MEMORANDUM

From: W. Scott McCollough
To: Malibu City Council
Copy: Reva Feldman, City Manager; Adrian Fernandez, Principal Planner
Date: August 24, 2020
Subject: August 24, 2020 Agenda Item # 6.A; Response to TLC (Kramer) Memo on “5G Wireless Technology and Small Cells”

Mayor Pierson, Mayor Pro Tempore Peak, and Councilmembers Farrer, Mullen, and Wagner:

I present the material below on behalf of a group of concerned Malibu residents, many of whom have been in contact with you and City staff to express their concerns regarding the unconstrained wireless facility proliferation that appears to be taking place without adequate oversight. These residents support the consensus view that the City needs to update its ground rules for wireless facilities. Several of these residents will be speaking on topics covered by the August 24, 2020 Agenda Item #6.A.

We are aware of the Agenda Report supplied by Adrian Fernandez, Principal Planner and Approved by the City Manager, relating to Agenda Item # 6.A of the August 24, 2020 Council meeting. We have also reviewed the July 28, 2020 memorandum by Dr. Johnathan Kramer of the Telecom Law firm, PC (“Kramer Memo”) that is enclosed in Mr. Fernandez’s Agenda Report. We have prepared this Memorandum in response to the Kramer Memo and request that this response be included in the public information for Item #6.A and similarly posted in the City’s Agenda Center entry for the Agenda Item.

The Kramer Memo contains several overgeneralizations, uses misleading or vague language and provides unsubstantiated, conclusory – and ultimately incorrect – assertions. It relies on faulty technical and legal analyses. This response will correct the Kramer Memo’s major errors, but time and volume limitations prevent a full dissertation of many others. We will focus our efforts on showing that the most significant ultimate conclusion Dr. Kramer seeks to convey – that the City’s “hands are tied” and it has only limited “aesthetic” options when it comes to protecting the values important to the City and its residents – is misleading, a disservice to the Council and to all of Malibu’s residents, and simply not true.

Some of Malibu’s traditional powers and protective remedies are admittedly restricted or controlled under state and federal law but your hands are not completely bound like Dr. Kramer implies. We, of course, want and encourage the City to obey the law, but we also strongly believe you should fully exercise all the powers you retain, and they are far more expansive than the Kramer Memo provides. You may be preempted from certain actions or bases for permit denial, but no law says you cannot address the
concerns of your constituents and speak your own minds. You, as the elected municipal representatives of Malibu residents, have not only the right but also the duty to note your disagreement with and protest against the restrictions that exist. You should both act and proclaim, and you should restrain from certain action only where the law compels you to do so.

**Issue 1: “4G” and “5G” technical descriptions and legal ramifications**

We agree with some of the Kramer Memo’s general discussion of the technology behind prior wireless service “generations” and Dr. Kramer does provide a relatively useful “freeway” analogy. Dr. Kramer makes a significant technical error about 5G modulation, however. More important, the Kramer Memo fails to point out that the 5G “freeway” will be mostly for “vehicles” that, on their own, do not fall within the statutory and rule-based regulatory service classifications that receive protection and preemption.

A. “5G” is not just “4G with a techie twist”

The Kramer Memo uses careful wording and phrasing to convey the impression that “5G” is not much different than prior digital-based wireless air interfaces. It states 5G “mostly differs from 4G not in the way the signals are formed (the modulation), but rather by the greater number higher-band frequencies that are allocated for carriers’ use.” Kramer Memo p. 2. Elsewhere on the same page the Kramer Memo notes that “LTE” (the predominant form of “4G”) “uses various signal modulation techniques to squeeze more information into the bits and bytes digital transmitted over-the-air.” Page 3 states that “5G … is not a new form of radio modulation.”

The Kramer Memo repeatedly states that 5G modulation is the same as that for 4G only to later contend that the issue is irrelevant. But both assertions are incorrect. The 5G air interface and the network core were built using LTE as the foundation but the simple metaphor of 5G being similar to an “LTE” highway with some flourishes like additional and adaptable lanes intentionally obscures significant differences between LTE and 5G and in particular fails to acknowledge the means by which the new capabilities are accomplished. The omission of key information leads to misunderstandings regarding legal and other issues that arise from what 5G actually “is” and what it is predominantly “for.”

The Kramer Memo is correct that “5G” is “a means of using modern transmission techniques on more and higher bands in varying combinations to provide greater bandwidth of the spectrum for current and new applications, and more users simultaneously accessing that spectrum for those increasing uses.” Kramer Memo p. 3. But that is only part of the story. A 5G network is in fact multiple networks consisting of up to 3 different types of cells, each with different antennas that try to minimize tradeoffs regarding download speed vs. distance and service area. 5G wireless devices will

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1 The Kramer Memo implies that modulation can somehow put more information into a bit or byte. It cannot. “Bit” stands for “binary digit” and the value must be either 1 or 0. A “byte” typically contains 8 bits. You can have different sized bytes, but each bit will always have the same amount of information. Modulation techniques modify the carrier wave and allow more efficient throughput of fixed-size bits and bytes.
connect to the network through the highest speed antenna within range at their location. This requires a significantly higher number of base station and user equipment “radios” or emissions sources, that, in turn, will result in more proliferation and significant local impacts of various kinds.

We suspect the Kramer Memo downplays the 5G modulation schemes that LTE does not use, especially on the uplink side, because 5G modulation is very relevant to those who care about health effects from single, multiple and cumulative radiofrequency related exposures. Leading experts like EPA-retired scientist Dr. Carl Blackman and former Navy researcher Allan Frey contend that the biological effects from RF modulation may be more important than those from base RF exposure levels.

“5G” is often used in amorphous and confusing ways, and it is subject to considerable marketing hype. The Kramer Memo plays from the industry song-sheet. For example, Kramer Memo p. 2 implies that “5G” will use only “higher frequency bands” and needs “small cells” to work to provide “covered services.” The implication is wrong. Some providers may in the future use higher frequency bands and small cells to provide 5G-based covered services, but only one (Verizon) is currently actively doing so. 5G can easily operate on the traditional lower bands used for cellular service and connect solely through macrocells, especially when it is supporting the “covered” “personal wireless service” that is given special protection from local regulation under state and federal law.

The industry plans to install 800,000 new sites, and most of them will be small cells that will support what is anticipated to be up to 50 billion “Internet of Things” (“IoT”) devices that will not use or rely on covered services. 4G was built to connect “covered” people. 5G is all about connecting non-covered “things.” “Covered” people are a mere afterthought.

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2 The LTE waveform largely relies on orthogonal frequency division multiplexing (“OFDM”). 5G’s data service demands (such as high-speed video downloads, gaming, car-to-car/car-to-infrastructure, IoT/M2M) and the on-the-fly ability to change or synchronize additional frequency bands require more than OFDM alone can deliver. 5G therefore at times uses different modulation than LTE, including variations on OFDM like Direct-Fourier Transform Spread (DFT-s-OFDM, also called SC-FDMA) that in turn employs phase key shifting and Quadrature Amplitude Modulation based network-user bit transmission symbol mapping techniques like BPSK, QPSK and M-QAM. 5G NR also applies a type of CP-OFDM for the uplink, whereas LTE uses SC-FDMA. These advanced modulation schemes are required to support “data” services. They are not necessary for the “personal wireless services” (voice, texting and push-to-talk) that are “covered” by federal preemption.


4 From a “standards” perspective 5G initially meant any radio access system with a theoretical peak download speed of 20 gigabits/second and upload speed of 10 gigabits/second. See ITU IMT-2020. The actual standards development is being handled by the 3rd Generation Partnership Project (3GPP) for radio access (5G NR) and the standard was formally ratified only a few months ago. The Institute of Electrical and Electronics Engineers (“IEEE”) is overseeing several network core issues, especially “wireline” network architecture aspects and the remote radio head and the base band unit.
Wireless technology discourse is chock-full of mind-numbing engineering and legal alphabet for most people. The communications industry’s marketing hype leverages the public’s general incomprehension to distract and confuse. Industry wants to wow the public about whiz-bang features and functions everyone will supposedly want. But this is industry puffery. Most people will not need the advanced 5G-provided features and functions, especially if they have fiber-based wired Internet at home.

What industry does not tell the public is that – at least in the beginning – the 5G business case centers on “corporate” and government, and depends on models that give rise to significant individual privacy concerns. For example, the Kramer Memo mentions “streaming video” but somehow omits that a very large amount of that will be surveillance video from wireless cameras in public areas that silently capture every move and record faces and license plates for future identification. The network will also have advanced capabilities that precisely identify and record the location of every user device (including privately-owned IoT devices in refrigerators and children’s toys), and capture immense amounts of “transactional” data (and sometimes even content) from each device. All this personal information will be available for correlation, identification and sale to third parties, including the government. 5G will lead to more intrusive tracking and private data exploitation by large and mostly-unseen companies and the government. The early money for 5G will come from surveillance and the sale of people’s private information, not revenue earned from voice, texts or push-to-talk capability.

B. “5G” “small cells” mostly support Internet and private mobile service, not personal wireless service

We want to emphasize an important legal issue: while a 5G small cell can be used to support traditional mobile service, 5G small cells mostly exist to support services, features and functions other than those protected by state and federal preemptive provisions. The Kramer Memo inadvertently so admits on p. 2:

…Better yet, 5G permits wider ‘vehicles’ (here, for example, users downloading HD movies, which we will call wide-load trucks) to use more than one eastbound lane at a time. This sharing of two lanes is called ‘signal bonding’ and it is where several frequency bands can be temporarily connected to serve a high bandwidth need such a downloading a movie shot in 4K, then un-bonding the bands to return the use of the ‘lanes’ to lower-demand users, such as those typing emails or browsing the Internet.

Higher bandwidth users are expected to include self-driving cars using real-time data for navigation and collision avoidance; tele-medicine (heavy users of real-time video images); and ever increasing amounts of streaming videos.

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5 For example, 5G is often touted as a way to enable “smart city” products. But see American Civil Liberties Union – Northern California Guide: ACLU – Making Smart Decisions About Smart Cities, available at https://www.aclunc.org/publications/making-smart-decisions-about-smart-cities.
The Kramer Memo excitedly mentions “4K movies” “emails,” “browsing the Internet,” “self-driving cars,” “tele-medicine” and “and ever increasing amounts of streaming videos.” While many individuals do enjoy these capabilities, none of them are part of “personal wireless service” or even a telecommunications service and the preemptive provisions in 47 U.S.C. 253 and 332(c)(7) do not apply to those services in isolation. Each of the aforementioned services is an “information service” or a “private mobile service” under federal law and not “personal wireless service” under federal law or “wireless telecommunications service” under California law. Stated differently, none of the advanced capabilities listed in the Kramer Memo are “covered services” for purposes of the preemptive laws that Dr. Kramer claims tie Malibu’s hands. This is clear from any careful reading of *In re Accelerating Wireless Broadband Deployment by Removing Barriers et al.*, 33 FCC Rcd 9088, 9107, n.95 (Sept. 27, 2018) (“Small Cell Order”) aff’d in part, vacated in part. *City of Portland v. United States*, 2020 U.S. App. LEXIS 25553 (9th Cir. Aug. 12, 2020).

Voice, texting and push-to-talk are “covered services”; Internet, email, IoT, M2M, streaming video, real-time navigation and telemedicine are not covered services. These are all potentially interesting products for those who are willing to accept the associated privacy implications, but the City is not required to allow a small cell to be built in a residential area merely so some people can enjoy these products while residents suffer the adverse visual and privacy effects and reduced property values that accompany new wireless installations.

State and federal law require the City to allow a new facility only if the provider can demonstrate that it has a significant gap in coverage of its covered services, and further proves the proposed facility will be the least intrusive means to fill the gap in covered services. To be sure, once the facility is approved and installed the provider can also use it to supply non-covered services, but the City is not required to allow the facility if the gap-filling “need” relates only to the non-covered services the Kramer memo extolls and then incorrectly contends the City can do little to nothing about.

To apply the Kramer analogy, the City must allow lanes for cars with people talking and texting (preferably using hands-free), and it probably must allow big trucks to also use those lanes. But it does not have to sit idly by and rubber-stamp construction of a massive and ugly 6-lane superhighway specially designed for extra-wide large trucks that cars can also use (if they can dodge the trucks), and then witness the attendant destruction of a previously quiet, private and beautiful residential area.

C. The federal prohibition of regulation of environmental effects does not prohibit other protective action and is not a gag order or mandatory blinder

47 U.S.C. §332(c)(7)(b)(iv) pre-empts local regulation of personal wireless service placement, construction and modification based on environmental effects. The Kramer Memo p. 5 is correct that “a local jurisdiction cannot deny a cell site project if the

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6 There is one exception to this general rule. Spectrum Act “minor modifications” to existing facilities have a broader protective coverage under federal law. But both state and federal law allow Malibu to subject “non-exempt” projects in public right-of-way or on private property to the “significant gap”/“least intrusive” test.
only basis for the denial is due to public concerns about the RF emissions.” But much of the discussion surrounding this conclusion is outrageously one-sided because it entirely ignores the other side of the bargain struck by Congress when it inserted the preemptive language. Section 332(c)(7)(A) states that “[e]xcept as provided in this paragraph, nothing in this chapter shall limit or affect the authority of a State or local government or instrumentality thereof over decisions regarding the placement, construction, and modification of personal wireless service facilities.” (emphasis added)

The exceptions to local authorities’ retained regulatory authority over placement, construction and modification are that the regulation (i) cannot “unreasonably discriminate among providers of functionally equivalent services”; (ii) “prohibit or have the effect of prohibiting the provision of personal wireless services” or (iii) deny a project on environmental concerns to the extent the project complies with FCC emissions regulations. A local authority can impose regulations relating to many topics, and it is not limited to mere and minor “aesthetics” concerns. To pick a single relevant example, the City can impose significant substantive requirements relating to fire hazards and actual fires and it can prioritize where it prefers that facilities be located and even prohibit installations in residential or other areas, subject, of course, to the ultimate federal “effective prohibition” and “unreasonable discrimination” floor.

The Kramer Memo is flatly incorrect when it claims that “any opinion regarding whether 5G (or any other ‘G’) is safe is outside the bounds for a local government.” We urge you to compare the actual statutory language with the Kramer Memo characterizations of that language. Malibu cannot deny a permit based solely on health or environmental concerns when the project will comply with FCC regulations, but nothing in the statute prevents the Council from being aware of significant health or environmental concerns or articulating those concerns outside the context of an individual permit decision. The statute rules out a basis for individual permit denial but it is not a wide-ranging gag order. You are free to form and have any opinion you or the Council adopt. Equally important, the statute does not purport to extend any restriction or prohibition on ordinary citizens that have legitimate concerns about the safety of this technology.

Those concerns are warranted and legitimate. There is an extraordinary amount of peer-reviewed scientific evidence, including US government studies, indicating adverse health effects from levels of radiation well below the FCC Radiofrequency (“RF”) emissions guidelines. The World Health Organization has classified this radiation as a class 2B carcinogen. In 2014, the California Medical Association passed a resolution acknowledging that the science has shown profound adverse effects of wireless technology and called on the FCC to update its health regulations. The California Department of Public Health published guidelines in 2018 admitting that peer reviewed scientific studies show evidence that wireless radiation may cause DNA damage, reproduction harms, cancer and learning disabilities among other effects. Some Malibu residents have already been injured by FCC-authorized and approved RF emissions. The FCC is fully aware of these significant health risks but so far it has chosen to not adopt biologically-based RF emissions regulations that sufficiently-protect humans, animals or the environment. We are stuck with those entirely inadequate regulations for now and it is true that the City cannot deny an application for a project.
that meets them, but nothing in any law requires us to remain silent about the FCC regulations’ stark failures. Dr. Kramer’s contrary assertion is wrong.

**Issue 2:** The Kramer Memo overstates the “small cell” and “minor modification” rules and the practical effect of the “shot clock” and “deemed approved” requirements

The Kramer Memo contends that “[t]he FCC has created special rules for small cells that make it very difficult for a municipality to deny the installation applications, and the Commission also adopted rules to force quick action on those applications by local government.” Kramer Memo p. 3. Dr. Kramer’s effort to convince you all is lost is so intense the that the Memo repeats the same assertion with only slightly different words later on the same page: “The Commission’s small cell rules make it very difficult for local governments to deny or condition those classes of site applications other than for some aesthetic issues.” Once again, Dr. Kramer vastly overstates the case.

The wireless industry certainly wants the City of Malibu and other cities to believe that any effort to scrutinize wireless applications in general, and small cell applications in particular, will be wasted effort. The goal is to convince cities they should just let industry have its way. But cities do still have robust remaining powers and can still deny small cell applications and all other wireless application types for various reasons. The shot clock rules\(^7\) do require relatively fast processing, but with proper advance planning and a dedication to efficient handling the City can still exercise some control.

The Kramer Memo was written on July 28, 2020. It clearly assumed the FCC’s small cell rules would survive judicial scrutiny with all of their scales intact. But that is not how things turned out. The Ninth Circuit’s August 12, 2020 decision vacated the FCC’s “aesthetic” limits and imposed some useful limiting interpretations on other parts of the rules it sustained. One important aspect is that the Ninth Circuit refused to be cowed by the FCC’s criticism of the Court’s “significant gap”/“least intrusive” test and the FCC’s effort to substitute a lower bar through the “material inhibition” standard.” Compare Small Cell Order, 33 FCC Rcd at 9101-9110, with City of Portland, 2020 U.S.

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\(^7\) The Kramer Memo on p. 3 asserts the “shot clock” for small cell applications is 60 days. That is true for small cell “collocation” in an existing structure. 47 C.F.R. 1.6003(c)(i). Minor modification requests also have a 60-day short clock. 1.6100(c)(2). Kramer failed to point out, however, that the deadline is 90 days for “new structure” small cells and all other wireless application types. 1.6003(c)(ii)-(iv).
App. LEXIS 25553 at *19-22, 34-43. The “significant gap”/“least intrusive” test remains alive and well in the Ninth Circuit.

The small cell rules do not eliminate all items in cities’ toolbox, at least for now. Aesthetic requirements, especially given the Ninth Circuit decision, are one significant tool. But there are others. The FCC has not yet tried to prevent cities from imposing safety requirements related to fire hazards or compliance with building codes, and we are fairly certain most courts of appeals would reject any such effort. The city can still exercise some control over use of the right-of-way (both during and after construction), and it can still ensure that all state and federal environmental rules have been followed. Since Malibu is within the Coastal Commission boundary, it can provide that the Malibu permit is not effective until any required Coastal Commission permits are obtained and also effective. The City can establish preferred zones, set-backs and, of course, reasonable aesthetic protections to minimize blight.

What is necessary is a set of pre-established and publicized application requirements. If the applicant does not submit a fully-compliant application package with all required information the city can reject the application within 10 days, thereby tolling or even re-setting the clock to day zero. 47 C.F.R. 1.6003(d)(1), (2). The city can impose reasonable conditions on the permit, such as indemnification and adequate insurance. There is still a wide range of legitimate city and resident interests that can be protected despite FCC and industry efforts to geld what they view as annoying local authorities that want to threaten their mutual efforts at total hegemony.

Kramer Memo p. 3 also mentions the FCC’s June 2020 Declaratory Ruling and NPRM. The document does not provide a citation, but for your convenience it is In re Implementation of State & Local Governments’ Obligation to Approve Certain Wireless Facility Modification Requests, 35 FCC Rcd 5977 (F.C.C. June 10, 2020). As the caption reflects, the decision relates only to Spectrum Act “minor modifications” under 47 C.F.R. 1.6100 and does not pertain to “small cell” applications under 47 C.F.R. 1.6002 and 1.6003. Further, and more important, the Declaratory Ruling merely “interprets” 1.6100 and did not change or enact any “legislative rule.” It is merely an “interpretive rule” that is not binding in the same fashion as an actual legislative rule. It "simply advis[es] the public of the agency's construction of the statutes and rules which it administers and lacks the force and effect of law.” PDR Network, LLC v. Carlton & Harris Chiropractic, Inc., 139 S. Ct. 2051, 2052 (2019).

"Deemed approved" and the 30 fewer days when the shot clock ends with day 60 present logistical challenges but do not lead to insurmountable problems or impossible outcomes. The Kramer Memo is correct that under federal law “minor modifications” are deemed approved if the local authority does not act within the shot clock deadline. 1.6100(c)(4). However, no other application types are “deemed approved” under federal law. There is simply a failure to act. The applicant can then seek judicial relief, which can include a judgment requiring the city to grant the permit. 47 U.S.C. 332(c)(7)(B)(v).

California state law adds to the “deemed approved” list. Under Cal. Gov. Code §65964.1(a), a collocation or siting application for a wireless telecommunications facility is deemed approved if each of several conditions are met. First, the city must have not either approved or disapproved the application within the FCC shot clock period,
including consideration of the FCC tolling rules. Second, the applicant must have provided all required public notices. Third, the applicant must give notice to the local authority that the shot clock expired and the application is deemed approved. If all these conditions are met the local authority has 30 days to seek judicial review that would effectively reverse the “deemed approved” status. Section 65964.1(b) provides that this section does not apply to Spectrum Act minor modification “eligible facilities requests.” See also 65964.1(d)(2). Subsection (f) also excludes collocation and siting applications for projects involving placement on fire department facilities.

Section 65964.1 does mean more projects can be “deemed approved” than under the federal regime. The conditions and exclusions are important, however, and serve to mitigate some of the limitations on cities. A city, for example, can have robust notice requirements the applicant must fulfill, and if there is any notice shortcoming there is no deemed approval. The practical effect of “deemed approved,” however is also important. It merely requires a city (or some interested private party\(^8\)) that wants to oppose a purported “deemed approved” project to be the plaintiff, whereas under the federal regime for all but minor modifications the applicant will be the one seeking relief. A city that misses the deadline can still secure effective denial in proper circumstances. The plaintiff must expend the resources to convince a court that denial is the proper outcome, and that is no small thing. But the Kramer Memo implies nothing can be done at all and that is simply not true.

90 days is a compressed period, and 60 is even more so. But there are ways to maximize flexibility and ensure that the City has everything it needs on Day 1. The existing Malibu ordinance needs to be updated and more fleshed-out to provide a complete list so everyone, including City staff and applicants, know what is required and expected. Further, the City can retain an outside expert (paid for by the applicant) to assist in the assessment, thereby allowing for additional and relatively costless resources to dedicate to the task. Finally, a well-constructed ordinance can provide for many of the City’s desired “conditions” to attach to even deemed approved permits.

As a practical matter the 60-day period will often end up being 90 days or even more before any significant implementation activity. Most applicants who claim “deemed approved” will not immediately send the California statutory notice of deemed approval and they will likely be cautious enough to wait for the 30-day filing deadline to run before they start any action.

Shot clock and deemed approved issues and concerns are important and valid, but these requirements are not nearly as repressive or overwhelming as the Kramer Memo makes them out to be. A well-devised local ordinance can reduce a lot of the negative impact and thereby still protect Malibu residents and the City itself to the maximum extent allowed by law.

\(^8\) The state statute does not mention other potential plaintiffs, but 47 U.S.C. 332(c)(7)(v) makes clear that “any person adversely affected by any final action or failure to act” can file for relief within 30 days before a court of competent jurisdiction or the FCC.
Conclusion: All is not lost, and robust protection for Malibu’s residents and the City is still possible and necessary

Kramer Memo p. 5 concludes with an ominous warning designed to reinforce the impression that Malibu's hands are inextricably bound and only a few inconsequential and ineffective aesthetic standards are available:

At the end of the day, under the 1996 Act (as repeatedly narrowed by FCC interpretations) a local government jurisdiction is in the business of assessing whether a cell site project meets the legally-adopted and legally-acceptable aesthetic standards of the jurisdiction, and only determining whether a cell site project complies with the national FCC RF safety rules.

This recitation of a flatly-wrong but common industry talking point raises significant questions regarding whose interests are being served by the Kramer Memo. Dr. Kramer may genuinely hold these opinions, but they are mere opinions. The City Council should not accept them as settled facts. Nor should the City allow itself to be steered into a weak ordinance that will require application rubber-stamping and fewer and lower conditions and requirements than the law allows Malibu to impose. That would not materially improve what is happening today, and it would disserve the significant and legitimate interests, concerns and values firmly and rightly held by many Malibu residents.

This Memorandum deals solely with the Kramer Memo. We look forward to answering any questions you may have regarding this response in particular and communications issue and facilities in general. We also welcome the opportunity to provide a more comprehensive analysis of the law governing wireless facility installations to assist the City in its assessment of and response to wireless facility applications in Malibu.