PROTECTING MALIBU'S FUTURE:

PREVENTING ELECTRICAL FIRES IN CELL TOWERS BY INTRODUCING ENHANCED BUT GENERALLY ACCEPTED ENGINEERING DESIGN RIGOR AND ADEQUATE PROOF OF WORK IN THE APPLICATION

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INTRODUCTION

The fire risk in Malibu is extreme. Wireless Communication Facility (WCF) proliferation increases the possibility of electrical fires. As such, electrical fire safety must be a priority for the City.

A group of Malibu residents (referred to here as the Community) have been attempting to work with the City to help minimize Malibu's fire risk from WCF installations. This white paper explains the Community's proposed safety design and application content requirements. These proposed requirements are tailored to Wireless Communications Facility installations in areas with dry vegetation, like Malibu. Some of the language was taken from ordinances in Encinitas and Sebastopol, while much of it is new. The new language is necessary because of the recent discovery that national, state and local electrical codes have expressed or implicit exemptions for "public utilities." *See, e.g.*, California Electric Code Section 89.101.3.3(4) and (5) and "public utility" exclusion in Los Angeles County Electric Code Sections 80-3 and 80.6. There are similar exemptions in NFPA documents. Therefore, merely adopting the Electric Code, as Staff proposes, will do nothing. Malibu will have no electrical safety standards for WCFs unless our proposals are adopted.

There are generally accepted standards for most other buildings and structures, including installations that house extensive and complicated electronics with similar characteristics to those employed as part of a WCF. The Community's proposed design standards incorporate those standards. In other words, we basically eliminated the "exception" so the general standards can apply. As a result, and consistent with FCC rules, Malibu will be enforcing "generally applicable building, structural, electrical, and safety codes and other laws codifying objective standards reasonably related to health and safety." *In the Matter of Acceleration of Broadband Deployment by Improving Wireless Facilities Siting Policies; Acceleration of Broadband Deployment: Expanding the Reach and Reducing the Cost of Broadband Deployment by Improving Policies Regarding Public Rights of Way and Wireless Facilities Siting; 2012 Biennial Review of Telecommunications Regulations*, 29 FCC Rcd 12865, 12945, ¶188 (2014).

Separately, the Community's proposal sets out the information that must be contained in the application. The design is important, but it is equally crucial that applicants be required to show their work, provided in a way that allows for independent verification and analysis. Only then

can Malibu residents be assured that every possible step has been taken to minimize the risk of yet another wildfire caused or made worse by equipment breakdown in a WCF.

This paper provides specific and detailed explanations for the requirements we propose to help mitigate the profound fire risks in Malibu. It explains what we need by way of engineering up-front design and what is required for the telecommunications carrier to "show its work" in the permit application. Carriers will have their own professional engineers run their equipment through basic tests or produce standard design diagrams with an engineer's seal. Those scrutinizing the application will be able to independently verify the work was indeed done by the appropriate qualified personnel. This design and application content rigor should catch most design flaws that could, if left undetected, put Malibu at greater risk for fire.

Malibu bears greater risk if telecom cuts corners in the engineering and design process. Our proposal requires just over a dozen documents in the Application, signed off on by a professional engineer employed by telecom. Those documents will be reviewed by Malibu's permitting and enforcement departments and, if everything is in order, facilities will be approved for installation in the city. We are simply asking carriers to do due diligence and submit the right paperwork to the City when they apply. If they are going to come into Malibu, they must do so safely. It's that simple.

We present examples below of failure to scrutinize electrical equipment and utilize professional engineers to help protect life, health and property. These examples will be familiar to every member of the Planning Commission and, we trust, will serve as a reminder to all of us that engineering rigor and proof of work applied early in the process will protect the City from potentially catastrophic failures later on.

We also provide several examples of the ways electrical fires can start in cell towers and why the new small cell infrastructure poses unique threats to Malibu. In addition, we demonstrate that setbacks and separation will accommodate telecommunications yet allow enough space and distance for residents to escape should an electrical fire still occur. Electrical fires cannot be extinguished by homeowners or even firefighters until power to the facility is cut by the utility. In some instances, de-energization of a cell tower has taken over 60 minutes. In such a circumstance, distance from residences, schools and other buildings may mean the difference between life and death.

Homeowners should never fight a cell tower fire even if it is directly in front of their home. To fight an electrical fire before the tower has been de-energized by the local utility (10 to 60 minutes) risks electrocution. Residents of Malibu must flee their homes in the event of an electrical fire and that is why distance between towers and setbacks from homes is critical.

Finally, we urge the Planning Commission and Staff to recognize that the federal government and public safety officials consider wireless infrastructure to be essential infrastructure. Therefore, any hesitation on the part of Staff to require our electric fire safety protocol may be allayed by appreciating that the infrastructure itself needs to be protected. Attempts by carriers to introduce slipshod and inferior design, materials and products in Malibu should be rejected.

We have been asked if our electric fire safety protocol is new and if electric fire safety requirements have been adopted by other cities. The answer is yes, and the answer is no. We know some cities are beginning to write into their small cell ordinances that electric codes should be adhered to because of the growing awareness of electrical fire risk in cell towers very close to homes and schools. As such, cities have attempted to require electric fire safety protocols. But it appears most cities have not discovered the "loophole" arising from the public utility exception that renders their efforts to protect their cities ineffective. As far as we can tell, Malibu will be the first to identify this problem and actually force an objective, generally applicable standard for electric fire safety.

Our proposed electric fire safety requirements are the result of in-depth collaboration between Tony Simmons, P.E., a professional engineer with decades of electric fire safety experience and Susan Foster, writer and an Honorary Firefighter with the San Diego Fire Department and a member of the 2001 Task Force in San Diego County that created the County's first wireless ordinance. That ordinance survived a challenge all the way to the U.S. Supreme Court. Susan Foster has worked with rank-and-file firefighters in California and across the country over the last 20 years on the issue of RF radiation health and safety.

Mr. Simmons is a professional electrical engineer licensed by the States of California and Nevada. He is a recognized subject matter expert on electrical safety. As an employee of NV Energy, which served customers in California and Nevada, he was responsible for ensuring that no gap existed between the safety standards for customer-owned equipment and utility-owned equipment. Mr. Simmons designed a specialized test facility that integrated electrical equipment from East Asia, Europe, and the United States. This test site incorporated grounded and ungrounded electrical systems from all three regions and required Mr. Simmons to integrate standards from three regions to adhere to the technical requirements of the U.S. National Electric Code.

Residents and city planners in various California cities have contacted Susan Foster seeking assistance in their efforts to create safer WCF ordinances by taking electric fire safety into account. Additionally, Susan Foster has met with city councilmembers and engineering/IT personnel in several cities in Colorado, a state that also experienced an unprecedented fire threat in 2020 and more recently the December 2021 Marshall Fire which burned 6000 urban and suburban acres in six hours in Boulder County. Similarly, Tony Simmons' expertise has been requested by several California cities regarding electric fire safety and engineering. Mr. Simmons and Susan Foster are working on electric fire safety amendments for three Colorado cities.

As it relates to Malibu, Susan Foster and Tony Simmons have worked over the past six months with attorney W. Scott McCollough, who has an extensive 37-year career in law and policy and was the Assistant Texas Attorney General responsible for utility matters, to arrive at our proposed electric fire safety requirements so as to minimize the chances of WCF electrical fires in Malibu. We did not know, until we pooled our collective knowledge and compared federal and state laws and local ordinances and regulations, that telecom was exempt from otherwise generally applicable codes and standards. We anticipate telecom is aware of the exception but chose to remain silent. This problem has now arrived at Malibu's doorstep and must be solved. We hope it will be resolved in favor of ensuring the safety of the city and its residents. News of

this issue and problem is spreading, but Malibu has the opportunity – and responsibility – to lead the way, as it is known to do in matters of great importance.

WHY ELECTRICAL FIRE SAFETY?

We propose fire safety requirements that consider Malibu's unique geographic location, its ongoing seismic activity, a marine climate conducive to expedited corrosion of WCF equipment, an abundance of dry brush, limited escape routes out of town, and year-round tourism which can swell the population by 4,000 visitors on any given weekend – adding to the burden on access/exit roads.

Fire risks in Malibu are not hypothetical conjecture. This city has burned twice just in the last 15 years. Over the last nine decades, at least 30 wildfires have destroyed parts of this coastal community, with the most recent Woolsey Fire (the largest in recorded history), consuming almost 100,000 acres. The ongoing, severe drought in California, along with record high temperatures, makes the focus on fire prevention more urgent than ever.

Preventing fires in Malibu has been a full-time job for Mayor Mikke Pierson since the beginning of his tenure on City Council. He was elected in 2018 two days before the Woolsey Fire broke out. Over 400 homes were lost with catastrophic impact on Malibu; many residents have still not made it through the permit stage for rebuilding. From a recent posting in Malibu's News Carousel:

> "*Wildfire has always been Malibu's number-one public safety threat, but the size, duration and severity of the Woolsey Fire was unprecedented, and showed us the dangerous new normal of drought, climate change and California mega-fires," said Mayor Mikke Pierson. "I am proud of the progress we have made in developing strategies to be even more prepared for disasters, including this siren system, which could be a powerful step toward community-wide preparedness*."

The documents provided to the Planning Commission by Staff do not show sufficient commitment to treating fire as Malibu's number one public safety threat, as articulated by Mayor Pierson. Our plea, and that of the Community, is that the Planning Commission and City Council rectify this error. There must be strong and specific design, application content and inspection language in the Ordinance and Resolution. The whole point of applying electric engineering rigor is to make sure that when a device fails – and they all do at some point – it fails safely. Without this kind of rigor for WCFs, Malibu will expose itself to significant risk of yet another preventable fire.

We have therefore been detailed and specific about what is required to reduce the risk. We are not asking for anything that is not already required of every business in Malibu that wants to install parking lot lighting, a sign in front of their place of business, or install complicated electronics inside their building. Citizens have a right to demand engineering rigor for the projects coming into Malibu extremely close to people's homes, schools, daycare centers, parks, places of business, restaurants and in every facet of life.

We presently have no idea what the Planning Director will require in the applications. If application content is left entirely up to the Planning Director, the form can be changed at whim, especially after a personnel change. The application, however, is not just for Staff. The Planning Commission extensively relies on it, as does anyone participating in the application process. Unlike Staff and the Commission, public participants have no right or practical ability to require additional information beyond what is in the application. Their ability to reasonably participate and provide input is entirely dependent on the quantity and quality of the information in the application. The public needs and deserves more than the Staff materials provide.

The Community wants more rigorous requirements, particularly relating to up-front design by qualified and licensed personnel, and full disclosure in the application stage. In other words, we expect every application submitted to Malibu to have 14 documents indicating successful completion of a test, a diagram, a design schematic, and a list of any potentially hazardous substances, all signed and sealed by a licensed professional engineer. The Community's protocol was designed by an electrical engineer with decades of experience in applying engineering rigor to protect life, health and property. He knows what is needed for both design and proof of work. He knows what is feasible and reasonable.

To date, our fire safety proposals have been rejected by Staff/City Attorneys. We are particularly concerned that not only does our groundbreaking electric safety protocol get removed from every draft, but so does the fire safety wording we adopted from ordinances already passed by Encinitas and Sebastopol. That makes no sense for a city that has suffered two catastrophic fires in the last 15 years, and 30 over the last 90 years.

DESIGN AND PROOF OF WORK FOR THE APPLICATION

Tony Simmons, P.E. has synthesized an electric fire safety protocol tailored to the specific needs of fire-prone Malibu. The engineering documents listed below in our 14-step electric fire safety protocol are required to demonstrate compliance with the generally applicable technical requirements of the following codes: the National Electric Code, the California Electric Code and the Los Angeles County Electric Code. Item (N) below indicates text pertaining to structural engineering requirements that, unlike the electrical safety portions, has been accepted and incorporated by Staff.

Each of the 14 steps below represents a document to be included in each WCF application. Each document must be sealed by a professional engineer pursuant to the California Professional Engineer's Act. Documents A through E are routinely produced by commercially available software such as E-TAP or POWER TOOLS. Documents F through H are produced with CAD programs such as AutoCAD. Document I is required by all codes. Document J is a reaffirmation that all parties understand the service entrance switch is not readily accessible. Documents K, L, and M include information all employers are required to provide to their workers. Document N has been accepted by Staff.

(v) **Electrical and Structural Safety Information**. The following engineering documents prepared under the responsible charge of and sealed by a California licensed professional engineer must be included in the application:

(A) A short circuit and coordination study ("SCCS") calculated pursuant to the IEEE 551-2006: Recommended Practice for Calculating AC Short-Circuit Currents in Industrial and Commercial Power Systems or the latest version of that standard. The study must demonstrate the protection devices will ensure the equipment enclosure will not be breached. The SCCS must include analysis of Voltage Transient Surges due to contact of conductors of different voltages;

REASON FOR REQUIRING THIS DOCUMENT: This study is required to demonstrate the installation complies with NEC Articles 110.9, 110.10, 110.16 and 240.

WHY THIS STUDY IS IMPORTANT: All electrical equipment will fail. This study ensures that electrical equipment will not catastrophically fail. As an example, electrical conductors may rub together and damage the insulation, allowing excessive current to flow. This study ensures that the fuse or circuit breaker de-energizes the circuit fast enough to prevent arcing or fire. This study could have identified beforehand that meters would catastrophically fail in Stockton in 2015. This study can ensure that a WCF mounted on poles with transmission and distribution circuits, like the pole on the corner of Malibu Canyon Road and Harbor Vista, does not fail like electric meters did in Stockton in 2015.

(B) A one-line diagram of the electrical system;

REASON FOR REQUIRING THIS DOCUMENT: This diagram provides a map of the electrical installation and serves as the primary reference for all the other documents.

WHY THIS DIAGRAM IS IMPORTANT: This document allows less experienced electrical workers to quickly trouble shoot electrical malfunctions and failures and to identify a de-energization point.

(C) Voltage Drop & Load Flow Study;

REASON FOR REQUIRING THIS DOCUMENT: This Study proves the electrical conductors are large enough to ensure that equipment supplied by the electricity flowing through conductors operate within the design range for that item of equipment.

WHY THIS STUDY IS IMPORTANT: If the voltage is too low or too high, electrical equipment may not operate correctly or be damaged.

(D) Load Calculation;

REASON FOR REQUIRING THIS DOCUMENT: The load calculation ensures each item of equipment is sized to safely carry the design load.

WHY THIS DOCUMENT IS IMPORTANT: This document lists all load connected to the electrical system.

(E) Panel Directories;

REASON FOR REQUIRING THIS DOCUMENT: Panel Directories are provided to show workers which switch or breaker de-energizes a specific circuit or piece of equipment.

WHY THIS DOCUMENT IS IMPORTANT: The panel directory is required by Electric Codes so that electrical workers or less experienced individuals can quickly de-energize a circuit in an emergency without a "trial and error" approach.

(F) A plot plan showing the location of the mounting structure including address, or structure designation, or GPS location;

REASON FOR REQUIRING THIS DOCUMENT: This document is necessary to quickly identify the location for prompt emergency and non-emergency response.

WHY THIS DOCUMENT IS IMPORTANT: This document shows the exact location of the WCF and the access route. Power poles are commonly assigned addresses that may be located several hundred feet from the actual location.

(G) A plot plan showing the location of the service disconnecting means;

REASON FOR REQUIRING THIS DOCUMENT: This document is necessary to demonstrate the location of the switch or circuit breaker that separates the customer electrical system from the utility electrical system. This is commonly called the "main switch" or the "main circuit breaker".

WHY THIS DOCUMENT IS IMPORTANT: A WCF has been proposed on a streetlight pole on Cross Creek Road. The WCF is powered from one electric service. The streetlight is powered from a separate electric service. In order to suppress a fire, the power to the streetlight and the power to the WCF must both be de-energized. This plan shows both de-energization points. Service disconnects for streetlights may be several hundred feet away on a different street.

(H) An elevation drawing of the equipment and the service disconnecting means;

REASON FOR REQUIRING THIS DOCUMENT: This drawing shows how the equipment will look once installed. It is critical to ensure the workspace has adequate room to operate safely.

WHY THIS DOCUMENT IS IMPORTANT: Performing work on electrical equipment is hazardous. Workers are entitled to sufficient room to safely work and to escape if an arc develops.

(I) A demonstration there will be signage as required by the California Electric Code or the Los Angeles County Fire Department Chief or his or her designee;

REASON FOR REQUIRING THIS DOCUMENT: The CEC requires that electric equipment be labeled.

WHY THIS DOCUMENT IS IMPORTANT: This is necessary to ensure that first responders or electrical workers safely de-energize the correct equipment.

(J) A demonstration the service disconnecting means shall be mounted at an elevation determined by the Los Angeles County Fire Chief or his or her designee in conjunction with the electric utility;

REASON FOR REQUIRING THIS DOCUMENT: The CEC specifies that the service disconnecting means be readily accessible, which generally means operatable without a ladder. To prevent vandalism of communication systems in public right of ways, the service disconnecting means may be mounted out of reach from the ground.

WHY THIS DOCUMENT IS IMPORTANT: To prevent casual vandalism, the service disconnect may be mounted at a height not reachable from ground level.

(K) A demonstration there will be instructions for deenergizing the equipment by First Responders.

REASON FOR REQUIRING THIS DOCUMENT: Certain electric equipment must be de-energized in a specific sequence to ensure safety.

WHY THIS DOCUMENT IS IMPORTANT: Certain electrical equipment can create an additional hazard if de-energized in the incorrect sequences.

(L) A list of toxic substances that may develop during arcing or fire that may impede fire suppression efforts;

REASON FOR REQUIRING THIS DOCUMENT: The intense heat of an electrical arc may turn non-hazardous substances into hazardous substances. Special protective equipment may be required.

WHY THIS DOCUMENT IS IMPORTANT: Electric arcs instantly reach temperatures of thousands of degrees. Normally non-hazardous material may become hazards. Metals may vaporize and damage lungs.

(M) A list of hazards that may develop during arcing or fire that may impede fire suppression efforts;

REASON FOR REQUIRING THIS DOCUMENT: Arcing or fire may create a pressure wave that can imperil life, health and property.

WHY THIS DOCUMENT IS IMPORTANT: Electric arcing can vaporize copper or aluminum. Copper expands 67,000 times when converted from solid to vapor, which can cause an air blast that throws an individual several feet with fatal force.

(N) Structural Safety Information. The structural/civil engineering documents as recommended by a California licensed professional civil or structural engineer employed by Center for Municipal Solutions.

NOTE: The proposed ordinance includes a standard recommended by APCO/ANSI. This issue has been adequately addressed in the documents provided by Staff.

Every draft we provided to Staff included the 14 documents listed above. As stated, each step represents a diagram, design schematic, or list of potentially hazardous substances that must be signed off on by a professional engineer as required in our fire safety and structural engineering protocol. Staff has persistently removed the protocol, with the notable exception of structural engineering. We do not know why.

FIRE PREVENTION LANGUAGE TAKEN FROM ENCINITAS & SEBASTOPOL SMALL CELL ORDINANCES

The following language was offered to Staff, having been taken from ordinances previously passed in Sebastopol and Encinitas, California. Those cities' Small Cell Ordinances expanded on fire safety language beyond basic adherence to local fire codes. Susan Foster contributed to writing the fire safety portion of the Encinitas Small Cell Ordinance passed initially in 2019 and amended in 2020. The intent of this language was to meet the needs imposed upon each city by the proliferation of small cells and the proximity of these electrical devices for the first time so close to residences, schools, hospitals, playgrounds, daycare centers and parks. Malibu Staff removed this language from the drafts provided by the Community.

APPLICATION AND REVIEW PROCEDURES

Fire Department Review. After submittal by the applicant, the Director shall transmit the entire application packet to the Fire Prevention Division. The Fire Chief (or his or her designee) shall review the application for compliance with objective health and safety standards related to fire hazards. The Fire Chief shall inform the Director in writing of its conclusions and any recommended conditions for public health and safety. Review by the Fire Prevention Division may reasonably require additional processing time, including potentially exceeding FCC Shot Clock timelines if necessary. The Fire Chief (or his or her designee) may select and retain an independent consultant with expertise and/or specialized training in fire safety and fire hazard mitigation and prevention satisfactory to the Fire Chief in connection with any permit application. The Fire Chief may request independent consultant review on any matter committed to Fire Department review or approval. Subject to applicable law, in the event that the Fire Chief elects to retain an independent consultant in connection with any permit application, the applicant shall be responsible for the reasonable costs in connection with the services provided, which may include without limitation any costs incurred by the independent consultant to attend and participate in any meetings or hearings. The same procedures for fee deposits, cost reimbursements and refunds to the applicant as described above shall be applicable to independent consultant review required by the Fire Chief.

CONDITIONS OF APPROVAL

Safety Hazard Protocols. If the Fire Chief (or his or her designee) or Board of Chiefs of the Dispatch Joint Powers Authority finds good cause to believe that the facility (including, without limitation, its accessory equipment, antenna and/or base station) presents a fire risk, electrical hazard or other immediate threat to public health and safety in violation of any applicable law, such officials may order the facility to be shut down and powered off until such time as the fire risk or electrical hazard has been mitigated. Any mitigations required shall be at the permittee's sole cost and expense.

Continued Monitoring. The permittee's Registered Engineer shall certify in writing continued compliance with the safety standards of this policy on or before January 30th of each calendar year. The Fire Chief will continue to monitor the safety of wireless facilities in the City and publish a yearly review of fire safety considerations regarding potential risks posed by electrical components of new technologies, the presence of numerous small cell wireless facilities in the ROW and any fire events or near-miss events related to wireless facilities.

Oversight Authority. The Fire Chief, in his or her discretion, may issue written fire safety performance directives that shall apply to all existing permits within the scope of such directives and shall be considered as though incorporated into such permits. All permittees shall be required to comply with such directives at the permittee's sole cost and expense.

Fire Investigations.

(i) The Fire Chief shall receive and investigate any credible fire safety complaint made by a resident of the City regarding a wireless facility in the City. Cost of such investigation shall be borne by the permittee. Permittees shall also inform the Fire Chief in writing within one business day of any fire or near-ignition event at any facility or replacement of any facility component in connection with any malfunction pertaining to excess heat, arcing or discharged current. (ii) The Fire Chief shall further investigate any fire in or around the vicinity of a small cell wireless facility. If the conclusion of the investigation is that any facility component is at fault, the Fire Chief shall immediately notify the Malibu City Council of his/her findings, and the facility at issue shall be de-energized until such time as the permittee provides assurances or undertakes precautions satisfactory to the Fire Chief that such event or similar event will not reoccur. In the event that no such assurance is received, and the Fire Chief has good cause to believe that such failure to comply constitutes a threat to health or safety, permit revocation shall be initiated by the Director.

DESIGN STANDARDS

Electric Meters. Small cells and other infrastructure deployments shall use flat-rate electric service or other method that obviates the need for a separate above-grade electric meter. If flat-rate service is not available, applicants may install a shrouded "smart meter" that shall not exceed the width of the pole provided that such smart meter shall be placed at least 10 feet above ground level. If the proposed project involves a ground-mounted equipment cabinet, an electric meter may be integrated with and recessed into the cabinet, but the Director shall not approve a separate ground-mounted electric meter pedestal unless (1) the separate ground-mounted meter pedestal would be placed off the sidewalk and (2) the applicant's Registered Engineer demonstrates with

clear and convincing evidence that all other alternatives for the electric meter are technically infeasible.

Fire Safety Standards.

All wireless facilities shall include:

1) a power shut off readily accessible to fire service personnel, such as by means of rapid entry Knox or similar type systems installed as required by the Fire Chief, upon arrival at the scene of a fire and/or anticipated power surge due to power being turned off or on for any reason;

(2) surge protection devices capable of mitigating a direct or partial direct lightning discharge;

(3) surge protection devices capable of mitigating significant electrical disturbances that may enter the facility via conductive cables;

(4) at least one-hour fire resistant interior surfaces to be used in the composition of all structures and

(5) monitored automatic fire notification and extinguishing systems for all wireless facilities approved by the Fire Chief.

LEARN FROM PAST MISTAKES

The 14 documents must be included because past failures to employ them caused mistakes that put people and their homes in harm's way.

Four of the six tragedies below occurred in California. The California Public Utilities Commission (CPUC) has deferred to the utilities to have independent engineering review performed. In other words, the utilities have been policing themselves. The utilities have been remiss in overall engineering design as demonstrated by the following:

- In 2007, the Malibu Canyon Fire started when three Southern California Edison power poles overloaded with wireless transceivers from Verizon, AT&T, Sprint (now T-Mobile) and NextG (now Crown Castle), in violation of state regulations, snapped in Santa Ana winds, igniting the tall grass at the base of the power poles. Southern California Edison (SCE) agreed to pay $37 million. AT&T, Verizon and Sprint shared equal parts in a $12 million fine. NextG was fined $14.5 million. All five parties were accused by the CPUC of attempting to mislead fire investigators.

- In 2015, nearly 5000 PG&E smart meters exploded and caused over 80 fires when a transmission line contacted a distribution line, sending a surge through the city that exceeded the smart meters' capacity.
- In Canada and the US between 2012 and 2015, 17 utilities removed 790,000 Sensus smart meters as a safety precaution because of a fire hazard.
- In 2018, the Woolsey Fire was started by utility owned equipment, including a telecommunications wire, that led to the most destructive fire in Malibu in the last 100 years. It burned over 400 homes, killing two people in Malibu, and cost over $6 billion.
- In June 2020, the head of PG&E pled guilty to 84 counts of manslaughter in the deaths of residents caused by the 2018 Camp Fire in Paradise, California. A nearly 100-year-old electrical transmission line owned and operated by PG&E was identified as the cause of the Camp Fire.
- In February 2021, the electric grid in Texas collapsed because electricity and natural gas providers had not winterized their equipment despite warnings 10 years earlier. Thousands of homes were damaged due to water leaks caused by freezing pipes, and so far, 69 deaths have been attributed to the energy grid collapse. Damages are estimated at $18 billion.

We believe a higher level of professionalism and a coming together of multiple disciplines will enhance the chances for a less hazardous outcome as largely untested small cell technology exponentially increases within Malibu's city limits.

WIRELESS FIRES ARE ELECTRICAL FIRES & THEY DO HAPPEN

Three fire officials, including Battalion Chief Drew Smith, recently stated they have not specifically fought 5G tower fires and claimed data is not available on 5G tower fires. It is early for data to be available on 5G cell tower fires and it is worth noting that no agency or industry in the United States, except those who have done so on a private basis, has kept track of cell tower fires from the installation of the first cell tower to the present. Yet proof of electrical fires in cell towers after the 1990s is available. This evidence has been collected in media reports and by some firefighters who have personal records and photographs; some have willingly shared that information. Additionally, we have obtained fire incident reports on cell tower fires around the country and confirmed arcing as a frequent heat source and "electrical" as a frequent cause.

Thanks to the pioneering work of retired Los Alamos Laboratory physicist Dr. David Stupin, we have a reasonable sense of how often cell tower fires were occurring up to the point where he stopped keeping statistics in 2015. Dr. Stupin's research led him to believe that approximately one cell tower fire happens every month somewhere in the United States. The majority occurred because of electrical malfunction or because there was a deficiency of structural integrity and the collapse itself triggered a fire. We now face an exponential increase in small cell WCFs in the US. The CTIA is the telecommunications industry lobbying entity. They recently commissioned a study focusing on the increase in small cells in the United States. From the CTIA website:

> "The Accenture analysis commissioned by CTIA also found that the United States will see a **550% rise in small cells by this year**, underscoring the timeliness of the FCC's action to jumpstart broadband investment. Small cell deployments will escalate rapidly

from roughly 13,000 deployed in 2017 to over 800,000 cumulatively deployed by 2026, according to the analysis." [2018]

We urge you not to wait for the data on 5G cell tower fires before protecting Malibu from what we consider to be an inevitable increase in cell tower fire risks. If the industry has not been keeping track of cell tower fires during the last four generations of wireless, there is no foundation on which to place our hope that they will keep track of 5G cell tower fires. We choose to act with the knowledge of how electrical devices fail, and the fact there is nothing about small cells – the 5th generation of wireless that is being brought into our communities in greater numbers and in closer proximity to people – that can lead us to any conclusion other than the fact the risk of wireless fires in Malibu is increasing with the installation of every small cell.

From the December 16, 2020, Community Meeting, we feel the impression was left, based upon statements by fire officials, that 5G towers are not fire risks. Yet for fire officials of the Malibu section of the Los Angeles County Fire Department to state they have not fought 5G fires does not mean 5G tower fires do not exist. 5G WCFs *are* fire risks in the same way that 2G, 3G, 4G WCFs are fire risks. They are electrical devices. They will fail. Our goal is to put the WCFs through no more engineering rigor than would be required of the signage and electrical lighting in front of Malibu restaurants, gas stations and other commercial establishments in hopes of catching design flaws that could eventually result in fire. And if they do result in fire, we want the diagrams in place with the city of Malibu to show the First Responders the most pertinent information with respect to design features and chemicals involved so that our First Responders can respond as expeditiously and safely as possible.

FIRE RISKS WITH WIRELESS COMMUNICATION FACILITIES

The 2015 Stockton, CA fires (multiple homes) were caused by smart meters used to measure electric use on the sides of homes. Smart/AMI meters may be deficient in suppressing transients/surges and the catastrophic failure of smart meters to handle a massive surge in the City of Stockton demonstrates that electronics close to the home, which many WCFs are and will be in the future, may pose a threat to life, health and property if not screened initially through our recommended Short Circuit and Coordination Study (SCCS). What happened in Stockton can happen in Malibu. If the utility pole on the corner of Malibu Canyon Road and Harbor Vista is hit by a car, and the transmission line contacts the distribution line, we could expect the electric meter and possibly the WCF to catastrophically fail. It would be necessary to de-energize the transmission line and thereby de-energize the area from City Hall and Cross Creek Road to Pepperdine and beyond. Using the Coordination Study will make it clear what the appropriate fuse size should be. If the WCF is utilizing the appropriate fuse size, the fuse will instantly de-energize the circuit and prevent catastrophic failure.

For metered WCFs, SCE uses electronic meters that may have the same susceptibility as the meters in Stockton. Metered wireless facilities must go through the Community's electric fire safety protocol to determine if they have adequate surge protection against the type of fault that occurred in Stockton.

Lightning strikes can contain more energy than the electrical mishap that occurred in Stockton. California is experiencing more lightning strikes due to the evolving climate. Therefore, electrical installations in Malibu must mitigate the increased frequency of lightning.

The January 28, 2019, edition of The Los Angeles Times reported that California utility equipment sparked more than 2,000 fires in over a three-year period. Cal Fire determined 17 of 21 California fires in 2018 were attributed to pole issues. The deadly Campfire was confirmed to be started by power lines and pole loading. In order to accommodate the newest wireless facilities, companies like Verizon are requiring an increase of pole height by 20-25% (adding 10-ft extension onto 40-ft or 50-ft pole) significantly lengthening the pole while decreasing the force of wind required to topple a pole.

No community outside Paradise, California has been more devastated by wildfire than Malibu. The overloading of three SCE utility poles by four different telecommunications carriers sparked the Malibu Canyon Fire in 2007 and in November 2018, a downed telecommunications lashing wire ignited the Woolsey Fire, forever scarring Malibu by taking out over 400 homes and costing over $6 billion. With the exponential increase of WCFs and the administrative exemptions offered to telecom, our concern is that this problem will increase rather than decrease. Thus, electric fire safety protocol and structural site hardening are essential for Malibu.

EXAMPLES OF WCF FIRES

There is a common misperception that WCF fires are primarily caused by arson. While there are documented cases of arson in 2020 related to misinformation about 5G and COVID-19, these cases were a short-term phenomenon. The examples below are representative of WCF fires that have occurred through the years as documented by the news media. Electrical malfunction and welding on WCFs for routine maintenance are the cause of the vast majority of cell tower fires. The examples below are representative of the genuine risks that could be facing Malibu.

July 2013 – Besalem, Pennsylvania: An AT&T cell tower fire was sparked when welders were working 70 feet in the air on a tower; sparks set off an intense fire ten feet above them. They tried to put it out but ended up having to race down to get help. The fire spread quickly and left the 10-story tower leaning over precariously. Initially, firefighters could not throw water on the fire because electricity was still surging through the tower and it took utility crews longer than expected to get it turned off. Essentially the fire was allowed to burn itself out.

July 2014 – Columbus, Ohio: Black smoke poured from a light pole with a WCF in Grandview Heights around 10:00 AM. The pole held lights for the football field as well as cell phone equipment. Streets were blocked off while emergency crews were on the scene. Homes within a one-block radius of the school were evacuated. Suspected electrical fire.

September 2014 – Thurston, Oregon: A cell tower fire at Thurston High School sent up a smoky plume above the Colts sport field. The cause of this fire was undetermined but Battalion Chief Marcus Lay explained, referring to the fire, that "It is contained and basically

under control, but we have to wait until Springfield Utility Board gets here to get the power completely shut off to finish extinguishing it." Cause undetermined.

June 26, 2020 – Hanover, Virginia: A cell tower caught on fire overnight; a heavy storm with lightning moved through the area shortly before the call. Hanover Fire was able to extinguish flames on top of a cell phone tower. When they arrived around 11:15 PM, they saw a cell tower completely covered in flames. The fire was safely put out and officials believe that it was an accidental fire as the result of electrical/mechanical issues.

October 2020 – Irvine, California: Silverado Fire Southern California Edison Co. may seek contributions from T-Mobile as it is suspected the company's lashing wire touched an adjacent power line and sparked the fire. On October 26 SCE told the CPUC that a lashing wire attached to a telecommunications line running under the utility's 12-kV power line may have ignited the wildfire. The blaze seriously injured two firefighters and scorched more than 12,000 acres in Orange County and forced the evacuation of over 60,000 people, according to the California Department of Forestry and Fire Protection. In general, multiple companies can use the same utility poles, but each is responsible for managing its own equipment. Utilities are supposed to regularly look for any threats from telecom equipment installed on shared poles. This is not a foolproof system of governance.

November 2020 – Lapeer, Michigan: Wiring in a 197-foot-tall cell tower caught fire shortly after 9 p.m. Flames were visible shooting from the top of the hollow tower, while near the base of the structure the interior fire was so hot the metal glowed orange and pink. As a result of the fire that weakened the strength of the tower, there was a visible lean to the structure — the height of a 15-story building. The tower was dismantled and replaced.

March 2021 – Chula Vista, California: An AT&T cell tower partially concealed in a light fixture around a track at Otay Ranch High School burst into flames at 7:30 PM on a Tuesday evening. The Fire Incident Report was obtained through a public records request. The area of origin was within the equipment; the heat source was "electrical arcing". When the fire department arrived the 100-ft pole appeared to have an internal fire that traveled up the pole to the cell phone equipment and stadium lighting at the top of the pole. The fire department requested utility SDG&E to respond to the location. Firefighters maintained a safe distance until they could verify all power supply to the pole had been secured. As they were waiting for the representative from SDG&E to arrive to confirm the power had been cut, the heat of the fire due to arcing caused the steel pole to become molten plasma. It collapsed onto the bleachers near the football field, burning the track and destroying the bleachers. Once the rep from SDG&E arrived on scene and verified the power had been secured and that there was no electrical hazard, firefighters extinguish the fire using a water and foam combination.

WHY DOES 5G INFRASTRUCTURE POSE A GREATER FIRE RISK TO RESIDENTS

It is not the frequency of cell tower fires that concerns us the most. It is the severity of what a single cell tower fire can do. The biggest risk is that WCFs have been brought much closer to local populations and those installations are much more densely situated. Every electrical device including every WCF must be deenergized before a fire can be fought. On a good day that can happen in 10 minutes. Some cities find that it is 30 minutes or more before the electric company

cuts the power. If the firefighters fight the fire before the tower is deenergized, they can be electrocuted. A lightning strike is a type of transient event that may lead to WCF catastrophic failure. Malibu residents will recall in May of 2019, just before Memorial Day weekend, several beaches were closed in Malibu because of a lightning storm that created unsafe conditions. **Thus, the placement of WCFs must allow time and space for escape because a fire originating in a WCF must not be fought by residents or by firefighters until SCE has turned off the power. This is why we propose separation and setback requirements as strategies to mitigate risk to residents**.

One firefighter who is accustomed to fighting fires under Santa Ana conditions in California understood the extreme risk posed by a cell tower fire near a populated area. He described how he would fight such a fire:

> *"If the fire involves energized equipment, do not put water on it. Use water only to extinguish anything like trees, grass, vegetation, etc. that it may spread to, and then use water in short bursts if it's adjacent to the pole. Call the utility company immediately so they can de-energize. Keep people back for 2 spans in either direction and make sure all personnel and equipment stay out from under the power lines. Focus on public safety and exposure protection until it's confirmed that the power has been shut off."*

We firmly believe the greater the distance between WCFs, the more likely an individual(s) would be able to escape homes, schools, hospitals, nursing homes. Distance between towers and from property lines will be critical to escape. Distance from WCFs and property lines may mean the difference between life and death. Due to the length of time it can take to cut the electricity and subsequently fight a fire, particularly one that has spread, we feel it is not worth the very real potential for loss of life if cell towers, small cells or macro towers, are located within residential neighborhoods. Additionally, care should be taken to keep cell towers away from roots of entrance and egress for neighborhoods. The same caution should be taken with densely populated facilities like schools, daycare centers and special zones as designated by the city.

The scars from the 2007 Malibu Canyon Fire and the 2018 Woolsey Fire are still evident on the land. The human toll appears greater. The residents speak openly about PTSD, particularly on those days when the winds blow as they did during the Malibu Canyon Fire and the Woolsey Fire. The winds remind residents of the Santa Anas that carried burning embers sideways, whipped flames such that they consumed many residents' homes, blocked exit routes out of the city and literally terrorized the whole of Malibu – the land, the air, and most of all the residents, their animals and wildlife.

FALL ZONE: We would like to add that we believe expansion of the fall zone should be carefully considered. It must be at least the height of the tower with 50% or at least 25% added onto that because of the falling debris field.

UNIQUE FIRE RISKS TO MALIBU

VERY HIGH FIRE HAZARD SEVERITY ZONE: The City of Malibu is designated as a Very High Fire Hazard Severity Zone. The City was devastated by major fires in 2007 and 2018

due to power pole failures. In each instance the utility structures supported wireless communications facilities that either initiated or significantly contributed to the ignition. The 2018 Woolsey Fire consumed over 96,000 acres, destroyed at least 1,643 structures, killed three people, and prompted the evacuation of more than 295,000 people. It was one of several fires in California that ignited on the same day. Malibu has still not recovered. The 2007 fire burned 3,836 acres, 36 vehicles and 14 structures, including Castle Kashan and the Malibu Presbyterian Church, and damaged 19 other structures. It is essential that wireless communications facilities be engineered to prevent fire and withstand fire events as much as possible, and at least in a manner comparable to other commercial facilities with extensive, complicated electronics and wiring, as well as flammable, sometimes hazardous and toxic, materials on site.

SEISMICALLY ACTIVE: Malibu is geographically defined by the Santa Monica Mountains to the North, the Pacific Ocean to the South, the Santa Monica Fault to the East and Ventura County to the West. Malibu is a seismically active area with five active faults in the general vicinity. These nearby faults include Malibu Coast Fault, Las Flores Thrust Fault, Santa Monica Fault, Palos Verdes Hills Fault, and the Newport-Inglewood Fault. There are also potential seismic hazards and soil hazards in Malibu. Seismically-induced soil hazards include liquefaction – a temporary, but substantial loss of strength in granular solids, such as sand, silt, and gravel, usually occurring during or after a major earthquake. Seismic activity can also induce subsidence and settlement. Subsidence is deep settlement due to the withdrawal of fluid (oil, natural gas, or water). Seismically-induced settlement occurs in loose to medium dense unconsolidated soil above groundwater. These soils compress or settle with seismic shaking. Settlement can also result from human activities including improperly placed artificial fill, and/or structures built on bedrock or soil with differential settlement rates. There is also risk from expansive soils such as clay; it can swell when wetted and shrink when dried. Wetting can occur from rainfall, groundwater fluctuations, lawn watering, broken water or sewer lines. Expansive soils can result in cracks in foundations. Expansive soils located on slopes can cause slope failure. Unstable soils can produce landslides, debris flows, and rock falls. Hill slopes, which occur in Malibu, have a tendency to fail. Unless engineered properly, development in hillside areas tends to increase the potential for slope failure.

MARINE ENVIRONMENT: Malibu is a marine environment. Thus, there are accelerated corrosion issues due to the combination of increased moisture and salt in the air. Metal parts within wireless facilities fail faster in this corrosive environment. This corrosion may adversely affect the structural and electrical integrity of a wireless facility. In addition, corrosion may pose a risk to internal parts which, if corroded and not replaced on a very conservative maintenance schedule, may become fire risks themselves. Therefore, the failure rate of wireless facilities is higher and the need for stricter standards in the very beginning is essential.

GREATER NEED FOR STRUCTURAL INTEGRITY: Because of seismic and soil displacement and/or settlement risks as well as the potential for fires, heavy rains, mudslides and landslides, all wireless facility sites must be built to the standards of ANSI/APCO Public Safety Grade Site Hardening Requirements. This standard represents public safety requirements regarding various characteristics to make mission critical communications network sites sufficiently robust to meet the service availability requirements of public safety. These safety

standards can be found in APCO ANSI 2.106.1–2019, or their replacements. Collapsed WCFs are a cause of multiple wireless facility fires. Structural integrity is paramount to keeping Malibu safe from fire started by collapsed wireless equipment.

This confluence of geographic and climate characteristics means that Malibu needs greater fire safety regulations than non-marine, low fire hazard, seismically stable regions. Malibu is the first local government to be informed that the exemption for telecom utilities render the National Electric Code, the California Electric Code, and the Los Angeles County Electrical Code insufficient to protect the public from the electrical risks of WCFs. Malibu can protect itself and its residents by adopting the safety provisions we propose.

WIRELESS CELLULAR FACILITIES AS CRITICAL INFRASTRUCTURE

This final subsection recognizes that the Federal government and state public safety organizations have declared that wireless networks are critical infrastructure for national security and public safety purposes – often at the urging of the wireless industry. Critical infrastructure must be protected too, through appropriate fire and structural safety requirements. We are not aware of any evidence indicating telecom objects to a stronger electric safety protocol. If such an objection exists, it should be made on the record and the basis fully explained.

Cell towers are considered critical infrastructure to maintain communication during times of natural and man-made disasters. Pandemics are one example, as illustrated by the timing of the US Department of Homeland Security, Cybersecurity & Infrastructure Security Agency's (CISA) March 28, 2020 Guidance on the Essential Critical Infrastructure Workforce: Ensuring Community and National Resilience in COVID-19 Response Version 3.0 (updated on April 17, 2020), available at https://www.cisa.gov/sites/default/files/publications/Version_3.0_CISA_Guidance_on_Essential_Critical_Infrastructure_Workers_1.pdf. The Wireless Infrastructure Association applauded the designation. See https://wia.org/wia-applauds-dhs-action-for-access-to-critical-infrastructure/.

In Malibu, we are simply asking telecommunications carriers to treat their facilities like the essential infrastructure that it is. Anything less is counterintuitive and ill-advised.

Further, even before the DHS guidance the Association of Public-Safety Communications Officials (APCO) International received final approval from the American National Standards Institute (ANSI) in 2019 for an American National Standard (ANS) that identifies hardening requirements for public safety grade sites. In other words, structural engineering for WCF sites has gone from the concept practiced by some to a standard that should be followed by all.

APCO ANSI 2.106.1-2019 was developed by the Public Safety Grade Site Hardening Working Group. This standard was derived from the 2014 National Public Safety Telecommunications Council (NPSTC) report (Chapter 9) and the work of the original APCO Broadband Committee. The document is intended to assist public-safety communications network builders with the guidelines necessary to build hardened public safety grade networks.

With five (5) active earthquake faults running through Malibu, this is a welcome standard. It reads, in part:

> This standard represents public safety requirements regarding various characteristics to make mission critical communications network sites sufficiently robust to meet the service availability requirements of public safety. In other words, what it takes to make network sites "public safety grade" or the extent to which they are "hardened."
>
> The document is intended to assist public safety communications network builders with the guidelines necessary to build hardened public safety grade networks. This document addresses hardening for wireless transmission and reception sites. Specifically, it addresses the hardening requirements to provide the appropriate site conditions and characteristics for wireless system electronics (e.g., transmitters and receivers) and wireless passive components (e.g., coaxial cables and antennas).
>
> These sites need to withstand the onslaught of natural or manmade conditions and consider the distinct requirements for different geographic locations of the United States, including their likelihood to be subject to severe storms, earthquakes, tornadoes, and other disasters.

In the face of increasing federal emphasis on WCFs as essential to Public Safety and no record of opposition from the telecom industry, we question why anyone would be reluctant about embracing our safety protocol and application content requirements.