders of monoamine neurotransmitters in the brain and excitatory amino acid neurotransmitters in the hippocampus, "which may affect the excitatory-inhibitory balance of neurons, thus causing a decline in learning and memory ability." The authors also considered the underlying mechanism as "EMR exposure does increase the intracellular calcium and the formation of ROS, which would alter the cellular function eventually and lead to numerous biological effects including neurotransmitter imbalance." The authors call for more research to clarify effects.

A systematic review by (Bertagna et al., 2021) published in *Annals of the New York Academy of Sciences* found that neuronal ion channels are particularly affected by EMF exposure. Changes in calcium homeostasis, attributable to the voltage-gated calcium channels, were the most commonly reported result of EMF exposure. EMF effects on the neuronal landscape appear to be diverse and greatly dependent on parameters like the field's frequency, exposure time, and intrinsic properties of the irradiated tissue, such as the expression of VGCs. The researchers systematically clarify how neuronal ion channels are particularly affected and differentially modulated by EMFs at multiple levels, such as gating dynamics, ion conductance, concentration in the membrane, and gene and protein expression. Ion channels represent a major transducer for EMF-related effects on the CNS.

(Tan et al., 2021) evaluated the acute effects of 2.856 GHz and 1.5 GHz microwaves to male rats and found exposures induced a decline in spatial memory.

"Exposure of Radiofrequency Electromagnetic Radiation on Biochemical and Pathological Alterations" in *Neurology India* (Sharma et al., 2020) found 800 MHz frequency at a SAR of 0.433 W/kg in male Wistar rats led to neurochemical and pathophysiological damage by initiating the inflammatory process in various brain regions, especially in hippocampus and cerebral cortex. The authors conclude that since the hippocampus involves storing and retaining information during the learning process, RFR exposure negatively affects the memory and learning process and "could be a huge risk of induction of brain damage."

(Hinrikus et al., 2021) review "Threshold of radiofrequency electromagnetic field effect on human brain" in the *International Journal of Radiation Biology* found the threshold for EEG effects is far lower than the level deemed safe by the U.S. FCC. The lowest level of RF EMF at which the effect in EEG was detected is 2.45 V/m (SAR = 0.003 W/kg). The authors state the changes in EEG caused by RF EMF appeared similar in the majority of analyzed studies and similar to those found in depression. They conclude that the "possible causal relationship between RF EMF effect and depression among young people is [a] highly important problem."

(Luo et al., 2021) in their paper "Electromagnetic field exposure-induced depression features could be alleviated by heat acclimation based on remodeling the gut microbiota" published in *Ecotoxicology and Environmental Safety* share their findings that pulsed electromagnetic fields (2450 MHz) caused gut microbiota and metabolites disturbance similar to depression model. "In our study, EMF induced disturbance in the metabolite profiles of serum samples. Significantly different metabolites included cholesterol, D-fructose and fumaric acid and these were associated with depression (Xiong et al., 2020). Based on KEGG classification, the metabolites involved in neurotransmitters and steroids were altered significantly."

They concluded that "our study demonstrated that EMF exposure could not only lead to neurobehavioral disorders such as depression, but also cause gut microbiota imbalance." The researchers also referenced how "growing evidence indicates that the gut microbiota affects not only gastrointestinal function but also central nervous system (CNS) physiology and behavior by regulating the microbiota-gut-brain axis."

OXIDATIVE STRESS

More recently published studies demonstrate consistency for the induction of oxidative stress. Oxidative DNA damage can lead to mutations, chromosomal translocations, and genomic instability, which are cellular events that can result in cancer development. Induction of oxidative stress, which is a key characteristic of many human carcinogens including ionizing radiation and asbestos, may also lead to the genotoxicity and carcinogenicity of non-ionizing RFR. Oxidative stress caused by EMFs is thought to be due to the altering of recombination rates of short-lived radical pairs leading to increases in free radical concentrations. Thus, even

without causing direct DNA damage, RFR may induce oxidative DNA damage and thereby initiate or promote tumor development.

(Schuermann & Mevissen, 2021) published a major review on oxidative stress, "Manmade Electromagnetic Fields and Oxidative Stress – Biological Effects and Consequences for Health" in *International Journal of Molecular Sciences*. The authors found increased oxidative stress in the majority of animal studies and cell studies, many with exposures compliant with FCC and ICNIRP regulatory limits. Increased oxidative stress caused by RF-EMF and ELF-EMF were reported in the majority of the animal studies and in more than half of the cell studies. Investigations in Wistar and Sprague-Dawley rats provided consistent evidence for oxidative stress occurring after RF-EMF exposure in the brain and testes and some indication of oxidative stress in the heart. Observations in Sprague-Dawley rats also seem to provide consistent evidence for oxidative stress in the liver and kidneys. "A trend is emerging, which becomes clear even when taking these methodological weaknesses into account, i.e., that EMF exposure, even in the low dose range, may well lead to changes in cellular oxidative balance." The authors explain that pre-existing conditions like diabetes and neurodegenerative diseases compromise the body's defense mechanisms, including antioxidant protection processes, and individuals with pre-existing conditions are more likely to experience health effects. Further, very young or old individuals can react less efficiently to oxidative stress. This puts them at greater risk of health impacts.

"Effects of different mobile phone UMTS signals on DNA, apoptosis and oxidative stress in human lymphocytes" (Gulati et al., 2020) published in *Environmental Pollution* comparatively analyzed genotoxic effects of UMTS signals at different frequency channels used by 3G mobile phones (1923, 1947.47, and 1977 MHz) and found a relatively small but statistically significant induction of DNA damage in dependence on UMTS frequency channel with maximal effect at 1977.0 MHz, supporting the notion that each specific signal used in mobile communication should be tested.

"Effects of pulse-modulated radiofrequency magnetic field (RF-EMF) exposure on apoptosis, autophagy, oxidative stress and electron chain transport function in human neuroblastoma and murine microglial cells" published by (Zielinski et al., 2020) in *Toxicology in Vitro* investigated the effects of ELF-modulated 935 MHz RF-EMF on apoptosis, autophagy, oxidative stress and electron exchange in human neuroblastoma and murine microglial cells. The authors found effects indicating that "short-time RF-EMF at SAR levels accepted by today's safety guidelines might cause autophagy and oxidative stress with the effect being dependent on cell type and exposure duration. Further studies are needed to evaluate possible underlying mechanisms involved in pulse-modulated RF-EMF exposure."

(Singh et al., 2020) exposed male Wistar rats to RFR for 16 weeks (2 h/day) and observed oxidative stress, an inflammatory response, and HPA axis deregulation. "Effect of mobile phone radiation on oxidative stress, inflammatory response, and contextual fear memory in Wistar rat" was published in *Environmental Science and Pollution Research International.* The

study shows that chronic exposure to MP-RF-EMF radiation emitted from mobile phones may induce oxidative stress, inflammatory response, and HPA axis deregulation.

(Hussien et al., 2020) found a significant decrease in plasma nesfatin-1 level and thyroid functions with an increase in oxidative stress and apoptosis. Further, there was a correlation between nesfatin-1 level and markers of thyroid function, oxidative stress and apoptosis. The researchers conclude that Nesfatin-1 plays a role in thyroid dysfunctions of rats exposed to mobile phone radiation. The authors' "Decreased level of plasma nesfatin-1 in rats exposed to cell phone radiation is correlated with thyroid dysfunction, oxidative stress, and apoptosis" published in *Archives of Physiology and Biochemistry* details these findings.

GENOTOXICITY/ DNA DAMAGE

Major studies using validated experimental protocols published in 2020 and 2021 associate non-ionizing RFR exposure with DNA damage.

In February 2020, U.S. government scientists published landmark findings of "significant increases in DNA damage" in groups of male mice, female mice and male rats after just 14 to 19 weeks of non-thermal cell phone RFR exposure as part of the large scale National Toxicology Program cell phone animal studies (Smith-Roe et al., 2020). "Evaluation of the genotoxicity of cell phone radiofrequency radiation in male and female rats and mice following subchronic exposure" published in *Environmental and Molecular Mutagenesis* details the much-anticipated results of the comet assay showing significant increases in DNA damage in the frontal cortex of male mice (both modulations), leukocytes of female mice (CDMA only), and hippocampus of male rats (CDMA only). Increases in DNA damage judged to be equivocal were observed in several other tissues of rats and mice. "In conclusion, these results suggest that exposure to RFR is associated with an increase in DNA damage." In short, DNA damage was found at non-thermal RFR levels, levels the FCC regulatory limits presume are harmless.

The authors explain that the NTP studies were designed to evaluate non-thermal effects of cell phone RFR exposure, which meant that body temperature could not change more than 1° C and therefore the NTP scientists considered it unlikely that thermal effects were a confounding factor for these genetic toxicity tests. Thus, this data again adds to the large body of evidence confirming that the assumption that non-ionizing radiation does not cause any adverse health effects other than by heating is wrong. The study is a game changer because the NTP exposures were carefully controlled and NTP studies are considered the gold standard in animal testing.

In "Genetic effects of non-ionizing electromagnetic fields" published in *Electromagnetic Biology and Medicine,* (Lai, 2021) reviewed the research on the genetic effects of non-ionizing electromagnetic fields and found many studies reported effects in cells and animals after exposure to EMF at intensities similar to those in the public and occupational environments. Approximately 70% of reviewed studies showed effects including DNA strand breaks,

micronucleus formation, and chromosomal structural changes. Lai highlights how the effects are waveform and cell-type specific.

Dr. Lai's findings underscore the complexity of interactions between EMF and biological tissues, and may partially explain why effects were observed in some studies but not others. Lai states it is essential to understand why and how certain wave-characteristics of an EMF are more effective than other characteristics in causing biological effects, and why certain types of cells are more susceptible to EMF effects. Very significantly, Dr. Lai asserts that "there are different biological effects elicited by different EMF wave-characteristics" and this is a critical proof for the existence of non-thermal effects.

The review explains how genetic effects depend on various factors, including field parameters and characteristics (frequency, intensity, wave-shape), cell type, and exposure duration. Lai also found non-ionizing EMFs interact synergistically with different entities on genetic functions. These interactions, particularly with chemotherapeutic compounds, raise the possibility of using EMF as an adjuvant for cancer treatment to increase the efficacy and decrease side effects of traditional chemotherapeutic drugs.

Lai explains that since the energy level is not sufficient to cause direct breakage of chemical bonds within molecules, the effects are probably indirect and secondary to other induced chemical changes in the cell. He suspects that biological effects are caused by multiple inter-dependent biological mechanisms. He states that the mechanism remains to be uncovered, "but, knowing the mechanism is not necessary to accept that the data are valid. It is also a general criticism that most EMF studies cannot be replicated. I think it is a conceptual and factual misstatement. Replication is also not a necessary and sufficient condition to believe that certain data are true." Lai then states that, "to prove an effect, one should look for consistency in data. Genetic damage studies have shown similar effects with different set-up and in various biological systems. And, the gene expression results (Supplement 3) also support the studies on genetic damages. Expression of genes related to cell differentiation and growth, apoptosis, free radical activity, DNA repair, and heat-shock proteins have been reported. These changes could be consequences of EMF-induced genetic damages."

An October 2021 review "Human-made electromagnetic fields: Ion forced-oscillation and voltage-gated ion channel dysfunction, oxidative stress and DNA damage (Review)" in the *International Journal of Oncology* describes the cascade of effects from non-ionizing EMFs that lead to DNA damage. (Panagopoulos et al., 2021) documents the scientific research base indicating EMF exposures lead to ion channel dysfunction. According to the ion forced-oscillation mechanism for dysfunction of VGICs, human-made (polarized and coherent) ELF/ULF EMFs or the ELF/ULF modulation/pulsing/variability components of modern RF/WC EMFs can alter intracellular ionic concentrations by irregular gating of VGICs on cell membranes. This leads to immediate oxidative stress by ROS [oxidative stress that cause damage to lipids, proteins and DNA] (over)production in the cytosol and/or the mitochondria, which can damage DNA when cells are unable to reinstate electrochemical balance (normal

intracellular ionic concentrations). Consequently, DNA damage can lead to reproductive disabilities, neurodegenerative diseases, aging, genetic alterations and cancer.

Moreover, the review addresses how, in addition to polarization and coherence, ELFs are a common feature of almost all human-made EMFs. The authors suggest that the non-thermal biological effects attributed to RF EMFs are actually due to their ELF components. The researchers conclude that, “The long-existing experimental and epidemiological findings connecting exposure to human-made EMFs and DNA damage, infertility and cancer, are now explained by the presented complete mechanism. The present study should provide a basis for further research and encourage health authorities to take measures for the protection of life on Earth against unrestricted use of human-made EMFs.”

NEW GOVERNMENT REPORTS AND RECOMMENDATIONS

The European Union

In July 2021, the European Parliament Panel for the Future of Science and Technology European Parliamentary Research Service Report “Health Impact of 5G” offered a review of the epidemiological and experimental evidence which has significantly increased since 2011 when the International Agency for Research on Cancer (IARC) classified radiofrequency (RF) EMF as “possibly carcinogenic to humans” (Group 2B). Due to the post-2011 published research, the IARC advisory group has now recommended RF exposure for re-evaluation “with high priority” (IARC, 2019). The report concludes that the body of evidence now indicates that the frequencies of 450 to 6,000 MHz are “probably carcinogenic for humans, in particular related to gliomas and acoustic neuromas.”

For non-cancer effects the EU Report concludes that there was sufficient evidence of reproductive/developmental adverse effects in experimental animals and “these frequencies clearly affect male fertility and possibly female fertility too. They may have possible adverse effects on the development of embryos, foetuses and newborns.” In regards to 5G’s higher frequencies (24.25-27.5 GHz), and frequencies 24 to 100 GHz the systematic review found there was an inadequate base of studies either in humans or in experimental animals with which to even substantiate a conclusion one way or the other regarding a carcinogenic effect or any other non-thermal effect.

The report makes several policy recommendations, including:

- Adopting stricter RFR limits for mobile phone devices and reducing RFR exposure with devices that emit lower energy and “if possible only working when at a certain distance from the body”.
- Revisiting RFR exposure limits for the public and the environment in order to reduce RF-EMF exposure from cell towers through more stringent limits such as those used in Italy, Switzerland, China, and Russia - all of which are significantly lower than those recommended by ICNIRP and the FCC.

- Adopting measures to incentivise the reduction of RF-EMF exposure which include using optic-fibre cables to connect schools, libraries, workplaces, houses, public buildings, and all new buildings etc. “Public gathering places could be 'no RF-EMF' areas (along the lines of no-smoking areas) so as to avoid the passive exposure of people not using a mobile phone or long-range transmission technology, thus protecting many vulnerable elderly or immune-compromised people, children, and those who are electro-sensitive.”
- Promoting a multidisciplinary scientific research effort to assess the long-term health effects of 5G millimeter waves (MMW) in order to rule out the risk that tumours and adverse effects on reproduction and development may occur upon exposure to 5G MMW, and to exclude the possibility of synergistic interactions between 5G MMW networks and other frequencies and networks that are already being used. Research is needed on the biological effects of 5G MMW at frequencies between 6 and 300 GHz not only for humans but also for the flora and fauna of the environment, e.g. non-human vertebrates, plants, fungi, and invertebrates.
- Promoting research to identify an adequate method of monitoring exposure to 5G because there is currently inadequate monitoring of the actual exposure of the population.
- Promoting a public educational awareness campaign on the potential harms of RFR at all levels, beginning with schools. This campaign should include the potential health risks, opportunities for digital development, safer infrastructure alternatives, and strategies to reduce exposure to wireless phones.

The report concludes that the gaps in knowledge in regards to 5G’s higher frequencies justify the call for a moratorium on 5G millimeter wave networks, pending completion of adequate research, “before exposing the whole world population and environment.” The report’s conclusion carries a very clear warning: “Implementing MMW 5G technology without further preventive studies would mean conducting an 'experiment' on the human population in complete uncertainty as to the consequences.”

In 2020, the European Parliament briefing Effects of 5G wireless communication on human health reviewed the various policies and reports in Europe including: 1) the 2011 Council of Europe Parliamentary Assembly Resolution 1815 that recommended reducing RFR exposure; the fact that the European Environment Agency (EEA) has long advocated precaution concerning EMF exposure; 2) the European Commission Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR) 2015 opinion and the organizations that suggest many members of SCENIHR could have conflict of interests, as they had professional relationships with or received funding from various telecom companies; 3) the Scientific Committee on Health, Environmental and Emerging Risks (SCHEER), replacing the former Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR) evaluated the scale, urgency and interactions (with ecosystems and species) of possible hazard from 5G *as high as* “there could be biological consequences from a 5G environment.”

The briefing also highlighted the biological impacts from pulsations and modulations stating, “Studies show that pulsed EMF are in most cases more biologically active and therefore more dangerous than non-pulsed EMF. Every single wireless communication device

communicates at least partially via pulsations, and the smarter the device, the more pulsations. Consequently, even though 5G can be weak in terms of power, its constant abnormal pulse radiation can have an effect. Along with the mode and duration of exposures, characteristics of the 5G signal such as pulsing seem to increase the biologic and health impacts of exposure, including DNA damage, which is considered to be a cause of cancer. DNA damage is also linked to reproductive decline and neurodegenerative diseases."

A review of occupational EMF exposures (Stam, 2021) of the National Institute for Public Health and the Environment of the Netherlands pointed to the need for exposure guidelines and regulation to incorporate new technology developments, especially in regards to 5G applications. Although ICNIRP's thermally-based RFR limits were used as the action level in this article (and adverse biological effects have been found at non-thermal levels as documented in this report), this paper highlights the critical need to characterize occupational exposures and better assess health effects because of the new wireless networks found in the modern workplace.

In April 2020, the Swiss Parliament refused to weaken their RFR radiation limits. In September 2020, the Netherlands issued a 5G and Health Advisory Report that recommended measuring environmental levels of RFR (an action the FCC does not take) and importantly, the Report also recommended *against* using the 26 GHz frequency band for 5G "for as long as the potential health risks have not been investigated."

Starting in July 2020, new French government policy ensures that wireless companies label tablets, laptops, Wi-Fi routers, DECT phones and other wireless connected electronics with RFR SAR exposure levels at point of sale and in all advertising. Legislation in the country has long ensured labeling cell phones for SAR levels, but this did not apply to other wireless devices. Now all wireless devices used close to the head and body are potentially covered.The ANFR (The National Frequency Agency) SAR Regulation Guide lists the equipment qualified as radio equipment that required SAR testing. One category includes mobile phones, tablets equipped with a 3G or 4G/5G SIM card, connected watches that contain a mobile phone SIM card, 3G or 4G/5G pocket format routers, Maritime Portable VHF, laptops (3G or 4G/5G); and the second category includes DECT cordless phones, walkie-talkies or equivalent devices (PMR), tablets operating using Wi-Fi or bluetooth, wireless microphones, radio controls used for drones or model making, connected motorcycle helmets and Wi-Fi laptops. ANFR states that technological evolutions in connected objects may lead to the extension of this labeling to include radio frequency belts, connected glasses ("smart glasses"), wireless headphones or headsets, portable safety sensors (distance sensors) and virtual reality headsets.

Expert Recommendations to Minimize Exposure to Children

Since the COVID pandemic, there have been several new expert recommendations to reduce RFR exposure for children in virtual education on computers for 7 hours or more a day. For example, in April 2020 the Cyprus National Committee on Environment and Children's Health released recommendations for parents on how to set up wired internet. In March 2020,

the Scientific Research Institute of Hygiene and Children's Health of the Russian Ministry of Health and the Russian National Committee on Non-Ionizing Radiation Protection also released recommendations for distance learning including restricting cell phones, using wired connections rather than Wi-Fi, reading real books and writing in real notebooks to support learning objectives. In November 2020, the Switzerland Doctors for Environmental Protection (AefU) released "Consistently apply the precautionary principle in mobile communications" demanding a reduction in exposure for children and youth.

Expert Appeals

Expert recommendations to reduce public and environmental exposures have escalated over the last two years. The 2020 Consensus Statement of UK and International Medical and Scientific Experts and Practitioners on Health Effects of Non-Ionising Radiation (NIR) was signed by over 3500 medical doctors cautioning: "Hundreds of peer-reviewed scientific studies have demonstrated adverse biological effects occurring in response to a range of NIR [non-ionizing radiation] exposures below current safety guidelines; however emissions continue to escalate. Medical evidence of harm has now reached the critical mass necessary to inspire the medical community to step out of their usual roles, stand up and speak out regarding their concern."

Expert groups have continued to organize and call for urgent action in various countries. For example, in October 2020 a letter signed by 135 health professionals in Chile requested a moratorium on the deployment of 5G technology, and a 5G Appeal was launched in support of a new 5G petition: "Apoya con tu firma la carta de solicitud de moratoria al 5G en Chile enviada al Ministro Paris"; English Translation: "With your signature, support the letter requesting a moratorium on 5G in Chile sent to Minister Paris".

In France, a September 2020 petition addressed to the Prime Minister was signed by over 60 elected officials urging the government to assess environmental effects before deploying 5G. In Canada, the Urgent Appeal to the Government of Canada to Suspend the 5G Rollout and to Choose Safe and Reliable Fiber Connections was launched by Canadians for Safe Technology (C4ST) in May 2020. The Appeal calls for a systematic review of the scientific evidence of health effects of RFR as well as binding guidelines to protect wildlife and the environment from RFR. The CEO of C4ST calling for this review is Frank Clegg, the former Chairman of Microsoft Canada.

Medical Conference on EMF

In 2021, the EMF Medical Conference 2021 presented evidence based information on the prevention, diagnosis and treatment of EMF associated illness featuring leading EMF experts in science, medicine, health and assessment. These proceedings are available as online courses for continuing medical education credits for medical doctors and health professionals. See www.emfconference2021.com

Expert Recommendations in the USA

The New Hampshire State Commission released its 2020 Report on 5G Health and Environment with 15 recommendations that included reducing public exposure to RFR via wired (not Wi-FI) internet connections in schools and libraries; software changes to phones and wireless devices to minimize exposure; informing the public about RFR exposures via educational campaigns and public posting of RFR levels; government measuring of RFR exposures; developing updated safety standards to protect the public and environment; and ensuring independent scientific review of the research.

On June 17th, 2020, over U.S. 400 medical professionals wrote the FCC a letter calling for consideration of non-thermal biological impacts. The Alliance of Nurses for Healthy Environments (ANHE), a national organization of nurses, also sent a 2020 letter calling for the FCC to address the science on children's vulnerability.

Over the last two years, several U.S. cities have passed resolutions and policies to halt increased RFR exposure and to ensure adequate scientific review of the health effects of RFR radiation. For example, Hawai'i County (July 2020), Easton Connecticut (May 2020), Keene New Hampshire (March 2020) and Farragut Tennessee (May 2020) have passed resolutions to halt 5G. The Coconut Creek Florida Commission adopted a Resolution on 5G and radiofrequency radiation (November 2020) "imploring the US Congress to allocate funding and direct a cross discipline federal agency study of the effects caused by exposure to current and proposed electromagnetic spectrum and radiofrequency commissions on human health and the environment in light of the recent implementation of fifth generation technology and to use those findings to create science based laws or rules regarding limiting human and environmental exposure."

On April 2, 2021 Montgomery County Maryland Council President Hucker and County Executive Elrich sent a letter to U.S. Senator Chris Van Hollen that included two specific requests regarding RFR:

> *"Request responsibility for setting RF standards be transferred from the Federal Communications Commission (FCC) - a regulatory agency - to the National Institute of Standards and Technology (NIST) - a standards setting body. Direct NIST to complete a review of credible published papers on the health effects of RF emissions on humans, including women and children, and tests to measure biological impact on humans, and thermal and biological tests of RF at different frequencies within 6 months. Further direct NIST to create and update thermal and biological standards for smart phones, small cells, and household Internet-of-Things (IoT) devices, Wi-Fi, and Bluetooth devices within 2 years and review and update standards every 5 years thereafter.*

Environmental Groups

Internationally and in the USA, environmental groups have issued statements and positions calling for protections for the environment before allowing wireless network proliferation. For example, in 2021, a major environmental group in Spain, Ecologistas en Accion or Ecologists in Action issued a position on 5G calling for precaution. They propose information campaigns, reducing exposure, monitoring compliance and requiring transparency, impartiality and plurality in health risk assessments. They also recommend wireless networks are replaced with wired connections and the recognition of electrohypersensitivity syndrome as an environmental disease with protections that include the creation of EMF-free zones.

In February 2021, the Green Party of California issued a Statement on 5G Wireless Technology advocating for "robust and independent scientific environmental review of 4G/5G wireless exposure" and to reduce exposures per the As Low As Reasonably Achievable (ALARA) principle. It is notable that environmental organizations are also issuing statements regarding the increased energy consumption of 5G. For example, Greenpeace France's "What is Digital Pollution" addresses how 5G will increase "digital pollution." Several investigative articles have been published on the environmental impacts including "How Green is 5G?" published November 2021 in Envirotech Magazine; "What Will 5G Mean for the Environment?" published January 2020 by Clair Curran of the Henry M. Jackson School of International Studies; and "Is Wireless Technology an Environmental Health Risk?" published January 2021 by Katie Alvord in the journal of the Society of Environmental Journalists.

5G NETWORKS AND MILLIMETER WAVE FREQUENCIES

The review paper "Adverse health effects of 5G mobile networking technology under real-life conditions" (Kostoff et al., 2020) published in *Toxicology Letters* identified a wide range of adverse systemic effects from 5G network deployment when real life conditions are considered such as the information content of signals along with the carrier frequencies and other toxic stimuli that can act in combination with the exposure. Many experiments do not include the real-life pulsing and modulation of the carrier signal. The vast majority of experiments do not account for synergistic adverse effects of other toxic stimuli with wireless radiation. 5G mobile networking technology will affect the skin and eyes and has adverse systemic effects. "In aggregate, for the high frequency (radiofrequency-RF) part of the spectrum, these reviews show that RF radiation below the FCC guidelines can result in: carcinogenicity (brain tumors/glioma, breast cancer, acoustic neuromas, leukemia, parotid gland tumors), genotoxicity (DNA damage, DNA repair inhibition, chromatin structure), mutagenicity, teratogenicity, neurodegenerative diseases (Alzheimer's Disease, Amyotrophic Lateral Sclerosis), neurobehavioral problems, autism, reproductive problems, pregnancy outcomes, excessive reactive oxygen species/oxidative stress, in ammation, apoptosis, blood-brain barrier disruption, pineal gland/melatonin production, sleep disturbance, headache, irritability, fatigue, concentration difficulties, depression, dizziness, tinnitus, burning and flushed skin, digestive disturbance, tremor, cardiac irregularities, adverse impacts on the neural, circulatory, immune, endocrine, and skeletal systems." The authors conclude that "Superimposing 5G radiation on an already imbedded toxic wireless radiation environment will exacerbate the adverse health

effects shown to exist. Far more research and testing of potential 5G health effects under real-life conditions is required before further rollout can be justified."

In "Absorption of 5G Radiation in Brain Tissue as a Function of Frequency, Power and Time" published in *IEEE Access* (Gultekin & Siegal, 2020) examines the beam penetration, absorption and thermal diffusion at representative 4G and 5G frequencies and shows that RF heating increases rapidly with frequency due to decreasing RF source wavelength and increasing power density with the same incident power and exposure time.

(Trillo et al., 2021) in their paper "Effects of the signal modulation on the response of human fibroblasts to in vitro stimulation with subthermal RF currents" published in *Electromagnetic Biology and Medicine* found the modulated signal was more efficient in inducing Hsp27 and decorin overexpression and promoting cell proliferation. "These data indicate that the cellular response is dependent on the RF signal modulation…"

5G human exposure studies include (Kim & Nasim, 2020). In their paper "Human Electromagnetic Field Exposure in 5G at 28 GHz" published in *IEEE Consumer Electronics Magazine* the authors compared the human EMF exposure in a 5G system to previous-generations of cellular systems. They suggest a minimum separation distance between a transmitter and a human user in order to keep exposure compliant with regulatory limits.

In their paper "Human RF-EMF Exposure Assessment Due to Access Point in Incoming 5G Indoor Scenario" published in *IEEE Journal of Electromagnetics, RF and Microwaves in Medicine and Biology* (Bonato et al., 2021) simulated the exposure to an adult and child from an indoor 5G access points (3.7 GHz and at 14 GHz) to evaluate how beamforming and the higher frequency use could impact exposure levels and found the reciprocal position between the antenna and the model head and the frequency range and the distance are factors that could greatly influence the exposure levels.

"Physiological effects of millimeter-waves on skin and skin cells: an overview of the to-date published studies" published in *Reviews on Environmental Health* is an overview of the physiological effects of millimeter waves on skin and skin cells (Leszczynski, 2020) by Dr. Leszczynski, one of the IARC working group members who voted 29 to 1 in May 2011 to classify RF-EMF as a 2B or "possible human" carcinogen. The author explains how the skin and eyes are directly exposed to the millimeter-waves from 5G and yet the current body of research on millimeter-waves is insufficient to devise science-based exposure limits and policies. He recommends precautionary measures such as postponing or limiting 5G deployment in residential areas until adequate research studies scientifically establish safety thresholds.

In "Limiting liability with positioning to minimize negative health effects of cellular phone towers" published in *Environmental Research* (Pearce, 2020) summarizes the peer-reviewed literature on the effects of RFR from cellular phone base stations and concludes that, "to protect cell phone tower firms, companies should seek to minimize human RFR exposure" because there is "already enough medical-scientific evidence to warrant long-term liability concerns."

In "Millimeter (MM) wave and microwave frequency radiation produce deeply penetrating effects: the biology and the physics" published in *Reviews on Environmental Health*, (Pall, 2021)

highlights three very important findings “rarely recognized in the EMF scientific literature: coherence of electronically generated EMFs; the key role of time-varying magnetic fields in generating highly penetrating effects; the key role of both modulating and pure EMF pulses in greatly increasing very short term high level time-variation of magnetic and electric fields. It is probable that genuine safety guidelines must keep nanosecond timescale-variation of coherent electric and magnetic fields below some maximum level in order to produce genuine safety. These findings have important implications with regard to 5G radiation.”

STANDARDS

The Environmental Working Group modeled the health effects incidence data from the National Toxicology Program (NTP) cell phone radiation studies to estimate departure points for exposure guidelines in a landmark analysis published in *Environmental Health*. The NTP study reported an increased incidence of cardiomyopathy in female and male rats and increased incidences of various neoplasms in male rats. They concluded that FCC limits should be strengthened by 200 to 400 times to protect children according to current risk assessment guidelines concluding that ”the analysis presented here supports a whole-body SAR limit of 2 to 4 mW/kg for adults, an exposure level that is 20- to 40-fold lower than the legally permissible limit of 0.08 W/kg for whole-body SAR under the current U.S. regulations. A ten-fold lower level of 0.2–0.4 mW/kg whole-body SAR may be appropriate for young children.

Both technology changes and behavior changes may be necessary to achieve these lower exposure levels. In “Development of health-based exposure limits for radiofrequency radiation from wireless devices using a benchmark dose approach” published in *Environmental Health*, the authors suggest: “Simple actions such as keeping the wireless devices farther away from the body offer an immediate way to decrease RFR exposure for the user.” (Uche, 2021)

In April 2020, Barnes and Greenebaum published “Setting Guidelines Electromagnetic Exposures Research Needs”, in *Bio Electro Magnetics* about the fact that current limits for exposures to non-ionizing electromagnetic fields do not address long-term exposures but are instead based on relatively short-term exposures. “What is missing in the current guidelines or regulations are guidelines for long-term exposure to weak EMF.” The authors document the science substantiating their recommendations for next steps regarding research and approaches for more protective exposure guidelines. They conclude that the science is sufficient indicating biological impacts at low levels:

> *“However, over the last 20 years the evidence has become extremely strong that weaker EMF over the whole range for frequencies from static through millimeter waves can modify biological processes. There is now solid experimental evidence and supporting theory showing that weak fields, especially but not exclusively at low frequencies, can modify reactive free radical concentrations and that changes in radical concentration and that of other signaling molecules, such as hydrogen peroxide and calcium, can modify biological processes…”*

The authors posit with copious scientific documentation how non-ionizing EMFs can impact cancer cell growth rates, membrane potentials, concentrations of calcium, reactive oxygen species (ROS), superoxide (O2−), nitric oxide (NO), hydrogen peroxide (H2O2), and intercellular pH, specifically highlighting the issue of oxidative stress as long-term elevations "are associated with cancer, aging, and Alzheimer's." They highlight how funding for research into the effects of EMF in the United States "is close to nonexistent" and make numerous recommendations for research studies. They also recommend, for example, that guidelines be set at three levels: the individual user, local company, and national or international level and posit that recommended limits could well be a function of frequency, amplitude, and modulation systems as well as be dependent on the condition of the person being exposed. Barnes and Greenebaum acknowledge, "There seem to be a smaller number of 'hypersensitive people' who have very real and serious problems" from exposure to weak RF fields.

The co-authors conclude: "We believe a carefully targeted program of federal research funds is called for, supplemented by communications system operators and corporations that manufacture equipment, under independent scientific management. Both governmental and private entities that emit RF signals would be well advised to fund research to elucidate and define threshold signal levels for the generation of long-term biological effects."

CANCER

The evidence that RFR is a human carcinogen has continued to increase with the publication of several new research studies and papers. Furthermore, cancer incidence is rising among children and young adults. The latest U.S. Annual Report to the Nation on the Status of Cancer (a collaborative effort among the American Cancer Society, the Centers for Disease Control and Prevention, the National Cancer Institute, part of the National Institutes of Health; and the North American Association of Central Cancer Registries) published in *Journal of the National Cancer Institute* found higher overall cancer incidence rates in children and young adults in almost all racial/ethnic groups, with increasing trends for the most common cancer types among children including leukemia, brain and other nervous system cancers, and lymphoma.

In November 2020 a systematic review and meta-analysis of case-control studies by (Choi et al., 2020), "Cellular Phone Use and Risk of Tumors: Systematic Review and Meta-Analysis", was published in *Environmental Research and Public Health.* The authors found evidence that linked cellular phone use to increased tumor risk. The meta-analysis established that 1,000 or more hours of cell phone use, or about 17 minutes per day over 10 years, was associated with a statistically significant 60% increase in brain tumor risk.

In their paper "Genetic susceptibility may modify the association between cell phone use and thyroid cancer: A population-based case-control study in Connecticut" published in *Environmental Research* (Luo et al., 2020), the Yale researchers with support from the American Cancer Society found cell phone use was significantly associated with thyroid cancer in people with a type of common genetic variation. The association increased as cell phone use

duration and frequency increased. The authors conclude that their findings “provide more evidence for RFR carcinogenic group classification.”

Regarding the impact of EMFs to the thyroid, a 2021 review by California Institute of Behavioral Neurosciences & Psychology researchers (Alkayyali et al., 2021) focused on thyroid hormones and thyroid gland histopathology documented studies indicating that RFR could be associated with alterations in hormone levels and impacts such as the hyperstimulation of thyroid gland follicles, causing oxidative stress and apoptosis of follicular cells. In “An Exploration of the Effects of Radiofrequency Radiation Emitted by Mobile Phones and Extremely Low Frequency Radiation on Thyroid Hormones and Thyroid Gland Histopathology” published in *Cureus*, the researchers found studies correlated thyroid impacts to the exposure duration, intensity, and SAR value of the RFR exposure. The authors state that “non-ionizing EMF radiation might be responsible for the recent increase in the incidence of thyroid insufficiency and cancer in the general population.”

In “The Effect of Continuous Low-Intensity Exposure to Electromagnetic Fields from Radio Base Stations to Cancer Mortality in Brazil” (Rodrigues et al. 2020) published their findings in the *International Journal of Environmental Research and Public Health* linking higher exposure to radio frequency radiation from cell antenna installations in Brazil to increased deaths from cancers. For all cancers and for the specific types investigated (breast, cervix, lung, and esophagus cancers), the higher the exposure, the higher the median of mortality rate.

The last two years of research has significantly increased the scientific evidence that RFR can increase oxidative stress, a hallmark of cancer, addressed earlier in this document. However, in addition, there are other endpoints associated with cancer that have been published in the last two years increasing the evidence related to the carcinogenicity of RFR. For example, (Ghandehari et al. 2021) found increased cell phone usage significantly correlated with a higher frequency of the micronucleus containing buccal mucosa cells and a higher frequency of micronucleus in each cell in the buccal mucosa. In “Micronucleus Assay in Cell Phone Users: Importance of Oral Mucosa Screening” published in *International Journal of Preventive Medicine*, the authors surmise, “Based on these results, it can be concluded that human buccal cells are likely to show increased micronucleus cells as a result of the genotoxic effects of cell phone waves which have been chronically exposed.”

Micronuclei are biomarkers of disease and they play an active role in tumor biology (Kwon et al. 2020). (Yao et al. 2021), in “The biological effects of electromagnetic exposure on immune cells and potential mechanisms” published in *Electromagnetic Biology and Medicine*, undertake a review of the biological effects of electromagnetic exposure on immune cells. The researchers found: “Accumulated data suggested that electromagnetic exposure could affect the number and function of immune cells to some extent, including cell proportion, cell cycle, apoptosis, killing activity, cytokines contents…”; and the authors conclude that, “knowledge of the biological effects on immune cells associated with electromagnetic fields is critical for proper health hazard evaluation, development of safety standards, and safe exploitation of new electromagnetic devices and applications.”

(Hardell & Carlberg, 2021) published “Lost opportunities for cancer prevention: historical evidence on early warnings with emphasis on radiofrequency radiation” in *Reviews in Environmental Health*. This eloquent review gives insight into missed opportunities for cancer prevention exemplified by asbestos, tobacco, certain pesticides and now RF radiation. The authors highlight how economic considerations were favored instead of cancer prevention. “A strategy to sow doubt on cancer risks was established decades ago and is now adopted and implemented in more sophisticated way by the telecom industry regarding RF-EMF risks to human beings and the environment. Industry has the economic power, access to politicians and media whereas concerned people are unheard.” The examples clearly show that if the scientific evidence on cancer risks had been taken seriously, many lives could have been saved.

The 2020 study “Increased Generational Risk of Colon and Rectal Cancer in Recent Birth Cohorts under Age 40 - the Hypothetical Role of Radiofrequency Radiation from Cell Phones” published in *Annals of Gastroenterology and Digestive Disorders* by Davis et al. presented data from the U.S. Centers for Disease Control and Prevention, the U.S. Surveillance Epidemiology and End-Results Program and Iranian cancer registries on the staggering increases in colon and rectal cancer in those under age 50. Those born in the U.S. in the 1990s have a doubled risk of colon cancer and a fourfold increase in rectal cancer by the time they reach age 24 compared to those born six decades ago. The researchers document experimental studies indicating that cells from the colon and rectum of Sprague-Dawley rats are exquisitely sensitive to RFR and assert that these cancer increases could be due to the way people carry cell phones close to their bodies in front and back pockets. They reference how the French government frequency testing agency (ANFR) found that 9 out of 10 phones exceeded the safety guidelines when held against the body by factors of 1.6-3.7 times for the European standard or by factors as high as 11 if 1-g SAR values were to be measured as required by the U.S. FCC. “It appears prudent to promote policies to reduce exposures to radiofrequency radiation and encourage ALARA during pediatric CT procedures, while continuing to promote advances in software and hardware of phones and scanners that can lower exposures to non-ionizing radiation during normal operations. In addition, major public educational programs should be developed to promote awareness of the need to practice safer technology, especially for the young, who may well be at greater risk of developing cancer due to their immunological immaturity.”

In March 2021, Christopher Portier, Ph.D., formerly the Director of the United States National Center for Environmental Health at the Centers for Disease Control and Prevention (CDC) in Atlanta and the Director of the Agency for Toxic Substances and Disease Registry submitted a comprehensive review of the scientific research in a major cell phone/brain cancer lawsuit where he concludes: “The evidence on an association between cellular phone use and the risk of glioma in adults is quite strong.” Portier further states in his Expert Report: “In my opinion, RF exposure probably causes gliomas and neuromas and, given the human, animal and experimental evidence, I assert that, to a reasonable degree of scientific certainty, the probability that RF exposure causes gliomas and neuromas is high.”

A important paper was published in *Health Physics* in 2020 by longtime NIH scientist Dr. Ronald Melnick entitled "ICNIRP'S Evaluation of the National Toxicology Program's Carcinogenicity Studies on Radiofrequency Electromagnetic Fields" addressing numerous criticisms of the NTP findings. Melnick documents one by one how these criticisms include false claims and "several incorrect statements that appear to be written to justify retaining exposure standards that were established more than 20 years ago." He presents the scientific documentation that each of these criticisms are unfounded stating "ICNIRP's misrepresentation of the methodology and interpretation of the NTP studies on cell phone RF radiation does not support their conclusion that "limitations preclude drawing conclusions about carcinogenicity in relation to RF EMFs."

Melnick explains that the utility of the NTP studies for assessing human health risks is undermined by the incorrect statements and misinformation in the ICNIRP critique. Melnick describes how the ICNIRP note failed to recognize that focal hyperplasias (proliferative lesions) of glial cells in the brain and of Schwann cells in the heart are putative preneoplastic lesions that may progress to malignant glioma or to cardiac schwannoma tumors, respectively.

Further, Melnick documents how the ICNIRP note focused on the carcinogenicity but ignored other adverse biological effects observed in the NTP studies, including reduced birth weights, DNA strand breaks in brain cells (which is supportive of the cancer findings), increased incidences of proliferative lesions (tumors and hyperplasia) in the prostate gland, and exposure-related increases in the incidence of cardiomyopathy (a type of tissue damage) of the right ventricle of the heart in male and female rats.

"After all, it was the US Food and Drug Administration that requested the NTP studies of cell phone radiation in experimental animals to provide the basis to assess the risk to human health. The NTP studies show that the assumption that RF radiation is incapable of causing cancer or other adverse health effects other than by tissue heating is wrong. If ICNIRP's goal is truly aimed at protecting the public from potential harm, then it would be appropriate for this group to quantify the health risks associated with exposure to RF-EMFs and then develop health-protective guidelines for chronic exposures, especially for children, who are likely to be more susceptible than adults to adverse effects of RF radiation."

These studies are a small sampling of the numerous studies that have documented adverse effects from RFR.

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